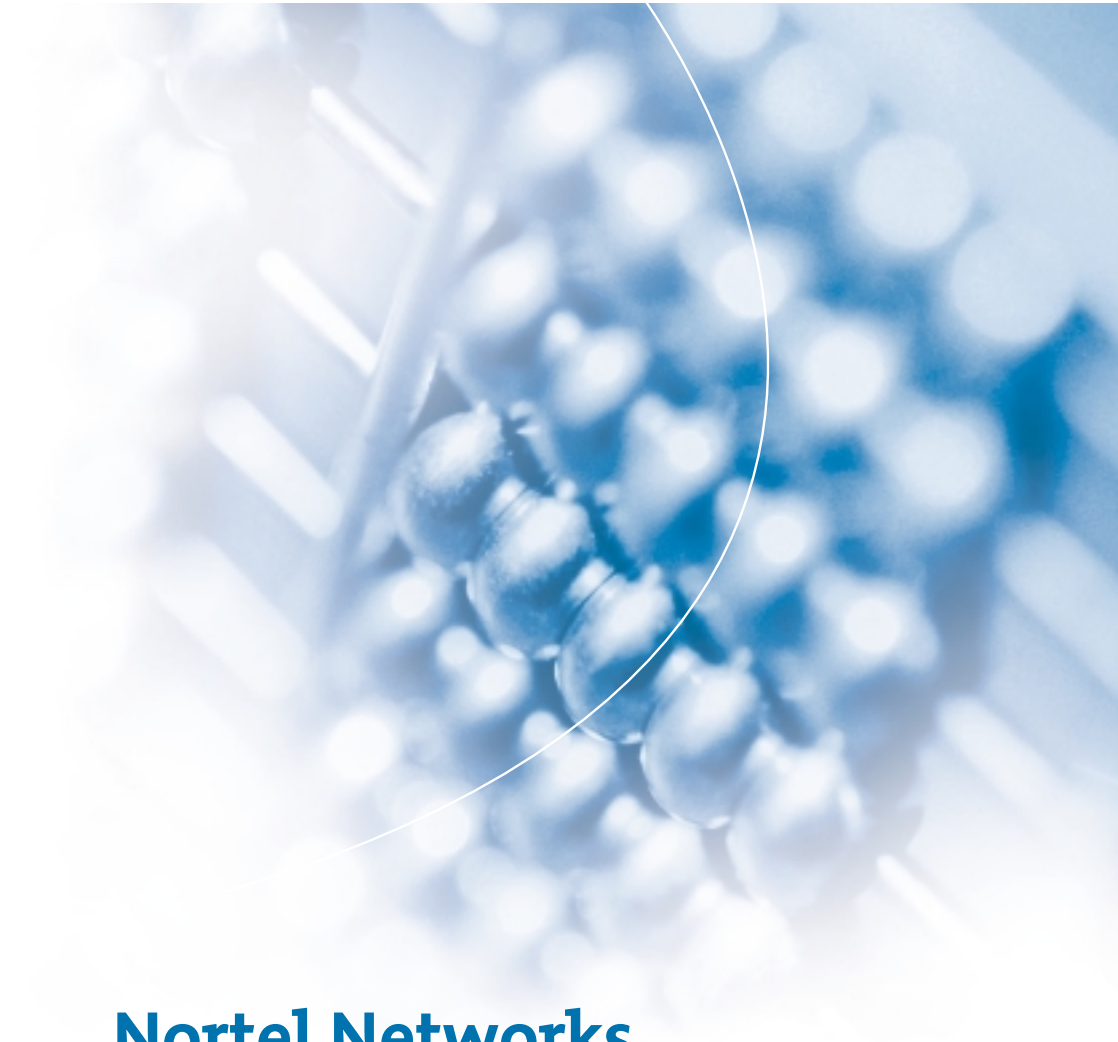

Nortel Networks Product and Solution

Reference Guide for Enterprise Customers

End-User Edition – January 2003

NORTEL NETWORKS™

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Nortel Networks Product & Solution Reference Guide for Enterprise Customers

Welcome

Welcome to version 1.0 of the Nortel Networks Product & Solution Reference Guide for Enterprise Customers.

The guide has been designed to provide in depth information of Nortel Networks high performance enterprise solution sets, including specific product portfolio details together with examples of their applications and competitive positioning.

Please note that the solutions included in this guide do not represent the entire Nortel Networks portfolio.

For additional information please contact your local Nortel Networks Representative.

About Nortel Networks

Nortel Networks is a global Internet and communications leader serving the emerging and existing needs of our Enterprise and Service Provider customers. The corporation is focused on further development of it's leadership position in four major market areas; Wireless Networks, Wireline Networks, Optical Networks and Enterprise Networks.

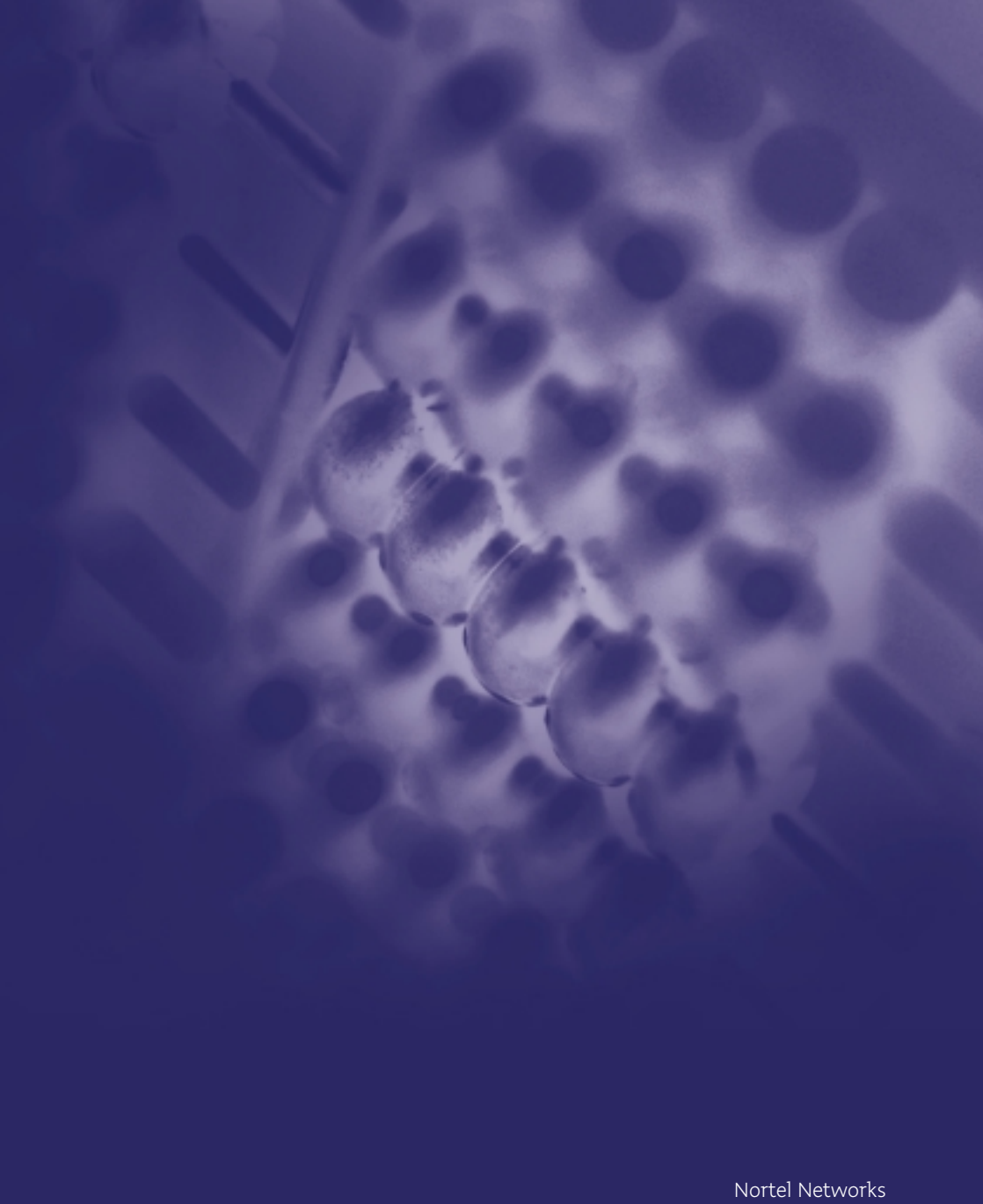
In Europe, Middle East and Africa (EMEA) Nortel Networks has had a strong presence since 1973. Today, Nortel Networks EMEA headquarters is based in Maidenhead (UK), with 5 major regional hubs, customers and partners in 52 countries, and significant manufacturing and R&D capabilities.

Nortel Networks in Enterprise

Our enterprise customers are continually assessing the way they build, manage and use their infrastructures to plan how their networks can do more, more efficiently, and with more 'intelligence'. Of increasing importance is what new revenue opportunities they can help create. Convergence is a key theme - not just the convergence of voice and data but also the elimination of network boundaries for accessing the communications infrastructure, with the ability to support multiple devices in order to share information. Nortel Networks has emerged as the leader in multimedia convergence.

Our perspective for the future of enterprise networking is captured in our vision of 'One Network – A World of Choice', and summarised in this guide. This demonstrates how we are uniquely positioned to support our customer's success by improving productivity and lowering costs through application delivery and convergence, user mobility, infrastructure security and network resilience.

We hope you find this publication helpful and easy to use. Should you have any comments regarding the Reference Guide, or you would like further copies, please contact your local Nortel Networks Representative.



Nortel Networks

PRODUCT GUIDE

Alteon Web Switches

Overview

The Alteon Web Switch series are industry leading content switches designed specifically to meet the needs of demanding businesses, delivering Layer 2 and 3 switching, plus advanced Layer 4 through 7 processing with full wire-speed throughput on every port. Coupled with the award winning WebOS the Alteon Web Switch Series offers local and global server load balancing, application redirection, non-server (eg firewall, router, etc) load balancing, active-active high availability configurations, bandwidth management, class of service and server security services. With up to nine 10/100/1000Mbps ports each with 2 RISC processors and up to 4Mb of memory, blazing speed and intelligent switching are easily achieved.

Customer Profile

Alteon Web Switches are an ideal solution for Enterprises, Hosting Providers, Content Providers, e-Businesses and Service Providers that require a high performance switching solution for high-traffic IT Data Centres, network and hosting infrastructures.

Typical Applications

In order to provide the intelligence, scalability and resilience to any web site, Alteon Web Switches offer a raft of applications that are leveraged using the feature rich WebOS.

These applications include:

- Server Load Balancing
- Global Server Load Balancing
- Web Cache Redirection
- Application Redirection (including SSL)
- Bandwidth Management
- Content Intelligent Load Balancing
- Firewall Load Balancing
- High Availability
- Streaming Media Load Balancing
- Intrusion Detection Load Balancing
- Wireless Load Balancing
- VPN Load Balancing
- Domain Name Service Layer-7 Load Balancing

Key Points

- The Alteon Web Switch is without doubt the industry leader in performance, functionality, scalability and reliability when it comes to Content Switching.
- The Alteon Web Switch uses a distributed architecture to ensure that all processor intensive intelligent decisions are off loaded evenly across the 20 RISC processors.
- The feature rich WebOS not only performs standard Content Switching but also allows for advanced applications such as Firewall Load Balancing, Application Redirection, Wireless access and full RTSP Streaming support.
- The switch is without doubt an easy to mange and robust device that is deployed in some of the most mission critical and highly accessed sites today.
- The integrated security functions enhance the overall security of the connected networks: Layer-7 Deny filter, Denial Of Service Attack Detection and –prevention,TCP rate-limiting and enhanced Port Mirroring.

Features and Benefits

- High-performance content-intelligent switching
- Server, Firewall, Cache, WAN Gateway, Virtual Private Network, Wireless Application Protocol, Real-Time streaming Protocol, Domain Name Service and Intrusion Detection Server load balancing
- Full inspection of URLs, cookies and any host headers across multiple requests and responses
- TCP,UDP,HTTP,FTP,SSL,SMTP,LDAP,DNS, Radius, WAP, RTSP, Telnet and NNTP and IP server load balancing
- Application redirection for any traffic type, including wireless
- Persistent connections using multiple Layer4-Layer7 parameters
- Comprehensive server health checks enable content verification and availability
- Gigabit-class, content-intelligent bandwidth management enables SLAs and usage-based services
- Response Time, Bandwidth, Link, Hash, Least Connections, Maximum Connections Leastconn, Maxconn and Roundrobin load balancing metrics for unparalleled infrastructure optimisation
- Full network address translation enables multi-site load balancing and traffic redirection
- Global Server load balancing to distributed servers based on health, user proximity, server weights and response time
- Virtual Matrix Architecture enables dynamic utilisation of all processors and memory
- Complete site redundancy via active-active, active-standby, hot-standby and stateful fail over for high availability
- Up to 256 virtual servers per switch
- Up to 1024 application servers per switch
- Up to 1024 services per switch
- Up to 2K packet filtering rules per port (AD4/184/WSM only)
- Up to 500,000 L4-7 sessions per switch (AD4/184 only)

Ordering Information

For further information please contact your local Nortel Networks Representative.

Alteon Web Switch Module (WSM)

Overview

The Alteon Web Switch Module (WSM) leverages the carrier-grade reliability and high port density of the Passport 8600 Routing switch and enables the processing of entire Web sessions on any port within the system using Layer 4 through 7. New features within the code include enhanced health checking of servers, an increase in access filters and the ability to perform switching based on a combination of multiple Layer 7 attributes among others.

The Alteon WSM has 4 external Gigabit Ethernet or 10/100 TX ports and interfaces directly to the Passport 8600 BFM (Backplane Fabric Module). Multiple modules can be installed into a single 8600 chassis. Each Alteon WSM features 10 purpose-built WebICs, 20 RISC processors and 80MB of memory providing phenomenal throughput of Layer 4–7 sessions.

Customer Profile

The Alteon WSM is an ideal solution for Enterprises, Hosting Providers, Content Providers, e-Businesses and Service Providers that require a high performance switching solution for high-traffic IT Data Centres, network and hosting infrastructures.

In addition, any existing 8600 customer can easily turn their current high-density Layer 3 switches into a highly intelligent, content aware device with full carrier class resilience.

Key Points

By providing true integration with the Passport 8600 the benefits of both platforms are realised. Wire speed Layer 2 and 3 performance in conjunction with the routing engine inherent in the 8600 providing RIP, RIP II, OSPF, BGP and PIM support can be fully utilised.

In addition an array of line cards allow connectivity to multiple technologies including Ethernet 10/100, Gigabit Ethernet, and ATM POS. This truly allows for content intelligence regardless of connectivity type. Layer 3 and 4 resilience (VRRP) alongside the fully redundant Passport 8600 provides unrivalled carrier class resilience.

- Provides Local and Global Server Load Balancing and health checks, to optimise existing server infrastructure and minimise costs.
- Enables Firewall and VPN Load Balancing which can run simultaneously with server load balancing for economical security deployment without bottlenecks.
- Delivers Content Intelligent Switching and true session-level persistence to maximise profitability while minimising infrastructure impact.
- Supports unique features to enable new, highly profitable services like Streaming Media, Wireless Internet and Intrusion Detection System Load Balancing.

Ordering Information

For further information please contact your local Nortel Networks Representative.

BayStack 380 Switch

Overview

Ideal for medium and large enterprises, Nortel Networks BayStack* 380-24T Switch is designed to provide high-density high-bandwidth connectivity to desktops, other switches, servers, and other network devices. This Layer 2 switch with 24 10/100/1000 Mbps auto-sensing ports and four SFP (Small Form Factor Pluggable) GBIC (Gigabit Interface Converter) ports provides high-density Gigabit connectivity to power-user desktops for high-speed applications such as graphics, multimedia, and CAD/CAM. It is a resilient solution that minimises capital and operational expenses. Its robust security features offer protection against unauthorised access to data traffic.

Customer Profile

- Small to large single-site or multi-site enterprises looking for Gigabit connectivity to desktops or high bandwidth aggregation switches
- Buyers who demand quick installation, high performance and a cost effective solution
- Customers looking to simplify the management of their network with a simple Layer 2 Gigabit core

Defining needs

- Are your users experiencing slow application and response time?
- Do you have power users requiring Gig power to the desktop?
- Are you suffering from slow server or application access?
- Are you looking for an aggregation or core switch that is easy to install and use?
- Do you have multiple, distant offices (up to 70 km) that need to share resources?
- Are you concerned about cost when considering switching purchase?
- Do you want Gigabit performance without the investment in a chassis based switch?
- Do you expect your business to grow and the associated traffic in your network within the next 6-18 months?

Key Points

- High density high bandwidth desktop switching
- Dual 24 Gb switch fabrics
- Simple installation
- Cost effective L2 switch for server farms, aggregation or small to medium core
- Multi-link Trunking for high bandwidth load-balanced connections
- Secure access and data traffic protection
- Common software lowers training and installation costs

Features and Benefits

- **High-density High-bandwidth desktop switching** – 24 10/100/1000BASE-TX RJ-45 auto-sensing ports and four built-in SFP GBIC ports for dedicated uplink connectivity to other switches, servers, or the network core such as Nortel Networks Passport 8600 Switches. Ports 21 through 24 may be configured as either 10/100/1000BASE-TX ports or SFP GBIC ports in any combination.
- **Cost-effective Layer 2 Switch for Server farms** – The BayStack 380-24T Switch allows customers to aggregate servers without the need to purchase an expensive modular Layer 3 switch.
- **Resilient connectivity for minimal network downtime** – MultiLink Trunking (MLT) enables grouping of links between the switch and another switch or server to provide greater bandwidth of up to 8 Gbps with active redundant links. This feature provides load-balancing and automatic fail-over protection. Passport 8600's Split

MultiLink Trunking (SMLT) eliminates single points of failure in the network and allows BayStack 380s to have multiple active connections to the network core.

- Secure access and data traffic protection – Features include BaySecure, Radius, IP Manager List, Access List, SNMP v3, and password protection. Nortel Networks is the only major vendor to support SNMPv3 protocol for user authentication and data encryption.
- **Common software lowers training and installation costs** - All BayStack switches, including the BayStack 470-48T, have a common "look and feel" which reduces training costs. These tools include Web, Command Line Interface (CLI), menus, Optivity Network Management System (NMS), Optivity Switch Manager (OSM) and Optivity Policy Services (OPS).
- **Save money and time with Auto MDI/MDIX feature** - This feature eliminates the need for expensive cross-over cable while connecting to a hub or switch. The switch port automatically can detect the signal on the cable and configures itself appropriately.

Ordering Information

For further information, please contact your local Nortel Networks Representative.

BayStack 420 Switch

Overview

The BayStack 420 10/100/1000 has 24 10BASE-T/100BASE-TX autosensing ports, one GBIC-based (Gigabit Interface Converter) uplink port and built-in stacking connectors. It can be used standalone or in a stack of up to 8 switches (up to 192 ports), that can be easily managed as a single entity via a single IP address. Advanced features such as VLAN Trunking, MultiLink Trunking, Simple Network Management Protocol (SNMP) and Web-based management tools help Network Managers to efficiently control network traffic.

Customer Profile

- Small and medium businesses with growing network needs
- Branch offices that need a cost-effective, stackable switching solution
- Customers looking to simplify the management of their network
- Businesses with multiple sites requiring long-haul connectivity (up to 70 km)

Defining needs

- Are your users experiencing slow application response time?
- Are you suffering from slow server or application access?
- Do you currently use BayStack or another competitor's hubs?
- Are you looking for a switch that is easy to install and use?
- Are you looking for robust Web-based network management?
- Do you have multiple, distant offices (up to 70 km apart) that need to share resources?
- Do you expect your business to grow within the next 6-18 months?
- Are you concerned about cost when considering switching purchases?

Typical Applications

- Network segmentation and high-density desktop switching
- High-speed LAN connectivity and data access
- Gigabit uplinks to fit any larger network architecture

Key Points

- Affordability – low per port price for a cost-effective switching solution
- Build as you need; buy as you grow
- Simplicity – plug and play set up and configuration
- Easy to manage with a web browser
- Scalability – stacks to deliver investment protection for changing and growing businesses needs
- MultiLink trunking combines ports into high-bandwidth load-balanced connections between switches or servers
- Security – increased network security with BaySecure and RADIUS-based security
- MAC address controls boost security

Features and Benefits

- **Easy to install, easy to use** – the 24 10/100 Autosense ports enable quick and easy configuration – the plug and play feature means less time spent managing your network
- Built-in stacking connectors make stacking very easy and save money by not requiring additional cascade module
- A stack of BayStack 420s is managed as a single entity with a single IP address
- With robust Web-based management, network administrators can view statistics and configure settings from any Web browser. BootP and TFTP support allow for easy software upgrades over the network

- **Improves network performance** – with a 12.8Gbps Switch fabric and a forwarding rate of 5.1 million packets per second (Mpps), the BayStack 420 delivers wire-speed performance with no packet loss
- Gibabit Uplink option port offers a choice of GBIC modules with different physical interfaces, including 1000Base-SX, 1000Base-LX, 1000Base-XD (for distances up to 50km) and 100Base-ZX (for distances up to 70km) enabling long haul connectivity to servers and backbone switches
- Higher bandwidth allocation for server connection – the BayStack 420 helps you avoid network bottlenecks with MultiLink Trunking (MLT) support for up to 6 MLTs per switch or per stack (and up to 4 ports per MLT).
- Virtual LAN support allows network administrators to manage bandwidth better by assigning users to the appropriate VLANs and controlling broadcast and mulicast traffic. Virtual LANs also simplify network adds, moves and changes
- **Ensures your network is secure** – BaySecure MAC-address Access Control provides enhanced security by limiting access to the switch based on allowed source MAC addresses.
- Enhanced administration control – with RADIUS-based authentication, administrative access to the switch is password protected.
- **Protects your initial investment** – grow your network with the stackable solution that grows. The BayStack 420 can stack up to 8 switches per stack and accommodates up to 192 ports per stack.
- Because the BayStack 420 includes built-in stacking connectors, you enjoy a lower per port price in stack configuration.
- The BayStack 420 is suitable for your growing office environment – multi-level floors or nearby branch office servers (up to 70km away) are ensured the same connectivity quality and speed.

Product Features

Ports per Switch	24 10/100 autosensing ports
Scalability	Scalable up to 8 switches,
	192 ports in a stack
Uplink	Multiple Gigabit fibre options
Forwarding Performance	5.1 Mpps
MAC Addresses	8,000
Width	17.125 in (43.5 cm)
Depth	8 in (20.32 cm)
Height	1.75 in (4.45 cm)
Weight	6.2 lb (2.82 kg)
Input Power Consumption	65 W max

Features Matrix

Features	BayStack 420	BayStack 450
Ports/Switch	24 10/100 Mbps	24 10/100 Mbps
Switch Fabric	12.8 Gbps	2.5 Gbps
Forwarding Rate	5.1 Mpps	3.0 Mpps
MAC Addresses	8,000	16,000
Stackable	Yes	Yes
Max. Units/Stack	8	8
Max. Ports/Stack	192	224
Stack Compatibility	Will not stack with BayStack 450/ 410 or Business Policy Switch	Will stack with BayStack 410 or Business Policy Switch
MultiLink Trunking	Yes	Yes
802.1Q VLAN Trunking	Yes	Yes
802.1D Spanning Tree Protocol	Yes	Yes
Web-based Management	Yes	Yes (via Business Policy Switch)
10BASE-T	Yes	Yes
10BASE-T/100BASE-TX	Yes	Yes
100BASE-FX	No	Yes
1000BASE-SX, -LX, -XD, -ZX	Yes	Yes
BootP support	Yes	Yes
TFTP support	Yes	Yes
Telnet support	Yes	Yes
Full-Duplex	Yes	Yes
Port Mirroring	Yes	Yes
BaySecure Security	Yes	Yes
Port-based VLAN Support	Yes	Yes
Protocol-based VLAN Support	No	Yes
Fail-Safe Stackability	No	Yes
Distributed MultiLink Trunking	No	Yes
MDA Support for 100Base-FX, and 1000B-SX & 1000B-LX Redundant Gigabit Uplinks	No	Yes
802.1p Priority Queuing	No (future)	Yes
IGMP Snooping	No (future)	Yes
Redundant Power Support	No	Yes
Competitive Products	• 3Com SuperStack 3 Switch 3300; • Cisco Catalyst 2924M XL; • Intel Express 530T/535T; • HP Procurve 2424m	• 3Com SuperStack 3 Switch 3300; • Cisco Catalyst 3524M XL; • Intel Express 530T/535T; • HP Procurve 2424m

Ordering Information

For further information, please contact your local Nortel Networks Representative.

BayStack 450 Switch

Overview

BayStack 450 Switches are stackable Ethernet switches featuring fail-safe stackability, flexible choices for high-speed uplinks, and advanced software features. They are designed to provide high-density, high-performance switching for enterprise wiring closets, and to provide fail-safe scalability and advanced traffic management for rapidly growing networks in demanding environments.

Customer Profile

- Medium sized businesses and large enterprises that want a high-performance, high-speed LAN switch that offers guaranteed 24/7 network availability, fail-safe stackability, high-speed uplinks and redundant power for mission-critical applications.
- Medium and large single-site or multi-site enterprises
- Businesses that employ sophisticated network configurations for data communications
- Buyers who demand quick, non-disruptive installation looking for a high performance solution

Defining needs

- Are you looking for a reliable solution that will support your business needs now and in the future?
- Is your network critical to your business success?
- Are you looking to future proof your network investment?
- Do your users require a high performance solution to increase productivity?
- Does your network support many applications and users critical to the business success?

Typical Applications

- High-density desktop switching
- Fail-safe, high-performance network requirements (24/7 operations)
- Maximum flexibility for future growth and changing businesses
- Provides advanced traffic management and high levels of resilience making it ideal for rapidly growing networks in demanding environments

Key Points

- **Resilience:** The BayStack 450 are designed with a fail-safe cascade stacking architecture. Each switch unit has a full copy of the stack's configuration so that, if one unit should fail, application connectivity is not affected. Each Gigabit uplink on the BayStack 450 is equipped with two different physical fibre connectors so that if one should fail, traffic can be immediately switched to the other. MultiLink Trunking allows ports to be aggregated for higher bandwidth and redundancy. If one port fails, the others take the load seamlessly. Load balancing and fail-over protection safeguard important connections to servers and other switches.
- **Scalability:** Up to 8 BayStack 450s can be stacked to achieve 224 ports. The 410 and 450 can be stacked together for greater flexibility.
- **Performance:** Hardware switching allows the BayStack 450 to achieve a peak throughput of 3 million packets per second. Ports can be aggregated to provide a high-bandwidth link of 800Mbps capacity (10/100 ports or 100BASE-FX ports) or 8 Gbps (Gigabit uplink ports on the 450). Standards-based priority queuing enables delay-sensitive traffic such as voice or video, to be prioritised.
- **Simple network set-up:** All ports automatically detect and support the speed and mode of the connected device.

This includes the detection of full duplex for servers and other switches and half-duplex legacy systems and hubs.

- **Security:** BaySecure prevents unauthorised access to the switches and the network infrastructure.

Features and Benefits

- **Scalability** - BayStack 450 stacks up to 8 units providing up to 224 10/100 ports and the entire stack can be managed as a single entity via a single IP address providing ease of network management. Also when stacked with BPS, it can be managed via the Web, thus giving network administrators the flexibility of management interfaces.
- **Distributed Multi Link Trunking** - MultiLink Trunking across different switches in a stack is another key differentiation for the BayStack 450 Switches by providing high bandwidth and fault tolerance. Aggregating ports from more than one switch in a stack with Distributed MultiLink Trunking can provide fail-over protection to important network devices and servers. LinkSafe redundant PHYs (physical connectors) offer another way to stay connected to the network centre, even if a cable or connector should fail. Note how these features are paralleled with Passport Routing Switches features, making for an integrated switching solution.
- **FailSafe Stackability** - A key differentiation for the BayStack 450 Switches is their fail-safe stacking feature. BayStack 450 Switches can stack up to 8 units with a cascade stacking design, guaranteeing uptime even if any switch in the stack should fail. Cascade cables loop stacking signals back at point of failure, thus maintaining the integrity of the stack, even in the unlikely event of a switch unit failure.

Advanced Software Features:

- Full support of 802.1, including 802.1Q VLAN trunking and 802.1p application prioritisation
- Line-rate IP Multicast Pruning (IGMP Snooping)
- Distributed MultiLink Trunking across the stack
- Broadcast/Multicast Rate Limiting
- 16,000 MAC addresses
- 64 port-based VLANs
- Protocol-based VLANs
- Port Mirroring
- 4 RMON groups per port
- Recovery configuration file support
- Supports 802.3x flow control on Gigabit ports
- Web-based management and security features*
- Full integration into Optivity

*Baystack 450 can be managed via the web when stacked with the Business Policy Switch

Advanced software features of the BayStack 450 switch make it an ideal solution for the enterprise looking for performance, guaranteed 24/7 network availability, a range of uplink options and redundancy for mission critical applications.

Ordering Information

For further information, please contact your local Nortel Networks Representative.

BayStack 460 Switch

Overview

The BayStack 460-24T-PWR Power over Ethernet (PoE) Switch is an IEEE P802.3af draft-compliant switch designed to power devices such as IP phones, wireless access points, and net cameras. It has 24 10/100 Mbps ports, one MDA (Media Dependent Adapter) slot for uplink connectivity, and one cascade module slot for stacking. It includes all of the features of Nortel Networks Business Policy Switch such as advanced Quality of Service (QoS) and high-resiliency. The BayStack 460-24T-PWR Switch will begin to be orderable in January 2003. The switch is scheduled to ship in January 2003.

BayStack 460-24T-PWR Power over Ethernet (PoE) Switch further extends Nortel Networks Voice over IP (VoIP) portfolio. Building on the success of the expanding BayStack family, BayStack 460 provides a resilient, secure, stackable wiring closet switch with PoE capabilities for support of IEEE P802.3af compliant devices such as IP phones, wireless access points, and net cameras. It delivers advanced Quality of Service (QoS) capabilities to enable connectivity and network availability to mission-critical users and for delay-intolerant applications such as VoIP. The BayStack 460 eliminates the need to plug IP devices into separate power outlets, making adds, moves, and changes easier. The BayStack 460 can directly power Nortel Networks line of IP telephones including the i2002 and i2004.

The BayStack 460-24T-PWR Power over Ethernet Switch will be one of the first IEEE P802.3af standards-based switches in the market. Most other vendors manufacture Power over Ethernet (PoE) switches that can support only their proprietary IP devices. With the BayStack 460, any standards compliant IP device can be powered. It also provides investment protection by being backwards compatible with Business Policy Switch and BayStack 470-48T Policy Switch in a future software release.

Nortel Networks broad portfolio of voice and data products, offer enterprises an array of options to deliver on the value of converged VoIP. Nortel Networks Succession solutions, Business Communications Manager, Meridian, and BayStack are integral components of delivering true Voice over IP solutions for enterprises.

Customer Profile

- Voice over IP (VoIP) is a growing requirement of today's enterprises. According to Phillips InfoTech, VoIP is expected to overtake traditional wireline telephony by 2006. It has become increasingly important for enterprises to have a wiring closet switch that handles both standard LAN connections (i.e. PCs, servers) and Power over Ethernet for devices such as Internet telephones, wireless access points, and net cameras.
- BayStack 460 provides investment protection for today's evolving enterprise networks by enabling enterprises to gradually add IP devices to the network while maintaining standard LAN connectivity.
- It is an ideal solution for medium to large enterprises with an identified need to provide power to a range of IP devices and to deliver QoS for mission-critical devices, applications, groups, and users.

Key Points

- Dual functionality, supports both Power over Ethernet (PoE) devices and standard LAN devices.
- Standards compliant, being interoperable with other vendors' standards-based equipment does not force enterprises to be tied to any one vendor.
- Significant cost and space savings, by integrating standard LAN switch functionality with power over UTP cable of a mid-span patch panel into one unit.

- Convenient use of single cable, allowing data and power to be transmitted over one cable without using a power outlet.
- Plug-n-Play IP Telephony switching, provides simplified Web-based configurations on data and power properties.
- Seamless user migration, stackable with Business Policy Switches and BayStack 470-48T Switches in a future software release.
- End-to-End Voice over IP, with Succession, Business Communications Manager, Meridian, and BayStack being integral components of making Voice over IP a reality for enterprise customers.

Features and Benefits

- Power over Ethernet to IEEE P802.3af compliant devices such as IP phones, wireless access points, and Webcams.
- Supplies power to IP devices up to 15.4 watts per port meeting IEEE P802.3af standards and more than sufficiently is able to provide power to IP devices per port.
- Auto discovery feature automatically recognizes the connection of an IP device and immediately sends power to it.
- Dynamic power management enables power consumption to be configured per port and power distribution is actively monitored based on power current availability & port priority.
- Active circuit protection automatically disables the port if there is a short while other ports remain active.
- Includes resiliency and robust QoS features of Business Policy Switch.
- Distributed MultiLink Trunking feature provides port aggregation and fail-over connections across different switches in a stack.
- QoS enabled for Layer 2-4 packet classification and prioritisation to deliver connectivity and network availability for mission-critical users or delay-intolerant applications such as Voice over IP.
- Fail-safe stacking and the ability to stack up to eight switches with a 2.5 Gbps cascading bandwidth.
- Extensive security features including EAP over LAN (IEEE 802.1x), SNMPv3, BaySecure, Radius authentication, and password protection.
- Common software platform provides a common look and feel for configuration similar to other BayStack switches to reduce deployment time.
- RPSU (Redundant Power Supply Unit) and UPS (Uninterruptible Power Supply) Support with BayStack 10 Power Supply Unit.

Ordering Information

For further information, please contact your local Nortel Networks Representative.

BayStack 470 Switch

Overview

Part of the successful Nortel Networks BayStack* family, the BayStack 470-48T Switch is a stackable 48 port 10/100 Mbps Ethernet Layer 2 switch. It includes two built-in GBIC (Gigabit Interface Converter) uplink ports and built-in stacking ports in a compact 1 rack-unit high design. It is designed to provide high-density desktop connectivity for enterprise customers' wiring closets. Its comprehensive Quality of Service (QoS) features ensure connectivity and network availability by managing and prioritising data traffic and users for maximum performance. It is a scalable, resilient solution that minimises capital and operational expenses. Its robust security features offer protection against unauthorised access to data traffic.

Customer Profile

- Medium to large single-site and multi-site enterprises with demanding network needs including high bandwidth, high density and reduced size.
- Customers who require QoS guarantees in their local area network and fail-safe stackability.
- Existing Business Policy Switch users – the BayStack 470 can be used within an existing stack of BPS (units max). Please note this is not compatible with the BayStack 450 or 410.
- Customers who want to implement and support voice and video at the same time as data applications.
- Pragmatic buyers who base their decision on performance, business value and price effectiveness.

Defining needs

- Are you looking for a reliable solution that will support your business needs now and today's requirements?
- Do/would you like to set levels of priority for key departments, users or applications?
- Are you considering implementing Voice over IP (VoIP), video conferencing, on-line training and/or video streaming on your network?
- Do you have limited space available in your wiring closets?
- Do you currently have Business Policy Switches installed in your network?
- Do most of your wiring closet switches have Gigabit uplinks?
- Is high port count in a compact space at a very attractive price important to you?

Typical Applications

- Key department or personnel prioritisation requirements such as help desk, service teams and/or key management
- High bandwith requirements such as multimedia (video and application streaming), eCommerce and Web Applications
- Delay intolerant applications such as IP telephony.

Key Points

- Industry leading QoS capabilities and features
- Web based management
- The size : only 1 U high
- Innovative built-in stacking ports
- Two built-in GBIC ports for highest uplink capacity (2Gb) per switch in stack
- Fail-safe stacking and resiliency
- Authenticated switch port access and authenticated and encypted management
- Built in GBIC ports mean no additional parts to order
- Stackable with Business Policy Switches
- Common software lowers training and installation costs.

Features and Benefits

- **High-density desktop connectivity** – Up to eight switches can be stacked to achieve up to 384 10/100 ports for high-density desktop switching. †

- **Cost-effective, simpler stacking** – Two built-in stacking ports provide simpler, quicker, and more cost-effective stacking, as expensive stacking modules are not required. This unique stacking design frees up both the uplink ports for dedicated connectivity to the backbone.
- **Higher uplink capacity** – Two built-in GBIC ports for dedicated uplink connectivity to network core switches such as Passport 8600. This doubles the uplink bandwidth, as GBIC ports are not required for stacking purposes. Up to 16 GBIC ports are available for pure uplink connectivity in a full stack – the highest in the market.
- **Fail-Safe Stacking** – Innovative fail-safe cascade design assures continuous uptime even if any switch in the stack should fail and eliminates a single point of failure.
- **Resilient connectivity for minimal network downtime** – With Nortel Networks unique Distributed MultiLink Trunking (DMLT) feature trunked ports can span multiple units of the stack for fail-safe connectivity to mission critical servers and the network centre. Passport 8600's Split MultiLink Trunking (SMLT) eliminates single points of failure in the network and allows BayStack 470s to have multiple active connections to the network core.
- **Secure access and data traffic protection** – Features include BaySecure, Radius, IP Manager List, Access List, SNMP v3, password protection and Extensible Authentication Protocol (EAP) over LAN. Nortel Networks is the only major vendor to support SNMPv3 protocol for user authentication and data encryption.
- **High availability with QoS features** – Provides network availability for mission-critical applications, devices, and users by classifying, prioritising, and marking LAN traffic.
- **Common software lowers training and installation costs** – All BayStack switches, including the BayStack 470-48T, have a common "look and feel" which reduces training costs. These tools include Web, Command Line Interface (CLI), menus, Optivity Network Management System (NMS), Optivity Switch Manager (OSM) and Optivity Policy Services (OPS).
- **Save money and time with Auto MDI/MDIX feature** – This feature eliminates the need for expensive cross-over cable while connecting to a hub or switch. The switch port automatically can detect the signal on the cable and configures itself appropriately.

Ordering Information

For further information, please contact your local Nortel Networks Representative.

OPTera Metro 1000 Ethernet Service Module

Overview

Service providers, seeking to extend their networks to the customer premises and to deliver differentiated Ethernet-based services cost-effectively to multiple customers, can leverage a new class of Optical Ethernet edge device - the OPTera Metro 1000 series of Ethernet Service Modules. The OPTera Metro 1000 series consists of three different platforms to meet Ethernet service delivery scenarios, i.e. multi-tenant service delivery providing Ethernet services on tenant floors, single unit/enterprise service delivery or delivery of services from a service provider point of presence:

- OPTera Metro 1200 Ethernet Service Module
- OPTera Metro 1400 Ethernet Service Module
- OPTera Metro 1450 Ethernet Service Module

The OPTera Metro 1000 series was designed to simplify the delivery of Ethernet services. Defining a new class of Optical Ethernet edge device, the OPTera Metro 1000 series serves as the customer demarcation point and entry ramp onto the service provider's network. As such, the OPTera Metro 1000 series offers the industry's first consistent Ethernet user-to-network (UNI) interface, delivering cost-effective, secure and scalable separation of customer traffic. In addition, the OPTera Metro 1000 series supports Nortel Networks industry-unique Simple End Point Provisioning, significantly simplifying the provisioning of additions or changes to the network and driving faster time-to-revenue and customer satisfaction. The three NEBS-compliant products deliver a variety of access options to meet service demands and transport choices. The OPTera Metro 1000 series also features QoS to enable tiered services and profitable SLAs.

Like the OPTera Metro 1200, the OPTera Metro 1400 and 1450 Ethernet Service Modules (ESM) represent a new class of purpose-built, carrier-class edge devices that will enable service providers expand their addressable market for Ethernet services and to quickly and easily provision all types of Ethernet services.

When combined with other Nortel Networks' products such as OPTera Metro 8000 Services Switch, OPTera Metro 3500 Multiservice Platform, or OPTera Metro 5200 Platform, service providers can offer profitable virtual private LAN services over Fiber, and DWDM and reduce their operational costs. In an Ethernet over Fiber scenario, the innovative Logical Provider Edge (LPE) model is utilised to eliminate the scalability and bandwidth constraints of point-to-point, fully-meshed, or VLAN-based network models to offer virtual private LAN services. Acting as the Services Edge element in the LPE framework, the OPTera Metro 1000 family helps services providers:

- Increase the scalability of their service (up to tens of thousands of customers per metro), while simplifying the network
- Speed provisioning (up to 10 times faster than a comparable RFC 2547 solution) and time-to-revenue
- Reduce operational complexity (operational expense savings up to 60% can be achieved, as compared to RFC 2547 implementations). - For more information, read the Logical Provider Edge Technical Bulletin and/or the Optical Ethernet Business Case for Service Providers.

Customer Profile

- RBOCs
- ILECs
- CLECs
- PPTs
- ELECs
- IXCs
- Incumbent and new service provider entrants

Features and Benefits

Cost-effective and scaleable entry/delivery point for Ethernet services in the multi-tenant/multi-dwelling units (MxUs), enterprise and service provider point-of-presence

- Service providers are able scale their service offerings to meet customer demand by simply provisioning a new UNI port on an Ethernet Service Module, as compared with adding new equipment. Various access options to meet service demands and range of transport alternatives to leverage existing infrastructure
- 10/100 Mbps, 100 Mbps, Gigabit Ethernet services - copper and fiber.
- Two Gigabit Ethernet uplink options: one or two 1000BASE-TX uplink ports or a dual-port Small Form Factor Pluggable (SFP) Gigabit Interface Connector (GBIC), to ensure cost-effective transport over fiber, RPR and/or DWDM. Secure and scalable separation of customer traffic - transparent and mapped VLAN support
- Support up to 500 Transparent Domain Identifiers (TDI) or VPN Identifiers (VPN-ID) for customer separation per OPTera Metro 1000 device.
- Unique and industry-leading approach to defining an Ethernet UNI which is consistent across the OPTera Metro 8000 and OPTera Metro 3500. Simple end-point provisioning for faster service uptime and lower cost to implement
- The OPTera Metro 1000 series is provisioned with the relevant service SLA metrics and TDI/VPN ID information. Using the Auto Discovery feature, it automatically learns of other sites in the customer network - thus avoiding the need to provision existing network devices. When adding or deleting a new site to an existing customer network, the service provider needs to only provision the site, enabling Simple End-point Provisioning. Rate limiting and QoS features to enable tiered services and profitable SLAs
- Effective utilisation of bandwidth by tuning bandwidth from 1 Mbps to 1000 Mbps in increments of 1 Mbps per port, per TDI/VPN ID.
- To avoid congestion and manage traffic effectively, the OPTera Metro 1000 has 4 egress queues per UNI port and 8 egress queues per uplink port. These queues are selected based on a service provider 802.1p mapping. They allow the network administrator to ensure the variety of customer traffic receive the appropriate priority. Leverages Nortel Networks Logical Provider Edge VPN for faster time-to-market and enhanced profitability
- By integrating the OPTera Metro 1000 series with the strengths of multi-protocol label switching (MPLS), Nortel Networks LPE solution provides: support for thousands of customer in a retail metro environment, speeds provisioning up to 10 times faster than competing solutions such as RFC2547, and provides support for many Provider Edge (PE) devices, such as the OPTera Metro 1000 series, and reduces operational costs by up to 60 percent.

Technical Specifications

- Carrier-class NEBS level 3 compliance - meeting the most rigorous electrical, environmental, temperature and vibration standards for reliability.
- Dual Gigabit Ethernet ports using provisionable Multi-Link Trunking (MLT) - load sharing between the two Gigabit Ethernet ports enables bandwidth to be increased and ensures availability of service with sub-second failover.
- Varying access or UNI options to meet service demands and transport alternatives (10/100 Mbps, 100 Mbps, GE, copper, fiber). See Table 1 for UNIs on each of the OPTera Metro 1000 modules.
- Two Gigabit Ethernet uplink options: one or two 1000BASE-TX uplink ports or a dual-port Small Form Factor Pluggable (SFP) Gigabit Interface Connector (GBIC) - ensuring cost-effective transport over fiber, RPR and/or DWDM.
- Services for up to 500 customers per OPTera Metro 1000 device, by using a Transparent Domain Identifier (TDI)/VPN Identifier (VPN-ID) for each customer.
- Quality of Service (QoS) and Service Level Agreement (SLA) support through: tunable bandwidth from 1 Mbps to 100 Mbps in increments of 1 Mbps per port or per TDI/VPN-ID, 802.1p and DSCP priorities mapping, utilisation of 4 UNI egress queues and 8 NNI egress queues.

OPTera Metro 1200	OPTera Metro 1400	OPTera Metro 1450
Role		
In-building aggregation supports up to 100 Mbps	Adds GigE customer connectivity	Aggregation in a point-of-presence
Service (Customer) Ports		
Service (Customer) Ports	12ports 10/100TX ports	12ports 10/100TX ports
	2-port GE SFP GBIC slots	2-port GE SFP GBIC slots
Network Ports		
2-port SFP GBIC slots1-or 2-port 1000BASE-TX	2-port GE SFP GBIC slots1-or 2-port 1000BASE-TX	2-port GE SFP GBIC slots1-or 2-port 1000BASE-TX

Ordering Information

For further information, please contact your local Nortel Networks Representative.

OPTera Metro 8000 Services Switch

Overview

Service providers looking for ways to scale Ethernet-based services and maximize profitability need look no further than Nortel Networks OPTera Metro 8000 Services Switch. This new and innovative product delivers unsurpassed reliability, massive bandwidth, exceptional performance and industry-leading intelligence. Enabling a distributed logical provider edge model that replaces the complex and expensive fully meshed metro networks of today with a dramatically simplified hub and spoke model, OPTera Metro 8000 is leading the Optical Ethernet revolution and delivering on the promise of faster, simpler, more reliable, and more profitable networks for leading providers. It also is the first product in the industry capable of supporting any-to-any Layer 2 MPLS transparent LAN and VPN services.

OPTera Metro 8000, featuring the new Optical Services Module, is a flexible component of the new MPLS-based metro network, delivering intelligence as a provider edge device (PE). The Optical Services Module brings MPLS VPN and traffic engineering capabilities to the provider edge using an array of programmable - and field upgradeable -network processors. This innovative networking processing-based design delivers a potent combination of speed and flexibility -without forklift upgrades. The OPTera Metro 8000 sets a new standard for delivering Optical Ethernet services such as:

- Highly scalable multipoint Layer 2 VPNs
- Secure high-bandwidth metro access
- Private/leased line replacement
- IP VPN service scaling and interworking
- MPLS-based traffic engineering and SLA support.

The OPTera Metro 8000 is available in four chassis variations, with a 10-slot NEBS-3 certified chassis and 10, 6, and 3-slot chassis also available.

Customer Profile

- RBOCs
- ILECs
- CLECs
- PPTs
- ELECs
- IXCs
- Incumbent and new service provider entrants

Features and Benefits

Industry-leading intelligence

- Any-to-any auto discovery for single point provisioning
- MPLS VPN and traffic engineering
- Enables SLA enforcement
- Network processor-based design delivers peak performance with investment protection
- Enables L2-L3 VPN interoperability

Bandwidth flexibility and smart tools

- Tunable bandwidth from 1M to 1000M in 1M increments without additional network engineering or customer equipment
- Committed rate and allowable burst using traffic policing and shaping
- Robust QoS controls mapping a customer's 802.1p/q priority information and supporting service levels, service type and class of service

Massive bandwidth and performance

- MPLS support optimises use of metro bandwidth
- Best in class 64Gbps full line rate
- Processing power of 96Mpps beats the competition by 3X
- 4-port MPLS module delivers best-in-class density (with 8-port upgrade available in a future release)

Unsurpassed reliability

- Carrier-grade network reliability and multi-site redundancy
- MPLS reliability mechanisms
- NEBS-3 compliant chassis
- All components hot swappable and redundant
- Only device in class capable of fully redundant configuration

Ordering Information

For further information, please contact your local Nortel Networks Representative.

Passport 1424 Switch

Overview

The Passport 1424T is a fixed port L3 switch. The switch features 24 ports of 10/100 and two GBIC slots (GBICs are ordered separately). Wire-speed routing and a non-blocking architecture provide the performance required by today's bandwidth sensitive applications. For applications that have even more stringent requirements, four priority queues, with support for 802.1p and DiffServ, provide QoS within the network. Reliability is maintained with Multi-Link Trunking support which allows a Passport 1424T to function as an edge member of a SMLT solution. SNMP and Web management increase reliability and simplicity by providing a simple way to configure and monitor the switch.

Customer Profile

- Primary Target Market: Small to midsize Enterprise customers who are looking for a lower cost high performance fixed port L3 switch for desktop access or aggregation in the network core.
- Additional Target Markets: Large Enterprise customers who require L3 connectivity for server farms, aggregation points from wiring closets or core routing for smaller remote offices. Any Enterprise customer who will be implementing bandwidth sensitive applications (VOIP, Multimedia) which will require a high performance solution that incorporates QoS, wire speed routing and a low cost entry point.

Features and Benefits

Performance

- The Passport 1424T provides increased application performance by enabling better bandwidth utilisation and enhancing network performance. The addition of QoS and L3 routing to a network helps decrease latency, jitter and excess traffic destined for a software router. QoS implemented at the network edge allows traffic to be marked as close to the application as possible, which enables better utilisation of the network backbone.

Simplicity

- The Passport 1424T is a simple to use and maintain network performance enhancer. With both web based and SNMP management, the Passport 1424T can be configured quickly with fewer errors. Fewer errors enables faster implementation times and fewer problems to troubleshoot. The Passport 1424T's ability to classify traffic at the network edge allows network administrators to set policies based on traffic type which ensures that applications who have special bandwidth requirements will get the bandwidth they need.

Flexibility

- With 24 10/100 ports and 2 GBIC slots, the Passport 1424T provides enhanced connectivity for workgroups and servers. The GBIC ports allow for connectivity of single and multimode as well as SX and LX connectivity. Multi-layer redundancy is delivered by Multi-Link trunking capabilities that provide multiple ports acting as one trunk and the ability to participate in a Split Multi-Link Trunk solution.

Ordering Information

For further information, please contact your local Nortel Networks Representative.

Passport 8000 Series Switches

Overview

The Nortel Networks Passport 8000 series delivers high-density, high performance Layer 2 through Layer 7 switching, routing and traffic classification to service providers, carriers and enterprises. The Passport 8000 series is a reliable, secure and intelligent solution that provides exponential increases in bandwidth, revenue potential and a competitive edge for today's application driven networks. Because it is a modular solution, the Passport 8000 series is a powerful solution for a variety of network locations, including enterprise wiring closets, the enterprise network core, as customer premises equipment at the edge of the Metropolitan Area Network (MAN) or in the Metro Optical Ethernet core. By combining different modules, the Passport 8000 series solution can support multiple access technologies, adapt to network expansion and maintain the flexibility required for today's networks.

Customer Profile

Enterprises:

- Medium to large campus networks
  - Layer 3 core
  - Layer 2/3 distribution
  - Layer 2/3 Edge
- Large enterprise metro networks
  - Metropolitan inter-campus connectivity
- Real-time and streaming application infrastructure
- IP Multicasting infrastructure
- Internet Telephony infrastructure
- Legacy 3Com, Cabletron and Lucent customers
- Enterprise wiring closets requiring high-density edge switching capacity

Vertical Markets:

- Finance
- Healthcare
- Manufacturing
- Education

Multi-Tenant Unit (MTU) and Multi-dwelling units (MDU) property developers:

- Internet access service infrastructure
- Internet telephony service infrastructure
- Broadcast audio and video service infrastructure
- Video on demand service infrastructure
- Videoconferencing service infrastructure

Service Providers and Carriers:

- Metropolitan and regional Ethernet services
- Optical Ethernet service infrastructure
  - Point of Presence
  - Central Office
- Internet Data Centre
  - L2 though L7
- Disaster Recovery Centre service infrastructure
- Transparent LAN service infrastructure
- Virtual Private Networking service infrastructure
- Managed service - customer premises equipment
- Internal service provider/carrier network

Defining needs

Enterprise Customers:

- Is reliability critical to your business?
- Do you plan to upgrade your existing Ethernet network?
- Do you plan do migrate your network from ATM or Token Ring to Ethernet?
- Do you plan to unify your communications onto one network?
- What are your plans for deploying web hosting services?
- Do you have mission-critical traffic requiring prioritisation?
- What are your plans for deploying Quality of Service?
- What are your plans for deploying Internet telephony?

- What are your plans for deploying streaming audio or video applications?
- What are your plans for deploying desktop-based instruction?
- What are your plans for deploying 10 Gigabit Ethernet?
- Do you plan to connect to an optical Ethernet service provider?
- Does fibre scarcity prevent you from providing high-speed data services to multiple sites?

Service Providers, Carriers and Property Developers:

- Do you plan to upgrade your Metropolitan network service to Ethernet?
- Do you want to connect your points of presence via Ethernet?
- What are your plans for deploying 10 Gigabit Ethernet?
- Do you require internal Ethernet Connectivity?
- What are your plans for offering Optical Ethernet services?
- What are your plans for deploying an Internet Data Centre?
- Is reliability critical to your customers?
- What are your plans for delivering Virtual Private Network services?
- What are your plans for delivering Transparent LAN services?
- What are your plans for offering streaming audio or video services?
- What are your plans for offering Video On Demand services?
- What are your plans for offering Internet Telephony services?
- Do you want to be able to support hundreds of multicasting groups?
- Is fibre scarcity a consideration for you in deploying an Optical Ethernet Metro network?

Typical Applications

Enterprise Customers:

- Desktop switching
- Enterprise core IP routing
- IP Multicasting
- Web hosting
- Metropolitan inter-site connectivity

Service Provider and Carriers:

- Metropolitan Ethernet Service
- Internet Data Centre
- Transparent LAN services
- Virtual Private Networking Services
- Disaster Recovery Services
- Service Provider internal networks

Key Points

High performance:

- 128 Gbps non-blocking switching fabric
- 96Mpps throughput
- Wire-speed L2 through L7 packet classification
- Wire-speed L2 through L7 forwarding for critical data traffic

Resilience:

- "Five-nines" carrier-grade reliability – no single point of failure
- Device-level redundancy – power supplies, fans, switching fabrics, modules
- All components hot swappable
- Link-level redundancy – Multi-Link Trunking, Split Multi-Link Trunking
- Network-level redundancy – Virtual Router Redundancy Protocol (VRRP), Equal Cost Multi-Path (ECMP) routing
- Security: Wire-speed security filtering, user authentication

Flexibility:

- 10/100 Mbps Ethernet
- 1 Gbps and 10 Gbps Ethernet
- Up to 384 10/100BaseTX ports, 192 100BaseFX Ports, 128 Gigabit Ethernet ports per chassis
- OC-3 and OC-12 ATM
- OC-3 and OC-12 Packet over SONET
- Integrated Web-switching functionality

Low Cost of Ownership:

- Single platform for service delivery
- Integrated L2 though L7 switching in a single chassis
- Simple solution – L2 Access, L3 Core
- Lowered training costs

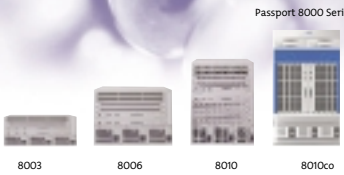
Features and Benefits

Feature	Benefit
Modular solution	One chassis with a variety of I/O modules for the wiring closet, enterprise network core, Metro edge or Metro Ethernet core delivers flexibility and simplifies design, sparing, training and operations
10, 6 or 3 slot chassis, Central Office chassis	Flexible solution series that can be deployed to meet a variety of different needs and that grows with your customer's network
Layer 2 thru Layer 7 switching, routing and traffic classification	Powerful Ethernet and web-switching capabilities in a single solution simplifies deployment and operations
Wire-speed frame switching, web switching, routing and classification	No performance penalty for real-time applications that demand Quality of Service, even during periods of network congestion
Redundant switch management / Switch Fabric modules	No single point of failure in the switch control plane
Load-sharing Switch Fabric modules	No wasted modules idling in standby
Hot swap on all chassis components	Prevents network outages when adding or changing modules
IP addressable and configurable	Simplifies management and operations
Copper and fiber Ethernet, ATM and PoS support	Flexible deployment options for both enterprise and Metropolitan connectivity needs

Ordering Information

For further information, please contact your local Nortel Networks Representative.

Passport 8000 Chassis



Overview

The Passport 8000 series is comprised of four chassis - the ten slot Passport 8010 and Passport 8010CO, the six slot Passport 8006 and the three slot Passport 8003. The series also includes two categories of modules, the Passport 8100 series Edge Switch modules and the Passport 8600 Routing Switch series modules.

The Passport 8010, 8010CO and 8006 chassis support all Passport 8000 modules. All chassis components are hot swappable and include N+1 power redundancy. These chassis provide high density, redundant solutions for both the wiring closet and network core:

- The 10-slot Passport 8010 chassis is designed for high-density campus wiring closet and backbones needing the highest levels of availability and scalability.
- The Passport 8010CO chassis is a NEBS 3-compliant chassis that supports all Passport 8000 series modules. This chassis provides Service Providers and Carriers with a fully redundant carrier class solution.
- The 6-slot chassis is designed for medium-sized, lower-density wiring closets and backbones.
- The Passport 8003 chassis supports all existing Passport 8600 series routing switch modules only. This chassis brings all the functionality of a larger core switch to a smaller footprint.

Customer Profile

- Enterprise customers
- Service Providers and Carriers

Defining needs

Enterprise Customers:

- Is reliability critical to your business?
- Do you plan to upgrade your existing Ethernet network?
- Do you plan do migrate your network from ATM or Token Ring to Ethernet?
- Do you plan to unify your communications onto one network?
- What are your plans for deploying web hosting services?
- Do you have mission-critical traffic requiring prioritisation?
- What are your plans for deploying Quality of Service?
- What are your plans for deploying Internet telephony?
- What are your plans for deploying streaming audio or video applications?
- What are your plans for deploying desktop-based instruction?
- What are your plans for deploying 10 Gigabit Ethernet?
- Do you plan to connect to an optical Ethernet service provider?
- Does fibre scarcity prevent you from providing high-speed data services to multiple sites?

Service Providers and Carriers:

- Do you plan to upgrade your Metropolitan network service to Ethernet?
- Do you want to connect your points of presence via Ethernet?
- What are your plans for deploying 10 Gigabit Ethernet?
- Do you require internal Ethernet Connectivity?
- What are your plans for offering Optical Ethernet services?
- What are your plans for deploying an Internet Data Centre?
- Is reliability critical to your customers?
- What are your plans for delivering Virtual Private Network services?

- What are your plans for delivering Transparent LAN services?
- What are your plans for offering streaming audio or video services?
- What are your plans for offering Video On Demand services?
- What are your plans for offering Internet Telephony services?
- Do you want to be able to support hundreds of multicasting groups?
- Is fibre scarcity a consideration for you in deploying an Optical Ethernet Metro network?

Typical Applications

Enterprise Customers:
- Desktop switching
- Enterprise core IP routing
- IP Multicasting
- Web hosting
- Metropolitan inter-site connectivity

Service Provider and Carriers:
- Metropolitan Ethernet Service
- Internet Data Centre
- Transparent LAN services
- Virtual Private Networking Services
- Disaster Recovery Services
- Service Provider internal networks

Key Points

High performance:
- 128 Gbps non-blocking switching fabric
- 96Mpps throughput
- Wire-speed L2 through L7 packet classification
- Wire-speed L2 through L7 forwarding for critical data traffic

Resilience:
- "Five-nines" carrier-grade reliability – no single point of failure
- Device-level redundancy – power supplies, fans, switching fabrics, modules
- All components hot swappable
- Link-level redundancy – Multi-Link Trunking, Split Multi-Link Trunking
- Network-level redundancy – Virtual Router Redundancy Protocol (VRRP), Equal Cost Multi-Path (ECMP) routing
- Security: Wire-speed security filtering, user authentication

Flexibility:
- 10/100 Mbps Ethernet
- 1 Gbps and 10 Gbps Ethernet
- Up to 384 10/100BaseTX ports, 192 100BaseFX Ports, 128 Gigabit Ethernet ports per chassis
- OC-3 and OC-12 ATM
- OC-3 and OC-12 Packet over SONET
- Integrated Web-switching functionality

Low Cost of Ownership:
- Single platform for service delivery
- Integrated L2 though L7 switching in a single chassis
- Simple solution – L2 Access, L3 Core
- Lowered training costs

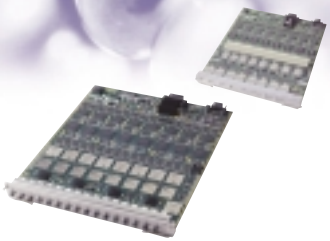
Features and Benefits

Feature	Benefit
Modular solution	One chassis with a variety of I/O modules for the wiring closet, enterprise network core, Metro edge or Metro Ethernet core delivers flexibility and simplifies design, sparing, training and operations
10, 6 or 3 slot chassis, Central Office chassis	Flexible solution series that can be deployed to meet a variety of different needs and that grows with your customer's network
Layer 2 thru Layer 7 switching, routing and traffic classification	Powerful Ethernet and web-switching capabilities in a single solution simplifies deployment and operations
Wire-speed frame switching, web switching, routing and classification	No performance penalty for real-time applications that demand Quality of Service, even during periods of network congestion
Redundant switch management / Switch Fabric modules	No single point of failure in the switch control plane No wasted modules idling in standby
Load-sharing Switch Fabric modules	Prevents network outages when adding or changing modules
Hot swap on all chassis components	Simplifies management and operations
IP addressable and configurable	Flexible deployment options for both enterprise and Metropolitan connectivity needs
Copper and fiber Ethernet, ATM and PoS support	

Ordering Information

For further information, please contact your local Nortel Networks Representative.

Passport 8100
Edge Switching Modules



Description

The Passport 8100 series Edge Switching modules deliver Layer 2 switching to the Passport 8000 platform. Typically deployed in wiring closet applications, the Passport 8100 series Edge Switch modules are supported in the Passport 8010, Passport 8006 and Passport 8010CO chassis. At least one Passport 8190 Switch Management module is required per chassis. Two Passport 8190 Switch Management modules ensure redundancy and sub-second fail over for maximum switch resilience. VLAN support and Layer 2 priority marking offer customers flexibility and efficiency.

Customer Profile

Enterprises deploying:

- Enterprise wiring closets requiring high-density edge switching capacity
- Customers who require a Layer 2 switch for aggregation with either copper or fibre
- Customers using 100BASE-FX for desktop connectivity or backbones
- Real-time and streaming applications
- IP Multicasting
- Internet Telephony

Service providers and carriers:

- Internal wiring closets requiring high-density edge switching capacity
- Internal Layer 2 switching for aggregation with either copper or fibre
- Connectivity where 100BASE-FX for desktop connectivity is required

Vertical Markets:

- Finance
- Healthcare
- Manufacturing
- Education

Defining needs

- Do you plan to upgrade your existing wiring closets from hubs to switching?
- Do you plan do migrate your network from ATM or Token Ring to Ethernet?
- Is reliability critical to your business?
- Do you plan to unify your communications onto one network?
- Do you plan to deploy Internet telephony?
- Do you plan to deploy videoconferencing on your data network?
- Do you plan to deploy streaming audio or video applications?
- Do you plan to deploy desktop-based instruction?

Typical Applications

- Desktop Switching
- Power User Group eg Graphic Workstations
- Wiring Closet aggregation

Key Points

- High Density Layer 2 switching
- Low Cost
- Advanced Features
- Redundancy
- Operational Simplicity
- Powerful Management

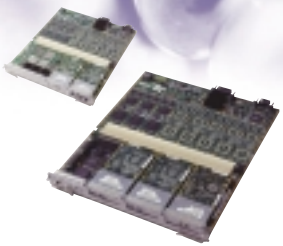
Features and Benefits

Feature	**Benefit**
50 Gbps forwarding performance	High capacity switching for high-density wiring closets
10, 6 or Central Office chassis, Central Office chassis	Flexible solution series that can be deployed to meet a variety of different needs and that grows with your customer's network
384 10/100BaseTX ports, 128 100BaseFX ports, or 64 copper or Fibre Gigabit Ethernet ports	High density for large wiring closet applications
Redundant switch management	No single point of failure in the switch control plane Prevents service and network management interruption
Sub-second switch Management fail-over	No single point of failure in the switch control plane No wasted modules idling in standby
Redundant switch management / Switch Fabric modules	Prevents network outages when adding or changing modules
Load-sharing Switch Fabric modules	Simplifies management and operations
Hot swap on all chassis components	Flexible support for IP multicast applications
IP addressable and configurable	Simple, flexible and powerful network management options
Internet Group Management Protocol (IGMP) snooping multicast support	Fewer devices to manage than with "pileables" or "stackables"; more flexibility in the wiring closet
Fully manageable and configurable with Command Line Interface (CLI) or graphic user interface (GUI) tools	
Modular solution	

Ordering Information

For further information, please contact your local Nortel Networks Representative.

Passport 8600 Series Routing Switches



Overview

The Passport 8600 series Routing Switch modules deliver a powerful and highly reliable routing solution, providing hardware-based Layer 2 through Layer 7 routing and traffic classification. These modules are specifically designed to offer high redundancy, high-density and high-bandwidth connections, wire speed performance and penalty-free QoS support to Enterprises, Service Providers and Carriers. Passport 8600 series Routing Switch modules typically reside in the Enterprise or Service Provider/Carrier network core. Ethernet connectivity options include 10/100 Mbps and 1Gbps copper, 100 Mbps, 1 Gbps fiber, 10 Gbps fibre (future) and OC-3/OC-12 ATM/PoS. Passport 8691 switch management modules provide redundancy, load sharing and sub-second fail-over. Wire-speed Quality of Service for business-critical applications is achieved though packet classification via DiffServ or IEEE 802.1p and queuing via eight hardware queues per port.

The Nortel Networks Passport 8600 series Routing Switch modules deliver a reliable, secure and intelligent network routing solution. Hardware-based wire speed performance enables fast and efficient traffic classification, policy enforcement and filtering, benefiting time-sensitive applications such as video and voice and revenue-generating applications requiring Quality of Service such as Web transaction processing and personalised content. The Passport 8600 series Routing Switch modules provide a robust, secure and intelligent platform that delivers a true competitive edge through performance, intelligence and five nines reliability.

Customer Profile

Enterprises:

- Medium to large campus networks
  - Layer 3 core
  - Layer 2/3 distribution
  - Layer 2/3 Edge
- Large enterprise metro networks
  - Metropolitan inter-campus connectivity
- Real-time and streaming application infrastructure
- IP Multicasting infrastructure
- Internet Telephony infrastructure
- Legacy 3Com, Cabletron and Lucent customers
- Enterprise wiring closets requiring high-density edge switching capacity

Vertical Markets:

- Finance
- Healthcare
- Manufacturing
- Education

Multi-Tenant Unit (MTU) and Multi-dwelling units (MDU) property developers:

- Internet access service infrastructure
- Internet telephony service infrastructure
- Broadcast audio and video service infrastructure
- Video on demand service infrastructure
- Videoconferencing service infrastructure

Service Providers and Carriers:

- Metropolitan and regional Ethernet services
- Optical Ethernet service infrastructure
  - Point of Presence
  - Central Office
- Internet Data Centre
  - L2 though L7
- Disaster Recovery Centre service infrastructure
- Transparent LAN service infrastructure
- Virtual Private Networking service infrastructure
- Managed service - customer premises equipment
- Internal service provider/carrier network

Defining needs

Enterprise Customers:

- Is reliability critical to your business?
- Do you plan to upgrade your existing Ethernet network?
- Do you plan do migrate your network from ATM or Token Ring to Ethernet?
- Do you plan to unify your communications onto one network?
- What are your plans for deploying web hosting services?
- Do you have mission-critical traffic requiring prioritisation?
- What are your plans for deploying Quality of Service?
- What are your plans for deploying Internet telephony?
- What are your plans for deploying streaming audio or video applications?
- What are your plans for deploying desktop-based instruction?
- What are your plans for deploying 10 Gigabit Ethernet?
- Do you plan to connect to an optical Ethernet service provider?
- Does fibre scarcity prevent you from providing high-speed data services to multiple sites?

Service Providers, Carriers and Property Developers:

- Do you plan to upgrade your Metropolitan network service to Ethernet?
- Do you want to connect your points of presence via Ethernet?
- What are your plans for deploying 10 Gigabit Ethernet?
- Do you require internal Ethernet Connectivity?
- What are your plans for offering Optical Ethernet services?
- What are your plans for deploying an Internet Data Centre?
- Is reliability critical to your customers?
- What are your plans for delivering Virtual Private Network services?
- What are your plans for delivering Transparent LAN services?
- What are your plans for offering streaming audio or video services?
- What are your plans for offering Video On Demand services?
- What are your plans for offering Internet Telephony services?
- Do you want to be able to support hundreds of multicasting groups?
- Is fibre scarcity a consideration for you in deploying an Optical Ethernet Metro network?

Typical Applications

Enterprise Customers:

- Power-user desktop switching
- Enterprise core IP routing
- IP Multicasting
- Web hosting
- Metropolitan inter-site connectivity

Service Provider and Carriers:

- Metropolitan Ethernet Service
- Internet Data Centre
- Transparent LAN services
- Virtual Private Networking Services
- Disaster Recovery Services
- Service Provider internal networks

Key Points

High performance:

- 128 Gbps non-blocking switching fabric
- 96Mpps throughput
- Wire-speed L2 through L7 packet classification
- Wire-speed L2 through L7 forwarding for critical data traffic

Resilience:

- "Five-nines" carrier-grade reliability – no single point of failure
- Device-level redundancy – power supplies, fans, switching fabrics, modules
- All components hot swappable

- Link-level redundancy – Multi-Link Trunking, Split Multi-Link Trunking
- Network-level redundancy – Virtual Router Redundancy Protocol (VRRP), Equal Cost Multi-Path (ECMP) routing
- Security: Wire-speed security filtering, user authentication

Flexibility:

- 10/100 Mbps Ethernet
- 1 Gbps and 10 Gbps Ethernet
- OC-3 and OC-12 ATM
- OC-3 and OC-12 Packet over SONET/SDH
- Integrated Web-switching functionality

Low Cost of Ownership:

- High Performance
- Optical Ethernet Ready

Features and Benefits

Feature	Benefit
Modular solution	One chassis with a variety of I/O modules for the wiring closet, Enterprise network core, Metro edge or Metro Ethernet core delivers flexibility and simplifies design, sparing, training and operations
10, 6 or 3 slot chassis, Central Office chassis	Flexible solution series that can be deployed to meet a variety of different needs and that grows with your customer's network
Layer 2 thru Layer 7 switching, routing and traffic classification	Powerful Ethernet and web-switching capabilities in a single solution simplifies deployment and operations
Wire-speed frame switching, web switching, routing and classification	No performance penalty for real-time applications that demand Quality of Service, even during periods of network congestion
Redundant switch management / Switch Fabric modules	No single point of failure in the switch control plane No wasted modules idling in standby
Load-sharing Switch Fabric modules	Prevents network outages when adding or changing modules
Hot swap on all chassis components	Simplifies management and operations
IP addressable and configurable	Flexible deployment options for both enterprise and Metropolitan connectivity needs
Copper and fibre Ethernet, ATM and PoS support	

Ordering Information

For further information, please contact your local Nortel Networks Representative.

BayRS Access Stack Node (ASN)

ASN Rear View

Overview

Nortel Networks Access Stack Node (ASN) is a stackable router that provides cost-effective solutions for Enterprise network centres. Nortel Networks Switched Internetworking Services (BaySIS) operating in the ASN offers features for today's evolving internetworks with migration to the future of switched intra– and internetworking.

Multiple units of ASNs stacked together are seamlessly integrated for management as a single router. This architecture eases the management of a growing network because adding interfaces beyond a unit's capacity does not require replacement of routers - or additional complexity - in the network. A stack of four ASNs supports up to 48 network interfaces with forwarding performance up to 200,000 packets per second (pps).

The ASN maximises connectivity and enhances interoperability by supporting all major network and bridging protocols, wide area services and IBM standards. Additionally, the ASN's fault-resilient system software ensures high network availability.

Customer Profile

- Enterprise network centres
- Small to medium enterprises as a single node
- Large enterprises as a stacked node

Typical Applications

Multiprotocol branch access routing where a large range or number of interfaces is required. Core router for small to medium enterprises as a single node, for large enterprises as a stacked node.

Key Points

- The ASN is a stackable router that provides scaleable and cost-effective solutions for enterprise networks
  - Integrate multiple (up to 4), stacked units for management as a single router
  - Maximise connectivity and enhance interoperability through the ASN's support of all major networking and bridging protocols, wide area services and IBM standards

– Meet the connectivity needs of remote and campus offices with ASN's LAN and WAN interfaces

Features and Benefits

- Simplified installation management through:
  - Nortel Networks Optivity
  - Bay Command Console
  - SPEX-HS
  - EZ Install, EZ Update Optimised network performance with:
  - Data compression
  - Bandwidth reservation
  - Bandwidth-on-demandFast packet cache
- Redundant power
  - High-performance processor
  - LAN and serial Interfaces
  - Progressive traffic management
  - Hardware-based data compression coprocessor net module

- Gives you comprehensive network management capabilities, enabling you to simplify management of single and multiple routers locally or remotely
- Reduces WAN costs through efficient bandwidth usage
- Enables further increases in forwarding performance
- Enables network resiliency by providing backup
- Maintains high filtering and forwarding across the ASN's network interfaces
- Provides network connectivity via a selection of net modules that provide Ethernet, 100 Base-T (Fast Ethernet), Token Ring, FDDI, Synchronous, T1, E1, ISDN BRI, and ISN
- PRI interfaces to meet a wide variety of connectivity requirements
- Allows dynamic control of network traffic based on application, user, or other criteria
- Allows CPU resources to be used for higher throughput or other processing functions

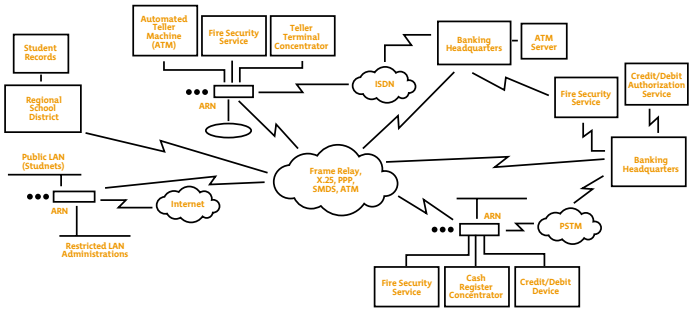
Ordering Information

For further information, please contact your local Nortel Networks Representative.

BayRS Advance Remote Node (ARN)

Overview

Nortel Networks Advanced Remote Node (ARN) router delivers a comprehensive set of branch office functionality, enabling organisations to achieve significant competitive advantages. Its modular design provides the capability to build highly flexible networks, delivers high performance throughput and supports a wide range of field-upgradeable LAN and WAN options for data communication.



Customer Profile

Multiprotocol branch access routing where support for a wide range and number of interfaces is required.

Typical Applications

Nortel Networks Advanced Remote Node (ARN) is a branch access router that provides enhanced connectivity and forwarding capabilities for remote locations. A Motorola 33 MHZ 68040 microprocessor ensures high forwarding and filtering rates, scaling up to 25,000 pps across each of its network interfaces. The ARN provides highspeed WAN connectivity, high interface density, legacy traffic transport, dial services, dual LAN support, and available RMON hardware/software support.

The Advanced Remote Node (ARN) delivers the performance and modularity to solve today's application needs and meets the increasing demands of the evolving corporate intranet.

Its design integrates the functions of multiple devices to reduce the complexity of remote network management. As a result, the ARN significantly lowers the total cost of ownership and provides the highest degree of investment protection for enterprise networks.

Key Points

Nortel Networks BayRS Advanced Remote Node (ARN) router delivers a comprehensive set of branch office functionality, enabling organisations to achieve significant competitive advantages.
Its modular design provides the capability to build highly flexible networks, delivers high performance throughput and supports a wide range of field-upgradeable LAN and WAN options for data communication.

Features and Benefits

- Extended Interface Density and Flexibility; Optimised Bandwidth
- Supports High Performance Architecture (HPA)
- Advanced Quality of Service (QoS) and Routing Capabilities
- Traffic Prioritisation
- Dial Optimised Routing
- Data Compression on a per circuit/link basis
- Diffserv
- EZ Install

Interfaces

2 WAN adaptor modules capable of supporting

- Serial: V.35/X.21
- ISDN BRI: S/T/U
- E1 and Fractional E1: RJ45 or BNC
- LAN: 10/100BaseTx, 100BaseFx, Token Ring

Protocols

- WAN: Frame Relay, PPP, X.25, SMDS, and IP
- LAN: Ethernet, Token Ring

Ordering Information

For further information, please contact your local Nortel Networks Representative.

BayRS
Backbone Node (BN)

Overview

Nortel Networks award winning, industrial strength Backbone Node (BN) consists of the Backbone Link Node (BLN©) and Backbone Concentrator Node (BCN©) - multiprotocol routers designed to satisfy the high performance and availability requirements of the most demanding mission-critical backbone internetworks.

Customer Profile

- Large Enterprises with mission-critical backbone internetworks
- Multivendor, multiprotocol environments

Typical Applications

Multiprotocol core routing

Key Points

The BN products feature a symmetric multiprocessor architecture that uses multiple MC68040- or MC68060-based Fast Routing Engine (FRE) processors, multiple dual PowerPC microprocessor-based ATM Routing Engine (ARE) processor modules and a 1 Gbps Parallel Packet Express (PPX) to deliver industry-leading performance and availability.

Configured with Nortel Networks Routing Services (BayRS) software, the BLN and BCN provide multiprotocol routing and bridging, to maximise connectivity and interoperability in multivendor, multiprotocol environments. Comprehensive hardware and software redundancy features provide complete fault resiliency, while dynamic reconfiguration and hot-swap features allow on-line changes in hardware and software configurations.

- Backbone Node is the leading multi-protocol router with a symmetric multi-processor architecture
  - **High performance:** over 3 Mpps aggregate performance
  - **Scalable:** routes, VCs, VPN tunnels, compression
  - **Resilient:** hot swap, redundancy, HW & SW fault isolation
- Tight integration with campus backbone – frame or cell
- Platform for delivery of enhanced IP Services and migration to IP optimised networks
  - Highly scalable routing protocols (OSPF, BGP4)
  - Multiprotocol migration (IPX, SNA, Appletalk)
  - WAN access (ATM, Frame Relay, leased lines)

Features and Benefits

- High performance, Power PC-based technology
  - Over 400Kpps per slot, Aggregate throughput of 5M ppsHigh performance link interfaces support up to 1G/sec of packet forwarding
  - Single port Gigabit Enet (SX & LX)
- Full Duplex, Flow control
  - Four port 10/100BT
- Full Duplex, N-way Negotiation, Auto-sense, Flow control
- Complements Passport switches
  - 802.1q VLANs
- Memory expandable up to 128M

Ordering Information

For further information, please contact your local Nortel Networks Representative.

Contivity Secure IP Services Gateway

Overview

The Contivity Secure IP Services Gateways are the perfect answer for Enterprises building managed IP Virtual Private Networks (VPNs) — for intranets, extranets and remote access. A single hardware device provides advanced IP routing, firewall, bandwidth management, encryption, authentication and data integrity for secure tunnelling across managed IP networks and the Internet. It is easy to answer an organisation's networking requirements — whether providing the service to one's own organisation or as a managed service provided to Enterprise customers. One box provides a full range of features for building high-performance, scalable, secure IP VPNs.

Customer Profile

The Contivity Secure IP Services Gateways are the perfect answer for all Enterprises building managed IP VPNs for intranets, extranets and remote access.

Typical Applications

Contivity Secure IP Services Gateways are used to create IP-based VPNs, which provide connections to employees, customers, suppliers, partners and organisations and foster communication, collaboration and eBusiness. VPNs require a new class of product to support large-scale access with high security and centralised management. Only the Contivity VPN Switch integrates all the features needed to build a high performance, scalable and secure VPN.

Nortel Networks offer a complete VPN solution with Contivity Secure IP Services Gateways. The solution includes site-to-site encrypted tunnelling; IPSec encryption from the switch to the desktop; integrated configuration and management software; simplified interfaces for both switch administration and for the IPSec Client; an integrated Authorisation, Authentication and Accounting (AAA) server and flexible and scalable VPN deployment options.

Nortel Networks high performance VPN platforms enable one to access the Enterprise network anytime, anywhere, through a secure virtual private network. The Contivity Secure IP Services Gateways integrates all of the necessary VPN technologies into a single platform such as routing, firewall, bandwidth management, encryption, authentication and data integrity for secured tunnelling across the Internet.

Key Points

- A single hardware device that provides routing, firewall, bandwidth management, encryption, authentication and data integrity for secure tunnelling across managed IP networks and the Internet. One box provides a full range of features for building high-performance, scalable, secure IP VPNs.
- Contivity's Secure IP Services – Advanced Routing, full VPN capabilities, and Stateful Firewall – can now be purchased and implemented independently
- Cost Savings - using the Internet or a Managed IP Service as the wide area transport allows connections to be local to the users
- The Internet provides a world wide presence
- Easy to scale the network - also allows for full-mesh connectivity
- Provides a secure and fast method to communicate with business partners and suppliers
- Can also leverage the Service Provider's backbone for a consistent level of performance and SLAs - additional provider services may be available

Features and Benefits

Secure IP Services Gateways (supporting both Branch and Client tunnels)

Contivity 1700

Up to 500 tunnels
Hardware Features:

- Memory:
- Standard – 128 MB (Maximum – 256MB)
- 850 MHz processor
- One PCI expansion slot
- LAN/WAN interfaces:

Standard

- 2 10/100 Base-T Ethernet ports
- Management/console port (DB-9)

Optional

- Additional 10/100 Base-T Ethernet
- Single-port V.35/X.21
- T1 with integrated CSU/DSU

- Encryption accelerator card

Software Features:
Standard

- Contivity VPN O/S software with 5 VPN tunnels and IP routing (RIPv2)
- Contivity VPN Client software for MS-Windows with unlimited distribution license

Optional , via Software Licence Keys

- Contivity VPN Upgrade to 500 VPN tunnels*
- Contivity Stateful Firewall
- Contivity Advanced Routing (OSPF, VRRP, bandwidth management)
- Contivity Multi-OS VPN Client for MAC and UNIX

- CD and on-line HTML documentation

*Note: Contivity with standard software and 500 VPN tunnel license can be purchased as a single bundled model number.

Contivity 2700

Up to 2,000 tunnels
Hardware Features:

- Memory:
  - Standard – 128 MB (Maximum – 256MB)
- 1.33 GHz processor
- Three PCI expansion slots
- LAN/WAN interfaces:
- Standard
  - 2 10/100Base-T Ethernet ports
  - Management/console port (DB-9)
- Optional
  - Additional 10/100Base-T Ethernet
  - Single-port V.35/X.21
  - T1 with integrated CSU/DSU
  - High Speed Serial Interface (HSSI)
- Encryption accelerator card
- Software Features:
- Standard
  - Contivity VPN O/S software with 5 VPN tunnels and IP routing (RIPv2)
  - Contivity VPN Client software for MS-Windows with unlimited distribution license

Optional , via Software Licence Keys

- Contivity VPN Upgrade to 2,000 VPN tunnels*
- Contivity Stateful Firewall
- Contivity Advanced Routing (OSPF, VRRP, bandwidth management)
- Contivity Multi-OS VPN Client for MAC and UNIX

- CD and on-line HTML documentation

*Note: Contivity with standard software and 2000 VPN tunnel license can be purchased as a single bundled model number.

Contivity 4600

Up to 5,000 tunnels

Hardware Features:

- Memory:
  - Standard – 256 MB (Maximum – 1 Gigabyte)
- Dual 800 MHz processors
- Five PCI expansion slots
- LAN/WAN interfaces:
- Standard
  - 2 10/100Base-T Ethernet ports
  - Management/console port (DB-9)
- Optional
  - Additional 10/100Base-T Ethernet
  - Single-port V.35/X.21
  - Dual-port V.35
  - T1 with integrated CSU/DSU
  - High Speed Serial Interface (HSSI)
- Encryption accelerator card
- Dual, redundant, auto-switching power supply system with dual line cords
- Dual, redundant storage system
- Software Features:
- Standard
  - Contivity VPN O/S software with 5,000 VPN tunnels and IP routing (RIPv2)
  - Contivity VPN Client software for MS-Windows with unlimited distribution license
- Optional , via Software Licence Keys
  - Contivity Stateful Firewall
  - Contivity Advanced Routing (OSPF, VRRP, Bandwidth management)
  - Contivity Multi-OS VPN Client for MAC and UNIX
- CD and on-line HTML documentation

Contivity 1010/1050

Up to 30 tunnels

Hardware Features:

- Memory: 128 MB RAM; 32 MB Flash
- LAN/WAN interfaces:
  - Contivity 1010
  - 2 10/100Base-T Ethernet ports (RJ-45)
  - Management/console port (DB-9)

Contivity 1050

  - 1 10/100 Base-T Ethernet (RJ-45)
  - 4-port 10/100 Ethernet switch (RJ-45)
  - Management/console port (DB-9)

- Software Features:
- Standard
  - Contivity VPN O/S software with 5 VPN tunnels and IP routing (RIPv2)
  - Contivity VPN Client software for MS-Windows with unlimited distribution license

  Optional, via Software Licence Keys

  - Contivity VPN upgrade to 30 VPN tunnels
  - Contivity Stateful Firewall
  - Contivity Advanced Routing (OSPF, VRRP, bandwidth management)
  - Contivity Multi-OS VPN Client for MAC and UNIX
- CD and on-line HTML documentation

Contivity 1100

Up to 30 tunnels

Hardware Features:

- Two PCI expansion slots
- LAN/WAN interfaces:
- Standard
  - 1 10/100 Base-T Ethernet (RJ-45)
  - 4-port 10/100 Ethernet switch (RJ-45)
  - Management/console port (DB-9)

Optional

  - Additional 10/100Base-T Ethernet Interface Card
  - Single-port V.35/X.21 Interface Card
  - T1 with integrated CSU/DSU Interface Card
  - V.90 Dial Modem Interface Card (2Q03)
  - E1 Interface Card (2Q03)
  - ISDN BRI with integrated S/T/U Interface Card (2Q03)
- Software Features:
- Standard
  - Contivity VPN O/S software with 5 VPN tunnels and IP routing (RIPv2)
  - Contivity VPN Client software for MS-Windows with unlimited distribution license

  Optional, via Software Licence Keys
  - Contivity VPN Upgrade to 30 VPN tunnels
  - Contivity Stateful Firewall
  - Contivity Advanced Routing (OSPF, VRRP, bandwidth management)
  - Contivity Multi-OS VPN Client for MAC and UNIX
- CD and on-line HTML documentation

Contivity 600

Up to 50 tunnels

Hardware Features:

- Memory: 128 MB
- One PCI expansion slot
- LAN/WAN interfaces:
- Standard
  - 2 10/100Base-T Ethernet ports
  - Management/console port (DB-9)

  Optional
  - Additional 10/100Base-T Ethernet
  - Single-port V.35/X.21
  - T1 with integrated CSU/DSU
- Software Features:
- Standard
  - Contivity VPN O/S software with 50 VPN tunnels and IP routing (RIPv2)
  - Contivity VPN Client software for MS-Windows with unlimited distribution license

  Optional, via Software Licence Keys
  - Contivity Stateful Firewall
  - Contivity Advanced Routing (OSPF, VRRP, Bandwidth management)
  - Contivity Multi-OS VPN Client for MAC and UNIX
- CD and on-line HTML documentation

Branch VPN Switches (support for Branch Office tunnels only):

Contivity 100

- Fixed configuration platforms
- Pentium-class 300 MHZ processor
- 16MB memory
- 8MB Flash memory

Interfaces:

- Dual 10/100 Ethernet ports
- Serial port (out-of-band or PPP)
- Single and dual Analogue ports
- ISDN
- Dual or Triple Ethernet
- Contivity 100 software
- 5 branch Tunnels

Contivity 400

- Fixed configuration platforms
- Pentium-class 500 MHZ processor
- 64MB memory
- 8MB Flash memory

Interfaces:

- Dual 10/100 Ethernet ports
- Serial port (out-of-band or PPP)
- 7-port 10/100 Ethernet switch
- V.35 and 10/100 Ethernet
- T1 (CSU/DSU)/E1/V.35/X.21 and ISDN back-up
- V.90 dual Analogue modems
- ISDN (with and without NT1)
- Built-in web cache
- Contivity 400 software
- 30 branch tunnels

Remote Access:

- Cost effective remote access services with ability to leverage the Internet. Variety of access options – from 56 Kbps to multi-megabit supporting dedicated telecommuters and travelling employees

Branch to Branch:

- Leverage the Internet for WAN connectivity to remote or branch office locations – cheaper than Frame Relay
- Provide secure tunnelled connections for branch locations
- Simultaneously allow secure dial-in user connections to branches
- Create branch tunnels on demand
- Create a routed tunnelled mesh between branches

Extranet:

- Flexibility, highly secure, ubiquitous access to B2B partner sites/resources
- Contivity can consolidate VPN, firewall, Routing, Policy and QOS services in one platform that greatly reduces cost of operations
- Time to market – set-up partners with access in hours not weeks or months
- Improved security, performance, management over simple HTTPs/SSL
- Transparency – VPN deploys seamless into existing network and interworks with existing routers, firewalls and directory (authentication) services
- Reduced cost – eliminates costly private lines in favour of lower cost IP access

Ordering Information

For further information, please contact your Local Nortel Networks Representative.

Passport 2430
BayRS Access Router

Overview

Nortel Networks Passport 2430 Multiservice Access Router is a high-performance, flexible, yet low-cost branch-office solution. It's flexible WAN and LAN options, small size and quiet operation make the Passport 2430 switch the ideal solution for any small branch office. The Passport 2430 meets the business needs of flexible connectivity, ease of use and high performance for small branch environments at a cost-effective price. Offering a broad range of end-to-end multiservice solutions.

Customer Profile

All Enterprises who require multiprotocol branch access.

Typical Applications

Multiprotocol branch access routing

Features and Benefits

- Low cost branch access
- Increased network performance
- Flexible, reliable and secure networking
- Advanced multiprotocol routing
- Virtual Private Networking (VPN)

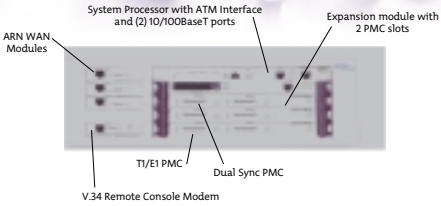
Key Points

- Delivers high performance at a low price
- Provides flexible connectivity through integrated transmission device
- Simplifies management with Optivity applications
- Maximises investment protection through a modular architecture and easily-upgraded WAN adapter versions

Ordering Information

For further information, please contact your local Nortel Networks Representative.

Passport 5430 BayRS Router



Overview

The Passport 5430 integrates the modularity of the BayStack Advanced Remote Node (ARN) router with a next-generation architecture to support performance-intensive "Power Branch" environments. The Passport 5430 solution reduces WAN operating costs by incorporating multiple features to integrate voice, video and data across a choice of WAN services.

Customer Profile

- Customers whose applications demand high bandwidth at remote sites
  - ATM on the WAN
  - Financial Industry
- Vertical Specific Applications pushing large amounts of data
- Customers whose applications require prioritisation (QOS/COS)
  - Dramatic increase in traffic
  - Needs more advanced Traffic Management (DiffServ, WFQ, WRED)
  - Needs business-critical traffic prioritised over non critical traffic
  - Using new latency-sensitive applications like VoIP
  - Wants policy-based services across network infrastructure

Typical Applications

- Multiprotocol branch access routing where a large range or number of interfaces is required.
- Core router for small to medium enterprises.

Key Points

- Robust routing with scalability, performance and QoS
- Voice/data convergence
- Flexibility
  - Modular configuration to match site requirements today and tomorrow
  - Interfaces configurable for changing applications
- Serviceability/manageability
  - Optivity management, directory and policy services
  - All active components serviceable without removing chassis
- Control of life-cycle costs
  - Excellent price/performance
  - Investment protection
  - Exploit changing WAN service tariffs (ATM, PPP, FR, VPN)
  - Common and simplified operations reduce impact and costs

Features and Benefits

- Advanced IP and Multiprotocol Routing
- IP QoS Services
  - Differentiated Services (DiffServ)
  - Optivity policy-based management (COPS)
  - Integrated services (Intserv) with RSVP
- Secure VPN End Node
  - Interoperability with Contivity
  - IPSec, PKI, L2TP, GRE, NAT, BGP
  - Hardware encryption module planned
- Superior multicast routing
  - Highest performing multicast support in the industry
  - PIM-SM, MOSPF, DVMRP, IGMP Relay

Ordering Information

For further information, please contact your local Nortel Networks Representative.

Passport 4400 Multiservice Access Switch

Overview

Nortel Networks Passport 4400 Series Multiservice Access Switches provide robust and flexible networking for all types of branch traffic. Voice, fax, video, LAN and other data services such as frame relay, SNA, SDLC, X.25, async and HDLC are carried over a choice of link options to provide efficient, reliable and easily managed services for mission-critical, time-sensitive applications.

Customer Profile

The Passport 4400 Multiservice Access Switch delivers powerful, integrated multiservice networking for the Enterprise. It is typically used as a central site solution for small- to medium-sized networks. The Passport 4400 is also ideal for large Enterprise or carrier networks, providing high performance branch access. Fully scalable, it is suitable for remote networks comprising as few as two nodes to as many as several thousands when deployed in conjunction with the Passport 6400 or 7400 series.

Defining needs

- Do you want to reduce your STD and ISD telephone charges? The Passport 4400 allows the integration of voice and data networks to allow long distance calls to be carried over the data backbone with full voice quality.
- Do you want to consolidate all of your legacy data services? The Passport 4400 allows legacy X.25, asynch, SNA and other proprietry host networks to be carried over a single network infrastructure.

Typical Applications

Nortel Networks recognises that deploying separate networks for voice, video and data is a challenging task. It leads to ineffective bandwidth use, application inflexibility and added complexity. The solution is network consolidation over a single platform. Network consolidation provides cost savings, improves business communications and increases efficiency.

Nortel Networks Passport 4400 Multiservice switches provide flexible networking for all types of branch office traffic over a single network infrastructure. Voice, fax, video, LAN and other data services such as Frame Relay, SNA, SDLC, X.25, asynch and HDLC are carried over a choice of link options to provide efficient, reliable and easily managed services for mission-critical applications.

The Passport 4400 switches add value to enterprise networks through key benefits such as:

- Bandwidth Savings - achieve bandwidth savings through dynamic bandwidth allocation, voice and data compression, silence suppression, fax demodulation and optimised LAN access protocols.
- Branch Office Consolidation - the Passport 4400 provides access consolidation for your branch office including voice, fax, video, LAN, SNA and data services across a single network link
- Scalability - the Passport 4400 can support thousands of nodes when used with the Passport 6400 series of ATM Enterprise network switches.
- Low Cost of Operations - the Passport 4400 is based on switched virtual circuits, avoiding a large number of provisioned connections.

Key Points

- The Passport 4400 Series includes the Passport 4430, Passport 4450, Passport 4455 and Passport 4460
- The Passport 4430 model provides the lowest cost solution for branch office termination

- The Passport 4450 provides added termination capacity for larger branch and small regional offices
- The Passport 4455 model provides additional performance to address the needs of large regional and small central site requirements
- The Passport 4460 model delivers the performance and voice termination capacity to address the central site requirements of small to medium-sized networks
- For large networks, central site traffic termination can be provided via the Passport 6400 series

Features and Benefits

- Cost-effectiveness and scalability - ease of provisioning and maintenance using SVCs and SPVCs plus ongoing manageability simplified by integrated network management
- Integrated WAN solution end-to-end from single vendor - Passport 6400/7400 for high-performance at large sites, Passport 4400 optimised for lots of smaller branch sites – integrated solution
- Multiple classes of service (5), integrated for end-to-end QoS
- Priorities mapped to backbone ensure end-to-end quality and integrity
- Prioritisation for various IP applications
- Key reliability and network assurance features
- Low-cost dial-backup for all traffic, integrated redundant power, commit and auto-rollback (s/w & config), backup & restore configs; proven cost-effective mission-critical networks
- Award-winning voice services – proven voice quality
- Full 24/30 channels of the standard G.729 voice
- "Single-hop" call routing across the network

Ordering Information

For further information, please contact your local Nortel Networks Representative.

Passport 6400 Multiservice Enterprise Switch

Overview

Building separate networks for ATM, voice, video and data is costly and inefficient. Nortel Networks Passport 6400 are scalable multi-service solutions that allow integration of LAN/WAN services into a single easily managed solution over leased lines, public/private frame relay or ATM. Nortel Networks Passport 6400 multi-service solutions consolidate diverse networks over a common platform, providing cost savings, operational simplicity and QoS optimised network infrastructure.

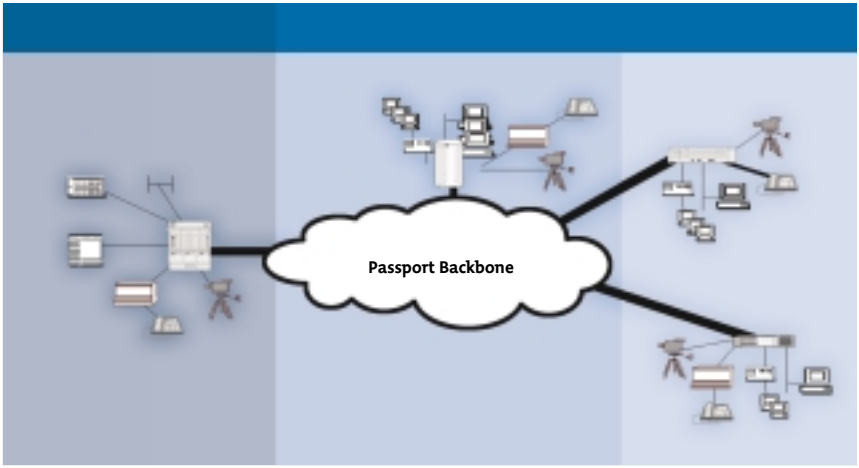
Customer Profile

The Passport 6400 multi-service solution is designed for Enterprise customers who are looking for network consolidation on voice, video, LAN and data traffic in a common network infrastructure. It provides a very scalable platform to support - from several nodes up to 1000 nodes. It provides excellent solutions for Enterprise sectors such as Finance, Government, Utilities and Call Centres.

Typical Applications

The Passport 6400 series supports all common applications that are required in the Enterprise customer environment. Typical applications include:

- Backbone solution for branch access (eg Passport 4400)
- Voice/fax networking for PBX
- LAN services (bridging, IP, IPX)
- Provide layer 2 connectivity (eg ATM, FR) for existing data equipment/network
- Video conferencing
- IBM services (APPN & SNA) or legacy data (X.25, Async)



Key Points

- Bandwidth Savings – achieve bandwidth savings through dynamic bandwidth allocation, voice (8K) and data compression, silence suppression, fax demodulation and optimised LAN access protocols
- QoS Optimisation – Passport supports Multiple Priority System (MPS) to allow dynamic traffic management based on application characteristic and QoS priorities
- Branch Office Consolidation – Passport 6400 provides consolidation for ATM, voice, fax, video, LAN, SNA and data services across a single network link
- Scalability – Passport 6400 can support thousands of nodes
- Low Cost of Operations – Passport 6400 supports switched virtual circuits, avoiding a large number of provisioned connections and dynamically providing the best available traffic path.

Key Features and Benefits

PP6400	Key Features	Benefits
System Networking	Redundancy	Redundancy available at CP, FP, system bus, Fan Unit & Power supply to avoid single point failure
	Multiple Priority System	Allocates bandwidth dynamically, reducing traffic congestion and delivering the least possible network latency, guaranteeing service level for all traffic
	Virtual Network Switching	Provides flexible cell and frame transport and improves LAN/WAN inter-working performance for IP and IPX routed traffic as well as bridged traffic
	M-PANL Networking with PP4400	Inter-working with PP4400 for both data and voice services.
ATM	SVC/PNNI/IISP Support	Provides ease of configuration and management with reduced latency for voice and improved connectivity for LAN traffic
	Next Generation ATM IP module	Dedicated ASIC to optimise IP performance over ATM
Frame Relay	RFC 1490 WAN PVC over Frame Relay protocol	Provides seamless inter-working between Passport 6400 and routers
	QoS-enabled for Frame Relay service	Support QoS prioritisation(TP) for FR circuits over PP network
Voice	Toll-quality Voice (Clearvoice)	Support single-hop SVC for voice connection to deliver toll-quality voice at G.729
	FAX Demodulation	Efficient consolidation of fax with other services reduces communication costs. Transmits faxes with only 9.6/14.4 Kbps instead of 64 Kbps
	A-law and Mu-law conversion	Inherently provides signalling conversion and avoids the need for external signalling equipment

Key Features and Benefits continued...

	Echo Cancellation	On-board echo cancellation with 64ms tail delay delivers superior voice quality and eliminates the need for external devices
LAN	Routing Support: RIP, RIPv2, OSPF, BGP-4, EGP	Provides flexibility in building IP networks
	NetSentry	Provides advanced IP packet filtering
	Virtual Router Redundancy Protocol	Eliminates a single point of failure inherent in the static default router environment

Ordering Information

For further information, please contact your local Nortel Networks Representative.

Passport 7400 Multiservice Switch

Overview

The Nortel Networks Passport 7400 Series of Multiservice Switches offer a versatile, reliable and scalable networking platform - delivering high-performance, cost savings, investment protection and management simplicity. The versatile Passport 7400 switches are ideal for access adaptation and backbone switching-supporting ATM, frame relay, IP routing and switching, MPLS, circuit emulation and voice services. The series includes the 16-slot Passport 7480 and the 5-slot Passport 7440, the switches offer multiservice access consolidation for speeds up to OC-3 and deliver flexible growth and high availability through a scalable redundant hardware architecture.

Customer Profile

Enterprise customers are able to take advantage of the attributes of the Nortel Networks Passport 7400 Series of Multiservice Switches. Providing a versatile, reliable and scalable networking platform, the Passport 7400 series delivers high-performance, cost savings, investment protection and management simplicity to Enterprise and Service Provider network environments. Ideal for access adaptation and backbone switching, the Passport 7400 series supports ATM, frame relay, IP routing and switching, MPLS, circuit emulation and voice services. Typical target customers include those in the following sectors: Finance, Government, Utilities and Call Centres.

Typical Applications

Passport 7400 series supports all common applications required in the Enterprise customer environment. Typical applications include:

- Backbone switching solution for branch access
- Voice/Fax networking for PBX
- LAN services (IP)
- Provide layer 2 connectivity (eg ATM, FR) for existing data equipment/network
- Video conferencing
- Packet Voice Gateway (PVG)

Key Points

Nortel Networks Passport 7400 are scalable multi-service solution that allows integration of LAN/WAN services into a single easily managed solution over leased lines, public/private frame relay or ATM. Key values include:

- Bandwidth Savings. Achieve bandwidth savings through dynamic bandwidth allocation, voice (8K) and data compression, silence suppression, fax demodulation and optimised LAN access protocols.
- QoS Optimisation. Passport supports Multiple Priority System (MPS) to allow dynamic traffic management based on application characteristic and QoS priorities.
- Branch Office Consolidation. Passport 7400 provides consolidation for ATM, voice, fax, video, LAN and data services across a single network link.
- Scalability. The high density MSA32 FP and the 4-port MVP FP provide scalable, flexible, cost-effective multiservice and voice solutions. Network-wide, Passport 7400 can support thousands of nodes.
- Support for port speeds from DSO through to and including STM-1
- Low Cost of Operations. Passport 7400 supports switched virtual circuits, avoiding a large number of provisioned connections and dynamically providing the best available traffic path.
- Capacity. Passport PVG converts conventional circuit-switched voice traffic to Packet voice for succession network evolution.

Key Features and Benefits

PP7400	Key Features	Benefits
System Networking	Redundancy	Redundancy available at CP, FP, system bus, Fan Unit & Power supply to avoid single point failure
	Multiple Priority System	Allocates bandwidth dynamically, reducing traffic congestion and delivering the least possible network latency, guaranteeing service level for all traffic
ATM	SVC/PNNI/IISP Support	Provides ease of configuration and management with reduced latency for voice and improved connectivity for LAN traffic
	Next Generation ATM IP module	Dedicated ASIC to optimise IP performance over ATM
Frame Relay	RFC 1490 WAN PVC over Frame Relay protocol	Provides seamless inter-working between Passport 7400 and routers
	QoS-enabled for Frame Relay service	Support QoS prioritisation(TP) for FR circuits over PP network
Voice	Toll-quality Voice (Clearvoice)	Support single-hop SVC for voice connection to deliver toll-quality voice at G.729
	FAX Demodulation	Efficient consolidation of fax with other services reduces communication costs. Transmits faxes with only 9.6/14.4 Kbps instead of 64 Kbps
	A-law and Mu-law conversion	Inherently provides signalling conversion and avoids the need for external signalling equipment
	Echo Cancellation	On-board echo cancellation with 64ms tail delay delivers superior voice quality and eliminates the need for external devices
	Support for both VoATM and VoIP	AAL2 channel multiplexing for greater networking efficiency
LAN	Routing Support: RIP, RIPv2, OSPF, BGP-4, EGP	Provides flexibility in building IP networks
Scalability	32 Port MSA FP	A flexible card that supports a mix of services (ATM, frame relay, CES, IP) and greatly enhances the customer's ability to adapt to growth in different services without having to deploy separate FPs and incur incremental costs to spare multiple FPs
	4 Port MVPe	A four port version of the existing 1 Port MVPe which provides significant port density and cost improvements
	MPLS	Support for evolving MPLS standards to deliver significant traffic handling improvements in multiservice IP-based networks

Ordering Information

For further information, please contact your local Nortel Networks Representative.

Passport 15000 Multiservice Switch

Overview

The Passport 15000 Multiservice WAN Switch offers a solution for enterprise customers who require high capacity and trunking speeds that exceed STM-1/OC-3 bandwidth. Passport 15000 supports ATM, frame relay, IP routing and switching, MPLS, circuit emulation and voice services. Passport 15000 is suited to be a backbone platform and is integral to the design of a high capacity, versatile, reliable and scalable solution for the provision of carrier-grade performance for core switching.

Customer Profile

- Large enterprise and service provider networks especially in the finance, government and utility sectors
- For users who require a large backbone network, Passport 15000 offers a Dual 40 Gbps switching capacity with interfaces ranging from channelised DS3/E3 to STM-16/OC-48

Typical Applications

Passport 15000 supports the similar feature sets available on the Passport 7400 platform (same software stream), but in a high-density and high-speed interface. Typical applications include:

- Backbone switching solution for large networks
- IP routing and switching
- Layer 2 services (ATM and FR)
- Circuit emulation service
- Packet Voice Gateway (PVG)

Passport 15000 allows smooth interworking with the other multiservice switches in the Passport family, ie running on the same software stream, offering the same multiservice capabilities and control of the same management system.

Key Points

Passport 15000 offers a high capability backbone solution with reduced complexity and capital costs, additional access options and peace of mind through a proven, highly secure solution.

- Reliability. Designed to meet the most stringent networking requirements, it provides equipment redundancy, hitless switchover, 1+1 protection for optical interfaces and 1:N sparing for electrical interfaces. It optimises network design for reliability, supported by carrier grade operational management and service

- Scalability. Passport systems can evolve into higher switching capabilities - Passport 20000 for 10G interface solution, while all existing PP15000 control processor and interface processors can be reused

- Versatility. Passport 15000 is unique in its ability to provide advanced ATM, frame relay, IP, MPLS and circuit-switched voice services all on a single platform

- Investment Protection. With Passport 15000, existing Passport networks can scale easily to support extreme growth, a solution that will not be soon outgrown. Support for multiple traffic types provides insurance against the uncertainties of the future while extending the value of today's systems

- Manageability. Powerful network management tools (Preside MDM) enable customers to run the network efficiently for premium levels of service and responsiveness at minimum operational cost

Ordering Information

For further information please contact your local Nortel Networks Representative.

OPTera Metro 5000 Multiservice Platform

Overview

The OPTera Metro 5000 series comprises DWDM (Dense Wavelength Division Multiplexing) platforms capable of transporting various optical data protocols across dark fibre. The solution is equipped with protocol and bit-rate independent interfaces which enable open, flexible and scalable networking across multiple topologies and distances from a few kilometres up to approximately 200 kilometre links. This enables a forecast tolerant transport solution which simplifies network planning, reduces operating costs, provides scalable capacity upgrades and allows rapid delivery of service.

Customer Profile

Medium to large enterprise customers possessing mission critical data with access to dark fibre Service Providers:

- Managed wavelength and connectivity/leased line services
- Fibre relief (maximising capacity across a pair of fibres)
- Mission critical data managed services for Enterprises

Defining Needs

Do you have dark fibre access to your building?

If not, does a service provider have fibre nearby ?

Is the value of your information critical to your business ' competitive advantage? Is access to this information critical to survival?

Which applications and protocols do you need to support today and in the next 12 months?

What is the growth in demand for bandwidth in your network?

Do your facilities have restrictions on space, equipment accommodation and power?

Typical Applications

- LAN interconnection – using Gigabit Ethernet, ATM or Fast Ethernet
- Remote data storage – using ESCON or Fibre Channel (FC100 and/or FC200)
- Geographically dispersed storage /processing – using ESCON, FICON or Gigabit Ethernet
- Real time disk mirroring using ESCON or Fibre Channel with SRDF
- PBX interconnection – via aggregation with SDH/SONET or ATM (ie E1s/T1s into STM-1/OC-1)
- Internet access – via POS (Packet over SDH) or Gigabit Ethernet
- Live news feeds – high quality digital video

Key Points

- Reliability – carrier grade, 99.999% availability – key for business continuity
- Industry partnerships (e.g. IBM, EMC, Brocade, Sun, Dell, etc.)
- Scalability
- Flexible network architecture – suitable for Core and Enterprise network builds
- GFP (Generic Framing Protocol) interfaces to enable Storage protocols (e.g. Fibre Channel) to be transported directly over SDH networks
- Inter-working with other OPTera Metro products via standardised DWDM, CWDM and GFP interfaces
- Extended distance support via amplified solutions
- Reduced time to market / Speed of additional capacity deployment
- Cost reduction versus leased capacity
- Future proof solutions
- Compatibility with all common optical data communication protocols
- Simplified remote network management
- Bit-rate, data format and protocol independent for client side interface

OPTera Metro 5100 Multiservice Platform

The space-efficient OPTera Metro 5100, is a low power optical product for small bandwidth requirement serving metro colocation and customer premise applications. It quickly and economically delivers 8 protected wavelengths of DWDM service to metropolitan colocation and customer premise applications.

OPTera Metro 5200 Multiservice Platform

The flexible OPTera Metro 5200 Multiservice Platform supports 32 protected DWDM wavelengths and offers 10G per wavelength scalability along with a network modelling tool that simplifies the deployment and operation of efficient DWDM networks.

OPTera Metro 5200 Cabinet

The free-standing OPTera Metro 5200 Cabinet is an easy-to-deploy DWDM cabinet solution that extends the OPTera Metro 5200 functionality and flexibility to metropolitan enterprise and customer premise environment applications. This cabinet delivers the benefits of the OPTera Metro 5200 Multiservice Platform in a pre-tested and pre-configured cabinet.
The OPTera Metro 5200 Cabinet solution can help customers reduce installation time and speed deployment by 82%.

Features and Benefits

- Point to point, survivable ring and mesh topology including multiple ring support
- 32 protected and up to 64 unprotected wavelengths in one system with mixed configurations possible
- DWDM and CWDM support
- Per wavelength and in-band optional protection switching as well as fibre switching
- Supports up to 10 Gbit/s per wavelength
- 4:1 client sub-rate multiplexing option allowing up to 270 Mbit/s per channel (usually for ESCON applications)
- SDH /SONET path trace and performance monitoring
- In-service upgrade by remote software download
- 850 to 1310nm client channel interface, single mode /multimode fibre
- TCP/IP based network management communications
- Network management via Preside Application Platform including shelf level graphics
- Amplifier support for extended distance networks (up to approx 200km depending on fibre)
- Optical network modelling tool for simplified network deployment, upgrades and planning
- Inter and intra-site fault monitoring capabilities

Proof Points

- 25 of the 27 major financial institutions in New York depend on Nortel Networks Metro DWDM to deliver connectivity for their mission critical applications
- #1 Market global share in metro optical - 41% Metro DWDM market share and 80% market share of optical sales into enterprises (Dell Oro, 2001)

  Over 10,000 OPTera Metro 5000 elements shipped globally

Ordering Information

For further information, please contact your local Nortel Networks Representative.

Alteon Application Switch (AAS)

Overview

The Alteon Application Switch is Nortel Networks next generation of high performance Layer 2-7 fixed network switches. It runs Alteons software "AlteonOS" and has increased switching performance, session capacity, feature capacity and port density compared to the current Webswitch platform.

The Alteon 2224 is a single Rack Unit, Fast Ethernet entry-level Application Switch that has 24 RJ45 10/100 auto-sensing Fast Ethernet ports as well as 2 optical Gigabit Ethernet uplink ports for a total of 26 useable ports.

Customer Profile

Alteon Application Switches are an ideal solution for Enterprises, Hosting Providers, Content Providers, e-Businesses and Service Providers that require a high performance switching solution for high-traffic IT Data Centres, network and hosting infrastructures. Current Alteon Web Switch customers, that require more Layer 4-7 physical ports for easy migration into higher port density, higher session capacity and higher switch performance.

Typical Applications

In order to provide the intelligence, scalability and resilience to any web site, Alteon Application Switches offer a raft of applications that are leveraged using the feature rich AlteonOS. These applications include:

- Server Load Balancing
- Global Server Load Balancing
- Web Cache Redirection
- Application Redirection (including SSL)
- Bandwidth Management
- Content Intelligent Load Balancing
- Firewall Load Balancing
- Streaming Media Load Balancing
- Intrusion Detection Load Balancing
- Wireless Load Balancing
- VPN Load Balancing
- Domain Name Service Layer7 Loadbalancing

Key Points

- The Alteon Application Switch is without doubt the industry leader in performance, functionality, scalability and reliability when it comes to Content Switching.
- The Alteon Application Switch uses a distributed architecture to ensure that all processor intensive intelligent decisions are off loaded evenly across all network processors.
- The feature rich AlteonOS not only performs standard content switching but also allows for advanced applications such as Firewall Load Balancing, Application Redirection, Wireless access and full RTSP Streaming support
- The switch is without doubt an easy to manage and robust device that is deployed in some of the most mission critical and highly accessed sites today.
- The integrated security functions enhance the overall security of the connected networks: Layer-7 Deny filter, Denial Of Service Attack Detection and –prevention,TCP rate-limiting and enhanced Port Mirroring.

Features and Benefits

- Configuration is compatible with current Alteon WebOS
- High-performance content-intelligent switching
- Server, Firewall, Cache, WAN Gateway, Virtual Private Network, Wireless Application Protocol, Real-Time streaming Protocol, Domain Name Service and Intrusion Detection Server load balancing
- Full inspection of URLs, cookies and any host headers across multiple requests and responses
- TCP, UDP, HTTP, FTP, SSL, SMTP, LDAP, DNS, Radius, WAP, RTSP, Telnet and NNTP and IP server load balancing
- Application redirection for any traffic type, including wireless
- Persistent connections using multiple Layer4-Layer7 parameters
- Comprehensive server health checks enable content verification and availability
- Gigabit-class, content-intelligent bandwidth management enables SLAs and usage-based services
- Response Time, Bandwidth, Link, Hash, Least Connections, Maximum Connections and Roundrobin load balancing metrics for unparalleled infrastructure optimisation
- Full network address translation enables multi-site load balancing and traffic redirection
- Global Server load balancing to distributed servers based on health, user proximity, server weights and response time
- Virtual Matrix Architecture enables dynamic utilisation of all processors and memory
- Complete site redundancy via active-active, active-standby, hot-standby and stateful fail over for high availability
- Up to 1024 virtual servers per switch
- Up to 1024 application servers per switch
- Up to 1024 services per switch
- Up to 2K packet filtering rules per port
- Up to 2.000.000 L4-7 sessions per switch

Ordering Information

For further information please contact your Local Nortel Networks Representative.

Alteon
Content Cache (ACC)

Overview

The Alteon Content Cache (ACC) is a core component of web caching and content delivery networking - a networking system designed for optimised management, distribution and delivery of content over networks. The ACC is the industry's highest performing caching and streaming appliance.

Customer Profile

- **Enterprise:** The ACC enables Enterprise Content Delivery Networking for rich streaming content delivering, improving corporate communication and reducing cost through advanced e-Learning. The ACC also increases productivity by effective content filtering and reducing user wait time.
- **Internet Data Centre (IDC):** The ACC enhances an IDC by providing managed services to improve content access to customers.
- **Access Service Provider:** The ACC enables intelligent Point of Presence (PoP) and provides advanced content filtering and performance enhancement.
- **CDN Service Provider:** The ACC allows Service Providers to offer intelligent CDN services that significantly enhances the end user's experience and improves network efficiency.

Typical Applications

- Content Delivery Networks (CDN)
- Advanced Streaming-based Applications like e-Learning, Corporate Communications and New Product Introduction
- Managed Content Service provided by an IDC
- Content Filtering based on administrator-configured and / or filtering subscription services
- Traditional Usage of Web Proxy Caching and Web Server Farm Acceleration

Key Points

- High performance streaming appliance (delivering 800+ Mbps throughput, 300K + concurrent sessions)
- Rich streaming protocols supported (QuickTime, Microsoft Media and Real Networks)
- Advanced support for streaming, including concurrent on-demand stream caching and live-stream splitting
- Content pinning for prioritisation
- Small Footprint
- Client acceleration and server acceleration supported on the same unit
- Complete family from entry level for small usage to high-end carrier-class appliance

Features and Benefits

- Delivers up to 35 percent bandwidth utilisation and up to 90 percent web server space and power savings
- QuickTime, Microsoft Media and Real Networks streaming media applications are supported
- Client acceleration (transparent-proxy) mode and server acceleration (reverse-proxy) mode are implemented simultaneously in the same unit, allowing flexible and cost-effective deployment
- The ACC accelerates web access response time and saves bandwidth consumption.
  As a result productivity is largely improved.

- Offloads origin servers; reduces cost of implementing origin web server sites with lower cost appliance
- Enables revenue-generating content delivery services at access edge
- Enables Enterprises and Service Providers to deliver high-value streaming media applications such as e-Learning, live broadcasts and corporate communications
- Support for content quality of service with Content Pinning and IP type of service tagging capability
- Supports filtering subscription services such as N2H2, X-Stop and Web Sense

Ordering Information

For further information please contact your Local Nortel Networks Representative.

Alteon Content Director (ACD)

Overview

The Alteon Content Director (ACD)is a Layer 7 client and content proximity solution for geographically distributed domains. Based on breakthrough, patent-pending technology, the ACD is the industry's only global server load balancing (GSLB) solution that delivers request-to-content routing based on Layer 7 attributes, true user proximity as well as network and server health and performance.

Customer Profile

- Enterprise: the ACD improves intranet and extranet performance and application availability, enabling advanced streaming applications like e-Learning.
- Service Provider: the ACD allows service providers to offer intelligent content delivery networking (CDN) services that significantly enhance the end-user 's experience and improve network efficiency.

Typical Applications

- Content Delivery Networks (CDN)
- Global application and sub-domain load balancing
- Streaming delivery
- Enterprise / Service Provider network optimisation
- High-availability applications

Key Points

- Accurate Request-to-Content Routing: The ACD selects the best site from the perspective of the user, not the user's domain name server (DNS).
- Content-aware Site Selection: The ACD chooses best site based on requested content.
- Performance: The ACD dramatically improves the overall user web experience by dynamically selecting fastest-responding site, accounting for user proximity, server health and load. The proximity database maintained by the ACD, which is learnt and built during site selection, further speeds up site selection process.
- Understanding Streaming Protocols: The ACD inspects content inside Real Time Streaming Protocol (RTSP). This offers flexibility to content provider in developing streaming application.

Features and Benefits

- Intelligent site selection based on specific content being requested which improves service robustness and efficiency of web content delivery.
- Layer 7 load balancing / routing based on patterns contained in HTTP headers, enabling site selection based on language, client access devices, etc.
- Real-time knowledge of latency, packet loss and server health.
- Multiple site selection algorithm for maximum flexibility.
- HTTP and native RTSP supported.
- Client Network Cache contains client information learnt by the ACD over time, storing millions of client networks.
  This speeds up the lookup process.
- Site persistence based on HTTP cookies allows e-business application deployment.
- Highly scalable architecture supports thousands of sites.

Ordering Information

For further information please contact your local Nortel Networks Representative.

Alteon Content Manager (ACM)

Overview

The Alteon Content Manager (ACM) is the centralised management component of Nortel' Networks' Content Delivery Network (CDN) solution - a networking system designed around optimised management, distribution and delivery of content over networks. The ACM is typically deployed at a unique central location in a redundant configuration. The ACM works directly with networks of Alteon Content Caches (ACCs) to provide distribution, pre-positioning and management of content, as well as accounting management, to enable CDN services for the Enterprise, Content Provider or Service Provider. The ACM is also a powerful management tool, which can be used to configure and monitor any or all Alteon Content Caches in a network to create groups of caches and to assign access control to specific administrators. The ACM also enables content delivery networks with the industry's most scalable and resilient system management, allowing Enterprises and Service Providers to manage their CDN networks efficiently and cost-effectively.

Customer Profile

The Alteon Content Manager is an excellent proposition for Enterprises and Service Providers that are deploying a CDN or many remote Alteon Content Caches. Each Alteon Content Manager will support 20+ administrators, each of which can have individualised management rights and over 2,000 Alteon Content Caches.

Typical Applications

The product is designed to allow comprehensive, centralised management of Alteon Content Caches. The logging, accounting and system management allow for large scale CDNs as well as enterprise wide cache monitoring.

Key Points

- The Alteon Content Manager was specifically designed for optimal communication with the Alteon Content Caches, or groups of Alteon Content Caches. This enhanced communication results in reduced bandwidth consumed between both devices.
- The Alteon Content Manager utilises an integrated database. Including a database makes integration and configuration seamless and facilitates the creation of an internal directory that is easily synchronised with all Alteon Content Caches in a network. This design reduces start-up costs dramatically when compared to some other vendors' implementation, which requires a third party database. This results in enhanced fault tolerance, redundancy, and scalability, with reduced investment, management and maintenance costs.
- Replication and synchronisation are included in the integrated data store, providing even greater savings.

Features and Benefits

ACM's system management provides the infrastructure layer that allows the management, the monitoring, and the configuration of multiple ACCs in a CDN network. It is the foundation for ACM's other value-added management components such as content management and accounting management for CDNs.

General	• Flexible and easy management solution for Content Delivery Networks • Provides Content Management, Device Management and Accounting services • Web based user interface • No dependencies on expensive third party databases • Ability to configure cache groups and apply actions to the groups • Clustering for scalability
Cache Management	• Support for grouping of caches and then treating the group just like a single cache • Configuration of Cache Groups as well as individual caches • Monitoring of Cache Groups as well as individual caches • Log Management • Configuration Templates • Scheduling of events eg configuration changes, upgrades or other maintenance
Content Management	• Content Collections to treat large quantities of content as single object for management • Cache Group defined for Cache Management are used in content management as well • Content Pre-positioning of collections to distribution groups • Monitoring of Content Collections • Job Scheduling • Content Purging
Accounting	• Efficient collection of accounting data • Aggregation of data • Reporting at configurable intervals • Collection of only relevant data for efficient resource usage • Data reported in industry standard formats • Integration with third party billing systems

Ordering Information

For further information please contact your Local Nortel Networks Representative.

Alteon Link Optimizer (ALO)

Overview

Nortel Networks Alteon Link Optimizer is designed to simplify multi-homing and optimise multiple WAN links for application performance, scalability, and cost-effectiveness while also providing a first line of security for network assets. With both Fast Ethernet and Gigabit Ethernet models available, enterprises can choose a model best suited to meet their network requirements for maximum ROI.

The Alteon Link Optimizer combines the load balancing intelligence of its special link optimizer software, called the WAN LB OS, with the fast packet processing engine built by its mature ASIC distributed technology. For the outbound and inbout traffic, the Alteon Link Optimizer will determine the best ISP link to sent out the traffic. The measurement of the best ISP link is determined on a sliding average weighted window to ensure that the best link is always chosen. At the same time, each of the ISP router is been checked regularly to ensure that the router can properly handle the traffic. The Alteon Link Optimizer assures that traffic returns via the same ISP link that the request originally specified for the client initiated. The symmetric traffic flow will ensure that each ISP handles both the ingress and the egress portion of a session.

Customer Profile

- Medium and large businesses
- Enterprise businesses, Hosting providers, Content providers, e-Businesses that need a highly reliable and failsafe Internet connection
- Customers using multihomed ISP connections
- Customers who need ISP failover functions

Typical Applications

- WAN Link Load Balancing
- Bandwidth Management for ISP links
- First line of security into corporate networks

Key Points

- Fail-safe business continuity
- Network optimisation
- Security
- For multi-homing environments

Features and Benefits

- Enables fail-safe business continuity by efficiently load balancing multiple WAN links and providing link failover.
- Improves business productivity and simplifies operations by optimising WAN links for application performance.
- Protects applications and networks via multi-layer security
- Scales business applications and network capacity efficiently without downtime.
- Simplifies operations and deployment of Multi-homing
- Removes the need for complicated BGP based solutions
- Full featured load balancing, health checking and Bandwidth rate limiting
- Maximises return on IT investment
- Utilise existing infrastructure more efficiently
- Utilise previously idled backup WAN links
- Transparent to users and ISP providers

MODEL	143	150
Total # of Ports	8 – 10/100 Mbps 1- Gig SX	8- 10/100/1000 1-Gig SX
Total Memory	18 MB/switch	18 MB/switch
Concurrent Session	336K	336K
Session per Second	>24K*	>24K*
ISP Links load balanced	8	8
IP Routing Interfaces	256	256
Policy Filters	224	224
VLANS	256	256
Switch Capacity 143	8 Gbps	8 Gbps

Ordering Information

For further information please contact your Local Nortel Networks Representative.

Alteon SSL Accelerator (ASA)

Overview

The Alteon SSL Accelerator (ASA)is an innovative service delivery platform designed to provide a variety of value added traffic management applications that further extend the performance, scalability and flexibility of advanced Content Switching infrastructures. The Alteon SSL Accelerator (ASA) intelligently accelerates secure business transactions by offloading Secure Sockets Layer (SSL) processing from local servers without imposing delays on other traffic in the same data path. The SSL Accelerator also simplifies the way to deploy and maintain a Public Key Infrastructure (PKI), enabling business critical electronic transactions. Purpose-built to perform processing tasks with long duty-cycles that would otherwise bog down network performance, the SSL Accelerator seamlessly integrates with Alteon Content Switches to offer the best of Content Switching and IP appliance technologies.

Customer Profile

- Any business that is serious about securing their web and email traffic be it from an internal or external threat, is a prime candidate for the Alteon SSL Accelerator (ASA)
- Large government organisations, to companies providing e-Commerce or B2B services, who require encryption and/or authentication of their data without impacting the customer experience, will require the deployment of the Alteon SSL Accelerator (ASA)

The rich features of content switching are not compromised when security is required as fully-fledged intelligent switching is still achieved by using an Alteon Web Switch in conjunction with the SSL Accelerator. In addition securing of email services that support SSMTP, POP3S and IMAPS can be easily achieved using the Accelerator.

Typical Applications

Today's most successful companies are using the Web to communicate with their customers, suppliers and partners because of the open and ubiquitous nature of the Internet. But the very openness of the Web makes security a concern. SSL, combined with PKI, can provide a standard means of securing transactions, but each has possible drawbacks to your site's performance and resources. SSL transactions can be so compute-intensive that they slow your site to crawl as Web servers are forced to handle key exchanges and bulk encryption. And PKI can take a toll in administration. The Alteon SSL Accelerator (ASA) has been specifically designed and enhanced to work with Nortel Networks industry leading Alteon Web Switch, to create a total solution that allows you to ensure security for you and your customers and to manage key administration centrally, all without losing the site performance that is truly critical to success. So one can enjoy the performance one needs with the strong security customers demand at a much lower cost than adding more servers, all in a highly scalable solution that is easy to integrate.

On line shopping and eBusiness services are the main applications that would benefit from this technology however as more emphasis is placed on security, internal and non-web based sites are being migrated to SSL to provide superior encryption and security.

Key Points

Scalability. Resilience. Manageability. Performance. These age old adages are at the cornerstone of the Alteon SSL Accelerator (ASA). Scaling to an excess of 150 000 key exchanges per second in a single SSL offload farm provides sufficient growth for even the busiest sites.

The ability to cluster the Accelerator not only allows for rapid fail over it also allows for unparalled management as all configurations and certificates are installed once through a common interface and automatically copied, using encryption, to all other devices thus providing a single point of management.
All non SSL traffic is not impacted as this device sits out of the data path allowing only the SSL session to be forwarded to the Accelerator for processing thus increasing throughput of non secure traffic.

Features and Benefits

- The Alteon SSL Accelerator (ASA) can process SSL transactions 5 to 250 times faster than an HTTPS server
- A cluster of Accelerators can process up to 150,000 SSL sessions per second on a single Content Switch
- Centralised, advanced key and certificate management saves administrative costs and maintenance hassles
- Automatic import of keys generated by Apache, Stronghold, OpenSSL, IIS 4.0, Weblogic and PKCS12
- Scalable up to 256 hot swappable SSL Accelerators per Content Switch for performance and redundancy
- Supports multiple virtual SSL servers in active-standby mode for resilient SSL services
- Content Intelligent Switching services for secure SSL sessions
- HTTP application level knowledge which enables functions like header add/remove and redirection
- Maintains session context between HTTP and HTTPS
- Processes SMTP-S, POP3-S and IMAP-S secure messaging protocols
- Shopping-cart persistence without server reconfiguration or waste of VIP addresses
- SSH secure management protocol and SNMP support
- Supports SSL v2.0, SSL v3.0 and TLS v1.0
- Easy import of keys generated by Netscape Server via a conversion utility
- 10/100 Mbps copper or 1,000 Mbps fibre link from SSL Accelerator to Content Switch
- Attach to Content Switch directly or across a local broadcast domain
- Rack-mountable 1U high unit

Ordering Information

For further information please contact your local Nortel Networks representative.

Alteon Switched Firewall (ASF)

Overview

The Alteon Switched Firewall (ASF) is a multi-component solution managed as a single system. The system is a tight confederation of two key components - an Alteon Switched Firewall Accelerator, plus up to six Alteon Switched Firewall Directors. The software is a combination of the Alteon Switched Firewall OS, providing session acceleration and switching functionality and the market-leading Firewall-1 software from Check Point.

The Alteon Switched Firewall Director performs policy checking for every new connection request, manages the connection table and specifies the rules for handling packets in a session. After a connection is established, the Alteon Switched Firewall Director passes its connection table to the Alteon Switched Firewall Accelerator. The Switched Firewall Accelerator applies the firewall rules at wire speed to subsequent packets within an existing connection. As a result, up to 90% of traffic is accelerated as these packets bypass the core firewall logic on the Switched Firewall Director. This unique acceleration technology, only found on the Alteon Switched Firewall System, makes it one of the leading high performance firewalls on the market.

Customer Profile

Today, businesses need to carefully manage both capital and operational expenditures, while continuing to quickly respond to changing IT infrastructure requirements. The Alteon Switched Firewall provides a data centre solution that meets customer's needs to simplify operations and control costs. With security at the forefront of all network designs and with the use of the OPSEC certified software ensuring strong security as a given, this allows customers to focus on other aspects of deployment.

- Time sensitive applications such as Streaming and VoIP services will benefit from the very low latency imposed by the ASF
- Customers who have a large user base making multiple connections requiring raw throughput and session set up such as wireless users, will be able to leverage the power of the ASF
- Customers seeking to centrally manage a large deployment of global firewalls will benefit from the single management UI and the Check Point NG Management Platform

All of the above is underpinned by Check Point NG, the market leading, defacto industry standard security software.

Key Points

- Transparent deployment into existing Check Point firewall infrastructures leveraging Check Point's advanced firewall and security management services.
- Overall simplification of firewall and hosting infrastructures in terms of deployment, day to day management and troubleshooting.
- Operation costs are minimised because administrators no longer must configure each firewall as added. The first firewall can be provisioned in less than 30 minutes with a configuration wizard. The Single System Image replication and management wizard capabilities of the Alteon Switched Firewall System makes adding new Alteon Switched Firewall Directors a plug and play operation.
- With its innovative architecture and plug and play provisioning of firewall resources, the Alteon Switched Firewall allows Enterprises and Service Providers to lower capital expenditures and increase their return on investment. Capital expenditures are reduced to a "pay as your traffic grows" flexible architecture.
- Protection of existing staff skills, training and processes while deploying advanced Alteon Switched Firewall services.

- The Alteon Switched Firewall provides the best price/throughput ratio on the market making it the best choice for performance hungry networks.

Features and Benefits

- Integrated market leading Check Point NG firewall software with performance enhancements
- Switched-based session acceleration enables tremendous improvement in firewall performance
- Total compatibility with Check Point NAT and the added feature of offloading CPU intensive NAT functions to the Switched Firewall Accelerator
- Highest performing firewall on market with 3.2Gbps throughput and 500,000 simultaneous sessions
- High availability allows automatic fail-over to back up firewall devices.
- Discrete switch and firewall fail-over eliminating single points of failure.
- Plug and Play allows additional Switched Firewall Directors to be auto-detected upon power-on and automatically configured for license, IP address and security policies.
- Scalable, allowing up to 6 Switched Firewall Directors per switched firewall accelerator for easy expansion.
- Small Footprint of only 3RU for the base Alteon Switched Firewall or 1RU for the ASF-5100 series
- A single GUI is used to manage both the Switched Firewall Accelerator and the Switched Firewall Director
- Switch and Director logs centrally monitored
- VLAN and 802.1Q tagging support allowing for 256 DMZs
- Customers need not trade off performance for security

	ASF 5308	**ASF 5408**	**ASF 5610**	**ASF 5710**
Throughput Session connections/s	600 Mb/s 5,500 - up to	600 Mbps 5,500 - up to	4.2 Gbps 5,500 - up to	4.2 Gbps 5,500 - up to
Accelerated Sessions	32K	32K	32K	32K
Total Sessions	40,000	170,000	170,000	500,000
Layer 3 Protocols	500,000	500,000	1,000,000	1,000,000
Virtual Firewalls	OSPF	OSPF	OSPF	OSPF
VLANs/IEEE 802.1Q	Yes - up to 100	Yes - up to 100	Yes - up to 100	Yes - up to 100
Health Checks	Yes - up to 242	Yes - up to 242	Yes - up to 242	Yes - up to 242
Multi-Link Trunking	Yes	Yes	Yes	Yes
Plug and Play	Yes	Yes	Yes	Yes
Single Image Upgrade	Yes	Yes	Yes	Yes
Scalability	Yes	Yes	Yes	Yes
High Availability	Yes	Yes	Yes	Yes
10/100 Ports	Active-Active	Active-Active	Active-Active	Active-Active
Gigabit Ethernet Ports	9	9	9	9
Rack Units	1	1	9	9
	3	3	3	3

Ordering Information

For further information, please contact your local Nortel Networks representative.

802.11 Wireless IP Gateway

Overview

The 802.11 Wireless IP Gateway card enables third-party wireless IP handsets to deliver the feature rich suite of Meridian Digital Services over a Wireless LAN connection. It is a fully integrated offering in Nortel Networks communications portfolio which includes Meridian 1 and Succession CSE 1000. This product is designed to capitalise on the convergence of voice, data and wireless while providing investment protection by building on the feature richness and reliability of Nortel Networks Meridian 1 and Succession CSE 1000.

Customer Profile

- 802.11 Wireless IP Gateway solution is most suited to customers that want to implement a voice over wireless LAN infrastructure
- Early adopters and technology sensitive users, such as healthcare, retail or industrial sectors, can capitalise on the need for wireless data and add voice devices on the same wireless infrastructure

Key Points

- Leverage investment in wireless LAN and Meridian 1/Succession CSE 1000/CallPilot and other applications
- Cost saving – utilising common wireless LAN for both Meridian based wireless voice services and standard wireless data intranet services and applications.
- Cost saving - extending of common fixed LAN with a wireless LAN network for voice and data in communal areas and areas that are difficult / expensive to wire.
- Mobility – enables users with the ability to roam about the workplace with real-time wireless voice and high throughput wireless data communications
- Increase Productivity - wireless users can take calls that otherwise would not reach intended recipient
- Open Standards Solution L Wireless LAN based on IEEE 802.11, wireless voice based on ITU H.323 with Nortel Networks specific extensions.

Features and Benefits

The Wireless IP Gateway card emulates a Digital Line Card (XDLC) and has 24 DSP ports that provides gateway functionality to facilitate the bridging (conversion) of voice streams between the packet-switched (IP) data network and the circuit-switched PBX network. These 24 DSP ports allow the card to support up to 24 wireless IP handsets. In addition, the Wireless IP Gateway card acts as a Terminal Proxy Server or "virtual line card" for wireless handsets. In this capacity, the card is responsible for registering handsets and keeping track of the maximum number of sets that can be registered per card.

Nortel Networks 802.11 Wireless IP Gateway card supports the following handsets from Symbol Technologies Inc.

- NetVision Phone – 2 Mbps Frequency Hopping Spread Spectrum – 802.11
- NetVision Phone – 11 Mbps Direct Sequence Spread Spectrum – 802.11b

A special version of the NetVision phone software supports the H323+ protocol to allow for M1 feature support access from the wireless set. Symbol handsets are shipped with Nortel Networks specific software which can also be downloaded from the Symbol website.

The following features are supported in the 802.11 Wireless IP Gateway release (features are activated through the "Function" key on the handset):

- Called/Calling Party Name Display
- Message Waiting Indication
- Conference
- Transfer
- Call Forward
- Ring Again
- Call Park (Retrieve & Timeout)
- Make Set Busy
- Dial Access to Group Call
- Speed Call User
- Call Pickup
- Dial Access to Paging
- Twinning/Privacy

Ordering Information

For further information, please contact your local Nortel Networks Representative.

Internet Telephones

Overview

The Nortel Networks i2004 and i2002 IP Telsets provide clear, high-quality telephony service and the familiarity and ease of use of a traditional digital telephone. Both telephones connect directly to the LAN using a modular RJ-45 connector enabling your customer to capitalise on the economies of a simplified wiring system.

The i2050 Software Phone will transform your PC into a fully-featured telephony communications platform by simply loading the software and plugging in the headset into the USB port.

Nortel Networks offers options for an evolutionary or revolutionary step up to IP Telephony. Customers can upgrade from Norstar to Business Communications Manager or Meridian 1 to IP enabled Meridian and gradually adopt IP Telephony as required or they can take advantage of the benefits of new IP functionality immediately.

Customer Profile

Small medium size businesses with multiple sites or small distant offices that require a cost-effective method of networking sites.

i2002 Internet Telephone: Designed for office professionals and technical specialists, this multi-line phone offers an integrated LCD display screen and is well-suited for moderate call volumes.

i2004 Internet Telephone: Ideal for managers, executives, and office administrators, this multi-line phone features a large LCD display screen capable of displaying a maximum amount of information, and is well-suited for high call volumes.

i2050 Software Phone: Created for a broad range of workplaces and mobile users, this software-based solution transforms your laptop or desktop PC into a converged voice/data communications platform.

Key Points

- Buying an i2002 or i2004 IP set means that as your business needs changes it is easy to unplug the set and move to an alternative locations without any reprogramming.
- Buying an i2050 softphone means that as you move around doing your business the voice functions you require are delivered.
- Cost effective solution that can be fully maintained.
- All the benefits of traditional telephony but using the latest IP set.
- Can be used for business or IP Contact Centre set.

Features and Benefits

- Simplicity, flexibility and cost advantages: IP sets are flexible as they can be connected to any LAN port. Faster to set up and rearrange and easier to manage. Reduced long term management costs of configuring, supporting and maintaining IP extensions over digital extensions.
- Portability: It's possible to extend an IP station to virtually anywhere in the LAN/WAN via IP. Home workers can be connected through dial up from anywhere in the world. Small branch offices can be connected back to a central IP enabled Meridian 1, CSE 1000, or Business Communications Manager using a Nortel Networks data switch at the branch office and data network connection back to the central site.
- Unified Infrastructure: With IP Clients voice is supported on an IP based data network. On the i2004 it is possible to connect the telephone and the PC into a single Ethernet cable on the desktop. Reducing overall cabling costs. Delivering a unified infrastructure that supports both voice and data.

i2002 Internet Telephone	i2004 Internet Telephone	i2050 Soft Phone
Multi-line set with 2 line 24 character LCD display.	Multi-line set with 4 line 24 character LCD display.	Three slide out feature draws (line keys, Voicemail and Quickdials)
Supports four self-labelling programmable features and four soft feature keys.	Supports six self-labelling programmable features and nine soft feature keys.	Supports five special purpose service keys and four interactive keys.
Dual use incoming call indictor and message waiting light.	Dual use incoming call indictor and message waiting light.	Message waiting indicator
Supports direct headset connection (set has built in amplifier).	Supports direct headset connection (set has built in amplifier).	Supports direct headset connection via PC USB port.
Navigation cluster keys gives fast menu, sub-list and call log scrolling.	Navigation cluster keys gives fast menu, sub-list and call log scrolling.	Navigation Keys
High Fidelity Full Duplex speakerphone. Supports disabled users with hearing aids	High Fidelity Full Duplex speakerphone. Supports disabled users with hearing aids	Supports local directory imports Reads Symantec ACT, Microsoft Outlook, and LDAP databases for seamless directory integration.
Adjustable LCD contrast	Adjustable LCD contrast	Macro functions transform lengthy operations into a single digit action.
Desk or wall mounting.	Desk or wall mounting.	PC Desktop or Laptop compatible.

Specifications	i2002	i2004	i2050	Power over LAN Hub
Platform Compatibility	Business Communications Manager, IP-Enabled Meridian 1 and Meridian SL-100 systems, Succession Communication Server for Enterprise 1000, Succession Communication Server 2000, Succession Communication Server 3000, and Succession Interactive Multimedia Server.	Business Communications Manager, IP-Enabled Meridian 1 and Meridian SL-100 systems, Succession Communication Server for Enterprise 1000, Succession Communication Server 2000, Succession Communication Server 3000, and Succession Interactive Multimedia Server.	Business Communications Manager, IP-Enabled Meridian 1 and Meridian SL-100 systems, Succession Communication Server for Enterprise 1000, Succession Communication Server 2000, Succession Communication Server 3000, and Succession Interactive Multimedia Server.	Business Communications Manager, IP-Enabled Meridian 1 and Meridian SL-100 systems, Succession Communication Server for Enterprise 1000, succession Communication Server 2000, Succession Communication Server 3000, and Succession Interactive Multimedia Server.
Dimensions	8.2 x 6.5 x 6.6 in., (WxDxH) 208 x 165 x 168 mm	11.8 x 6.5 x 5.3 in., (WxDxH) 300 x 165 x 134 mm	Configurable	17.2 x 11.8 x 2.6 in., (WxDxH) 436.9 x 300 x 66 mm
Weight	2.1 lbs, 965 g	2 lbs, 900 g	N/A	5 kg/11 lbs
Colour	EtherGray	EtherGray	Two user-configurable skins (light/dark gray)	White
Power Supply	110 V Wallmount supply delivering 16 VAC @500 mA	110 V Wallmount supply delivering 16 VAC @500 mA	N/A	N/A
AC Power	90-240 VAC, 50/60 Hz	90/240 VAC, 50/60 Hz	N/A	90-240 VAC, 50/60 Hz
DC Input Power	-48 VDC LAN feed	-48 VDC LAN feed	N/A	-48 VDC redundant power connector

Specifications	i2002	i2004	i2050	Power over LAN Hub
Output Power	N/A	N/A	N/A	-48 VDC watts max per port total output 192 watts
Power dissipation	4.5 watts typical, 5 watts max	4.5 watts typical, 5 watts max	N/A	N/A
Operating temperature	40° to 104° F (+5° to 40°C)	40° to 104° F (+5° to 40°C)	N/A	32° to 104° F (0° to 40° C)
Relative Humidity	5% to 95% (non-condensing)	5% to 95% (non-condensing)	N/A	N/A
Storage Temperature	-40° to 158° F (-40° to 70° C)	-40° to 158° F (-40° to 70° C)	N/A	N/A
Codecs Support	G.711a and/or u law, G.723.1, & G.729a and annex b	G.711a and/or u law, G.723.1, & G.729a and annex b	G.711a and/or u law, G.723.1, & G.729a and annex b	N/A
Call control protocol	UNIStim subset over UDP w/reliability layer	UNISim subset over UDP w/reliability layer	UNISim subset over UDP w/reliability layer	N/A
Headseat Support	Built-in amplifier for direct headset connection	Built-in amplifier for direct headset connection	Nortel Networks USB audio kit	N/A
OS compatibility	N/A	N/A	MS Windows 98, 98SE, 2000	N/A
Security	Private key challenge response	Private key challenge response	Private key challenge response	N/A
Audio Interface	N/A	N/A	WAV standard 16-bit linear 8 KHz	N/A
RX jitter buffer	Configurable, default is two frames	Configurable, default is two frames	Configurable, default is two frames	N/A
WAV buffer	N/A	N/A	40 ms	N/A
Internet Telephone	Integrated	Integrated	N/A	N/A
Switch Mounting	Desktop or Wall	Desktop or Wall	Desktop PC or laptop	N/A
Ports	3 (1 internal, 2 external)	3 (1 internal, 2 external)	N/A	24
Data rates	10/100 Mbps autosensing	10/100 Mbps autosensing	N/A	10/100 Mbps autosensing
Standards	IEEE 802.3, 802.3u	IEEE 802.3, 802.3u	N/A	IEEE approval in process
MAC address	Auto-Learning, auto-aging at 700 seconds	Auto-Learning, auto-aging at 700 seconds	N/A	N/A
Hardware priority	Fixed priority to phone port based on hardware	Fixed priority to phone port based on hardware	N/A	N/A
Power Feed	16 VAC by supplied AC adaptor or 48 VDC Power over LAN Hub	16 VAC by supplied AC adaptor or 48 VDC Power over LAN Hub	N/A	Common mode on pairs 4, 5 & 7,8
Load Sensing	N/A	N/A	N/A	Automatic common mode sensing. Will not power unused pair unless a valid load is present.
Fault Sensing	N/A	N/A	N/A	Automatic over /under current independent on each port.

Ordering Information

For further information, please contact your local Nortel Networks Representative.

Business Communications Manager Release 3.0

Overview

The Business Communications Manager is a fully converged business communications system. It brings together voice, data and business applications onto a single unified solutions platform. BCM delivers IP telephony and a full complement of features and functions, such as Internet access, voice messaging and call centre capabilities, as well as a Web-based system management. This breakthrough solution is built specifically for small-to-medium businesses and networked branch offices. It enables these businesses to streamline their operations and can help them obtain, improved employee productivity, provide better customer service and develop more effective and profitable relationships with their clients. Business Communications Manager lets business communicate over traditional voice circuits. IP networks or using a combination of both. This unified communications platform makes network management far easier, facilitates voice over IP calls and IP networking between offices and can help to significantly lower operating costs and overall cost of ownership.

Customer Profile

Typical installations are likely to range from 8 to 196 users and will encompass green field sites along with established SME customers and networked branch offices of larger enterprises.

Typical Applications

BCM is ideally suited for the small-medium enterprise (SME) single site customer who requires an advanced, feature rich communication solution. It is also an ideal solution for larger customers with branches or multiple premises, which need to communicate with each other over a network.

Defining Needs

The key for BCM is not to just focus on single features such as Voice over IP or basic telephony, but to look at it as a complete solution to a business' needs:

- Are you looking to increase revenue-earning opportunities?
- Do your employees travel and could they benefit from greater accessibility and freedom to work from anywhere?
- Which of your clients contact the business the most and would you like to improve the service that you give to them?
- Would you like to increase your employee effectiveness?

Key Points

The powerful synergy created by converging traditional data networks with breakthrough IP telephony applications offers significant benefits to small/medium-size businesses and larger enterprises with a number of branch offices that are required to be networked together. Whether it's using Internet Protocol (IP) networks to handle telephony traffic, establishing Contact Centres to provide higher levels of customer service, or using breakthrough wireless technologies to streamline operations, Business Communications Manager can help businesses develop an operational advantage over their competitors. By supporting both digital and IP telephony, this converged solution enables companies to adopt and migrate towards IP-based solutions at their own pace, with no loss of features and functionality, and at no risk, whilst simultaneously providing them with maximum investment protection.

The system is now available based on two core platforms to improve product scalability and widen its appeal to a larger range of customers.

Features and Benefits

Business Communications Manager can provide customers with cost effective advanced business solutions based on:

- Traditional and IP Telephony
- Unified Messaging
- Flexible Contact Centres
- Interactive Voice Response
- Computer/Telephony Integration
- Voice and Data Networking
- In-Building Mobility
- Flexible Working
- Centralised/Remote System Management
- Hybrid Environment communications environments, using a mix of traditional and IP leverage existing investments in Meridian and Norstar systems, and offers a future-proof and cost effective low risk migration strategy.
- IP Telephony supports powerful new e-business applications that level the playing field with larger competitors, extend network services to remote workers, simplify moves and changes and reduce call charges and leased line costs on site-to-site calls.
- Unified Messaging expands on the power of traditional voice messaging and fax solutions. With Business Communications Manger, traditional voice messaging can easily be extended to include fax management, through the traditional voice messaging interface. By upgrading to CallPilot Unified Messaging users can manage all their voice and fax messages in the same way as they manage their e-mail from applications such as Outlook, Lotus Notes, Novell Groupwise and a number of others, from their multimedia-equipped PC or laptop computer. By upgrading to CallPilot Unified Messaging users can manage all their voice and fax messages in the same way as they manage their e-mail from applications such as Outlook, Lotus Notes, Novell Groupwise and a number of others, from their multimedia-equipped PC or laptop computer.
- Three levels of Call Centre functionality are available, enabling a wide rage of contact centre solutions to be implemented. These, when combined with the reach of the Internet, enables businesses to provide enhanced customer service experiences through personalised agent interaction and customised information and service delivery
- Interactive Voice Response is a self service application designed to allow businesses to be accessible to their customers 24 hours a day, 365 days a year. Businesses can supply callers with access to a broad range of information simply by responding to a series of prompts via their touchtone phones. BCM 3.0 provides an integrated IVR runtime engine that sits on top of Voice CTI and interprets customised IVR applications.
- Universal Internet Access for all users and workstations, including access to corporate intranets using a wide range of access technologies, from fixed connection over a leased line, to ISDN dial up on demand. Contivity IPSec support is provided for secure intra-site Virtual Private Networks (VPN's) and secure remote connectivity for mobile or home-based users.
- Wireless e-mobility and DECT based mobility solutions break the chains that tie users to their workstations. Wireless e-mobility provides feature rich support for Symbol Netvision IE802.11 wireless IP telephones and other wireless devices including the Symbol wireless IP Datavision Telephone/barcode scanner. Alternatively, BCM DECT mobility provides cost effective multi cell wireless solutions to cover the needs of employees who need to make and receive telephone calls, when away from their desks.

- Browser-based system Management simplifies installations and provides an intuitive, wizards-based method of managing the network from any Web-enabled workstation or remotely via ISDN dial up.
- Multi-site system management through Network Configuration Manager provides a management capability for multi-site BCM customers, which

enables them to significantly reduce the total cost of ownership of their BCM systems. The multi-site management capabilities of release 3.0 will provide the ability to apply programming changes to all, or a subset of, BCM systems within a network from a centralised location.

- The changes that can be applied include:
- Auto Attendant and Call Centre greetings;
- Auto Attendant hours of operation;
- Custom Call Routing tree settings;
- Telephony call routing information;
- Application of software option keycodes;
- Bulk password changes.

- NCM will provide the ability to schedule the changes listed above and to define groups of BCM systems to which the changes may be applied.
- NCM will be also be integrated with IVR to provide the ability to deploy, upload or remove IVR scripts and audio files from BCM's on a real-time or scheduled basis.
- Remote management capabilities enable channel partners to administer and change their customers' system configurations and activate new software remotely, minimising the need for costly and time, consuming site visits.

BCM 200

- 2 U high Chassis supporting up to 2 Media Bay Modules
- 32 Digital telephone Users maximum
- 64 IP Telephone Users maximum
- Optional Redundant Hard Disk

BCM 400

- 4 U high Chassis supporting up to 4 Media Bay Modules
- Optional expansion Chassis for adding up to 6 additional Media Bay Modules
- 160 Digital telephone Users maximum (with expansion chassis)
- 90 IP Telephone Users maximum
- Optional redundant Hard Disk + RAID controller
- Optional redundant Power Supplies and Fans

Common Features – All Platforms

Voice Capabilities

- Over 150 core PBX telephony features
- ISDN trunks – PRI and BRI
  - Analogue available in some markets
- Voice networking over ISDN
  - QSig, DPNSS & MCDN
- 5 digital telephone models – Norstar based
  - M7000, T7100, T728, T7316 and
  - M7324N + CAP Expansion for M7324N

Voice Applications Suite

- Auto Attendant and Custom Call Routing
- Call Pilot Voice Mail
- Call Pilot 2.0 Unified Messaging for :-
  - Outlook, Outlook Express, Lotus Notes, Qualcomm Eudora Pro, Novell Groupwise , Netscape Messenger
- Fax messaging
- BCM Contact Centres

- 1 to 80 Active Agents
- 2 to 50 Queues
- 10 to 150 Recorded Announcements
- Integrated MIS reporting for real time and historical data
- IP and Soft Wall Boards
- Web Voice Button

- TAPI 2.1 server for Computer Telephony Integration
- Periphonics MPS 100 based Interactive Voice Response Support
- CDR raw data output via FTP or in real time, over IP.

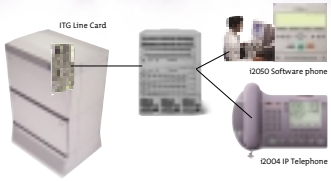
	DECT Mobility Voice over	• Up to 32 cordless handsets and 8 radio base stations. • H.323 V2 Compliant • Support for i2002, i2004, and i2050 Internet telephones • Support for up to 60 VoIP trunks • Voice networking between BCM systems, Meridian 1 IP enabled systems via ITG or Succession CSE 1000, using MCDN protocols over IP • Support for Symbol IE 802.11 wireless IP telephones, with T7100 digital set feature emulation.
Data capabilities		• IP/IPX Router - RIP1, RIP2, OSPF, Static • DHCP Server • DNS Cache Server • Web Cache Server • NAT - Public to Private Network Address Translations • Netlink Manager for WAN Back up
	WAN access services	• PPP or Frame Relay over X.21 or V.35 • PPPoE • PPP/MP Dial on Demand over ISDN
	Security services	• IPSec - 3DES 128 bit encryption • PAP/CHAP – Password And Challenge Handshake Authentication Protocol • RAS • Integrated Firewall - Stateful or basic packet filtering

VPN Services	• Contivity server support - Up to 16 VPN Tunnels - BCM to BCM or BCM to Contivity • Contivity Extranet Client support Up to 16 simultaneous IPSec clients • PPTP - Up to 10 tunnels
System Management and IP services	
	• WEB browser system management interface • SNMP traps • Network Configuration Manager for Multi Site management and configuration of up to 2000 BCM nodes • DiffServ quality of service • DHCP server

Ordering Information

For further information, please contact your local Nortel Networks Representative.

Internet Telephony Gateway (ITG) Line Card



Overview

ITG Line card is supported on Option 11C, 11C Mini, 61C, 81C on x11Release 25 or above which enables IP terminals to be deployed that deliver the feature rich suite of Meridian Digital Services over a single Ethernet connection.

The ITG card has 24 DSP ports that provide gateway functionality to facilitate the bridging (conversion) of voice streams between the packet switched (IP) data network and the circuit switched PBX network. In addition, the ITG Line card acts as a Terminal Proxy Server or IP telephony softswitch for the IP sets. In this capacity the ITG Line card is responsible for registering the IP sets and keeping track of the maximum number of sets that can be registered per card.

Customer Profile

- ITG Line is the right choice for any business that wants a mix of IP, digital and analogue sets on a tried and tested office communications platform
- Existing Meridian 1 customers – IP enabled Meridian 1 represents the smoothest, most cost effective route to IP telephony for the installed base of 43 million Meridian 1 users
- Early adopters who want the latest technology on the world's number one system
- Companies that want to expand their network either by adding new sites or adding new users
- Companies that have a large number of adds, moves and changes
- Remote workers - users that need to access their corporate data and voice services in exactly the same way, in the office, at home, or on the road

Key Points

- A highly distributed connection management system that consolidates the sophisticated intelligence, complex call/connection management and evolving standard protocol support that is required for delivering a robust and scalable Internet telephony solution
- A Nortel Networks solution that supports a rich set of telephony features traditionally found on PBX and Key Systems, along with standards-based IP networking support of H.323 protocol that provide the link between IP and the traditional telephony world

Features and Benefits

The Meridian ITG Line 2.0 solution provides the following benefits:

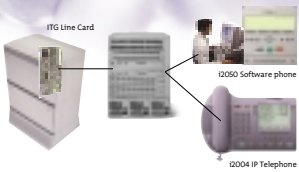
- Enables communication between a circuit – switched telephony network and IP clients
- Can take advantage of IP telephony on an existing Meridian 1 system
- Increased choice and flexibility in providing desktop voice capability for campus and remote users
- Leverages customer's existing data network infrastructure (data/voice convergence)
- Enables smooth roll-out of IP telephony services building on the existing voice network
- Load balancing so IP sets can use a pool of DSP Gateway resources
- Provide n x redundancy – in the unlikely event of ITG line card failure, IP sets will register with another ITG line card
- Most cost effective evolution to IP telephony
- Simplified network management and support costs
- Simplified moves, adds and changes through support of DHCP

- Builds on the reliability and feature-richness of the Meridian 1 system
- Complies with Open standards
- Consolidation of network services resulting in savings

Ordering Information

For further information, please contact your local Nortel Networks Representative.

Meridian 1 IE (Internet Enabled) Communications System



Overview

Meridian 1 is the world's leading office communications system with over 43 million lines installed. Meridian 1 is evolving into an IP based communications system with all equipment distributable over an IP converged network. IP enabling the Meridian 1 represents the smoothest evolution path to IP telephony with full investment protection for existing features, telephones and equipment.

Customer Profile

- IP enabled Meridian 1 is the right choice for any business who wants a mix of IP, digital and analogue sets on a tried and tested office communications platform
- IP enabled Meridian 1 represents the smoothest, most cost effective route to IP telephony for the installed base of 43 million Meridian 1 users
- Early adopters who want the latest technology on the world's number one system
- Companies that want to expand their network either by adding new sites or adding new users
- Companies that have a large number of adds, moves and changes
- Remote workers – these users need to access their corporate data and voice services in exactly the same way, in the office, at home, or on the road

Typical Applications

With Meridian 1 Internet enabled solutions, distributed server applications like Nortel Networks CallPilot Unified Messaging and Symposium Contact Centre IP Solutions are available to users on a data network. A business benefits from distributed applications that are cost-effectively and easily deployed.

Whether a contact centre comprises a single site or is geographically dispersed, IP Telephony can be used to simplify management and administration and to extend customer care capabilities to agents anywhere – in branch offices or working at home. The flexibility of the Symposium Contact Centre IP solution results in lower operating costs and increased employee retention, both of which improve profits.

Convergence of a communications network is not complete without addressing management.

Key Points

- A highly distributed connection management system that consolidates the sophisticated intelligence, complex call/connection management and evolving standard protocol support that is required for delivering a robust and scalable Internet telephony solution
- The solution supports a rich set of telephony features traditionally found on PBX and Key Systems, along with standards-based IP networking support of the MGCP and H.323 protocols that provide the link between IP and the traditional telephony world

Features and Benefits

The Meridian 1 IE portfolio includes the following products:

- Internet Telephony Gateway Line Card
- Internet Telephony Gateway Trunk Card
- Remote Office 9150/9110/9115 portfolio
- i2002 and i2004 Internet Telephone
- i2050 software phone
- IP adaptors for digital phones
- Optivity Telephony IP based Management
- Symposium Contact Centre Solutions
- Voice Portal Solutions
- Symposium CTI (Agent, TAPI, MLS, IPML)
- CallPilot unified messaging
- Meridian Integrated IP applications
- Survivable IP Expansion

Meridian 1 supports integrated IP telephony server cards (ITG line cards) that provide soft switching for IP terminals (i2004, i2002 and i2050) distributed over the LAN and WAN.
ITG trunk cards are also available to transport voice with full Meridian Customer Defined Networking (MCDN) over IP between two or more Meridian 1 locations.

Reach Line Card is also available to extend Meridian 1 telephony features and applications over IP data networks to users located at remote sites. Meridian 1 supports a mix of analogue, digital and IP terminals, applications and management distributable over an IP network.

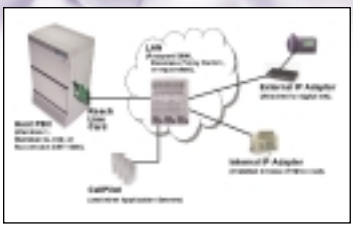
Key benefits of IP enabled Meridian 1 include:

- Most cost effective evolution to IP telephony
- Built in reliability
- Simplified network management
- eBusiness solution enabled
- Feature rich telephony
- Industry leading IP applications and devices
- Open standards based
- Consolidation of network services resulting in savings
- Dynamic QoS monitoring and transitioning

Ordering Information

For further information, please contact your local Nortel Networks representative.

Meridian Digital Telephone IP Adapters



Overview

Meridian Digital Telephone IP Adapters extend the life of, and preserve customer investment in, Meridian Digital Telephones by allowing them to be converted from digital telephone devices to IP Telephony devices that can be plugged directly into an IP-based local area network (LAN).

IP Adapters are an important proof-point in Nortel Networks philosophy of preserving customer investment in existing product. In situations where existing Meridian digital phones must be preserved, Nortel Networks is able to provide a solution, while still allowing customer migration to an IP-based architecture.

Customer Profile

Existing customers with large installations of Meridian digital phones that need or want to move to an IP LAN-based infrastructure, but do want to leverage their existing Meridian telephone sets

Key Points

- IP Enables all the Meridian Digital sets providing access to all system features & application
- Leverage the investment of a Meridian 1 or Succession CSE communications system
- Feature Richness – all Meridian 1/Succession CSE 1000 applications are supported: Telephony features, Symposium Call Centre, CallPilot Unified Messaging, Meridian Mail, TAPI, etc
- System Administration - Policy capability under Optivity Telephony Manager

Features and Benefits

The Meridian Digital Telephone IP Adapter comes in an internal and external version.

The internal version is a small circuit-card that snaps inside the footstand of a Meridian M2008D, M2616D, M2008HFD, M2216D, M3310 or M3820 telephone, allowing the phone to communicate with the host communication system over an IP-based Ethernet LAN. This greatly simplifies the wiring necessary to support office phones and makes moves, adds and changes far easier and quicker to implement.

The External IP Adapter is a small external device that operates exactly like the internal version, and in addition it supports the Meridian M3902, M3903, M3904 and M3905 telephones. Since the external adapter works with a wider selection of phones, it does not fit into the footstand of any model of telephone.

The Meridian Digital Telephone IP Adapters communicate to the Meridian 1 or Succession CSE 1000 systems via a 16-port or 32-port Reach Line Card (which can also simultaneously support Remote Office 9150, 9110 and 9115 units).
The single-slot 16-port Reach Line card can support up to 16 IP Adapters and the dual-slot 32-port Reach Line card can support up to 20 simultaneous IP Adapters.

Features	Nortel Networks Meridian Digital IP Adapter
Interfaces	10BaseT Ethernet
Compatible Handsets	Support M2000 and M3900 sets plus add-on modules plus M3310 and M3820
Host Site	16 and 32-port Meridian Internet Gateway Remote IPE line cards Ethernet interface for VoIP
Meridian Feature/Application Support	All Meridian 1/Succession CSE 1000 Applications: • Telephony features • Symposium Call Centre • Supports 1st & 3rd party CTI • Call Pilot Unified Messaging • Meridian Mail
Audio Compression	G.711, G.729a, 30ms voice samples
Capacity per card	• 16 simultaneous per single-slot RLC • 20 simultaneous per dual-slot RLC • Can simultaneously support Remote Office 9150 branch offices, 9110/ 9115 Home working, Meridian Digital Telephone IP Adapters and directly attached digital phones.

Ordering Information

For further information, please contact your local Nortel Networks representative.

Power over LAN Hub - Power In-Line Patch Panel

Overview

There are two methods available from Nortel Networks. Either integrated via Baystack LAN Switching (refer to Baystack 460) or Power over LAN Hub (POL).

The POL Hub is part of the Nortel Networks Succession portfolio of Internet Telephony Solutions. It provides power to i2004/i2002 Internet telephones using existing LAN cable infrastructure. It delivers power over the unused pairs of standard category 5 LAN cables. The POL Hub features a sophisticated load auto-sensing algorithm that provides power to devices only as required. This monitoring capability ensures continuous proper operation of i2004/i2002 Internet Telephones.
The POL Hub solution fits as standard equipment in the wiring closet and eliminates the need to connect each telephone to an AC power outlet. The POL Hub can be operated with any commercially available UPS.

This solution consists of a centrally located power supply that is installed in the wiring closet. It supports 24 ports and connects as standard equipment into the wiring closet.

Customer Profile

The Power over LAN Hub forms the basis of a power system that brings PBX reliability to Voice over IP while maintaining the plug and play installation typical of data networks. Power over the LAN and reliable system backup are additional options available to maximise system reliability throughout the network and meet customer expectations for telephony availability and reliability.

Ordering Information

For further information, please contact your local Nortel Networks Representative.

Technical Specification

Number of Users	24
Data Rates	10/100 Mbps
Dimensions	(H) 66.4mm (2.6") x (W) 437mm (17.2") x (D) 300mm (11.8")
Weight	5kg (11 lbs)
Environmental Conditions	Operating Temperature 32 to 104 F (0 to 40 C)
Load Sensing	Automatic common mode sensing. Will not power up unused pairs unless a valid load is present
Fault Sensing	Automatic over/under current independent on each port
AC Power Requirements	90-260VAC 50/60Hz commercial power DC Input: -48V DC redundant power connector
Output Power	48V DC 14 watts max per port, total output 192 watts
Power Feed	Common mode on pairs 4,5 & 7,8
Discovery	Automatic common mode sensing. Will not power up unused pairs unless a valid load is present
Mounting	19" rack mountable or stackable.

The IEEE 802.3 af standard[1] is emerging at present, both solutions above the Baystack and POL Hub are compliant with this standard.

[1]i200x will support this standard from mid year 03.

Succession Communication Server for Enterprise 1000 (CSE 1000) Release 2.0

Overview

Succession Communication Server for Enterprise 1000 (CSE 1000) is a next generation, VoIP solution providing all the benefits of a converged network plus advanced business applications and management software and over 400 world-class telephony features. Succession CSE 1000 is the completion of an architectural evolution that decouples and distributes the key components of the Meridian 1 enterprise communication system – call processing, switching, line and trunk interfaces, applications – into an open, IP-distributed, standards based network design.

Customer Profile

- Technology driven - these companies are constantly exploring ways of enhancing their business by leveraging technology advances
- Companies that want to expand their network either by adding new sites or adding new users
- Companies that have a large number of adds, moves and changes
- Remote workers - these users need flexibility, as they need to access their corporate data and voice services in exactly the same way, in the office, at home, or on the road
- Existing enterprise customers that want the business features and service capabilities of a Meridian 1 on an IP telephony communications server running over a telephony-grade converged network

Typical Applications

- Centralised telephony services distributed to multiple sites using a converged network as transport
- Simplifying management with an end-to-end converged solution for full-featured telephony
- Reducing the cost of adds, moves and changes
- Web portal applications, Unified Messaging, IP contact centres, CRM, audio conferences, one number 'find me' services and personal management
- Flexibility/mobility/remote working

Key Points

- Distributed architecture
- Full application portfolio support
- Scalability
- Mobility and productivity features
- Centralised Services
- Works on vendor independent infrastructure

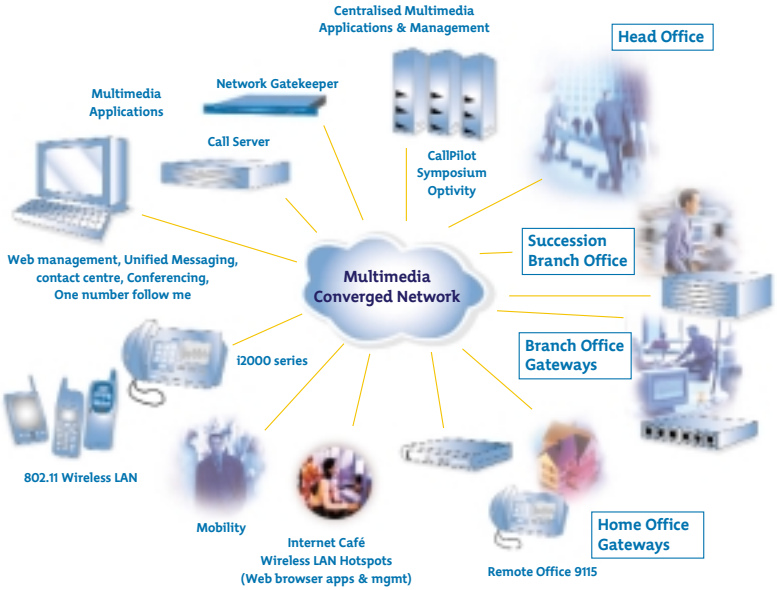
Features and Benefits

This section provides a brief overview of some of the main features and benefits of the Succession 1000 Release 2.0, which expands the system's capabilities to provide more flexible working capabilities, new IP phone desktop services, and enhanced networking and management solutions.

The enhancements are mainly in the following areas also shown in Figure 1:

1. IP Peer Networking
2. Succession Branch Office
3. Desktop Enhancements
4. Core System Enhancements
5. Management Solutions

Succession CSE 1000 Release 2 Network



IP Peer Networking

The IP Peer Networking feature allows Succession CSE 1000 systems to be networked together over a LAN/WAN enabling scaling up of capacity beyond the limit of 1,000 IP phones per individual call server.

The IP Peer Networking Feature has the following attributes:

- Direct voice over IP media path between 2 terminals connected across different systems across the LAN/WAN. This feature provides improved Voice Quality &cost savings to the customer. Whenever a connection needs to be made between IP phones on two different Succession CSE 1000 systems, the media (voice) path will use direct IP connections and will not be passed through the central Succession CSE 1000 system.
- Central Numbering Plan Administration - H.323 Gatekeeper. The IP Peer Networking feature introduces a centralised Gatekeeper where all Succession CSE 1000 systems in the network are registered. This eliminates the need for manual configuration of IP addresses and numbering plan information on every site.
- Removal of the need for separate IP trunk hardware ports. The IP Peer Networking feature eliminates the requirement to provide IP trunk card ports for IP phone to IP phone communication across 2 or more systems.
- Improved Interoperability. The Succession CSE 1000 uses standard H.323 version 3 protocol to provide interworking with vendors that implement the same interpretation of the standard.

Succession Branch Office.

The Succession CSE 1000 Branch Office (SBO) provides a means of extending Succession CSE 1000 services to one or more remotely located branch offices. The Call Server at the main office provides the call processing for both the main and branch

offices. An H.323 Media Gateway located in the Branch Office provides access to the local PSTN. If an IP connection to the Main Office cannot be made, the Succession Branch Office will provide service to the telephones located at the Succession Branch Office providing survivability to remote users. SBO is positioned to provide between 40 and 400 IP phones plus digital and analogue phones can be added. Up to 256 SBO 's can theoretically be run from one system – however IP phones on the SBO use up the limit of 1,000 IP phones per system so more call servers would need to be provisioned if IP phones in the branch offices and main offices exceed 1,000 IP phones. However, with IP peer networking between servers, this is not viewed as a problem.

Desktop Enhancements

A number of enhancements have been made in this area and are illustrated throughout the guide. Two of the major enhancements include:

- Network Wide Virtual OfficeThis feature will allow extension mobility: the ability for an employee to reconfigure any IP phone in the network as their personal phone. Once "logged in " personal configuration will be downloaded to the telephone
  - All DNs
  - Key layout
  - Voice mail message indicator
  - Feature capabilities e.g. boss secretary filtering
- Corporate Directory
  The Corporate Directory feature is similar to the M3900 corporate directory but it provides a network directory rather than a nodal directory. This feature is available on the i2002 and i2004 IP phones, and the i2050 soft phone. The corporate directory database is created using OTM which is LDAP compatible with customers unified directory.

Core System Enhancements

An example of one of the core system enhancements is around Scalability. The Succession CSE 1000 call server can support up to 1,000 IP phones per server with multiple servers providing seamless feature transparency.

Management Solutions

The enhancements to the management of Succession CSE 1000 in Release 2.0 focus on further Web Enabling the management of the product and simplifying the management process in a Wide Area Network environment.transparency.

Capacity	Up to 1000 IP terminals
Terminal Support	i2004, i2050, eMobility 802.11 Wireless, PC-based Attendant consoles
Applications	CallPilot, eMobility 802.11 Wireless LAN, Symposium Express Call Centre, Symposium Call Centre Server
Connections	10Base-T port for IP-based applications and management, 100Base-T or 100Base-F for Succession Media Gateways
Mounting	19" rack mountable

See CSE 1000 Release 2.0 product guide on Nortel Networks.com for more detail.

Competitive Positioning

Nortel Networks are the only vendor to offer a wide range of choice to our customers. This confirms our commitment to our Evergreen philosophy of investment protection combined with our innovation spirit.

Open Standards Support	Succession CSE 1000 is designed to work across any QoS capable infrastructure. Succession CSE 1000 is open standards based so will run over any QoS aware, IP network infrastructure and will smoothly evolve to open standards for IP terminals (eg SIP, H323), power over LAN (IEEE 802.3af) and we already support open standards for QoS (IETF DiffServ)
Carrier Grade Reliability	Succession CSE 1000 Media Gateways are survivable. Delivering FULL feature set when in survive mode. Media Gateways can run in stand-alone mode and perform call processing in the event of an IP link failure, or an improbable outage of the Call Server. IP terminals will re-register to another ITG line card if there's a network outage or ITG line card failure, therefore ITG line cards support n x redundancy where n = the number of ITG line cards. Succession CSE 1000 is built on proven technology and provides the safest method of IP telephony implementations The call server runs embedded V-Works as an operating system. Secure, resilient and time tested.
World class Feature Suite	Succession CSE 1000 fully leverages Meridian 1 X11 software expertise. This results in an IP telephony offering with robust feature and application support. Succession CSE 1000 supports the full suite of telephony features developed by Nortel Networks based on customer demand and feedback over the past 20 years
Customer choice	Nortel Networks recognises that customers are at different stages and therefore we cater for varying needs – whether Greenfield or upgrade. The Succession for Enterprise portfolio offers an incremental migration to IP telephony with the Meridian Internet-enabled solution as well as a pure IP solution for the more aggressive innovators, with Succession CSE 1000. Additionally the Business Communications Manager (BCM) offers a converged solution for the small business owner or branch office.

Ordering Information

For further information, please contact your local Nortel Networks representative.

Succession Communication Server for Enterprise Multimedia Xchange (CSE MX)

Overview

The CSE MX is a new communication platform that delivers multimedia applications and employee productivity tools on a VoIP network. CSE MX is complementary to the existing range of Succession Enterprise servers (BCM, M1, CSE 1000) as it adds multimedia tools on top of existing telephony and application services deployed in those networks. CSE MX software runs on open hardware servers and uses "open standards" based gateways (SIP, H323, MGCP). CSE MX delivers multimedia VoIP to any vendor enterprise network.

Customer Profile

CSE MX is targeted at those users in enterprises who need to use tools to collaborate with employees and customers more effectively. eg highly mobile staff, R&D teams collaborating on a new project, sales reps and customer support staff. Target size is between 100 and 200,000 users. If the requirement is for fewer users or for temporary collaboration services, a hosted service solution, eg IMS, might prove more suitable.

Typical Applications

- Multimedia Collaboration: Productivity is enhanced with services such as video conferencing, video calling, white boarding, "web push", co-browsing and file exchange.
- Personalisation: Users can personalise and provision their workspace by simply setting up and establishing individual preferences. Using any browser, a user may select such call handling services as call forwarding, call screening, and buddy lists which let users know whether you are available to take calls or not.
- Mobility: find me/follow me, call agent and presence management enables calls to reach you no matter where you are and which telephony type you are using

Key Points

- True multimedia communications over IP using SIP open standard.
- Changes the fundamental way people communicate to enable them to increase productivity, enable them to work when and how they want, with the device they want, and to enable them to personalise their services to their specific needs.
- Enables enterprises to strengthen their relationships with their customers using SIP as a key enabling technology.
- "Open standards" based supporting a range of 3rd party SIP terminals and gateways (SIP, H323, MGCP)
- Scalability from 100 to 200,000+ users
- 5 x 9's reliable with redundant servers and survivable gateways

Features and Benefits

- CSE MX offers a bridge between current Enterprise telephony solutions and the deployment of rich, multimedia applications over IP with personalisation and mobility options.
- Multimedia collaboration enhances customer service and employee productivity by offering a more "natural" and richer communications experience.
- Personalisation enables users to control when, how and by whom they can be contacted

- Mobility ensures users never miss an important call regardless of distance or location.
- SIP Multimedia Web Client makes it easy for users to access new applications from a browser anywhere.
- SIP Multimedia PDA Client enables PDA's to be used as mobile extensions.
- SIP Multimedia PC Client provides multimedia collaboration on a PC

Competitive Positioning

No true direct competitors to the CSE MX. Security, reliability, and application integration is uniquely different from alternative solutions.

Ordering Information

For further information, please contact your local Nortel Networks Representative.

USB Headset Adapter

Overview

The USB Headset Adapter provides a high quality and low cost predictable audio interface for software based IP telephony clients such as the i2050 Software Phone. It is highly optimised for telephony applications. The headset adapter offers the possibility of actually achieving softphone performance rivalling that of hard telephones. The USB Headset Adapter is part of the Nortel Networks Succession portfolio of Internet telephony solutions.

Customer Profile

The USB headset is used in conjunction with Nortel Networks i2050 Software Phone which is an ideal application for the telecommuter – someone who works from home a couple of days a week or who is always on the road and is wanting to extend the telephony features and functionality of their laptop or PC. Other target audiences include:

- Distributed workforce involving teleworkers and telecommuters requiring access to the telephony network
- Roaming staff that require access to the telephony network
- Call centre agents

Key Points

- USB Headset Adapter provides a controlled high quality audio environment
- This solution is superior to sound cards in that it offers the ability for a softphone to have an absolute and predictable loss and level plan which is necessary to meet TIA-810, FCC part 68 and its international equivalents, as well as the ADA requirements for the hearing impaired
- Simple installation using standard Windows drivers (requires no additional software or drivers)

Features and Benefits

- It is fully compatible with the suspend and resume functions for effective use in battery operated laptops
- No drivers or software are required for installation
- Power is derived from the PC's USB power subsystem so there is no external power required. The only connections are standard USB cable to the PC and an RJ-9 jack for a telecom style headset and handset
- The USB Headset adapter is fully compliant with version 1.1 of the USB Device Specification and Windows Plug and Play specifications
- In-use lamp connector with in-use control provided by polarity
- Support on Windows 98, Windows 98SE, Windows 2000 Professional and ME

Ordering Information

For further information, please contact your local Nortel Networks representative.

ISDN (Integrated Services Digital Network)

Overview

Integrated Services Digital Networking or ISDN is a set of international standards that have been adopted by the International Telegraph and Telephone Consultative Committee (CCITT). ISDN provides businesses with integrated communication services that optimise the flexibility and economy of digital networks worldwide. What this means to a business is that corporate users can transmit voice and data with increased speed, improved quality and greater economy and ease.
As simple as placing a voice call to virtually anywhere in the world, ISDN can extend this capability to almost all forms of information in the future such as text, graphics, images and ultimately, full-motion video.

Customer Profile

- Medium to large multi-site enterprise customers benefit the most from ISDN services. The ability to centralise services like voice mail to reduce cost and management expenses increases the productivity of the entire enterprise network
- ISDN services are supported on all of the systems within the Meridian 1 and Succession Communication Server for Enterprise 1000 (CSE1000) portfolios. So, whether it's a branch office with Option 11C Mini or a large corporate headquarters with Option 81C, customers can leverage the features, flexibility and power of Meridian 1 and CSE 1000 and their ISDN services in an enterprise network environment.

Typical Applications

From the smallest system in the portfolio, Option 11C Mini, to the largest with Option 81C, businesses all of sizes can leverage Nortel Networks state-of-the-art MCDN features to lower costs, boost employee productivity and enhance the level of responsiveness provided to customers.

From centralised voice mail to reduced hardware and administration costs, to automatic call distribution over the Meridian 1 corporate network to enhance customer responsiveness to ISDN features over a VoIP network, an investment in Meridian 1 and CSE 1000 is a future-safe investment in the ability to network and interoperate with ISDN, ISDN Q.SIG and MCDN. So, as businesses expand, they can seamlessly integrate additional campus sites or branch offices. All with access to the same robust feature sets as their main campus.

Key Points

- ISDN PRI on Meridian 1 and CSE 1000 offers an opportunity for PBX network growth at much lower cost to businesses in conjunction with far greater manageability
- By upgrading existing T1 or E1 spans with PRI to a central office, improvements in network performance can be obtained without adding any new leased line facilities
- The efficiency of PRI can reduce the number of physical trunks required to handle the current network traffic by as much as 30%, which in turn, can lower PBX operating costs
- As a trunk interface to a DMS-100 central office, ISDN PRI on the Meridian 1 offers businesses switch access to multiple Central Office (CO) services and unprecedented flexibility in trunk usage. It also provides the platform for future service enhancements
- For added network reliability, ISDN PRI provides the advantage of a backup D-Channel. This backup D-Channel automatically takes over for a failed primary D-Channel to prevent the loss of calls over the B-Channels

Features and Benefits

	Features	Benefits
Backup D-Channel	Provides redundancy for D-Channel Handler Interface (DCHI) cards with automatic switchover, if necessary, to the backup unit in the event of a failure	Boosts system resiliency and redundancy of the very important D-Channel signalling information from Meridian 1 systems
Calling Line Identification	Sends a telephone's designated number through the ISDN PRI network to the digit display on the receiving device. Outgoing and incoming calls are supported and the CLID lasts for the duration of the call	Enhances customer responsiveness
Network ACD (NACD)	Utilises ISDN Primary Rate Interface or Integrated Serial Link to quickly and efficiently route calls to available agents within a Meridian 1 network. Also supported over Q.SIG networks	Maximises customer responsiveness and boosts employee productivity thereby driving increased revenue opportunities for the business
Network Call Party Name Display	Provides network wide visual display of name and number within Meridian 1 and Q.SIG networks	Boosts the ability to personalise greetings thereby enhancing customer responsiveness with the passage of name and number information across these networks
Integrated Service Access (ISA) - Call-by-Call Service Selection	Dynamically allocates calls by call and service type including service identification and incoming digit conversion for all trunk types (TIE, CO, DID, WATS); supports private trunk types for DMS-100 systems	Provides greater maximisation of system and network resources along with additional information passage for enhanced customer responsiveness
Network Attendant Service (NAS)	Provides ability to distribute attendants throughout a network sharing the workload. Calls can be re-routed to an alternate attendant (at a remote location) based on a variety of conditions such as overflow, time of day, night service, etc.)	Boosts customer responsiveness and efficiency while reducing business costs offering seamless coverage to incoming callers while maximising the productivity of your support staff.

	Features contd...	Benefits contd...
Network Call Redirection	Extends the "hunt" and "busy" capabilities of the Meridian 1 to a Meridian 1 network via ISDN Primary Rate Interface (PRI) or ISDN Signalling Link. The originally dialled number, the connected number and the reason for the redirection (busy or hunt) are displayed.	Promotes greater customer responsiveness with personalised greetings based on incoming ANI information being provided
MCDN Alternate Routing	Allows the MCDN network to re-route calls on an alternate routes if the call cannot be connected over a primary route due to network congestion, temporary failure, etc.	Maximises efficiency and productivity of the traffic in your MCDN network by providing for overflow situations
1.5/2.0 MB Gateway	Provides connectivity between T1 and E1 networks.	Offers more seamless integration of international networks
Public to Private CLID Conversion	Allows the correct CLID information to be displayed at a terminating set should a call leave the private network due to congestion. Applicable to Extended Switched Network (ESN) and to interfaces such as DMS-100, DMS250, #4 ESS, #5 ESS, S100 and NI-2 TR-1268 interfaces	Promotes greater customer responsiveness with correct CLID information being provided to the end destination even during "hop off" scenarios
Network Message Service (NMS)	Utilises ISDN signalling to provide messaging services across an ISDN network. Meridian 1 systems connected with PRI or ISL (ISDN Signalling Link) can extend supported message services to all users within the network from a single, central location.	Reduces administrative costs with centralised messaging administration and boosts user productivity as feature activation from the messaging system is transparent to the user.
Network Ring Again	Provides ring again capability within the PRI/ISL network. For example, a caller at location "A" who encounters a busy destination signal at location "B" can press the ring again key on their telephone and be notified when the busy station becomes idle. Supported on Meridian Digital Clients as well as 500/2500 sets.	Boosts employee productivity and efficiency

	Features contd...	Benefits contd...
Network-wide Remote Call Forward	Extends the capability of call forwarding to remotely forwarding a telephone over the network. Also provides an attendant with the ability to change the forwarding of a telephone and to verify forwarding status	Boosts employee productivity and enhances customer responsiveness
Remote Virtual Queuing	Uses either ISDN Primary Rate Interface or ISDN Signalling Link to allow for queuing of network calls when trunking facilities are blocked or busy	Ensures customer responsiveness and maximises network utilisation
ISDN Signalling Link (ISL)	Provides the capability to replace both digital and analogue conventional trunk signalling with out-of-band ISDN D-Channel signalling. Applications supported include Calling Line ID, Calling Line ID in CDR, ESN, Network Ring Again, Network Call Redirection, Network Message Services, Network ACD and Network Call Party Name Display. ISL supports both TIE and ISA trunk types with Meridian 1 to Meridian 1 and CSE 1000 to CSE 1000 connectivity.	Maximises productivity of facilities
Calling Line Identification in Call Detail Records	Gives customers the call telephone's ID in CDR records including through a tandem node. Enables customers to charge the calling party for services rendered in connection with an incoming call (ie calls to an attorney could be charged).	Increases revenue with greater accuracy in billing and reporting.
Integrated Trunk Access (ITA)	Allows common digital transmission facilities to be shared by B-Channel trunks (via PRI or ISL) and traditional A&B bit signalling trunks. Supported on Meridian 1 to Meridian 1 and CSE 1000 to CSE 1000.	Maximises the efficiency and productivity of trunking facilities

	Features contd...	Benefits contd...
In-Band Automatic Number Identification (ANI)	Allows a carrier to send to the Meridian 1 the calling party's 10-digit telephone number via standard digital trunks (T1)	Promotes greater customer responsiveness with personalised greetings based on incoming ANI information being provided
Call Pickup Network Wide	In a Meridian 1 corporate network with multiple sites, enables call pickup feature to be used even if the two phones are connected to different Meridian 1 or Succession CSE 1000 systems	Boosts personal productivity and promotes more efficient call handling for Meridian 1 networks with multiple campuses
Virtual Network Service (VNS)	Provides private ISDN networking features utilising public network facilities	Reduces costs by not requiring a dedicated private network
510 Trunk Route Member Expansion	Expands the number of ISDN Bearer "B" Channels that can be associated with a single D-Channel up to 510 from 254 previously	Reduces costs in private networks by maximising D-Channel capabilities
MCDN End to End Transparency	Provides robust features of MCDN networks such as Network Attendant Service (NAS), Network Automatic Call Distribution (NACD) and Network Message Service (NMS) over standardised ISDN Q.SIG network interfaces	Leverages and maximises your investment in the rich services of MCDN within ISDN Q.SIG standardised networks

Solution Sets:

Meridian 1 and CSE 1000 ISDN Basic Rate Interface (BRI)

ISDN BRI connects data terminals and telephones to public network switches, such as those used by local telephone companies, or private network switches, like the Meridian 1. ISDN BRI implementation into Meridian 1 software is in accordance with relevant CCITT standards at the physical, data link and network layers of the International Standards Organisation's Open Systems Interconnect model. Feature activation is supported using CCITT-defined supplemental service elements. In addition, National ISDN support is provided, including the supplementary services "Conference" and "Call Forward All Calls".

Meridian 1 and CSE 1000 ISDN Primary Rate Applications

The link that connects corporate users to ISDN network services

Provides a platform for innovative networking services such as:

- Dynamically allocating trunks on a call-by-call basis
- Activating feature transparency such as Ring Again or Call Forward across a network
- Notification of a calling party's identity
- Improving customer service and productivity by automatically linking the calling party's number to a file in a host computer data base

Meridian 1 to Meridian 1 and CSE 1000 to CSE 1000 Enterprise Networking
The Meridian 1 Enterprise Networking includes the Public ISDN Networking Capabilities plus the following unique features:

- Network Call Party Name Display (NCPND)
- ISDN Signalling Link (ISL) with revert to conventional signalling
- Call Forward/Hunt Override (Across Network)
- Non-associated Signalling (nB+D)
- Network Attendant Service
- Network Message Service - Meridian Mail and CallPilot
- Network Call Redirection
- Remote Virtual Queuing
- Network Ring Again (NRAG)
- Backup D-Channel
- Integrated Trunk Access (ITA)
- ESN over ISDN Primary Rate Interface
- Network Message Service - Message Centre
- Network ACD
- Network-wide Remote Call Forward
- Trunk Optimisation

Meridian 1 and CSE 1000 QSIG Networking
QSIG is oriented towards signalling and services that occur between two switches. For example, two PBXs, or a PBX and a Centrex switch could exchange signalling for services across a "Q" reference point. The QSIG interface will support the following services:

- Call Establishment and Tear Down
- ETSI or ISO version of basic call
- 64 kbps clear data
- Overlap Sending/Receiving
- Channel Negotiation
- Calling and Connected Parties Information (CLIP/COLP)
- Calling and Connected Parties Restriction (CLIR/COLR)
- Generic Functional Protocol (GF)
- Call Diversion (CFSD)
- Path Replacement (PR)
- Message Waiting Indication (MWI)
- Flexible Numbering Plan
- TIE call types
- nB+D with n ranging from 1 to 480 for PRI
- Transit Count information transmitted when ISDN Call Connection Limitation (ICCL) is present

Ordering Information

For further information, please contact your local Nortel Networks Representative.

Internet Telephony Gateway (ITG) Trunk

Overview

With today's widespread deployment of Internet Protocol (IP) networks, organisations are looking for new ways to maximise their investments by converging their voice and data network infrastructures. The Meridian Internet Telephony Gateway (ITG) Trunk is an Intelligent Peripheral Equipment (IPE) card that acts as a gateway to convert real-time voice and fax information into IP packets to send across an IP WAN (Wide Area Network) or IP MAN (Metropolitan Area Network). ITG Trunk provides an integrated solution for high-quality voice transmission over an IP network with the benefit of ISDN networking features. ITG Trunk is an excellent incremental step in the migration toward IP telephony. Customers can incorporate IP telephony into their networks at a pace that makes sense for their business requirements.

Customer Profile

- New and existing multi-site customers of Meridian 1 systems that need to network to other Meridian 1 and/or BCM systems
- International sites already connected via IP data networks can save money using IP telephony toll-bypass
- Customers that pay high per-minute charges for local calls between sites can also use IP telephony as a lower cost alternative to PSTN calls
- Multi-site customers that need additional signalling between sites, for feature-enabling and sharing of centralised resources (like voice mail)
- Customers with sites already interconnected via both an IP network and multiple point-to-point tie lines
- Multi-site customers interconnected via high-speed IP networks (MAN/Optical)

Typical Applications

ITG Trunk is an important element of Nortel Networks High Performance Network Architecture by facilitating the convergence of voice and data on the Meridian 1 platform. With this product, an existing IP-based data network can be used for voice and fax traffic. With ITG's support of ISDN signalling, customers will also be able to take advantage of such productivity enhancers as network-wide Calling Party Name and Number display. Centralised access to powerful Meridian 1 services like CallPilot messaging and attendant services can also be used network-wide through support of ISDN.

Key Points

- Provides VoIP with full MCDN feature transparency including centralised and networked applications between Meridian 1s
- Migration to VoIP is transparent to the end user as no change in dialling sequence or feature operation is necessary
- Installs neatly into existing Meridian 1 shelf and is easily managed using Meridian 1 automatic least cost routing tables
- Meridian 1 automatic least cost routing table will always try and send voice calls over ITG trunk but will revert to ISDN in cases of WAN congestion or outage as continually monitored by ITG trunk card
- ITG trunk does not require a nailed up, dedicated connection between each Meridian 1 but instead ITG trunk card resources are shared across the whole network.
- Carrier class reliability with resource pooling and n x redundancy with the ITG trunk cards
- Nortel Networks provides the ITG Trunk products to enable customers to deploy IP Telephony across an existing IP-WAN

infrastructure, while preserving their investment in their existing systems

- ITG Trunk quickly IP-enables all existing Meridian sets for site-to-site IP telephony traffic, while seamlessly integrating with the PBX features and functions. Customers can deploy multi-site IP telephony without any user-retraining, installation of poorly integrated (and high administrative cost) external devices and still have access to all of the PBX features and functions they need for maximum flexibility and efficiency
- ITG Trunk products also eliminate the worry of doing a "forklift" upgrade and cut-over to a different vendor's completely different IP-based system, that may have unknown missing features, require user and administrator re-training, and throw away the significant investment made in telephone sets, etc. Instead, ITG Trunk products allow IP trunking to be used without having to replace all of the rest of the installed infrastructure

Features and Benefits

The Meridian Internet Telephony Gateway (ITG) system offers customers the ability to reduce their communication costs by routing voice traffic at low marginal cost over existing private IP network facilities with available under-utilised bandwidth on the intranet. By enabling organisations to send more traffic over IP networks, costs are reduced as routing through the PSTN is minimised.

The Meridian Internet Telephony Gateway (ITG) product compresses Pulse Code Modulation (PCM) voice, demodulates Group 3 fax and routes the packetised data over a private intranet, to provide non-ISDN tie trunks between Meridian 1 Electronic Switched Network (ESN) nodes. It is a requirement that the customer has already installed a corporate IP network and that routers are available for WAN connectivity between networked Meridian 1 systems. ITG is offered for intranet, rather than Internet use, since an intranet is a more controlled and managed data environment. 100/10BaseT Ethernet interfaces to the ITG card are required, as well as support of IP version 4 Network layer and addressing in the WAN. There is no restriction on the physical medium of the WAN.

ITG Trunk cards are Intelligent Peripheral Equipment (IPE) trunk cards that link two or more Meridian 1 systems together in a private IP WAN network. ITG Trunk packetises and compresses voice and modulates fax for transmission over customers' IP WAN. They include an ISDN D-Channel to provide enhanced signalling between Meridian 1 systems, allowing them to be networked.
ITG Trunk uses ISDN protocols with H.323 signalling and voice over a standard IP protocol stack. As standards become well deployed, this will also facilitate native communication between multiple vendors' IP based communication systems. ITG Trunk cards monitor Quality of Service (QoS) parameters across the data network (such as latency, jitter and packet loss) to ensure that high quality voice is delivered. If these measurements exceed acceptable levels at call set-up, then calls are automatically routed over traditional voice lines. When the QoS parameters return to acceptable levels, IP routing automatically resumes with the next call. Operations, Administration, and Maintenance (OAM) for Meridian ITG Trunk cards can be performed using Optivity Telephony Manager (OTM). Meridian 1 X11 Release 25 software is required.

The Meridian ITG Trunk provides the following benefits:

- Enables ISDN trunk connectivity (similar to ISL – ISDN Signalling Link) between Meridian 1 systems over an IP WAN
- Reduces communications and support costs
- Deploys easily in a Meridian 1 network
- Complies with standard codecs (G.711, G.723.1, G.729B and G.729AB)
- Offers simple installation and maintenance with OTM
- Builds on the reliability and feature-richness of the Meridian 1 system
- Operates transparently to the end user when routing over the IP data network

Benefits and Applications

ITG 1.0, 2.0 & 2.1 Trunk

- Allows Meridian 1 voice traffic to be sent over a data network:
  - Saves on international toll charges (by leveraging existing or expanded flat-rate IP data network, instead of per-minute-charge circuit-switched PSTN)
  - More efficient converged infrastructure – one IP-based network pipe runs both data and voice services between sites. Capacity not used for data service at any given time is available for voice service and vice-versa
  - Increased flexibility – A single all-IP network can frequently be changed more rapidly, allowing businesses to respond more quickly to changing needs
- Converts a traditional Meridian PBX to a Meridian-Internet Enabled system:
  - All traditionally attached PBX phones are IP-enabled and can now make IP calls
- Build a network of Meridian systems:
  - Share centralised voicemail with message-waiting indication over IP
  - Utilise Network Attendant Service over an IP Telephony network
  - Form a Network-based ACD (Automatic Call Distribution) over an IP Telephony network
  - Gain time-saving extra signalling features when sending calls over an IP Trunk:
    - Calling Line ID
    - Caller-Name-Display
    - QSig and MCDN signalling features
    - Other features, similar to those provided by a point-to-point PRI tie-line
  - Meridian PBXs can use ITG Trunk to form a virtual point-to-multipoint tie-line network. This provides the functional equivalent of a fully meshed tie-line network at a fraction of the cost- IP-based trunks can greatly reduce the need for tie-lines and point-to-point D-Channels

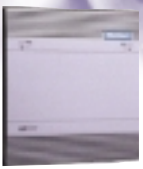
ITG 2.1 Trunk

- 33% greater port density per card (32 ports)
- 50% less slot usage (single-slot IPE module).
  – 2.67 times greater port density in same number of slots
- Improved Indicator Lights (full indicators for both Ethernet interfaces)
- Lower power consumption
- Greater processing power

Ordering Information

For further information, please contact your local Nortel Networks Representative.

Meridian 1 Option 11C



Overview

Sophisticated communications in a small package. Option 11C supports the same first class desktop and system features as our larger Meridian 1 systems, including digital telephones, in-building wireless communications, voice messaging, call centre, PC-based system management and multimedia applications. The Meridian 1 Option 11C is a powerful system in a small package, supporting up to 800 ports. The Meridian 1 Option 11C is an ideal solution for more advanced single site enterprise businesses and networked branch offices and sites requiring advanced applications such as Symposium and CallPilot. With additional wall or 19" rack mountable cabinets to help minimise space requirements, the Option 11C provides the perfect fit for medium sized offices. Option 11C can be configured for a single site or provide excellent multi-location ISDN Private Networking. The Option 11C's modular design allows you to easily and cost effectively add capacity and new capabilities on an as needed basis.

Customer Profile

- Single and multi-site SMEs that support more than 30 lines, communicate globally, use sophisticated telephony applications and want the ability to expand services on an as-needed basis
- Small call centres and telemarketing environments seeking processing power and reliability to support current business needs and the ability to support future applications
- Campus-like or high-rise business environments that need to distribute network intelligence across multiple sites

Typical Applications

- Crafted to deliver all the functionality, rich application support and reliability of the larger Meridian 1 systems
- Advanced voice features, data connections, LAN communications, CTI and sophisticated information services for 30 to 800 ports; LAN and WAN VoIP
- Efficient distribution of incoming calls through Meridian Automatic Call Distribution (ACD)
- Networking services for connections next door or in another country
- ISDN private networking services

Key Points

- Well suited to campus-like or high-rise business environments
- Compact and lightweight
- Provides the power and versatility of the larger systems
- Powerful networking features
- Cost effective solution for smaller locations/branches
- Scaleable and upgradeable
- Reliability with self diagnostics and back up monitoring
- Easy to use and manage
- Flexible communications solution that offers any combination of circuit or packet-switched capabilities in a small package

Features and Benefits

Features	Nortel Networks Option 11c
System Capacity (Ports)	800
I/O Ports	64
Supports all Meridian Telephone Sets	Yes
Unified Messaging	Yes
Call Centre Technology	Yes
Networking Solution	Yes
ISDN Networking	Yes
Wireless capabilities	Yes
Wall or Rack Mountable	Yes

Features and Benefits continued...

Trunking	Analogue: Loop or Ground Start, CO, FX, WATS, 2- or 4-wire E&M or 4-wire DX, DID, RAN, Paging, Meridian Gateway Digital: DTI, ISDN-PRI, ISDN-BRI, Internet Telephony Gateway Trunk, DPNSS-PRI
Management	The Option 11C Ethernet connection provides an interface to Optivity Telephony Manager (OTM). OTM is a PC-based administration tool that allows telephone adds, moves, changes, traffic analysis, reporting and more with point-and-click simplicity. OTM supports open standards such as LDAP and SNMP. Telephone programming is as easy as clicking on specific graphics. Web-based help files offer simple instructions on how to use the phones and features.
Easy to Use Digital Phones	Meridian 1 Option 11C is easy for people to use. Meridian Digital Telephones bring all the powerful features and services of the Meridian 1 Option 11C to each desktop in a company, helping employees communicate better and improving productivity company-wide. Customers can choose from a wide selection of telephones to match the specific needs of each employee. They can choose from a digital telephone portfolio which includes a single-line telephone, specialised sets for telemarketing, a variety of business telephone configurations that provide capacities from 6 to 60 keys for lines and features, modular displays for enhanced call coverage and programmable data adapters to take advantage of sharing on-site and remote computers, modems and public databases. All Meridian digital phones work alike, including our i2004 Internet telephone and i2050 Software Phones – so, if a customer can use one Meridian phone, they can use them all. No extra training required.
The Competitive Advantage of Unified Messaging	CallPilot combines voicemail, faxes and email on a single, powerful, easy-to-use messaging system allowing users to: • Create and send voice messages to one or many people • Add a voice message attachment to a fax or e-mail • Send and receive different message types from either a PC or a telephone • Access all messages handsfree using simple voice commands In short, CallPilot lets customers manage all of their communications instantly from a single centralised mailbox. If customers are looking for a traditional voice mail solution, the Option 11C offers Meridian Mail. Meridian Mail voice menus guide the calls coming into a customer's office, directing callers effortlessly to the appropriate person or department. The menus can be simple - such as prompts for an extension number - or more sophisticated, allowing callers to check account balances, place orders, or obtain a company address and hours of operation. And since Meridian Mail is fully integrated with the Option 11C, there is just a single user interface to manage.

Features and Benefits continued...

Call Centre Management	Symposium call centre products improve operating efficiency with functionality that also provides the best in customer service. If a business relies on telephone inquiries, order taking and collections, the Option 11C supports Automatic Call Distribution and Symposium Call Centre solutions, call-handling software that lets a business offer unsurpassed customer service. These advanced and networked call centre services offer skills-based routing to geographically distributed agents for 24/7 operation. Easy Graphical User Interface management and reporting gives businesses an in-depth analysis of a call centre's operational efficiency, traffic and revenue generating capabilities. Symposium Call Centre is a full-powered, state-of-the-art, server-based, flexible, scalable solution offering the best in customer relationship management.
ISDN Private Networking	Meridian 1 Option 11C is ready to help you take full advantage of Integrated Services Digital Networking (ISDN), a set of standards capable of transmitting fully digital communications (voice, data, fax and image) over the same facilities. Today, ISDN capabilities can display a caller's name and the incoming phone number over a private network. Option 11C with its increased processing power presents a very strong networking capacity that can fully take advantage of networking capabilities
Outstanding Investment Protection	Option 11C is designed to accommodate future technological innovations and advances currently being pursued by our research and development teams. Nortel Networks takes pride in its record of protecting customers' investments in communications over the long term. All the performance, value, simplicity and unparalleled quality you'd expect from Nortel Networks, the leading manufacturer of digital communication systems, is available with Meridian 1 Option 11C
IP Solutions on Demand	The Meridian 1 Option 11C is fully IP-enabled. Customers can get server-based IP applications that can be integrated with their existing network, such as CallPilot, Symposium Call Centre and Optivity Telephony Manager. And they can get the newest IP solutions designed to save money and keep them connected. With the Option 11C, customers can add Internet Telephony Gateways that let them place voice calls over IP on their company's in-building LAN, or route calls over IP to remote offices. For small remote offices, Option 11C systems can use the Remote Office 9150, which can seamlessly extend all host features and applications to remote users of Meridian digital telephones over IP and/or circuit-switched connections. The newest IP solution for the Option 11C is called the IP Expansion Option. This is the easiest way to migrate a customer's users safely and gradually to voice-over IP, using their managed LAN. It increases trunking capacity and allows the Option 11C to operate as a standalone unit. Power outages at a main location are not a problem since this remote system carries on alone until the outage is restored. These IP solutions can be added easily, whenever they are required. With the Meridian 1 Option 11C, it is good to know that as technology moves toward sophisticated IP solutions, customers can safely move with them.

Features and Benefits continued...

Reliability and Flexibility	The Option 11C is crafted to deliver all the functionality, rich application support and reliability of the larger Meridian 1 systems, but in a smaller package. It has always used the same software, peripheral cards, desktop sets and offered the same applications. Option 11C can reduce operating costs using the latest integrated applications, such as the Integrated Recorded Announcement Card, Integrated Personal Call Director Card, and the Integrated Conference Bridge. It is true that Option 11C capabilities have expanded dramatically. And as these upgrades took place, our customers were able to stay current - while retaining more than 90 percent of their initial investment. Today, the Option 11C is widely regarded as industry best in class. It boasts a mean time between failure rate measured in decades. When we say that it is 99.999 percent reliable, we have the track record to prove it.

Ordering Information

For further information, please contact your local Nortel Networks Representative.

Meridian 1 Option 11C Mini

Overview

Specially designed for small branch offices and remote sites, this small powerhouse of a PBX can function as a standalone unit or as an end node in a Meridian 1 network. The Meridian 1 Option 11C Mini is a version of the Meridian 1 Option 11C specifically positioned for the 30 to 80 line enterprise branch office site. The Mini is a customer premises communications system, packaged to provide Meridian 1 features and functionality for enterprise small branch offices and economic growth up to the full capacity of the Option 11C. The Meridian 1 Option 11C Mini represents the newest member of the Meridian portfolio based on the Option 11C platform. It has been designed with Nortel Networks Evergreen strategy in mind, ensuring a smooth upgrade path as the needs of a business evolve.

Customer Profile

- Technology savvy enterprises that communicate globally with multiple remote locations
- Remote sites that need powerful voice features, data connections, LAN communications, CTI and information services
- Branch offices supporting fewer than 80 lines
- Companies wanting a clear growth path for the future

Typical Applications

- Extending advanced services to remote sites located next door or in another country; LAN and WAN VoIP
- Meridian Mail, CallPilot, Symposium Call Centre, Symposium desktop applications, Meridian Integrated Call Bridge (MICB), Meridian Integrated Recorded Announcer (MIRAN) and Meridian mobility solutions, plus a host of IP applications
- Efficient distribution of incoming calls through Meridian Automatic Call Distribution (ACD)

Key Points

Affordability

- Automatic route selection reduces costs by restricting access to the least expensive class of service
- Call accounting helps allocate expenses to appropriate departments and companies

Scalability

- Easily expands from 70 to 800 ports
- Open architecture accommodates hundreds of software features and services
- Can be IP-enabled to take advantage of voice/data network integration

Flexibility

- Interacts with other servers to allow multimedia communications including voice messaging, call centres, database lookup, and CTI applications
- Software programmable to support a variety of central office trunks
- Can interface with the signalling and protocols of public carrier networks

Simplicity

- Simplified administration and maintenance
- Built in diagnostics reduce costs and simplify maintenance
- Visual displays and single button access to features

Features and Benefits

Features	Nortel Networks Option 11c Mini
Number of Ports	160 (96 Main, 64 Expander), expanding to 800 ports
Network Switching Capacity	320 timeslots, non blocking
Number of Card Slots	8 (4 Main, 4 Expander)
Conference Ports	16 in main chassis
Supports all Meridian Telephone Sets	Yes
Supports all Meridian 1 Applications	Yes
Mounting Options	Rack/Table/Shelf/Wall
Flexible System Expansion Beyond 2 Chassis	Yes

- This product is a competitively priced extension of the Meridian 1 Option 11C platform. Option 11C Mini is targeted at branch offices needing up to 80 lines.
  The system provides the full range of Meridian 1 features, which can be found on the larger members of the Meridian family and also supports the full portfolio of Meridian desktop telephones
- The Option 11C Mini is the optimum solution for an end node in a Meridian 1 Network where advantage can be taken of centralised services such as Meridian Mail or CallPilot
- It is a full member of the Meridian 1 portfolio and can take advantage of all the features and applications available to larger Meridian 1 systems
- It includes a 48 port DLC supporting 48 digital TNs and 48 data TNs
- Maximum installation flexibility
- Small package supporting full Meridian portfolio
- Full Meridian networking functionality
- Designed especially for the 30-80 line market
- Based on Meridian 1 Option 11C technology
- Supports Generic X11 Software
- Flexible expansion capability with a maximum capacity of up to 800 ports
- Designed with Nortel Networks Evergreen strategy in mind, ensuring a smooth upgrade path
- Mini supports all Meridian 1 networking protocols and the full range of integrated Meridian 1 applications, including: Meridian Mail, CallPilot, Symposium Call Centre, Symposium desktop applications, MICB, MIRAN, Meridian Integrated Personal Call Director (MIPCD) and Meridian mobility solutions
- Supports the same Internet functionality as the larger Meridian 1 PBXs, taking advantage of current and future Meridian IP applications and products
- The physical design of the Mini offers maximum installation flexibility:
  wall, table, shelf, or rack-mountable
- Small, affordable configuration
- Standard Meridian 1 Desktop

Ordering Information

For further information, please contact your local Nortel Networks Representative.

Meridian 1 Option 61C and Meridian 1 Option 81C

Overview

The Meridian 1 Option 61C and 81C Enterprise Communications Systems are the powerhouses of the Meridian 1 portfolio. Both are equipped with CPU and storage media redundancy as standard.

Meridian 1 provides a platform for applications such as CallPilot Unified Messaging and Symposium Call Centre Server. The Meridian 1 Option 61C and 81C provide the added benefit that these services can be hosted centrally and extended across the entire network to smaller Meridian 1 Option 11 locations, many of which may be too small to warrant having their own local applications platforms. This is achieved using the Network Attendant Services, Network Message Services and Networked Automatic Call Distribution features.

The power, capacity and reliability of the Option 61C and 81C are also well suited as host sites for large deployments of the Remote Office portfolio which extends cost-effective, high-quality communications to the smallest branch site locations and home-workers. They are equally well capable of supporting large numbers of mobile employees through the "virtual office" feature and i2050 software telephone.

The modular design of Meridian 1 systems across the portfolio provides built in scalability so that when your enterprise grows then so too can your Meridian 1. This enables seamless growth from the Option 61C to 81C as the need arises.

Features	Meridian 1 Option 61C / Option 81C
System Capacity	Option 61C up to 2,00 ports Option 81C up to 16,000 ports
Real-time Call Capacity	320,000 Busy Hour Call Completions (BHCC)
Redundancy	CPU and Storage Media
Integrated Applications	Symposium Call Center Server portfolio CallPilot Unified Messaging MIPCD (One number find-me / follow-me) MICB (Audio Conferencing) MIRAN (Recorded Announcer) Meridian Mail (Voice Mail) Meridian DECT Wireless Voice Remote Office
System Management	Optivity Telephony Manager
Terminals	M3900 series and earlier supported Meridian 1 digital telephones , IP and Software Telephones Analogue, Basic Rate and Attendant consoles
VoIP	ITG line-side, trunk-side and Wireless VoIP Gateway
Software Features	450+ (e.g. Boss Secretary Filtering, Intercom, paging)

Customer Profile

- Targeted at mid to large sized organisations with the most demanding requirements for capacity, reliability, advanced applications and sophisticated networking.
- The Meridian 1 Option 61C is ideally suited for organisations requiring up to 2,000 ports.
- It is also the system of choice for smaller port sizes where resilience is a major consideration, such as in a Call Centre.
- The Meridian 1 Option 81C uses many of the Option 61C components but adds additional power and capacity to support up to 16,000 ports.

Defining Needs

- Are more than that 500 extensions needed?
- Is Dual Processor reliability required?
- Is this a Call Centre with over 100 agents – the point at which dual processor redundancy is often considered?
- Will this site host many remote locations?

Key Points

- Meridian 1 is the No. 1 Business Communications system worldwide (Dataquest*).
- Meridian 1 is the No. 1 Call Centre solution in Europe (MZA*).
- Meridian 1 is the No. 1 CPE based unified messaging system in Europe (ranked by Pelorus*). (*Independent consultancies)
- Meridian 1 provides the most effective integrated communications: CallPilot, Meridian Mail, MIPCD, MICB, MDECT (Meridian Digital Enhanced Cordless Telecommunications) and MIRAN.
- Meridian 1 offers a choice of circuit switched or IP telephony (ITG line-side, ITG trunk-side Remote Office, IP telsets, IP adaptors for Digital sets).
- Meridian 1 uses award-winning technology including ITG and Remote Office 9150

Features and Benefits

- Advanced functionality: Meridian 1 supports over 400 features including Calling line ID, Ring Back and Boss/Secretary filtering. Many of these advanced features are not available from alternative vendors.
- Absolute reliability: Meridian 1 has a track record of absolute reliability, a key requirement in managing running costs. Optivity Telephony Manager enhanced this reliability by providing an advanced element manager for Meridian 1 and its applications.
- Valued-added applications: Meridian 1 incorporates a host of integrated applications: CallPilot Unified Messaging, Meridian Mail, Symposium Call Centre Server, Meridian Integrated Conference Bridge (MICB), Personal Call Director (MIPCD) and Recorded Announcements (MIRAN) that are unparalleled in the industry.
- Advanced networking: Meridian 1 offers networked based dialling plans, call centres and unified messaging solutions.
- Voice over IP (VoIP) support
- Enterprise Mobility: Wireless telephony on Meridian 1 includes a choice of integrated Digital Enhanced Cordless Telecommunications (DECT) or Wireless Voice over IP.
- Investment protection: Line and trunk cards from the smallest Meridian 1 can be re-used on larger systems as expansion is required.

Ordering Information

For more information please contact your local Nortel Networks Representative.

Meridian 1 Remote Services Line-Side E1 Interface

Overview

Meridian 1 Remote Services products allow businesses to distribute a single Meridian 1 system throughout their campus, across town or across the continent while maintaining the convenience and economy of centralised resources and control. Line-Side E1 is a complimentary addition to the Meridian 1 Remote Services portfolio, which includes ISDN Networking, Fibre Remote and Carrier Remote. The Line-Side E1 interface card provides a cost-effective connection between E1 compatible equipment (ie such as voice mail systems, integrated voice response units) and a Meridian 1 system. Used in these kinds of applications, the Line-Side E1 interface eliminates the need for expensive channel bank equipment.

Customer Profile

- Businesses seeking "line side" functionality to support E1 compatible devices via a direct connection to the Meridian 1
- Customers intending to connect IVR equipment to the Meridian 1 for contact centre applications

Typical Applications

An example where Line-Side E1 could be an ideal solution is with E1 compatible voice response units such as an IVR system. Using Line-side E1, Meridian 1 can send a call directly to the IVR system and because the Line-Side E1 card supports 2500-type functionality, the IVR system can send the call back to the Meridian 1 for further handling. This is a significant improvement over previous alternatives. Previously, if a digital "trunk-side" connection was used to the IVR system, the IVR system could not transfer the call back to the Meridian 1. Analogue ports and channel bank equipment would have to be deployed for line-side capability – a much more expensive solution.

Key Points

- The Line-Side E1 interface is appropriate for any application where both E1 connectivity and "line side" functionality is required. It provides a direct connection between the Meridian 1 and third party E1 compatible equipment. This results in a more robust, reliable and cost-effective connection without the need for channel bank equipment
- For connecting to IVR equipment, Line-Side E1 interfaces simplifies system configuration resulting in reduced installation time and easier maintenance of both the Meridian 1 and the IVR equipment

Features and Benefits

The Line-Side E1 interface is an Intelligent Peripheral Equipment (IPE) line card that is supported on Meridian 1 Option 11 through 81C systems.

Line-Side E1 emulates an analogue line card to Meridian 1 X11 software and requires two card slots within the IPE (ie dual width card) to support 32 E1 ports. With full analogue line card functionality in software, these Line-Side interfaces can provide 2500-type telephone set functionality (eg hook flash, ring back tones from the Meridian 1). This "line-side" functionality is crucial when used with equipment such as voice mail systems, integrated voice response units and trading turrets (used in stock markets).

The Line-Side E1 interface is compatible with public or private CEPT type carrier facilities.
Using Channel Associated A/B signalling, it supports CRC-4 or FAS only framing formats as well as AMI or HDB3 coding.

Line-side E1 can also support off-premise extensions over long distances (ie up to 800km from the Meridian 1 system). Analogue telephone functionality is extended over E1 facilities, providing a telephone at the remote site with access to 2500-type line functionalities. Audible message waiting indication can be supported as well.

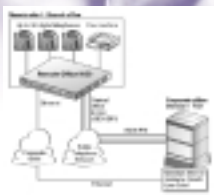
While designed for remote services applications, Line-Side E1 interfaces are also used for interfacing to IVR equipment like the Nortel Networks Periphonics line of products or other third-party IVR equipment for Enterprise Contact Centres and Self-Serve applications.

Features	Product
Eliminates need for expensive channel bank equipment with support for third party E1 compatible devices	Line-side E1 Interface Card
Supports E1 Monitoring and Diagnostics	Standard with Line-side E1

Ordering Information

For further information, please contact your local Nortel Networks Representative.

Remote Office 9150



Overview

The Nortel Networks Remote Office 9150 is a powerful option for extending cost-effective, high-quality communications to remote offices. The award-winning1 Remote Office 9150 extends the features and functions of a Meridian 1 or Succession CSE 1000 communication system to remote branch offices providing for up to 32 Meridian Digital telephones and utilising an standard IP-based network connection and/or ISDN circuit-switched telephone lines.

This gives remote branch office workers full access to the corporate telephone network as if they were at the main site. Remote Office enables a user at a remote location to access all of the system resources, such as unified messaging, the corporate directory and corporate dialing plans. In addition, all of the 450+ features enjoyed in the main office are available remotely, features such as "Boss-Secretary Filtering", "Audio Conferencing" and "Automatic Call Distribution".

Customer Profile

- Multi-site enterprises that want to leverage the investment in their Meridian 1 or Succession CSE 1000 by cost effectively distributing high-quality communications capabilities over IP throughout the entire organisation
- Enterprises that need to cost effectively support small remote offices with up to 32 users
- Teleworking centres that want to transparently connect remote workers or call centre agents to a Meridian 1 and Succession CSE 1000
- School districts extending from a central site with centralised voice mail
- Small clinics and doctors' offices extended from a main hospital
- Banks, credit unions and other financial services organisations with numerous remote sites

Typical Applications

Typical applications include small branch offices that desire to leverage the features and functionality of a central corporate PBX while still providing a local presence in the distant community served. Examples include bank and credit union branch offices, doctor offices and clinics associated with a major hospital, regional sales and service support centres, a remote agent call centre pod at the local shopping centre and other similar scenarios.

- Seamlessly sharing CallPilot, Meridian Mail and Symposium Call Centre applications with remote sites over converged voice/data networks
- Increasing the productivity of distributed workforce services, mobility and Unified Messaging
- Ensuring QoS levels

Key Points

- Cost effective Branch solution: Leverages Customer Investments - from high value features and applications at host site
- Scalable Remote Solution - gives up to 32
- Flexible Access Options - digital telephones extended via IP network and/or ISDN BRI lines
- Reduces Charges - by providing dial tone from the host Meridian 1 or local central office
- Simplified Management - with only one centralised database to support
- Efficient use of Bandwidth - with voice compression options
- Maintains High Voice Quality - via QoS transitioning technology. The 9150 offers a voice QoS feature that automatically switches to the circuit network if IP congestion affects voice quality and back to IP when voice QoS is re-established on the WAN. Switching between IP and circuit switched networks is transparent to the user.

Features and Benefits

All of the Remote Office products communicate with the Meridian 1 or Succession CSE 1000 communication systems via a single-slot or dual-slot Reach Line Card. This flexible integrated application card can simultaneously support not only Remote Office 9150-based branch offices, but also 9110 and 9115 telecommuters, IP-enabled Meridian Digital phones with the Meridian Digital Telephone IP Adapter and directly wired Meridian Digital phones[2].

Unlike many other IP Telephony products from other vendors, Remote Office 9150 is able to ensure voice quality and reliability because of its ability to place and receive phone calls over circuit-switched PSTN lines, as well as over a Voice over IP network connection. When IP performance levels drop, Remote Office 9150 uses patented QoS transitioning technology to maintain voice quality, moving live active calls from the IP network to PSTN fallback lines without dropping the call.

The Remote Office 9150 allows centralised administration and control of branch office telephones, a consistent user interface between branch offices and headquarters and centralised application support, such as CallPilot Unified Messaging and Symposium Call Centre. The Remote Office 9150 is fully survivable in the event that the branch office loses IP connectivity with the headquarters office.

Features	Nortel Networks Remote Office 9150
Scalable Capacity	8-32 telephones
Interfaces	Up to four U or S/T ISDN BRI interfaces 10BaseT Ethernet One analogue port
Compatible Handsets	Support M2000, M3800 and M3900 sets plus add-on modules
Host Site	16- and 32-port Meridian Internet Gateway Remote IPE line cards Ethernet interface for VoIP Shared ISDN PRI/T1/E1 PBX trunking to remote sites
Meridian Feature/Application Support	All Meridian 1/Succession CSE 1000 Applications: • Telephony features • Symposium Call Centre • Supports 1st and 3rd party CTI • Call Pilot Unified Messaging • Meridian Mail
Connection to Meridian Host	Ethernet interface for VoIP ISDN BRI G.729 (8 kbps) encoding supports up to 8 simultaneous calls back to the Meridian 1 or Succession CSE 1000 on a single ISDN B channel (14 calls on 1 BRI)

Survivable	If WAN connection lost to Meridian: • Local station to station calls supported • ISDN BRI Lines allow local outgoing and incoming call for remote users
Local Switching	Station to station calls are switched locally saving bandwidth to Meridian
Audio Compression	Supports multiple codecs to maximise WAN bandwidth
QoS Transitioning	Dynamically switches calls from packet networks to circuit-switched networks if voice quality degrades
Bridge Port	The Bridge Port feature allows local PSTN calls received or placed on the branch office's ISDN BRI phone numbers to be transferred, call-forward and/or conference from the Remote Office 9150 branch office to the Meridian 1 or Succession CSE 1000 communication system
DiffServ and 802.1p QoS Support	802.1p Layer 2 QoS and DiffServ Layer 3 QoS means improved IP performance. When installed on a QoS-capable network, the Remote Office 9150 utilises these QoS features to ensure maximum IP performance and voice quality over the IP network
Jitter Buffer Configuration	Administrators can now minimise latency (delay) on fast high-performance IP connections, or maximise voice quality on IP connections that may need extra buffering
Multiple Subscriber Numbering (MSN) Support	Remote Office 9150's support of MSN allows each ISDN-BRI channel to have a separate DN (phone number) from the CO. This means that each BRI line can now have up to two phone numbers (one for each B-channel). In some areas, this may be the only BRI configuration supported
Voice Activity Detection	Voice Activity Detection (sometimes called silence suppression) can dramatically reduce the amount of IP traffic generated during a voice conversation. The Voice Activity Detection feature allows one side (or both) of a VoIP connection to stop sending traffic when there is nobody speaking on that side

IP Bandwidth Restriction	IP Bandwidth Restriction feature allows an administrator to set a maximum amount of bandwidth that will be transmitted over the IP connection between the Reach Line Card and the Remote Office 9150 unit. If the maximum IP bandwidth restriction has been reached, and additional calls are attempted, those calls will be routed over the BRI connection

Ordering Information

For further information, please contact your Nortel Networks representative.

[1]Remote Office 9110/9115 won Best of Show award at the 2001 Internet Telephony Conference and Expo in San Diego, USA.
[2]Directly wired Meridian Digital Telephone support not available on Succession CSE 1000 systems.

Remote Office 9110/9115

Overview

Remote Office 9110 and 9115 use the award-winning technology[1] to extend a single digital telephone to a remote location, This gives a remote worker full access to the corporate telephone network as if they were at the main corporate site. Remote Office enables a user at a remote location to access all of the system resources, such as unified messaging, the corporate directory and corporate dialing plans. In addition, all of the 450+ features enjoyed in the main office are available remotely, features such as "Boss-Secretary filtering", "Audio Conferencing" and "Automatic Call Distribution".

Remote Office 9110 and 9115 uses either traditional circuit switched connections or packet switched VoIP connections. Unlike many other IP Telephony products from other vendors, Remote Office 9110 and 9115 are able to ensure voice quality and reliability because they can place and receive phone calls over analogue PSTN lines, as well as over VoIP packet switched networks. When IP performance levels drop, voice quality can be maintained by moving live, active calls from the IP network onto the analogue fallback line without dropping the call.

Remote Office 9110 is a small circuit board mounted in the footstand of a digital telephone and the Remote Office 9115 is a small module external to the telephone. The following table shows the digital telsets which Remote Office supports.

Customer Profile

- Home-based employees
- Executive home-based offices
- Home-based employees
- Occasional remote worker
- Call centre agent teleworkers - single agent working from home or remote site
- Remote jobsite support - support of small temporary field/project offices
- Support personnel (including IT, facilities) that may rotate pager duty and/or have to respond to work calls after hours
- Very small branch offices (2-3 phones) without ISDN BRI ability and little internal phone-to-phone traffic

Typical Applications

- Ideal solution Home-worker
- Call centre agent teleworkers - single agent working from home or remote site
- Remote jobsite support - support of small temporary field/project offices

Key Points

- Leverage the features & Applications of a Meridian 1 or Succession CSE 1000 communications system across to the home-office, worker as if he was in the office
- Cost saving by providingVoIP solution
- Centralised System Administration - under Optivity Telephony Manager
- Patent Quality of Service (QoS guaranteed) with both IP & Circuit Switch Analogue connectivity

Features and Benefits

All of the Remote Office products communicate with the Meridian 1 or Succession CSE 1000 communication systems via a single-slot or dual-slot Reach Line Card. This flexible integrated application card can simultaneously support not only Remote Office 9110 and 9115 telecommuters, but also Remote Office 9150 branch offices and IP-enabled Meridian Digital phones with the Meridian Digital Telephone IP Adapter.

Remote Office products are flexible: they may be installed in PSTN-only, or IP-only modes, depending on what access methods are available to the remote user.

Features	Nortel Networks Remote Office 9910 / 9115
Interfaces	Single Analogue POTS 10BaseT Ethernet
Compatible Handsets	Supported M2000 and M3900 sets plus add-on modules
Meridian Feature/Application Support	All Meridian 1/Succession CSE 1000 Applications: • Telephony features • Symposium Call Centre • Supports 1st and 3rd party CTI • MIPCD, MICB, MIRAN • CallPilot and Meridian Mail
Connection to Meridian Host	Ethernet interface for VoIP Analogue POTS G.729 (8 kbps) encoding back to the Meridian 1 or Succession CSE 1000 on a single Analogue POTS
Survivable	If WAN connection lost to Meridian - Local Line allows local outgoing and incoming call for remote users
Audio Compression	G.711, G.729a, 30ms voice samples
QoS Transitioning	Dynamically switches calls from packet networks to analogue POTS line when IP performance degrades
Standards Compliant	TAPI: via Symposium TAPI Service Provider (first party or third party mode) • IEEE 802.1p: Layer 2 QoS • DiffServ: Layer 3 QoS • NAT-P: Network Address Translation
Transparent Access to all Meridian and Succession Features (from the Remote Location)	• Call Pilot (Unified Messaging), message lights, MICB Conference Bridge, etc • Same phones and user interface whether at remote site or at main site • Phones can be programmed identically to local phones, including an exact copy of an existing phone (one phone number rings at both a remote and local office phone – MADN Multiple Appearance Directory Number) • Remote phones have the same access as local phones to call centre and other applications
Voice Activity Detection	Voice Activity Detection (sometimes called silence suppression) can dramatically reduce the amount of IP traffic generated during a voice conversation. The Voice Activity Detection feature allows one side (or both) of a VoIP connection to stop sending traffic when there is nobody speaking on that side

M3900 Digital Telephones

Overview

The M3900 series is Nortel Networks latest range of digital telephones for the Meridian 1 Business Communication System and Succession Communication Server for Enterprise 1000 (Succession CSE 1000). The M3900 series consists of five new telephone models and a variety of accessories to meet the diverse requirements of all organisations. Excellent voice quality, simplicity of use and ease of management are guaranteed with all sets in the M3900 series.

M3901 Current Highlights:

- Entry level single line set
- 5 programmable features
- 4 fixed keys (Line, Feature, Hold, Goodbye)
- Ringing and Handset Volume control
- LED indicator: Message waiting, Feature activation
- Feature card
- Desk or wall mount

Typical Applications:

- Lobby, hallways, etc

M3902 Current Highlights:

- Basic single line set
- 2-line x 24-character display
- 3 self-labelling programmable feature keys
- Handsfree key with LED
- Navigation cluster
- Desk or wall mount
- Headset support

Accessories:

External Alerter & recording Interface

Typical Applications:

Manufacturing floor, warehouse, light telephone use

M3903 Current Highlights:

- Multi-line
- 3-line x 24-character display
- 2 self-labelling programmable line/feature keys
- 4 context sensitive feature keys
- Advanced feature access: Virtual Office, Corporate Directory, Set-to-Set Messaging
- Fixed feature keys: Direct Connect Headset
- Handsfree w/LED
- Navigation cluster, Quit and Copy
- Desk or Wall Mount

Accessories:

External Alerter & Recording Interface

Typical Applications:

Office professionals, technical specialists

M3904 Current Highlights:

- Multi-line
- 5-line x 24-character display
- 6 self-labelling programmable line/feature keys
- 4 context sensitive feature keys
- Advanced feature access: Virtual Office, Corporate Directory, Set-to-Set Messaging
- Fixed feature keys: Message, Directory/Log (includes Personal Directory, Call Log and Redial List), Applications, Shift, "Smart" Mute w/LED, Headset w/LED, Hold, Goodbye, Volume Control
- Direct Connect Headset
- Handsfree w/LED
- Navigation cluster, Quit and Copy
- Desk or wall mount

Accessories:

KBA, DBA, External Alerter & recording Interface, Personal Directory PC Utility

Typical Applications:

Managers, executives, administrative assistants

M3905 Current Highlights:

- 4-line x 24-character display
- 8 self-labelling programmable line/feature keys
- 4 self-labelled programmable feature keys
- 6 ACD Fixed feature keys w/LED
- Headset, Supervisor, Emergency, Make Busy, Not Ready, In-Calls
- Supervisor plug in key (talk or listen only)
- Navigation cluster, Quit and Copy
- Dual Headset jacks
- Handset optional
- 2 accessory ports

Accessories:
KBA, External Alerter & recording Interface

Target Customers:
Symposium Contact Centre agents and supervisors

Typical Applications:
Contact Centre agents and supervisors

Key Points

- Lower cost of ownership
- Self-labelled keys
- Simplified administration, upgrades and maintenance
- Simplify accessories installation
- Increased user productivity through simplified user interface
- Enhancements to Directory search makes calling easier and finding numbers faster
- More efficient access to value-added features and services
- Context sensitive keys allow easy viewing of line/feature status
- Empowerment
- Increased flexibility with more customisation of Virtual Office features

Ordering Information

For further information, please contact your local Nortel Networks Representative.

Meridian Integrated Conference Bridge (MICB)

Overview

Meridian Integrated Conference Bridge (MICB) is a server based Intelligent Peripheral Equipment (IPE) application that provides an integrated audio conference bridge capability for Meridian 1 and Succession CSE 1000. Organisations wanting to extend their communications reach to geographically dispersed customers, clients or colleagues, can do so efficiently and professionally with MICB. In addition, MICB provides quick "in-house" access to a secure conference bridge, instead of requiring constant coordination with external service bureaus. MICB is designed not only to enhance an organisation's audio-conferencing capability with a variety of convenient features, but also as an easy to use administrative tool for scheduling conferences.

Customer Profile

- Any business organisation that wants to use audio conferencing as a means of consolidating communications irrespective of time, date and location
- Corporate decision-makers interested in a high-quality audio-conferencing solution will find that the MICB is an excellent fit for their requirements. Not only does it integrate with the Meridian 1 system to help reduce costs by avoiding the need for additional equipment, MICB can also bring a geographically dispersed organisation together via high-quality audio conferencing
- Managers will appreciate the cost-savings and efficiency that this intuitive conference administration tool can bring to their organisations

Key Points

- MICB delivers cost-effective, interactive, multi-point audio conferences accessible from any telephone, anytime, anywhere in the world
- MICB provides administrators and users alike with cost-effective in-house conference capabilities without the inconvenience of external OEM equipment, or more expensive and less secure third-party service bureaus
- Being "in-house" means conferences can be scheduled at a moment's notice instead of coordinating services with a suitable provider
- Access to MICB is provided at the user level for conference management and at the administrator level for configuration, editing conference parameters, bridge allocation, assigning control directory numbers, or analysing traffic reports
- The administration of conferences can be controlled via a web-based browser user interface on a personal computer

Features and Benefits

The Meridian Integrated Conference Bridge offers features designed to make scheduling, administrating and attending a conference effortless for any organisation.

To ensure conference security, MICB provides password protection on a conference-by-conference basis. Specific calls can be password protected, or all calls protected depending on the level of security that is desired. Passwords are assigned at the administrator level at the time the conference is scheduled and are between four and eight digits in length. MICB will allow two attempts to enter a password and if still incorrect, will advise the user to contact the bridge administrator.

Flexible conference scheduling and administrative user interface options are available. An intuitive web-based browser user interface (BUI) makes scheduling conferences quick and easy. A menu-driven telephone set option not only lets customers schedule conferences via any DTMF set, but also allows chairperson and conferees to have control of in-conference features.

Each MICB card can function independently, providing up to 32 ports that can be divided into groups from 1 to 10, where each group represents a separate conference.

By linking two MICB cards together, 62 ports for a single conference call can be obtained. For configurations beyond 32 ports, a Windows NT server is required in lieu of using the embedded server contained within the MICB card.

MICB is a global product and supports English (UK), English (American), French, German and a number of other European languages.

Feature	Benefit
24 x 7 Availability	Accessible from any phone, anytime, anywhere
Browser User Interface	Intuitive web-based BUI for administration
Telephone User Interface	Menu-driven scheduling/reservation capability
BUI Administration	Support of configuration, schedules and reports
Entrance/Exit Options	Enter/exit by Name, Tone, or Silence
Multi-Language Prompts	Selective application in language of choice
Password Security	Controls access by Chairperson/Participant
Email Notification	Conference confirmation/attributes to scheduler
Custom Greeting	Permits recording of brand line greeting
Assign Chairperson	Reserves a port for access by Chairperson
Help Access Menu	Enables Chairperson to play list of commands
Group Callout	Permits Chairperson to call pre-selected group
Roll Call	Allows Chairperson to check participants
Dial Out	Allows Chairperson to call a non-participant
Port Expansion	Allows additional conferees to join the bridge
Side Bridge	Chairperson consults privately with a participant
Selective Disconnect	Enables Chairperson to disconnect a participant
Block-out Scheduling	Permits recurring conferences to be established
Emergency Bridge	Automatically dials list of predetermined numbers
Lock/unlock Conferees	Permits Chairperson to allow/deny participants
Conference Extension	Conference can be extended beyond allotted time
Conference Termination	Issues warning when conference is about to end

Ordering Information

For further information, please contact your local Nortel Networks Representative.

Meridian Integrated Personal Call Director (MIPCD)

Overview

Meridian Integrated Personal Call Director (MIPCD) is a versatile one number "follow-me" product that provides the ability to screen and route incoming calls to one or multiple phones based on customised personal profiles, time and date. It allows a user to distribute just one telephone number to associates, rather than dealing with multiple phone numbers. MIPCD provides users with the ability to discreetly screen and route their calls while ensuring their continual accessibility to callers. It also provides flexible features for different stages of a one-number telephone call such as greeting a caller, searching for the called party, or re-directing a call to the user's voicemail.

Customer Profile

- MIPCD is ideal for any organisation that has road warriors, mobile sales forces, or any employees that are constantly on the go
- MIPCD follow-me call service benefits any organisation seeking to improve customer satisfaction and increase employee productivity
- The application is ideal for people with multiple telephones or other devices accessible through the telephony network such as office, cellular, pager, fax, etc
- MIPCD facilitates personnel who must keep in touch with colleagues and customers outside of normal business hours

Key Points

- MIPCD can increase employees' productivity levels while simultaneously enhancing customer satisfaction
- Corporate decision-makers will be especially interested in MIPCD because of its integrated nature. The MIPCD has been designed as a universal IPE card so that it will slot easily into any IPE shelf on the Meridian 1 system.
  It provides seamless integration that avoids having to deal with possible compatibility issues associated with external equipment, thus leveraging the same service and support provided to the Meridian 1
- Network and telecom managers will appreciate the flexibility of MIPCD. The ability to add additional users and ports as the need arises via the purchase of simple key code activated user expansions and upgrades, makes MIPCD an attractive enhancement to the Meridian 1
- Each MIPCD card contains an embedded server that allows users to access service via the Web in order to create customised call screening and routing profiles based on time of day and date scheduling
- MIPCD provides two intuitive user interfaces: a Web-based Browser User Interface (BUI) and a voice prompted Telephone User Interface (TUI); the TUI allows users to conveniently make changes to their MIPCD settings from any DTMF telephone
- The MIPCD administrator can benefit from very extensive traffic, billing and event reporting capabilities. Traffic measurement files are generated and stored in the PCMCIA disk on a one file per day basis.

Features and Benefits

The MIPCD features can be easily handled using one of two intuitive interfaces: either a Web-based Browser User Interface (BUI) or a Telephone User Interface (TUI). The BUI is used for defining and setting the user characteristics in the follow-me profile, follow-me schedule,

temporary overrides and personal properties (passwords, mailbox number and the like).
The TUI is accessible from any DTMF telephone and permits the user to record one or more personal greeting, assign the greeting to a distribution list, activate the override capability to change the profile and program MIPCD to route calls accordingly.

Each MIPCD card has an IP address to permit both individual subscribers (users) and the administrator access to the various services, such as defining personal routing profiles from a Web browser. Depending on the setup, a user can access the MIPCD BUI either via their company's intranet and/or Internet. A TUI is provided for subscribers to initiate immediate overrides to an existing routing profile, or to a direct number if the subscriber is away from their usual place of work and does not have access to the Web.

MIPCD supports Nortel Networks Meridian Mail/CallPilot and other voice message systems that have Express Messaging capability. MIPCD transfers subscriber's incoming calls to the Express Messaging number defined in the Administrator's BUI. Subscribers can enter a different mailbox number if necessary via the User BUI. An incoming call is automatically transferred to the subscriber's voice mail if the user cannot be reached.

During the MIPCD search phase for the connection to the user, the calling party can receive a recorded announcement, music while waiting, announcement plus music, or ring back tone.
Four options for call disposal are available when the MIPCD is unable to locate the subscriber. These are: transfer to voice mail, transfer to an administrative assistant, transfer to another number, or disconnect.

MIPCD is available in several different configurations: 8 port/50 users, 16 port/100 users, 24 port/150 users and 32 port/200 users. The maximum user capacities that can be reached at each of the port sizes are: the 8 port/50 user configuration can expand to a maximum 100 users; the 16 port/100 user MIPCD card to a maximum 150 users; the 24 port/150 user MIPCD card to a maximum 200 users and the 32 port card can grow to a maximum 300 user capacity per card.

The MIPCD has a multi-language capability.
The voice menus for both users and callers can be selected in a preferred language from the following: English (UK), English (American), French, German and a number of other European languages.

Feature	Benefit
Intuitive User Interface	Accessible by Web-based Browser or Telephone
Greeting Choices	Selectable system, personal, or no greeting
Custom Profiles	Users control call routing based on their schedule
Call Treatment	User defines how and when calls are to be routed
VIP Password	Permits special call treatment for the caller
Name Request	Announces caller's name for discretionary handling
Calling Line Request	Announces calling number to the call recipient
Search Options	Provides sequential or simultaneous parallel search
Response During Search	Provides message, music, or ring back tone to caller
Call Answer Password	Adds security through user authentication password
Call Reconnection	Reconnects call if accidentally disconnected
Incoming FAX Detection	Automatically routes the call to a defined number
Call Disposal	Transfer to voice mail, attendant, or other number
Dial Restrictions	Checks validity of dialling parameters set by the user
Override Profiles	Users can change their profile from a BUI or TUI for immediate or programmed implementation

Ordering Information

For further information, please contact your local Nortel Networks Representative.

Meridian Integrated Recorded Announcer (MIRAN)

Overview

Meridian Integrated Recorded Announcer (MIRAN) is a server based Intelligent Peripheral Equipment (IPE) card that provides high quality, integrated recorded announcements (RAN) and music-on-hold (MOH) capabilities for Meridian 1 and Succession CSE 1000. With MIRAN, businesses can increase their customer responsiveness by providing callers with easy 24-hour access to important recorded information. MIRAN can be used for a variety of applications with its ability to deliver recorded announcements repeatedly and automatically. It can provide general information messages, call intercept treatment, after hour business instructions, advertising and promotional announcements, hotel wake-up services and any other recorded service necessary to optimise the business environment.

Customer Profile

- New or existing Meridian 1 (on X11 Release 20 or later software) and Succession CSE 1000 customers
- Any horizontal and vertical market that requires the benefit of using announcements to keep customers informed
- MIRAN can be used to empower any business with improved customer contact

Key Points

- MIRAN is an IPE card that provides integrated RAN and MOH services and built-in trunk ports, saving the need to use additional trunk cards and OEM RAN machines
- MIRAN is available in different configurations and offers a comprehensive range of recording and maintenance features for simplified management of recorded announcements
- As is the case with other products in the Meridian Integrated Application Portfolio, the key benefit with MIRAN is the avoidance of using external OEM equipment in order to provide recorded announcements and music on hold to callers
- Integration streamlines operation and consolidates installation, maintenance and support to a single entity. The result is a cost-effective solution that provides a necessary and expected operation to the communication services of the system
- In conjunction with Music Broadcast feature elimination of dedicated conference cards for MOH purposes provides hardware savings and additional card slots for other use, as well as considerable improvements in real time capacity and network traffic handling results
- The Telephone User Interface (TUI) within the MIRAN application permits access from any DTMF telephone using password security
- Announcements can be recorded either locally or remotely as often as required

Features and Benefits

MIRAN delivers a simple, cost effective alternative to standalone digital announcers that have traditionally operated as auxiliary adjuncts to the Meridian 1 system. Its integrated design eliminates the need for external battery back-up, power supply, cabling or switch room space normally required to accommodate third-party standalone RAN systems. Designed to provide simple plug and play installation, MIRAN resides in a single IPE card slot within a Meridian 1 IPE module. Each MIRAN card is available in a number of configurations that can be tailored to meet the requirements of any business entity.

In addition, MIRAN delivers a comprehensive range of recording and administration features, all on a single platform.

MIRAN supports the following applications:

- First recorded announcement
- Second recorded announcement
- Intercept treatment
- Music on hold
- Automatic wake-up for the hospitality market

MIRAN supports both Continuous and Start/Stop modes of playback. Immediate Continuous mode allows recordings to constantly play as callers "barge in" on the playback. Delay Dial Continuous mode initiates a ring back tone to callers until the recording begins again. Start/Stop modes reset the recording to its beginning position when a call is terminated. All MIRAN channels are totally independent and it is possible for each channel to play different parts of a recording at the same time.

MIRAN is pre-configured with 24 minutes of voice memory storage and 6 minutes of royalty-free music for music-on-hold application.

For flexibility, each MIRAN card can be configured for 1 of 3 port channel (port) configurations: Small (2 channels), Medium (4 channels) or Large (8 channels). If traffic requirements increase, the port capacity of the Small and Medium cards can be quickly and easily expanded to the higher configurations with a software keycode that activates the additional channels.

To accommodate traffic requirements beyond the 8-channel capacity, up to 16 MIRAN cards can be linked together in a daisy chain and managed from a single terminal. As many MIRAN cards as required can be supported by Meridian 1, limited only by the number of IPE slots available in the system.

Feature	Benefit
Text-Based User Interface	Provides menus and commands for all OA&M functions
Telephone User Interface (TUI)	Access MIRAN from any DTMF phone for recording or amending announcements
Browser User Interface (BUI)	Access MIRAN via a web browser to perform OA&M functions
Calendar Assignments	Schedule announcements based on day and month basis utilising 366 day calendar
Time and Date Synchronisation	Provides the option of setting the parameter manually or synchronising with the Meridian 1
Music-on-Hold	Trunks and routes can be selectively programmed to provide MOH to callers
Password Security	Provided on any recording made from a DTMF phone; second level password required for advanced maintenance
Announcement Recording	Create voice announcements via commercially available sound editor applications
Music Recording	Connect to external music sources such as a tape recorder, CD player, or radio
Pre-recorded Message Exchange	In-service recordings can be immediately exchanged with reserve recordings stored in memory
Time of Day Messages	Each channel can be assigned to play different messages at specific times during the day, week, or month
Multiple Modes of Operation	Continuous and Start/Stop modes of playback independent of each channel

Ordering Information

For further information, please contact your local Nortel Networks Representative

Messaging - Meridian Mail

Overview

Meridian Mail is Nortel Networks legacy Voice Mail solution with over 70,000 systems installed globally. In simple terms, Meridian Mail is a hardware and software package that integrates with the Meridian 1 business communications system to provide high-powered, cost-effective means of extending sophisticated handling of voice messages across your communications network.

Customer Profile

Businesses of all sizes can enjoy the benefits of voice processing with Meridian Mail. The system can scale from 2 to 96 ports with 5 to 800 hours of storage capacity, so you can start small and grow your system in line with your business requirements.

Key Points

- The benefits of automated call handling are widely acknowledged in terms of improvements in customer service and workforce productivity
- Cost efficiency - increases call handling to reduce the overall cost of communication
- Professionalism - no longer left on hold, callers receive a personalised greeting inviting them to leave a message
- Convenience - no need for repeat calls, voice mail ensures the message gets through and is responded to at the most convenient time
- Time management – enables users to set aside time to concentrate on core activities by allowing Meridian Mail to manage calls
- Expediency - fewer delays, SMS text notifications are routed to advise of new message alerts
- Prioritisation - urgent messages can be filtered through SMS and responded to accordingly

Features and Benefits

All of Meridian Mail's sophisticated features can be accessed by following clear interruptible voice prompts or by entering one or two digit codes on the phone keypad, with no complex codes to remember. Context-sensitive help is always close at hand accessed by a simple key command so in fact, only unauthorised users will find it difficult to access Meridian Mail.

A number of security systems are in place to keep your system secure. Mailboxes are protected by passwords and automatic lockout is triggered after a set number of failed number entries. 'Hacker Tracker' monitors unlawful system intrusion, which integrates with Meridian Mail Reporter alerting your system supervisor when unauthorised access was attempted, allowing you to take remedial action at the earliest opportunity.

Voice Menu

A menu may simply prompt a caller to dial the extension they want, or take them through a series of options to reach people or specific items of recorded information. You can offer a different menu choice at different times of the day or week, use a special menu for holidays and run different language versions on different numbers.

Voice Messaging

Telephone Answering provides personalised answering of telephones that are forwarded, unanswered, or busy. Voice mail provides the capabilities to send and receive verbal messages via the telephone. Voice Messaging also provides features in most systems such as Reply, Call Sender, Forward, Compose and Distribution Lists and Outcalling. Your mailbox can route message alerts to pagers, mobile phones and car phones - you don't even have to be a user of the system to get the message.

Automated Attendant

Automated Attendant puts the caller in control providing an effective operator back-up service

during peak times. Calls are routed to a specific number and simple voice prompts enable callers to steer their call to the right destination. Unlike a human operator, Automated Attendant service answers many calls at the same time and works 24 hours a day.

Voice Forms
Callers can complete forms and request information by simply answering a series of pre-recorded questions. A customer can therefore place an order by phone, at whatever time is convenient for them. A shift supervisor can fill out an urgent service request in the middle of the night, knowing that it will be handled at first priority in the morning. Simultaneous transactioning Integrating Voice Menus, Voice Forms and Interactive Voice Recognition (IVR) enables a customer to carry out a variety of transactions during a single call. If the caller wants human contact, their call can be put into an Automatic Call Distribution (ACD) queue and their account details can be delivered to the answering agent's screen at the same time as their call is put through.

Fax on Demand
Fax on Demand allows callers to receive hardcopy information by calling a specified telephone number from either a touch-tone or a faxphone. By following simple voice prompts, the caller is guided through the process. The faxed information can either be received during the call or by specifying a remote fax number to which the information will be transmitted on completion of the call.
Fax on Demand is ideal in any situation where multiple callers require the same information such as location maps, news bulletins, order forms or price lists.

Hospitality Voice Service
Meridian Mail's HVS enables hotels to differentiate their service offering by providing their guests with their own voice mailbox at check-in. Anyone can then leave a message in their own voice, at their own pace and in their own language.

Meridian Mail Reporter
Meridian Mail Reporter is a robust, feature-rich management tool that works with the Meridian Mail system helping it run more efficiently, protecting you from toll fraud and allowing you to maximise the cost-effectiveness of the system by billing back special services to the departments or people who use them. Meridian Mail Reporter generates up to 38 different reports to help you accurately monitor the complete operation of your voice mail messaging system enabling you to quickly and easily align your messaging tasks with the critical needs of your business.

Multiple Message Waiting Indicator
The Message Waiting Indication (MWI) is a signal sent to a telset to indicate to a user that one or more unread message(s) reside in their mailbox. The administrator can define 8 MWI DNs per MMUI or VMUIF mailbox.

Nested SDLs
Distribution lists allow voice mail users to address messages to groups of mailboxes using a single address. There are two types of distribution lists: Personal Distribution lists (PDLs) and System Distribution Lists (SDLs).
The Nested System Distribution List feature permits one SDL to be included within another therefore containing any combination of 120 mailboxes and/or SDLs and allowing many more mailboxes to be addressed using a single SDL.

Meridian Mail networking options:
- Enterprise Networking – for networking multiple Meridian Mail systems using DTMF signalling. Effectively makes distance irrelevant, provides fully featured network messaging between multiple Meridian Mail sites.
- Meridian Mail Net Gateway – for VPIM (Voice Profile for Internet Mail) networking with Meridian Mail, CallPilot and other messaging systems using an enterprise data network or the Internet (TCP/IP)

- Virtual Node Networking – for networking multiple Meridian Mail systems (pre-release 11)
- Network Message Services – for networking one Meridian Mail system with multiple Meridian 1 PBXs
- AMIS Analogue Open Networking – for networking with other AMIS-compliant voice mail system, regardless of manufacturer

Ordering Information

For further information, please contact your local Nortel Networks Representative.

Messaging – CallPilot Unified Messaging

Overview

CallPilot is a Unified Messaging tool that brings together voicemail, email and fax to create a personalised, feature-rich communications and message management system. CallPilot incorporates the latest technology including advanced Speech Activated Messaging and Email-by-Phone. This enables access to emails using the Telephone User Interface (TUI) through either voice commands or Dual Tone Multi Frequency (DTMF) tones from virtually anywhere. CallPilot builds on the customer-driven functionality of proven Nortel Networks messaging products and adds graphical user interfaces to make system management easy and effective.

The CallPilot portfolio includes CallPilot Release 2.0, CallPilot Mini, CallPilot 100/150 for Norstar and CallPilot as an integrated version for BCM (Business Communication Manager).

Customer Profile

Nortel Networks is able to offer a messaging solution for every customer requirement, from a small 20 user greenfield site, up to one single CallPilot system serving up to a 20,000 user multi-site corporation using IP Telephony.

Defining needs

- Do you use a traditional Meridian 1 business communications system, and IP enabled Meridian 1 or a Succession CSE 1000 call server?
- Are you planning to upgrade your voice messaging system?
- Do you frequently use transient, temporary or mobile workers?
- Do you require confidential, person-to-person message transmissions?
- Are you interested in implementing the latest technologies?

Typical Applications

All employees can benefit from the implementation of CallPilot. Typical applications include head-offices and branch offices in the finance, government, healthcare and transportation sectors. Productivity enhancements will be immediately apparent with mobile workforces eg sales and support teams.

Key Points

- Increased productivity
- Lower total cost of ownership
- Seamless integration, provides a single mailbox for voice, fax and email messages
- Supports conventional touch-tone commands as well as a convenient and easy-to-use Speech Activated Messaging interface
- Offers practical Unified Messaging on the desktop using either the email or web client
- Includes web based and centralised system management tools to maintain low Total Cost of Ownership
- Complies with industry standards to fit in with existing customer IT and telecom environments

Features and Benefits

- Simplified usage - reduces training and increases productivity, uses the same Telephone User Interface (TUI) commands as Meridian Mail to ensure ease of transition between the two systems.
- Playback messages - through the PC, Web or telephone, “anything, anytime, anywhere”.
- Digital networking - saves transmission costs.
- Unified Messaging - gives users the ability to merge voice, fax and email messages into a single interface, easily managed with Lotus Notes, Microsoft Exchange/Outlook and Novell

Groupwise and web browsers such as Microsoft Internet Explorer and Netscape Communicator.

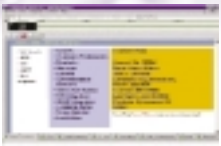
- Integrated voice and fax messaging - provides the ability to receive, store and process voice and fax messages in the same "multimedia" mailbox - a single point of user administration and access.
- Speech Activated Messaging - yields a natural, easy-to-use interface for managing messages from virtually any location - the world's easiest user interface.
- Email-by-Phone provides users with access to their emails from a telephone set - users can scan through a list of email messages and initiate printing of email to a fax machine.
- Symposium Call Centre Server (SCCS) integration will support the SCCS (ACCESS Voice) service, Voice Menu and the voice processing needs of SCCS allowing CallPilot to become an integrated part of a Symposium Call Centre Server Solution.
  - CallPilot is now offering the same SCCS functionality as the Meridian Mail solution.
  - 'My CallPilot' - accessible through the web browser, brings each user their very own personalised, visual 'window' into CallPilot messaging, offering exceptional flexibility for managing messaging needs, including the ability to change the setup of your mailbox features, create personal distribution lists and receive, forward, reply to, and send email messages via the web client.
  - CallPilot Manager - is a powerful management application that enables the device to be configured and maintained from any browser-enabled workstation at the click of a mouse. Included within CallPilot Manager is CallPilot Reporter, which generates reports around the operation and performance of the CallPilot system.
- Application Builder - enables administrators to create custom and user-designed voice menus and automated attendants.
- Networking - the system uses Voice Profile for Internet Mail (VPIM) standards to create seamless IP integration with existing communications systems such as Meridian Mail, Norstar and other vendors. Standards based - VPIM, SNMP, LDAP, IMAP, etc.
- CallPilot is a common application to the Meridian 1 business communications systems, Succession Communications Server CSE 1000 and BCM (Business Communications Manager) and Norstar platforms.

CallPilot Mini for Meridian 1	CallPilot 100/150 for Norstar
Small to Medium business voice messaging solution specially designed to work with Meridian 1 Option 11 / 11C Mini business communications systems and Succession CSE 1000 call server. **Features:** • 8 Port wall mounted • IP enabled with 10/100 Ethernet port for system administration and maintenance • Automated Attendant and Custom Call Routing • Enhanced applications options: - CallPilot Unified Messaging - CallPilot Digital Networking	Small to Medium business voice messaging solution specially designed to work with Norstar Business Communications systems. **Features:** • 8 Port wall mounted • System-wide choice of either Norstar or CallPilot user interface • IP enabled with 10/100 Ethernet port for system administration and maintenance • Co-resident Basic or Professional Call Centre application • Automated Attendant and Custom Call Routing • Enhanced applications options: - CallPilot Unified Messaging - CallPilot Digital Networking

Ordering Information

For further information, please contact your local Nortel Networks Representative.

Symposium Agent



Overview

Symposium Agent is a software framework that allows call centre managers to rapidly implement telephony integration with virtually any Windows or Web based application. Operating in a centrally managed environment, call centre managers can use Symposium Agent to deliver tools such as screen pops, screen based dialling, screen based agent call guides and more, to the call centre.

Symposium Agent is a key component of Nortel Networks strategy for helping users transition their existing call centres into sophisticated Customer Contact Centres. This Windows based software application can significantly boost agent productivity, deliver better customer service and increase revenue.

Customer Profile

- Price and performance conscience customers looking for a comprehensive set of CTI based agent productivity tools that require a minimum amount configuration to customise
- Suits any call centre or help desk operation requiring a desktop agent productivity solution that is thin client based and centrally managed

Defining Needs

- Are you looking for computer telephony integration (CTI) and agent tools that are easy to configure and manage?
- Do you need to automate routine tasks and empower agents with critical customer information?
- When your agents answer calls, do you want to your organisation to appear intelligent to your customers?
- Are you planning to implement screen pop functionality in your call centre?
- Do you want basic outbound call functionality, being able to dial numbers from the desktop from customer lists, corporate directories, etc?
- During a call would you like text comments made by agents to follow the call if it was transferred to another agent?
- Do you want to build powerful workflow solutions to automate and assist agents as they step through complex transactions?

Typical Applications

Symposium Agent is a client server based application framework that can be used to automate business applications using data provided by the carrier network (DNIS or CLID) or information provided by the caller via touch-tone or speech recognition. Solutions may be implemented as thin client browser based (turning any Web page into a service resource), traditional client server, or legacy host. Because it is a standards-based CT solution, the price performance and ease of implementation of Symposium Agent is unmatched within the industry.

Key Points

- Enables the automation of up to 14 applications via browser based "tabbed" user interface
- All applications have access to call data with each call
- Desktop Client component built on Microsoft Internet Explorer 5.0
- Takes full advantage of Microsoft's Telephony Applications Programming Interface (TAPI 3.0) message set for standards based distributed call control
- Integrated two line agent soft phone support offering both administrative and call handling capability
- Web based agent administration
- Supports the definition of call automation rules for both inbound and outbound calls, including support for screen pops of web browser tabs

- Supports application integration via OLE, DDE or Keystroke Emulation
- Windows 2000 and NT backwards compatible for both the desktop client and server components

Features and Benefits

Symposium Agent maximises the efficiency of the agent through desktop consolidation and soft phone integration, putting information at the agents' fingertips allowing them to focus on addressing customers' needs rather than collecting customer information. Agents can even make and receive phone calls by a simple point and click of the mouse with Symposium Agents' desktop telephony capability.

Symposium Agent is a key component of Nortel Networks strategy for helping users transition their existing call centres into sophisticated Customer Contact Centres. When used with Web response applications it allows agents to easily call back web form or email senders.

Symposium Agent 2.0 uses standards-based technology, the latest Internet technology, client-server architecture and Microsoft Telephony API (TAPI) which are bundled with Windows NT/2000, to deliver the following powerful features:

- **AgentExplorer** – a framework for all the following features, it unifies the agent desktop access to all Symposium Agent functions in a browser-based Graphical User Interface that is familiar and easy-to-use
- **Dial Wizards** – a basic outbound call application that can launch a dial wizard from a redial list, a clipboard or a quick menu from which you are able to access personal and LDAP-compliant corporate directories
- **AgentMessaging** – agents can enter text based messages or comments after the call has been answered that can follow a transferred call locally or across the network
- **AgentMobility** – agents can log on from any desk within the call centre. When the agent logs on, the Symposium Agent application validates the user, performs software version synchronisation and downloads user preferences and call handling rules to the agent's client PC
- **AgentCompass** - integration module used for building powerful workflow solutions using standard Web-authoring tools such as Microsoft® FrontPage™, Active Server Pages™, PERL, ™ CGI™ and ISAPI™. HTML/Web-based interfaces can be used to automate information access and assist agents through complex transactions.
- **AgentTelephony** - control telephony functions from the PC (login, logout, not ready, dial, conference, transfer, hold, answer and release). Point and click access from AgentTab
- **AgentTabs** - customise and automate links to up to 14 Web-enabled applications simultaneously, save and share valuable desktop space
- **AgentLog** - call events, agent activities and individual notes that an agent may make about a call are logged and stored on the server by Symposium Agent (AgentLog). This information is maintained in a standards compliant database allowing it to be merged with external data sources such as Symposium Call Centre Server to create custom reports

Ordering Information

For further information, please contact your local Nortel Networks Representative.

Symposium Agent Greeting

Overview

Nortel Networks Symposium Agent Greeting offers contact centres a simple, cost effective and easy-to-use solution that enables contact centre agents to pre-record standard or multiple greetings that can be played to each customer before the agent handles the live call. This way, agents in high-volume contact centres are relieved of the monotony of repeating the same greeting over and over throughout the course of their shift. Likewise, contact centre agents who answer calls with multiple and unique greetings based on the customers are afforded that extra few seconds to transition from one call to the next, ensuring the agent is prepared to give each caller their undivided attention and superior service.

Customer Profile

- Agent Greeting is ideal for medium to large contact centres with medium to high inbound call volumes
- Service bureau environments
- Contact centres with skill base routing
- Multilingual contact centres where regional, or cultural distinctions are business requirements
- Agent Greeting is an excellent solution for Nortel Networks large base of Meridian 1 contact centres - this includes Symposium Call Centre Server, Symposium Express Call Centre, Meridian 1 ACD and Meridian MAX. It is compatible with any version of SCCS, SECC and Meridian MAX. It is also compatible with Succession CSE 1000 release 2.0.

Defining Needs

- Do you want your call centre agents freed from repeating a standard greeting for each call?
- Do you have agents answering calls for multiple skill sets or languages that need to be greeted differently?
- Are you operating an outsourced service bureau environment where agents are handling calls from multiple accounts?
- Are your agents working in a high volume (300+ calls per day) environment?
- Do your agents get tired of repeating the standard greeting, resulting in their greeting becoming flat and unwelcoming by the end of the day?
- Are you looking for innovative ways to increase agent satisfaction and retention, saving on training and recruitment costs?
- Are you aiming for higher levels of customer retention and customer loyalty?

Typical Applications

- High volume call centres with short call times such as taxi bookings and paging companies
- Simple or sophisticated, any call centre where agents are handling approximately 300 calls per day can instantly see benefit in using this robust and scalable solution
- Call centres with a large skill set, language or service offering a mix that requires differentiated greetings based on call type
- Service bureaus or outsourced call centres where agents are handling a variety of clients calls
- Any call centre where flat, monotonous greetings appear after a long day and busy day, impacting agent moral and customer relationships. (Agent satisfaction is an ongoing challenge for today's dynamic contact centres as agents are being increasingly challenged both by call volume as well as diverse callers who have unique and often varied needs.)
- Symposium Agent Greeting is useful in any call centre where retaining the best and brightest talent is critical.

Key Points

- Increases agent satisfaction - Agent Greeting makes agents' jobs easier, giving them extra time to transition between calls and eliminating the repetitive or mundane task of repeating standard greetings throughout the course of their shift
- Improves agent retention and reduces costs - satisfied agents with high morale are more likely to stay in their jobs longer, thereby improving agent retention and reducing costs associated with training and recruiting

- Reduces the physical demands on agents' voices - standard and consistent greetings are heard by the customer regardless of agent mood or time of day, this enhanced greeting quality results in improved customer service
- Enhanced greeting quality - agent effectiveness and customer service is improved, this improved call quality will in turn lead to customer loyalty
- Improves customer service - giving agents a few extra seconds to transition from one call to the next enables them to be better prepared to give each customer their undivided attention
- Enhances customer loyalty - higher agent satisfaction and improved agent retention have a positive impact on customer satisfaction levels and ultimately customer loyalty as customers establish and grow relationships with a company
- Reduces noise levels - agents are actually speaking less, thus reducing the call centre noise level and minimising the distraction of background noise for both customers and agents
- Offers ease of use - Agent Greeting is easy to use for both agents and supervisors and because it's easy to use, they'll use it! In real-time, high-volume call centres ease of use is a primary requirement
- The value proposition offered by this feature are an additional revenue opportunity, increased greeting quality, increased agent effectiveness and improved customer loyalty
- Robust and scalable solution to meet the high inbound (approx 300 calls per day) and sophisticated contact centre requirements

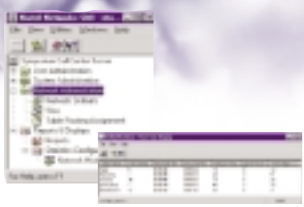
Features and Benefits

- Enables agents to easily pre-record standard greetings
- Supports agent and skill set specific greetings for SCCS/SECC environments
- Supports agent-specific greetings for M1 ACD and Meridian MAX environments
- Provides Visual Key flash and Conferenced Greeting
- Offers Web-based interface for Agent Greeting card OA&M
- Supports remote loadware/DSP firmware upgrade over IP network
- Provides telephony-class high reliability
- Supports 24 greeting ports per card-up to 72 ports total
- Supports up to 1200 configured agents in a multi-card environment
- Integrated VPS-Agent Greeting system solution
- Emulates XDLC (M2616 Aries set)
- Remote Loadware/DSP firmware upgrade over IP network
- Tight integration with the Meridian 1 / Succession CSE 1000 speeds information flow by minimising delays in processing calls and taking messages
- Telephony-class, high reliability design reduces possible system outages
- Security features reduce the chance of fraud and theft of intellectual property

Ordering Information

For further information, please contact your local Nortel Networks Representative.

Symposium Call Centre Server



Overview

Symposium Call Centre Server (SCCS) offers a complete and powerful communication solution for dynamic contact centres, providing skill-based routing, comprehensive management and reporting and real-time displays for agents, supervisors and managers. Symposium Call Centre Server supports Meridian 1, CSE1K, DMS Centrex, or SL-100 environments.

Symposium Call Centre Server also enables you to leverage your contact centre investment by using VoIP. Regardless of your business environment - single site or geographically dispersed - you can use Nortel Networks IP contact centre solutions to simplify management and administration and to extend contact centre capabilities to agents anywhere - in branch offices or working at home.

Customer Profile

- Small to large dynamic contact centre environments that require a great deal of sophistication, agility and differentiation in the care offered to customers
- All verticals (eg Financial, Hospitality, Government, etc) that need to provide 24/7 service to their customers or clients
- Call centres requiring true skill-based routing
- Standalone, networked or virtual state of the art call centres, including networked skill-based routing
- Outsourced call centres (service bureau)
- Call centres utilising branch office or remote (at home) agents
- Multimedia customer contact centres (voice, fax, email, web) using blended environments
- IP contact centres

Defining Needs

- Do you want customer service to be a key differentiator for your business?
- Do you need a focal point for customer service/relationship in your business?
- Are looking for a powerful and flexible business solution for your customer care needs?
- Do you want to customise your call centre to build strong customer relationships?
- Do you want to multimedia-enable your call centre and do you have plans to use VoIP in your call centre infrastructure?
- Do your agents have specialised skills that you wish to use to best effect by matching them to callers with specialised needs?
- Do you wish to provide differentiated service to your customers such as VIP service to individuals?
- Do you need to keep the pulse of the call centre with true real time displays and make instant changes to manage changing call centre conditions (fine tune)?
- Do you want all your call centre data to be openly available to anyone who needs it?
- Do you need to extend full call centre capabilities to resources located away from the main centre such as in a branch office or at home?
- Do you have agents in multiple locations that should share calls equally between the sites (networking)?
- Do you need to route customers to available agents with skills anywhere in your network?
- Do you want to implement industry standard, open, client-server architecture?
- Do you want an open third party interface strategy and open databases for historical reports?
- Do you need to integrate your call centre into your business using open connectivity?
- Do you want to track each call from start to finish to get the data to fine tune your call centre?
- Are you suffering from increased customer expectations?
- Do you want to build the right solution for your business, today and tomorrow?
- Do you want to exceed your customer's expectations by providing outstanding service?

Typical Applications

- Symposium Call Centre Server is the right solution for contact centres requiring call routing and treatments based on assessing numerous traffic, skill set and real-time factors such as current call volumes, logged agent count, age of call, average speed of answer, time of day, day of week and/or holidays
- Symposium Call Centre Server is the solution for call centres requiring call routing decisions based on individual customer information stored in a host computer
- Ideal for organisations requiring advanced real-time and historical reporting, including detailed "call-by-call" reporting
- Symposium Call Centre Server benefits any organisation striving to build a winning customer contact strategy. It is a solid foundation for evolving multimedia contact centre requirements, enabling organisations to be flexible in meeting their customer's ever changing service needs, creating customer loyalty while retaining agent talent, reducing overall costs to improve profit

Key Points

- Powerful, Skill-Based Routing - skill-based routing means that you can intelligently route callers based on their needs and to the agent that is best suited to fulfil customers' needs. Priority routing for preferred customers ensures that your valued customers are given VIP treatment
- Seamless Networking Environment - networking provides an efficient, streamlined solution for centrally managing multiple call centres in a Meridian 1 / Succession CSE1000 environment
- Adaptable Call Handling - rich, flexible scripting language allows the business to customise call routing decisions and treatment based on its business processes
- Graphical, Real-Time Displays - real-time displays provide a snapshot of the call centre for management to view customised performance statistics for increased responsiveness to changing conditions
- Complete, Customisable Reports and Call Tracking - with 70 standard reports and the ability to customise historical reports, Symposium Call Centre Server offers a comprehensive management tool to explore valuable data for making business decisions
- Industry-Standard Platform - based on client-server based architecture, Symposium Call Centre Server is designed on an industry-standard platform to enable real-time data, host data exchange and other advanced call handling features
- Optimised for Internet, Multimedia and CTI applications - Symposium Call Centre Server can be integrated with multimedia transaction handling, CTI and other advanced web-enabled functionality

Features and Benefits

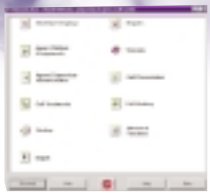
- Quickly routes calls to the agents best equipped to answer them, increasing customer loyalty
- Builds profitable customer relationships by personalising service with superior flexibility
- Improves agents' effectiveness and productivity - helping to increase employee satisfaction and retention
- Provides managers with the decision-making tools they need, from up-to-the-second, real-time displays to comprehensive reporting capabilities showing contact centre activity, traffic fluctuations, agent performance and work characteristics
- Speeds up answering, lengthens hours of service and connects agents and customers across wide geographical areas by extending your contact centre using advanced networking and Voice over IP (VoIP)
- Grows and adapts to your company's evolving needs, employing open architecture, flexible design and built-in scalability to protect your investment
- The rich scripting language supports multifaceted call routing and treatment decisions based on combinations of real time conditions.

- With Symposium Call Centre Server the call queuing and treatments provided are based on the instructions defined in each script – supporting tremendous customisation in sync with the contact centre's dynamic requirements
- Virtual or networked call centres with centralised administration, management and reporting can also be built offering increased business productivity
- Multimedia integration through open interfaces, integrates completely with the Symposium Application suite of products
- Relevant Management Reports allow easily customisable reports using industry standard report writers
- Real Time Call Centre data permits rapid response to changing Call Centre conditions
- Easy-to-learn and easy-to-operate, using familiar Windows and Explorer based displays for agents, supervisors and managers
- The scalability of Symposium permits cost effective entry level with expansion potential to meet the changing needs of any enterprise
- Symposium Web Client - Customers with Symposium Call Centre Server Release 4.0 onwards can now take advantage of an Internet browser-based thin client application that introduces superior management tools and simplifies the administration and configuration of clients on the Symposium Call Centre Server
- Up to 1,500 concurrent active agents (3,000 configured)
- 1 to 48 agent call answering priority levels
- Calls can be queued to up to 20 skill sets simultaneously
- Up to 350 skill sets (300 local, 50 network), individual agents can be assigned to 50 skill sets simultaneously
- Approximately 35,000 calls per hour
- Up to 30 networked SCCS sites in a Meridian 1 or CSE1K environment
- Server Operating System - Windows 2000
- Client Operating System Windows 95, 98, 2000 and NT 4.0 Workstation
- Simple Network Management Protocol (SNMP) compliancy
- 7 x 24 x 365 reliability

Ordering Information

For further information, please contact your local Nortel Networks Representative.

Symposium Express Call Centre



Overview

Symposium Express Call Centre (SECC) delivers sophisticated, skill-based call routing and management reporting to customer care centres with up to 150 active agents. Leveraging the rich functionality of the higher-capacity Symposium Call Centre Server, Symposium Express Call Centre provides an entry-level, departmental-level or small to medium enterprise customer care centre application. Customers can benefit from sophisticated functionality usually only provided by more complex systems.

Customer Profile

- Small to Medium Enterprises - formal call centres
- Large Enterprises - department contact centres such as helpdesks, sales desks, customer service centres; corporate branch offices
- Emerging Call Centre markets - any business or organisation where five or more people make frequent use of the phone for incoming calls; business or organisations that may currently use hunt groups and call pickup and require more control
- Customers that currently do not have a contact centre but require a simplistic call centre system

Defining Needs

- Do you have several people answering calls in a reservations office, order desk, technical helpdesk or the like?
- Do you require an environment designed to process calls with efficiency to maximise customer satisfaction?
- Do you require instant updates on call status and the ability to measure, report and improve your customer call handling using “off-the-shelf” reporting tools?
- Do you need sophisticated technology such as skill-based routing and hot-desking to support a call centre function?
- Are you looking for a solution to support new ways of doing business, such as utilising CTI applications and screen pops?
- Do you require sophisticated call centre functionality that is quick and easy to use, with a low cost of ownership?

Typical Applications

- Small to medium call centres or internal helpdesks can benefit from the relatively simple-to-manage call flow configuration and sophisticated features such as skill-based routing
- Environments that require flexibility in caller treatment and reporting balanced with ease of management, such as:
  - Customer care lines
  - Sales lines
  - Technical assistance
  - Employee helpdesks

Key Points

- Symposium Express grows as business requirements grow
- A flexible and easy upgrade path provides a smooth stepping stone to Symposium Call Centre Server retaining investment dollars spent in software, training and management
- Handles up to 150 active agents (300 profiles can be created)
- Wizard driven interfaces to management functions
- Easy to use, minimal training
- Low cost of ownership
- Provides excellent customer service like a large call centre
- Increased productivity through efficient utilisation of staff resources
- Skill-based routing supporting up to 50 skill sets
- Rich and comprehensive historical management reports
- Graphical or text based real time information

- Supervisor view of call centre and agent activity with real-time display of information
- Open interfaces to data access, easy integration
- Integration with third-party applications
- Software-only solution running on specified industry-standard PC platforms

Features and Benefits

SECC utilises a predefined decision tree and customer-defined parameters/call treatment to determine incoming call queuing and treatments. Queuing and treatments are based on call type and current contact centre conditions. Contact centre conditions include "Open or Closed", emergency status (active or non-active), the number of calls active and queued in the system, the number of calls waiting of a particular type and/or the amount of time a call has waited in queue. During open hours, depending on configuration, queued calls are presented immediately with a Greeting Announcement and with up to two separate delay announcements (independent timers) while waiting. The first announcement can be configured to inform callers of expected wait time or position in queue.

Additionally, based on conditions and configuration, calls can be queued to alternate skill sets or sent to an alternate directory number to facilitate answering. During designated closed periods calls can be queued to an alternate skill set, routed to an alternate number for handling or messaging, or receive a closed announcement.

Nortel Networks Symposium Express Call Centre and Symposium Call Centre Server both offer skill-based routing to agents, call treatment options, real time displays and comprehensive management and reporting functionality – empowering today's contact centres with the tools and agility to deliver unique and unprecedented care to their customers. Determining the best solution for your customer requires an assessment not only of size and capacity requirements – but an understanding of your customer's immediate and future requirements for capacity, flexibility and customisation in planning their incoming call routing and treatment. The following table summarises the features of Symposium Express Call Centre (SECC) and Symposium Call Centre Server (SCCS) to help you understand the capabilities of each.

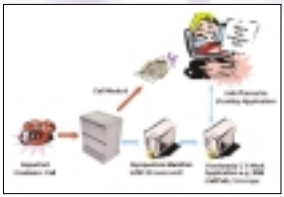
	SECC 3.0	SCCS 4.2
Target Contact Centre	Emerging/Small, Departmental	Seasoned/Small to Large
Requirements	Basic, Ease of Management	Customisable, Dynamic
Capacity		
Calls per Hour	5,000	35,000
Active Agents (A)-Configured Agents (C)	(A) 10 to 150 – (C) 300	(A) 20 to 1,500 - (C) 3,000
Total Skill sets/ Per Agent /Agent Priority	100 / 50 / 1 to 4	350 / 50 / 1 to 48
Administration		
Management Interface	Wizard-driven, point & click	Uses Scripting Language
Script Customisation	No - defined template	Yes
Scheduled Changes	No	Yes
Standby Mode for Skill sets	No	Yes
Supervisors/Administrators	4/4	100/100
Queuing & Treatments		
Multiple Call Treatments	Yes	Yes
Skill-Based Routing	Yes	Yes
Routing by Caller's Number (CLID)	Yes	Yes
Routing by Dialled Number (DNIS)	Yes	Yes
Routing by Meridian Mail Menu	Yes	Yes

Routing by M Mail Access Link	No	Yes (CCS 200)
Routing by Host Data Exchange	No	Yes (CCS 200)
Meridian Link Services	Yes	Yes
Idle Agent Queuing: Selection of highest priority idle agent to receive call	Preset: Longest idle since last status change	Configurable: Longest idle time since last status change, or last call serviced, or most cumulative idle time this login
Call Queuing/Treatment Decision Mechanism	System Wide Decision Tree	Individual Script Instructions, or via Host Data Exchange
Call Treatment Classes	32 per system/One applied per call	N/A Customisable in script
Conditions/Intrinsics Assessed	Per Call Treatment Class /6 conditions	Per Script / Combinations
Time/Day/Date/Holiday	Open or Closed Treatment	Customisable
Call Volume in System - Threshold	Unable to Handle Call Treatment	Customisable
Call Volume by Call Type - Threshold	Unable to Handle Call Treatment	Customisable
Calls Waiting, or Age of Call - Threshold	1st Overflow Treatment	Customisable
Calls Waiting, or Age of Call - Threshold	2nd Overflow Treatment	Customisable
Call Waiting Timers (separate)	Wait Announcement Treatment	Customisable
Skill set/Agent Intrinsics (13)	No	Customisable
Traffic Volume - Call Rate	No	Customisable
Utilises Mathematical Calculations	No	Customisable
Emergency State	System Wide Treatment	Customisable/System Wide
Announcements		
Emergency Announcement	1 per System	Customisable
Unable to Handle Call Announcement	1 per Call Treatment	Customisable
Greeting Announcement	1 per Call Treatment	Customisable
Wait Announcements	2 separate per Call Treatment	Customisable
Pos in Queue/Expected Wait Time	As 1st Wait Announcement	Customisable
Closed Announcement	1 per Call Treatment	Customisable
Voice Processing		
Give IVR	Yes	Yes
Play Prompt/Collect Digits	No	Yes (CCS200)
Give Controlled Broadcast	No	Yes (CCS200)
Host Enhanced Voice Processing	No	Yes (CCS200)
Customisable Scripts	No	Yes
Management Reporting		
Standard Reports -- Customisable	70+ - Yes	70+ - Yes
Call-by-Call Reporting	No	Yes
RT Displays, Customisable - Personal	3 – No - No	6 – Yes - Yes
ODBC/SQL Compatible	Yes	Yes
Call by Call Reporting	No	Yes

Ordering Information

For further information, please contact your local Nortel Networks Representative.

Symposium Meridian LINK Services



Overview

Symposium Link is a two-way communications link that provides an interface between a host application and Symposium - referred to generally as Computer Telephony Integration or CTI. This link facilitates the functional integration of computer and Meridian 1 / Succession CSE 1000 environments. Symposium Meridian LINK Services empowers businesses and third party software providers to create service-enhancing applications by making Meridian 1 / Succession CSE 1000 call control, call events and call centre agent information available to external computer applications.

Customer Profile

- Call centres that desire to become advanced customer contact centres can take advantage of Symposium Meridian LINK Services to exchange information gained on the Meridian 1 CSK1K switch with application software that resides on a host or PC platform
- IVR users may also use LINK to tightly integrate the IVR platform with call control in the call centre or as a standalone application.

Defining Needs

- Do you require a powerful, reliable intelligent call answering capability using third party CTI host applications such as CT-Connect?
- Are you planning to tightly integrate your IVR platform and call centre tools to provide superior customer service?
- Are you planning to use powerful third-party outbound applications that need tight control and monitoring capabilities of the PBX?
- Do you require voice processing capabilities for host applications to play messages and collect information from a caller?

Typical Applications

- In an inbound telemarketing environment, Symposium Link can provide an application with Calling Line ID (CLID) and Dialled Number Identification Service (DNIS) information on an incoming call. The application can use this information to retrieve data from a database and present it on the agent's data terminal before the call is answered.
- In an outbound telemarketing environment a host application can retrieve information on a potential customer from a database and display it on an agent's screen. At the same time the application can place the call on behalf of the agent via Symposium Link.
- Both application examples demonstrate how agent productivity can be improved while providing personalised service. The host computer and Symposium cooperate to provide enhanced and effective applications to the end user community.

Key Points

- Calls answered employing LINK Services can be answered in an intelligent manner
- Call centres that desire to become advanced Customer Contact Centres can take advantage of Symposium Meridian LINK Services to exchange information gained on the Meridian 1 / Succession CSE 1000 switch with application software that resides on a host or PC platform
- IVR platforms may also use Symposium Meridian LINK Services to tightly integrate call control in the call centre or as a standalone application
- Symposium Meridian LINK Services dramatically increase the power and effectiveness of call centre solutions and third party applications

Features and Benefits

Symposium Meridian LINK Services is based on Symposium Call Centre Server Release 4.0. It is an intelligent signalling link offering host application access to Meridian 1 call processing functions. It is an important element of the Meridian 1 solution as it provides a Computer Telephony Interface (CTI) to powerful, service enhancing third party applications. Examples may include IBM CallPath and Genesys CTI applications. (Nortel Networks also offer a fully integrated, pre-packaged CT middleware solution - Symposium TAPI Service Provider.)

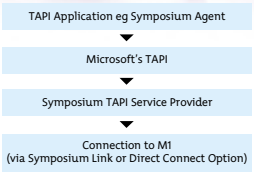
Symposium Meridian LINK Services is available as a no charge feature when purchasing Symposium Call Centre Server or Symposium Express Call Centre with a minimum agent quantity (dependent on region). It can run as a software-only product running on a standard Microsoft Windows NT/2000 Server

- Information such as the calling party's telephone number (CLID) and the number the caller dialled (DNIS) are passed via LINK to the external computer or IVR
- TAPI Enabler: LINK enables TAPI Service Provider to deliver comprehensive support of Symposium Link call processing features as well as Call Centre agent functions
- LINK integrates Meridian 1 telephony with Meridian Mail voice processing capabilities for host applications to play messages and collect information from a caller
- Host Enhanced Routing (HER), allows a host application to route an incoming call before a call is terminated at a resource, or provide a call treatment (music, ringback or silence), before routing the call. A resource can be a Control DN (CDN). The minimum CCS 200 agent increment package is required for HER
- Agent ID in Agent Login Message
- Dialled Number Identification Service (DNIS) Digit Expansion to 31 digits
- Based on Symposium Call Centre Server Release 4.x
- Call Control functionality is equivalent to Meridian Link 5C
- Capacity of 16,000 calls per hour
- Host Enhanced Voice Processing (HEVP) functionality is no longer supported

Ordering Information

For further information, please contact your local Nortel Networks Representative.

Symposium TAPI Service Provider



Overview

In Symposium TAPI (Telephony Applications Programming Interface) Service Provider, Nortel Networks has created a reliable, 'open' solution that makes it extremely cost-effective and easy to combine telephone and computer applications on the desktop.

The Symposium TAPI Service Provider for Meridian 1 / Succession CSE 1000 is a multifunctional Microsoft TAPI 2.x and 3.0 compliant service provider that marries Microsoft TAPI 3.0 Application Programming Interfaces (APIs) to the Meridian 1 / Succession CSE 1000. More simply, as its name suggests, Symposium TAPI Service Provider is based on Microsoft 's Telephony Application Programming Interface (TAPI). This is widely accepted as the industry standard interface for current and future applications that bring together the computer and the telephone – Computer Telephony Integration (CTI). Nortel Networks Symposium TAPI Service Provider acts as the 'glue' that enables a business to bring together disparate systems and multiple customer touch points, such as phone, email and the Web.

Customer Profile

Meridian 1 / Succession CSE 1000 / Meridian 1 ACD / Symposium Call Centre Server / Symposium Express Call Centre customers requiring CTI functionality to automate and simplify knowledge worker and call centre staff tasks.

Defining Needs

- Do you need to integrate telephony events with your business applications?
- Do you need to automate routine tasks and empower agents with critical customer information, from, say, a CRM database?
- Do you want to provide fast, efficient and intelligent service to your customers?
- Do you want screen pops in your call centre?
- Do you want to dial numbers from a Microsoft or other application?
- Do you need to unify your call centre and your web portal together with multimedia agents?
- Are you planning to build a seamless multimedia customer contact centre?

Typical Applications

Symposium TAPI Server Provider greatly improves the cost and ease of implementing CTI and multimedia solutions to the agent's desktop allowing the automation of common knowledge worker tasks such as network co-ordinated screen pops and agent desktop telephony control.

Symposium TAPI Server offers application-based call routing and powerful open interfaces to IVR systems that facilitate voice processing integration.

With Nortel Networks TAPI Service Provider in place, businesses can draw on any Microsoft TAPI-based application on the market. For example, administration users could be given access to Windows applications such as Microsoft Outlook dialling, while call centre agents may be given desktop telephony tools to answer, make and transfer calls.

Symposium TAPI Service Provider is a prerequisite for Symposium Agent, Nortel Networks' CTI solution for agents' desktops.

Key Points

- Comprehensive support of Meridian Link call processing features
- Support for Call Centre agent functions

such as login, ready/not-ready, and agent DN control
- Support for Fast Transfer for predictive dialling applications
- Applications-based routing to allow TAPI applications to route calls based on network information such as CLID, DNIS
- Advanced integration with IVR systems
- Supports multi node call data transfers (allows multiple TAPI SP enabled call centres to share the call data generated during the caller's session so that screen pop travels with the call and call specific data is retained)
- Compatible with Microsoft TAPI 2,x and 3.0 on Windows 2000, and Microsoft TAPI 2.x on Windows NT 4.0
- Integrates user provided data from IVR or Meridian Mail with desktop enabled TAPI applications such as Symposium Agent
- Monitor and control call centre agent set features
- Easy administrative GUI
- Dynamic TAPI database associates agent desktop and phone set at login
- Supports any TAPI compatible application such as Microsoft Dialler and Outlook dialling
- Integration of Meridian 1 / Succession CSE 1000 telephony capability with Windows based business applications
- Enables business application automation based on carrier call data and / or user provided call data from IVR
- Compatible with the range of Nortel Networks Meridian telephone sets including call centre agent sets, IP sets and IP soft phones

Features and Benefits

Microsoft TAPI is a telephony API provided with the Windows operating system that is recognised as one of the leading industry standards for current and future Computer Telephony Integration (CTI) applications. Microsoft TAPI enables and greatly enhances the way personal computers and phones interact in a way previously only possible through proprietary API's from different switch vendors. In order to interface with Microsoft TAPI, each switch vendor must develop a TAPI Service Provider (SP) that translates the switch commands into a standard, TAPI compatible format. This allows customers and developers to focus on the desktop applications and not the "plumbing."

Together, Microsoft TAPI and Nortel Networks Symposium TAPI Service Provider allow the telephony capabilities of the Meridian 1 / Succession CSE 1000 to be easily and very cost effectively integrated with Windows-based business applications, such as Symposium Agent. Using 3rd party call control, applications running on Windows NT 4.0 servers (with connections to Windows 95/98/NT workstation clients via the LAN) can monitor and control Meridian 1 / Succession CSE 1000 telephones.

Nortel Symposium TAPI Server can be implemented via Symposium Meridian Link Services/Symposium Call Centre Server, or can be Direct-Connected to the Meridian 1 / Succession CSE 1000 ELAN. Nortel Networks supported products using TAPI Service Provider 2.3.1 are :- Symposium Agent 2.3, and the Symposium Communications Driver for Siebel 7 that will be available from January 2003. TAPI Service Provider 2.3.1 is compliant with SAPphone R/3 from SAP. By providing connectivity to the worlds leading CRM suppliers (including Siebel and SAP) Nortel Networks are helping to reduce the cost of providing knowledgeable customer care.

The use of Microsoft-based standards provides agents with the familiar graphical user interface with which they feel immediately comfortable; while for the business, rapid deployment and easy, centralised administration from a web-browser ensures lower cost of ownership in the years ahead.

Tasks such as accepting incoming calls or making outbound calls can be made easier and more productive with simple TAPI enabled CTI applications such as basic screen pops and simple dialling tools.

Ordering Information

For further information, please contact your local Nortel Networks Representative.

Symposium Web Client

Overview

Symposium Call Centre Web Client 4.0 is a new browser-based thin client for administrators and supervisors using Symposium Call Centre Server Release 4.0 onwards. The Symposium Call Centre Web Client 4.0 introduces superior management tools that better equip contact centre managers to make improved business decisions and respond faster to customer needs, thereby improving productivity and strengthening customer relationships. It also enables contact centre managers to increase the overall effectiveness of their contact centre by providing richer real-time information that can be used to address peak loads and reduce wait times.

Customer Profile

- All new and existing Symposium Call Centre Server customers
- Medium to large contact centres where many clients are required
- Contact centres requiring agent desktop-based real-time displays

Defining Needs

- Are you aware that thin clients can cut desktop computing costs by as much as 75 percent? (According to an article published by Network Magazine - Decreasing TCO with Thin Clients – 4/00)
- Do you have many client PCs that require upgrades frequently, consuming hours of installation time per client?
- Do you need to be able to make improved business decisions and respond quickly to current contact centre conditions by leveraging superior management tools?
- Do you want to address peak loads and reduce wait times in the call centre with richer real-time information and reports?
- Would it be desirable for contact centre managers and supervisors to be able to access and view Web Client data from anywhere within their company network by simply using an Internet Explorer browser to connect to the server?
- Do your agents have access to Agent Desktop Displays, so that they are able to view their performance statistics and see how they are contributing to the effectiveness of the contact centre?
- Do you want increased flexibility in your call centre to enable contact centre managers, supervisors, agents and administrators to be more efficient and effective, resulting in higher productivity levels?

Typical Applications

- All new Symposium Call Centre Server customers should be encouraged to purchase the Symposium Call Centre Web Client option – not only can they take advantage of the benefits that a thin client can offer to businesses, but they also will be able to leverage the new enhancements and tools that it delivers. Symposium Call Centre Web Client should be positioned as a key part of our product evolution strategy. No additional enhancements or features will be developed on the existing Symposium desktop client.

- For installed base customers, the Symposium Call Centre Web Client is perfect for medium to large contact centres where managers are searching for ways to minimise their total cost of ownership and optimise efficiency. Larger contact centres with more clients benefit the most and will see a greater impact in regards to a reduced Total Cost of Ownership (TCO). However, the Symposium Call Centre Web Client is also appropriate for smaller contact centres that want to take advantage of the new functionality, or customers that require the latest advancement in technology.

- The Symposium Call Centre Web Client is also an excellent solution for existing customers that have experienced co-residency problems with desktop software applications. Since the software now resides on the application server instead of the client PC, Symposium Call Centre Web Client should completely eliminate co-residency issues.

Key Points

- Save significant time and expense, reduce Total Cost of Ownership
- Eliminate the need to install, patch and upgrade clients individually with a centralised application server
- Expedite Symposium data filling with bulk data loading
- Increase the overall effectiveness of the contact centre
- Make improved business decisions and respond quickly to current call centre conditions with superior management tools
- Address peak loads and reduce wait times with richer real-time information and re-designed reports
- Improve productivity and respond faster to customer needs
- Take advantage of the latest version of the software without waiting for upgrades to be installed on each computer
- Access client data from anywhere in the network using an IE browser
- Deliver performance statistics to agents with the new Agent Desktop Display
- Take advantage of system enhancements
- Greater agent capacity and client sessions
- Increased security via firewalls
- Client software isolated from other desktop applications
- Enhanced filtering for better support of service bureaus/multi-tenant call centres

Features and Benefits

The Symposium Call Centre Web Client greatly improves the administration and configuration of clients on Symposium Call Centre Server.
By centralising the software on an application server, the need to install, patch and upgrade clients individually has been eliminated. As a result, the amount of time and expense that is typically involved with client installation and upgrades is significantly reduced. Most sites would therefore benefit from Symposium Web Client.

With existing Symposium client requiring approximately one hour of installation on each individual client PC, assuming that there are no software conflicts or issues, in an average contact centre with 50 client PCs the installation would take at least 50 hours to complete. However, with the Symposium Call Centre Web Client only three hours are required for installation. With the Web Client, the software is centrally located on a single application server, eliminating the need to install software on every client PC and saving hours of costly labour.

Offered as an optional alternative to the existing Symposium Call Centre Server client, Symposium Call Centre Web Client 4.0 uses Internet Explorer 5.5 and delivers significant enhancements and new features as follows:

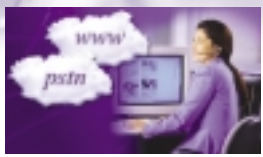
- Improved User Interface – real-time displays, reporting, configuration and user management screens have been re-designed to further enhance usability and data presentation
- Centralised Management – client software is moved to a dedicated application server and accessed through an Internet Explorer browser for centralised installation, configuration and administration
- New Agent Desktop Displays – miniature real-time displays deliver performance statistics to agents
- Historical Reporting – centralised reporting enables sharing of public reports and email notifications on the completion of scheduled reports
- Nodal and Network Consolidated Real-Time Displays – displays allow for grouping and subtotals of call statistics and filtering of information. New network consolidated displays show call information from multiple locations

- Increased Security – web clients now can be separated from the application server and Symposium Call Centre server by a firewall
- Improved User Management - drag and drop agent re-assignments have been added to save time and simplify supervisor assignments
- Enhanced Service Bureau Support – real-time and historical reports can be partitioned for a service bureau environment (please note that administrative functions are not partitioned, but they are restricted by access classes)
- Historical Reporting – centralised reporting enables sharing of public reports and email notifications on the completion of scheduled reports
- Increased Number of Client Sessions – With Web Client you can have more than 100 clients monitoring and managing the contact centre. The number of client sessions is based on the sizing of the Web Client application server

Ordering Information

For further information, please contact your local Nortel Networks Representative.

Symposium Web Centre Portal



Overview

Symposium Web Centre Portal 3.0 empowers businesses with the capability to enhance customer interactions through a management solution that enables enterprises to receive, route, track and report on electronic inquiries from the enterprise's Web-site. The product enables businesses to leverage on-line personalisation and present information through multiple views. By servicing this new type of media, businesses will be able to strengthen their existing customer relations and extend their reach into new lucrative markets and an Internet savvy base.

Customer Profile

- Any customer service organisation that recognises that their customers are missing personalised service due to the implementation of centralised, electronic customer service strategies
- Existing traditional call centre users that want to transform to a powerful, unified customer interaction centre using skill based routing and multimedia agents
- Lead or early adopter organisations that desire a differentiator to raise customer service to a new level, gaining market share and increasing profitability
- Technical support organisations that have a particularly tech-savvy customer base who are demanding better, multimedia technical support methods
- Organisations such as insurance or financial services that have particularly detailed or complicated customer service processes that would gain from the visual benefits of multimedia support service, eg web collaboration, page sharing, and form sharing
- Any organisation seeking to close sales over the web

Defining Needs

- Do you want to be able to manage emails with the same as efficiently and formality as you currently handle telephone calls?
- Are your customers complaining that making enquiries via email are not responded to, or are too slow?
- Do you want to improve customer loyalty by ensuring that all customers receive prompt responses from their web-based requests?
- Do you want to be able to fill lulls in voice traffic and improve overall efficiency of the contact centre by handling email enquiries?
- Are you planning to evolve your telephone call centre into a multimedia, web-enabled customer contact centre?
- Do you want to employ skill based routing of emails and other web-based contact requests, with the option to push them dynamically to specific agents?
- Are your agents multimedia agents, handling telephone, email and web request transactions dynamically?

Typical Applications

- Technical support services where email tends to be the preferred contact method for customers
- Customer services where email is a particularly appropriate response method, such as for frequently asked or predicable questions that can be answered with standard email reply templates, such as in the PC support industry, eg PC modem or printer settings
- Any customer service application where prompt email responses from well equipped and qualified agents result in happier customers
- Any application that allows an organisation to create a more "sticky" website (see example in Features and Benefits)

Key Points

- Reduces costs and increases efficiency - automating customer responses can help reduce costs significantly. Symposium Web Centre Portal can provide immediate, automated answers to electronic queries and ensure that callers are routed to an agent with the most appropriate skills, therefore improving customer satisfaction
- Empowers businesses - with the capability to enhance customer interactions through a management solution that routes, tracks and reports on electronic inquiries
- Internet Readiness – Symposium Web Centre Portal readies call centres for the future deluge of e-mail traffic by managing electronic inquiries as effectively as phone-based inquiries
- Increases Productivity - the capability to blend voice and e-mail traffic and placement on a skilled agents desktop can increase productivity and reduce costs
- Efficiency - Symposium Web Centre Portal helps streamline the electronic handling process and automates responses, which in turn reduces handling and response times
- Improved Management Tools – Symposium Web Centre Portal is yet another way of satisfying customers by giving them their choice of access into the business.
  The management tools provided by Symposium Web Centre Portal, like real time and historical reporting, allows businesses to effectively measure agent productivity and track customer concerns
- Increases Customer Loyalty - managing customer relationships and understanding their needs leads to improved customer loyalty. Symposium Web Centre Portal is a Web response system that allows companies to create a seamless customer experience, to make it easier for customers to do business with you consistently – anywhere, anyway and anytime
- Strengthens Customer Relations
  - by supporting multiple media types, businesses will be able to strengthen their existing customer relations and extend their reach into new lucrative markets and an Internet savvy base

Features and Benefits

This comprehensive set of solutions includes:

- E-mail Response Manager
- Multimedia Queuing and Routing
- Web Communications Manager
- Click to Call

All of these solutions provide administrators and supervisors with the necessary tools to effectively manage on-line customer care activity through real-time displays, statistics and reports. Individual components of the Symposium Web Centre Portal can easily be implemented to enable companies to successfully address their service needs at each stage of growth. In addition, these modular eBusiness solutions integrate with Symposium Call Centre Server and other products to expand overall contact centre capabilities and enable multimedia customer interactions.

Being modular, organisations can choose to build applications that use individual features or modules within the Symposium Web Centre Portal solution, such as real-time email response; typed-chat; page pushing; click-stream tracking; form sharing; either on their own or in combination with the any of the other features.

Features include:

- Text chat – customers and agents can engage in a text-based dialogue via the Internet. Each phone call is essentially treated as a "personal" phone call
- Page pushing – customers and agents can "push" pre-defined or ad hoc Web pages to each other's Web browsers. Agents can send pre-defined URLs associated with the product and ad hoc URLs that the agent or customer enters in the text box
- Form sharing – provides the customer and agent the capability to share and edit HTML forms together. Form sharing allows an agent to help a customer fill out a pre-defined form on-line
- Web-on-hold – intended to keep an end-user's interest while waiting for an agent. The system will stream or push various media types such as video, images, Web pages, etc to the customer's PC. This allows the opportunity to up-sell and

cross-sell products, services and advertises a company's marketing campaigns

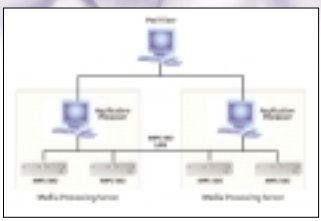
- Click stream tracking - enables businesses with the capability to track the customers "surfing" activity. An agent is presented with the last series of URL's the customer visited on their Website. This allows agents to better understand the behaviour and interest pattern of the customer
- Agent Interface – overall look and feel of the agent interface has been improved including changes to the menu, toolbar, data layout and presentation, navigation, transaction and data download. New agent interface functionality includes added views, agent input and info area, status bar and Web collaboration
- E-mail Manager - capabilities include support for multiple e-mail servers, agent ability to CC and BCC other recipients on their outbound e-mails, as well as no direct agent – mail server interaction allowing agents to continue to operate during mail server downtime.
  In addition, E-mail Manager also includes analytical tools to expedite the troubleshooting process, should any issues arise
- Dynamic Transaction Handler (DTH) - enables electronic transactions to be "blended" with telephone traffic for presentation to the agent's desktop. As agents become available, electronic inquiries are routed to the best-qualified agent's desktop. DTH allows customer contact centres to equally distribute Web requests among call centre agents through Nortel Networks Meridian 1 and Symposium applications
- Click-to-Call - offering customers a connection to live representatives via immediate or scheduled telephone call back that assists in their immediate needs, enhancing the overall customer experience and maintaining customer loyalty

Example of the Web Communication module in action:
A customer is surfing a real estate website to research the purchase of a new home. After some initial research, she clicks a link to "chat" with a real estate agent. Using the Web Communication module's real-time, typed text chat feature, she can discuss her needs and budget. She can also take advantage of the module's co-browsing feature and "push" the agent a page on an interesting property that she discovered while browsing the site. The agent, in turn, can push pages to the customer detailing other properties that might suit her needs. The agent can also use the opportunity to cross-sell a recreational property, or up-sell a larger home that might better accommodate her growing family. With the module's Click-Stream Tracking feature, the agent can check where else on the site the customer has surfed, garnering useful intelligence about her interests and making sure she has a clear picture of all the information she'll need to make her decision. If the agent has to take some time to respond to the customer's query, the Web Communication module provides a Web-on-Hold feature - the online equivalent of the background music or voice ads that telephone callers hear while waiting in queue. The Web-based customer can be presented with various media types - images, other Web pages, even video clips - that let her know about additional products and services, such as mortgages and how to arrange a home inspection. Like a special display at the checkout of a bricks-and-mortar store, Web-on-Hold offers one more chance to make another sale or preview future possibilities that will keep a customer coming back. Finally, when the hypothetical online customer is ready to apply for a mortgage pre-approval, the Web Communication module provides a Form-Sharing feature whereby the agent can help her fill in an HTML purchase form on the website. This online collaboration provides a welcome service to the customer, saving her the work of filling in some of the fields and also ensures that no mistakes are made that might disrupt the transaction. Also, the personal interaction and assistance make it less likely that the customer will abandon her transaction partway through.

Ordering Information

For further information, please contact your local Nortel Networks Representative.

Media Processing Server 100 (MPS 100)



Overview

The Nortel Networks Media Processing Server 100 (MPS 100) is a compact, aggressively priced Interactive Voice Response (IVR) system designed specifically for the small to medium-sized contact centre environment. This advanced solution provides support for several powerful technologies designed to enhance the efficiency of your business, including CTI, browser-based access to traditional IVR applications and remote system management.

The MPS 100 is a new member of the Nortel Networks Customer Contact and Self-Service Solutions portfolio designed to make a business accessible to their customers 24 hours a day, 365 days a year. Callers can access a broad range of information simply by responding to a series of prompts via their touchtone phone. In addition, the same information can be easily accessed over the Web. The MPS 100 module can easily be connected to an application processor capable of running MS Windows NT 4.0. As a company's needs increase over time, additional features and capabilities can be activated by software key-codes without field hardware expansions.

Customer Profile

- Small to medium sized contact centre environment
- Entry level IVR customers requiring highly featured solutions (database access, CTI integration, etc)
- Any customer oriented organisation that wants to eliminate aggravation, wasted time and delays by providing information to callers without the need for them to wait in a queue to speak to an agent
- Organisations looking to increase revenues and save costs by providing new and additional services in responses to the ever changing needs of their customers
- Contact centres needing to free up agents from repetitive and tedious tasks in order to deliver superior customer service to valuable clients and more complex calls
- In conjunction with CTI software, applications requiring customer information input to be displayed on the agent's desktop, eliminating the need to ask for information twice

Defining Needs

- Do you want to control the operational costs of your contact centre?
- Do your contact centre staff regularly handle repetitive, routine calls?
- Are you looking for a fully featured, carrier class IVR that is suitable for diverse Contact Centre environments?

Typical Applications

- Contact centres handling a large number of routine calls
- Businesses that need to provide customers with 24/7 access to their services

The MPS 100 is ideally suited to the following business sectors:

Healthcare	Utilities	Banking/Finance	Transportation	Government / Municipalities
• Enrolment / Claims	• Customer inquiry	• Account Inquiry	• Fares and Schedules	• Labour Services
• Eligibility Status	• Billing	• Bill Payment	• Arrival / Departure	• Claim Filing
• Co-Payment	• Service Outage Reports	• Funds Transfer	Information	• Appointment Scheduling
Information	• Wake-up Calls	• Balances	• General Announcements	• Office Locator
• Health and Wellness	• Service Requests	• ATM / Branch Locator	• Package Tracking	• Tax Filing
Programs	• Scheduling		• Rate Information	• Publication Requests
• Forms Request	• Meter Reading		• Crew Scheduling	• Worker Compensation
• Pharmacy Refills				
• Drug Reference				
• Referrals				
• ID Card Request				

Key Points

Automation of agent activities - Media Processing Server 100 can reduce the cost of recruiting, training and managing contact centre agents by moving routine transactions to an automated system. Applications on the MPS 100 can play pre-recorded information such as hours of operation, directions, etc. The MPS 100 can collect digit input by the caller, then interact with multiple host databases simultaneously to provide the caller with their requested information.

Decreased Toll Access Costs - by routing calls to a self-service portal, contact centres can shorten the average speed of answer and call duration thereby reducing access costs while also reducing the rate of abandoned calls.
Caller enquiries are dealt with quickly, consistently and efficiently eliminating the need to have your callers wait in queue to speak to an agent.

Key-code activated expansion and enhancement - system port size can be increased by activating a key-code thereby eliminating the requirement to send a technician on site. There is no requirement to add costly hardware. Additional software features are activated by key-code as well.
This can be completed using remote access again eliminating costly site visit charges.

Highly optimised for multi-application environments - power and flexibility enable the MPS 100 to fit into diverse call centre environments, allowing customers to adjust the equipment and applications to specific site requirements rather than modify existing infrastructure to accommodate the new technology. Applications can range from simple information delivery services to complex call processing implementations and web transactions with local databases. The applications can include multiple services and high-level transaction processing functionality. Multiple application processors and MPS 100 modules can be networked together to provide for large-scale configurations.

Centralised system maintenance and administration - system administration and application development are managed through PeriWorks, a complete award winning set of GUI tools. PeriView is one of the software tools used for Media Processing Server 100 administration, operation and control. PeriView's dashboard also provides access to the application development (PeriProducer) and speech development (PeriStudio) tools. PeriView eliminates the requirement for multiple management systems. A single PeriView application centralises management of up to 250 systems.

Modular architecture - MPS 100's modular design supports evolution to new functionality. MPS 100 integrates new functions and technology, while protecting investment in application software, systems platform operations and support training. This unique approach to managing technology transitions has resulted in a systems platform and software environment that keeps up with technology changes in an incremental and compatible manner while providing state-of-the-art features and functionality. System features and functions can be upgraded based on customer needs and application readiness rather than pace of technology.

VPS/is compatibility - for customers with existing VPS/is systems, the MPS 100 will support compatibility with VPS/is application software, speech and database files. The MPS 100 can be operated and controlled from a common system management (PeriView) environment, thereby allowing existing customers to take advantage of MPS 100 features and functions while continuing to leverage their existing VPS/is systems applications and training investments.

Application development costs - with PeriWeb, application developers can modify existing voice applications to handle both telephony and web transaction processing. PeriWeb is a set of software programs that support the creation and execution of interactive transaction processing applications on the Internet using the VOS software environment and application development tools. PeriWeb also allows access to telephony applications from the Web, which significantly reduces customers' expenses for development and maintenance. PeriWeb allows users to communicate with applications using a browser to submit input to the applications as well as to see applications output. Each transaction is presented as a separate page in a browser.

Easy integration to third party applications - the networking centric architecture of the Media Processing Server supports multiple LAN interfaces for easy integration into a distributed environment. MPS 100 provides interface support for a number of CTI middleware packages. Plug-in integration of a wide variety of third party software packages has been achieved by a growing list of our customers, demonstrating the openness of the Media Processing Server and software architecture.

Make money by increasing volume of transactions - since many routine transactions can be off-loaded to an automated system, businesses can greatly increase the volume of calls handled without increasing the number of agents in the contact centre.

Reduce abandoned calls - since callers receive more prompt, effective service, abandoned calls are converted into additional sales.

Increase customer loyalty - small businesses can provide the same competitive services as larger businesses by offering their callers more than one portal into their business. Customers can chose to do business when they want and how they want.

Extend self-service to the Web - PeriWeb software allows your integrated voice response application to extend to your web page to reach a larger potential customer base. The same application that was developed for touchtone input is modified to accept html format. Though the interface is different, both touchtone and web applications take on a consistent style.

Computer Telephony Integration (CTI) - implementation of CTI helps agents deliver faster, more personalised customer service. Relevant information via screen pops and automated retrieval of database records allows a new call to be routed to a specific agent. With the customer information readily available on the agent desktop, agents can more easily cross-sell and upsell to the existing customer base.

Features and Benefits

- Optimised for multi-application environments
- Open, modular design delivers smooth migration paths to the latest technologies
- CTI-enabled for tight integration with Nortel Networks switches
- Open systems architecture
- Fully integrated with the Nortel Networks contact and self-service solutions

Standard Features

- One T1/E1 span or 12 analogue ports
- Player, DTMF decoder, Call Progress Detection and half-duplex recorder per port
- CAS and R2 telephony interface capability
- Connectivity to multiple hosts concurrently if required
- Connectivity to multiple databases if required
- PeriProducer (runtime) - GUI-based application development environment
- PeriStudio - GUI-based prompt/speech development facility
- PeriView - GUI-based tools for administration, monitoring and control of application, ports and nodes
- PeriReporter - statistical data reporting tool

Optional Features

- Additional port capacity (two T1/E1 spans or up to 24/48 analogue ports in 12-port increments depending upon configuration)
- PeriProducer (development)
- PeriView (consolidated) - single PeriView to monitor multiple MPS 100 servers
- Connectivity to Informix via ODBC
- Geotel connectivity
- Peri-IPML Integration Package
- Peri-ICM Integration Package
- IVR SCCS Integration Package
- IVR TAPI Integration Package
- PeriWeb—Web access to IVR applications

Telephony Features

- Digital (T1/E1) interfaces
- Analogue interfaces
- Non-blocking detection of touch tones
- Detection of precision call progress tones
- Digital signal generation for call progress and other precision tones
- Multiple signalling protocols for digital trunks
- DNIS and CLID support

Media Processing Features

- Virtually unlimited prompt and/or message length
- Optimised/minimum concatenation for speech output
- Prompts/messages may be recorded in a studio, or locally, or over the phone
- Caller message recording with random message retrieval
- Call simulator for volume testing and capacity planning

Connectivity Features

- Multiple LAN network interfaces (Ethernet/Fast Ethernet, Token Ring, FDDI, ATM)
- Concurrent support for serial and LAN-based host interfaces
- Client support for Microsoft Host Integration Server 2000
- Client support for Microsoft SQL Server
- Optional ORB support for application connectivity
- PBX/ACD data link connectivity for Nortel Networks Meridian, Nortel Networks DMS, Nortel Networks Symposium interfaces, Lucent, NEC Infolink, Aspect Application bridge and CSTA switches

Application Processing Features

- Multiple applications per system architecture
- Dedicated "process per port" architecture for highest degree of fault isolation
- Larger configurations by networking multiple systems
- Local/remote prompt creation/update during on-line operation
- Extensive tracing/monitoring/ diagnostic functions
- Call flow verification for validation of applications
- TCP/IP network protocol for application connectivity
- VRAM (procedural language based) transaction processing environment

- Local data files with single or multi-key indexed records
- Extensive system and application specific statistics
- Optional support for “C”, “C++” and other programming languages
- Java services interface
- MQSeries interface

Ordering Information

For further information, please contact your local Nortel Networks Representative.

Media Processing Server 1000 (MPS 1000)

Overview

The Nortel Networks Media Processing Server 1000 (MPS 1000) is a carrier-class, Integrated Voice Response (IVR) system designed for large enterprise and service provider environments. Ideal for mission-critical installations requiring continuous availability, the MPS 1000 system integrates a wide range of call processing functions with programmable call handling capabilities.

Customer Profile

- Large, carrier grade contact centre environment
- Large, carrier grade self-service customers requiring highly featured solutions (database access, CTI integration, etc)

Defining Needs

- Do you want to control the operational costs of your contact centre?
- Does your contact centre staff regularly handle repetitive, routine calls?
- Are you looking for a fully featured, carrier class IVR that is suitable for diverse Contact Centre environments?

Typical Applications

- Contact centres handling a large number of routine calls
- Businesses that need to provide customers with 24/7 access to their services
- Any customer oriented organisation that wants to eliminate aggravation, wasted time and delays by providing information to callers without the need for them to wait in a queue to speak to an agent
- Organisations looking to increase revenues and save costs by providing new and additional services in responses to the ever changing needs of their customers
- Contact centres needing to free up agents from repetitive and tedious tasks in order to deliver superior customer service to valuable clients and more complex calls
- In conjunction with CTI software, applications requiring customer information input to be displayed on the agent's desktop, eliminating the need to ask for information twice

Key Points

- Delivers mission-critical reliability through redundant system components for protection against lost service revenue. Redundant hardware can be configured to ensure the continuous operation of critical components such as application processors, ATM switches, Network Interface Controllers (NICs), and system clocks. Standby units such as ATM switches, hot swappable NIC cards and warm standby application processors can be installed or replaced with no system interruption or manageable system interruption.
- A highly scalable solution, MPS 1000 can support over 9000 ports in a single system. Smaller systems can be easily expanded over time, delivering a growth path that matches the needs of your business.
- Compact footprint reduces floor-space requirements, saving real estate and maintenance costs. A system supporting up to 1536 T1 or 1920 E1 channels can be deployed in a single, typical telco-grade cabinet.
- Many shared system resources are not required by a port for the full duration of the call, nor are they required by all lines at any given time. MPS 1000 is unique in its ability to dynamically allocate such resources to ensure maximum utilisation while at the same time reducing the amount of hardware required and ultimately reducing system cost.

- MPS 1000's non-blocking, programmable call handling platform delivers connectivity of any port to any port, or to any shared resource, reducing hardware requirements and monthly trunking costs while increasing system flexibility.
- Since the MPS 1000 supports both digital and IP voice protocols, customers who require a hybrid Digital/VoIP environment are provided a smooth migration path designed to protect existing hardware investment.
- Application development and system management are simplified through the use of the PeriWorks suite of GUI tools:
  - PeriView
  - PeriProducer
  - PeriStudio
  - PeriSQL
  - Peri Web
- For businesses that currently have either the Nortel Networks VPS/is or MPS 100 units installed on their networks, the MPS 1000 can be easily installed to unite the existing units into a cohesive, enterprise-wide, IVR solution. Applications that are in use on the VPS/is systems are compatible with MPS 1000, saving the time and expense of rewriting and recoding applications

Features and Benefits

Redundant, Fault-tolerant Solution
MPS 1000 has been designed with a redundant hardware and distributed software architecture. Redundant hardware can be configured to ensure the continuous operation of critical components such as application processors, ATM switches, Network Interface Controllers (NICs), and system clocks. Standby units such as ATM switches, hot swappable NIC cards and warm standby application processors can be installed or replaced with no system interruption or manageable system interruption.

Flexibility
The system supports a wide variety of interactive voice processing applications, and is optimised for the multi-application environments typical of both the enterprise and service provider marketplace. Typical applications can range from simple information delivery services to complex transaction processing services, as well as Web-based transactions with local databases.

A wide selection of telephony and host computer connectivity interfaces facilitate the easy integration of automated functions into existing data processing and communications environments.

Maximised Resource Utilisation
MPS 1000 is unique in its ability to dynamically allocate system resources to ensure maximum utilisation while at the same time reducing the amount of hardware required and ultimately reducing system cost.

Peri Suite of Graphical User Interface Tools
PeriWORKS is an integrated suite of GUI tools focused on ease of use and support. PeriWORKS includes a graphical application development environment, graphical speech digitising and processing tool, a graphical toolset for system administration, operation, and control, a statistics and reports management tool and an online browser-based electronic documentation package.

System Interoperability
For businesses that currently have either the Nortel Networks VPS/is or MPS 100 units installed on their networks, the MPS 1000 can be easily installed to unite the existing units into a cohesive, enterprise-wide IVR solution. Applications that are in use on the VPS/is systems are compatible with MPS 1000, saving the time and expense of rewriting and recoding your applications.

Some applications may require slight modification. In addition, the PeriWORKS suite of GUI tools are leveraged across all three platforms, providing a cost-effective solution by reducing training costs and eliminating multiple software packages.

Enhanced Multimedia Capabilities
The advanced multimedia features of the MPS 1000 include standard digital T1/E1 interfaces that can be configured for both ISDN and Common Channel Signaling (CCS7). In addition, the system architecture supports voice transmission over IP networks. The

MPS 1000 supports the H.323 standard, enabling users running H.323-compliant software to initiate or receive calls. The system's switching fabric supports seamless H.323 VoIP client interfaces with both T1 and E1 standards. Support for the SIP standard is planned for a later release.

Hybrid Digital/VoIP Architectures
MPS 1000 supports both digital and IP voice protocols, customers who require a hybrid Digital/VoIP environment are provided with a smooth migration path designed to protect existing hardware investment. VoIP TMS modules co-reside with T1 TMS modules and fully communicate with each other. Organisations can gradually replace expensive leased lines by shifting telephony traffic onto the IP network. This design eliminates the need for forklift switch replacements as VoIP technology continues to mature, and provides a future-proof - IP-enabled IVR solution.

Remote Management
Comprehensive management services are provided by the PeriView application, which combines local management with visibility into branch installations from the central site. By using a centralised, Web-based management approach, the efficiency of management personnel is maximised. This approach reduces the need for physical visits to branch offices and sharply lowers the cost of system maintenance.

Future Capabilities
MPS 1000 will soon support Advanced Speech Recognition on the next release of the same industry-leading Open Signal Computing and Analysis Resource (OSCAR) platform as currently offered with VPS/is. The OSCAR platform is used by both the VPS/is and the MPS platforms. Advanced Speech Recognition capabilities will include:

- Large Vocabulary Speech Recognition
- Natural Language Understanding
- Text to Speech
- Speaker Verification

Additional features include:

- VoiceXML
- Support for additional protocols including VoIP SIP protocol*
- Expanded SS7 capabilities

Ordering Information

For further information, please contact your local Nortel Networks Representative.

Periphonics VPS/is

Overview

Periphonics VPS/is is a multi-media, self-service platform that automates the transaction processing, traditionally conducted by contact centre agents. Systems are available in a variety of scalable configurations to meet a wide range of capacity, application and network needs. VPS/is offers a full range of Advanced Speech Recognition capabilities including Natural Language Understanding, Speaker Verification and Text-to-Speech

Customer Profile

- Do you want to control the operational costs of your contact centre?
- Does your contact centre staff regularly handle repetitive, routine calls?
- Are you looking for a fully featured, carrier class IVR that is suitable for diverse Contact Centre environments?
- Do you have a service, product or database of information that could be accessible by your customers if they used speech as a navigation tool?
- Are you looking to provide a differentiated service offering to your customer base?

Typical Applications

- Medium sized enterprises through to carrier grade contact centre environments
- Medium to large IVR customers requiring highly featured self service solutions (database access, CTI integration, etc) and Natural Language Speech Recognition applications
- Contact centres handling a large number of routine calls
- Businesses that need to provide customers with 24/7 access to their services
- Any customer oriented organisation that wants to eliminate aggravation, wasted time and delays by providing information to callers without the need for them to wait in a queue to speak to an agent
- Organisations looking to increase revenues and save costs by providing new and additional services in responses to the ever changing needs of their customers
- Contact centres needing to free up agents from repetitive and tedious tasks in order to deliver superior customer service to valuable clients and more complex calls
- In conjunction with CTI software, applications requiring customer information input to be displayed on the agent's desktop, eliminating the need to ask for information twice

Key Points

All the features and functions of the MPS 100 plus:-

- Full suite of Advanced Speech Recognition capabilities - including Natural Language Understanding, Text-to-Speech and Speaker Verification.
  - Text-to-Speech, which converts ordinary text into intelligible speech.
  - Natural Language Understanding, which allows customers to speak to an application in complete natural sentences.
  - Speaker Verification, a biometric technology that compares live speech samples against a stored, pre-recorded sample of the user's speech to either approve or deny the caller's claimed identity.
- Easy-to-use management systems - the Periphonics VPS/is supports a full suite of easy-to-use, point-and-click software tools for application management, system management and administration.
- Scalable, modular architecture - As your voice processing requirements increase, the VPS/is building-block design readily accommodates new feature and performance upgrades through incremental enhancements, without sacrificing initial investment.

Features and Benefits

Telephony Capabilities
- Analog Loop/Ground Start DID/DDI
- Digital T1/E1 - DNIS - in-band CLID
- ISDN Primary Rate - CLID – NFAS (Shared D Channel)
- Internal Switching/Bridging
- Drop and Insert Spans for call bridging
- C7 (ANSI, ITU, ETSI standards)

Shared Resource Capabilities
- Caller Message Recording
- Large Vocabulary Speech Recognition
- Natural Language Understanding
- Text-to-Speech Synthesis
- PeriWeb, for Web-based transaction services
- Facsimile
- Call Conference
- ADSI
- Data Modem
- TDD
- Credit Card Authorisation

Host/Server Connectivity
- TCP/IP sockets, ftp, NFS, telnet
- OSF/DCE
- IBM* APPC - LU6.2
- Novell NetWare
- IBM 3270/3174 Emulation
- X.25
- Burroughs TD830 Emulation
- UNISYS UTS 4040 Emulation
- Token Ring
- Ethernet
- Asynchronous Data Stream
- Synchronous Data Stream
- Host Session Pooling
- SQL
- ODBC (Open Database Connectivity)
- CCS2000 and CCS3000 supports SS7 signaling

Application Development Tools
- PeriProducer Graphical Application Development Environment
- VRAM, High-Level Application Programming Language
- ANSI C and/or C++ Compiler
- PeriStudio Graphical Recording Studio
- Call Simulator Script-Driven Testing Tool
- PeriReporter Report Generator
- PeriBlast, a telephony tool designed for the verification of application and system-level performance

PeriView -Full Visual User Interface
- Graphical Application Configuration
- Graphical Topology Map
- Real-time Graphical Performance Monitoring
- User Level Security

Other Capabilities
- Local Random Access Data Files
- System and Application-Specific Statistics Reports
- Major and Minor Alarm Relay Contacts
- Hardware/Software Watchdog
- Shadow Disks
- Network Management
- T1/E1 Span Switching for hot standby System (N + 1) Backup
- System Memory is separate from RAM vocabulary storage
- Online Documentation (HTML-based)
- Zero Administration for Prompts (ZAP) (on-line update of speech prompts)
- Zero Administration for Grammars (ZAG)
- Disk Based Speech is virtually limitless, depending upon disk drive size and mode

As voice processing requirements increase, the building block design of Periphonics VPS/is readily accommodates new feature and performance upgrades through incremental enhancements. This design enables you to achieve maximum return on your initial investment.

Ordering Information

For further information, please contact your local Nortel Networks Representative.

Meridian / Succession DECT

Overview

Meridian/Succession DECT is a wireless, in-building/campus private network wide communications system. It is an integrated offering on the Meridian 1 switch or Succession CSE 1000 giving full feature access, high capacity and good spectrum utilisation along with superior voice quality.The DECT architecture offers flexibility in its capacity in terms of both the total number of users and the concentration of users. The main component of the DECT system is the DECT Mobility Card (DMC), which provides the interconnection between the Meridian 1 switching features and the wireless system. Other components of the DECT system are Radio Fixed Parts (RFP base stations), wireless handsets, the Optivity Telephony Manager (OTM) DECT application, plus an optional text messaging application.

Customer Profile

Typical end users who would benefit most from Meridian/Succession DECT:

- People who spend time away from their desks
- People without dedicated "office space"
- People with multiple work areas

Typical businesses that would benefit from in-building mobility:

- Manufacturing
- Retail
- Professional Services
- Education
- Hospitality
- Healthcare (GSM is inappropriate near sensitive medical equipment. It is also expensive, not part of the dialling plan and radio coverage in all parts of the building is not guaranteed)

Typical Applications

DECT Messaging deployment is most suited for the following scenarios:

- When a voice conversation is not possible or not required
- To communicate simultaneously with a large number of users (eg Hospital)
- For immediate notification of automatically generated alarms

Key Points

- Lightweight and pocket-sized, a DECT handset is the mobile equivalent of the phone on your desk
- Helps customers keep their business running at optimum efficiency levels and as a result, increases their competitiveness
- Integrated mobility solution – greater reliability, better features and simpler management
- Leverages customer's existing Meridian 1 or Succession CSE 1000 platforms. Complements circuit switched and IP Telephony
- Provides private wireless in-building telephony for workers that spend a lot of time away form their desks yet need to remain in contact
- Is secure, low cost, low power output and highly featured

Features and Benefits

The DECT system utilises 32Kbps ADPCM to offer speech quality the same as fixed networks.
Using this technology an ETSI protocol has been developed named GAP - Generic Access Protocol. DECT systems that are GAP compliant allow users to operate a handset of their choice or move to different systems given that the handset is GAP compliant.

- Twinning – single phone number and easy swap from DECT to desk phone
- Wireless Encryption – the digitally encoded signal cannot be monitored by external intruders, ensuring privacy

- Network Roaming – one number/handset for all sites
- Low Power Output – no interference with sensitive equipment
- Pull through Meridian/Succession features
  - CLID, CPND, Conference, Call Transfer, Call Hold, Call Back, Call Pick-up, Call Park/Retrieve
- Scaleable across Meridian 1 Options 11C Mini – Option 81C and Succession CSE 1000
- Full roaming and seamless hand over
- Fully integrated solution – DECT cards are located within IPE module of Meridian 1 and Media Gateway of Succession CSE 1000
- Coverage up to 700,000m2 per system dependent upon building characteristics

System Capacity (based on DMC8)	• Succession CSE 1000 X21 Release 1 - Up to 640 handsets and 32 base-stations • Meridian 1 Option 11C mini X11 R23 and later - Up to 640 handsets and 32 base-stations • Meridian 1 Option 11C X11 R23 and later - Up to 640 handsets and 160 base-stations • Meridian 1 Option 61 and Option 81 X11 R23 and later - Approximately 3000 handsets (based on typical office traffic levels) and 256 base-stations
DECT Base-Station	• Two base station options are available • 6 simultaneous calls standard • 12 simultaneous calls high capacity • Typical cell radius within a building 20-100m • Optional directional antenna • Small physical size: 235x172x45mm
C4050 DECT Handset 	Top of range Meridian/Succession DECT handset that takes enterprise mobility to the next level of power • 9 hours talk time / 120 hours standby time • 5 line alphanumeric character display for icons, text and context sensitive soft keys • Text messaging • Electro luminescent light • Message Waiting Indication (Meridian Mail/CallPilot) • Calling line ID and Calling Party Name Display • 100 name / number directory, including search facility • Last 20 number redial list • Last 20 caller list - including dial back feature • Handsfree • Built in visual and vibrate call alert • Beltclip • Battery and data charger • Microphone mute • Keypad Lock • 140 grams

C4030
DECT Handset

- 16 hours talk time, 120 hours standby
- Alphanumeric 4 line display with backlight
- Message Waiting Indication (Meridian Mail/CallPilot)
- Calling line ID and Calling Party Name Display
- 100 name/number directory, including search facility
- 10 entry last number redial list – including dial back feature
- Headset jack
- Handsfree
- Built in visual and vibrate alert
- Beltclip
- Battery Charger
- Microphone Mute
- Keypad Lock
- 110 grams

C4012
DECT Handset

- 10 hours talk time, 120 hours standby
- 1 Line Numeric/Icons Display
- Message Waiting Indication (Meridian Mail/CallPilot) Calling Line ID
- 10 Number speed dial list
- 5 entry last number callers list/redial list – including dial back feature
- Built in visual call alert
- Beltclip
- Battery charger
- Microphone Mute
- Keypad Lock
- 145 grams

C4010
Ex DECT Handset

The C4010 EX DECT handset is an intrinsically safe DECT digital cordless handset forming part of the Meridian/Succession DECT portfolio. It has been approved for use in hazardous environments such as the chemical and oil industries and comes with a leather carrying case.

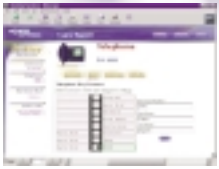
- 4 hours talk time, 40 hours standby
- 20 name directory
- 3 lines. 12 character alphanumeric display for icons text and context sensitive soft keys
- Message Waiting Indication (Meridian Mail/CallPilot)
- Calling line ID and Calling Party Name Display
- 20 name / number directory
- User definable soft keys
- Context sensitive menus
- 5 entry last number redial list
- Built in visual call alert
- Belt clip
- Battery charger
- Microphone mute
- Keypad lock
- 135 grams

DECT Messaging Server	Incorporates text-messaging capabilities directly onto end-user's DECT handset. A web admin client provides simple and convenient management. Text messages can be generated from: • A compatible handset • The web client • An external application (via SNPP) or TAP

Ordering Information

For further information, please contact your local Nortel Networks Representative.

Optivity Telephony Manager (OTM)



Overview

Optivity Telephony Manager (OTM) is a sophisticated application for managing Meridian 1 and Succession CSE 1000 systems. Optivity Telephony Manager is an integral part of Nortel Networks strategy to help companies lower their total cost of ownership in operating and managing next-generation telephony networks.It carries the value proposition of Meridian Administrator Tools (MAT) and augments it by allowing an even greater level of management reach over an IP network. Companies can rely on OTM's integrated suite of management tools for configuration, control and analysis of their telephony network, either through a Windows graphical user interface (GUI) or Web browser interface. In addition, OTM can be easily integrated with the Optivity suite of management applications to provide a complete management view of an entire converged network infrastructure.

Customer Profile

- Customers that want to simplify and enhance the management of their M1 and Succession communications network (convenience of Web based features, friendly GUI, user-self help, etc)
- Customers that want to minimise downtime with the use of consolidated alarm view and Alarm notification features
- Customers that require effective tools for monitoring and reporting on network usage, optimising performance and planning for the future
- Customers that require LDAP integration into a variety of business applications in their network. Premium Package enables auto sync of user parameters in OTM Corp Directory without admin intervention

Key Points

- User friendly GUI that helps customers speed through every day management tasks and shorten the learning curve
- End-user self management capabilities which free-up skilled resources
- Single point of data entry – spend less time, increase accuracy, eliminate duplication of effort
- Consolidated view of network elements – easy access to configuration applications
- Unified alarm management – monitor the health of a network from a single window
- Extended administration reach – access documentation, phone configuration, CLI from anywhere
- Scalable – add applications and management capacity as required
- Complete management functionality via Windows and Web based management capabilities
- Affordable solution for both large and small enterprises

Features and Benefits

- **Single Management Platform** – OTM provides a single management platform while other vendors offer multiple management applications that run on disparate operating systems to support different products, releases and applications.
- **Call Tracking** – monitor call usage patterns and trends with graphical displays. Call Tracking also provides an alarm generating function, which can be set up to warn you of unusual calling patterns
- **Alarm Management** – provides an alarm collection and processing centre for multiple systems and devices. +OTM receives SNMP traps from systems, such as the Meridian 1, CSE 1000 and Call Pilot and stores them in a circular log file on the OTM Server. Notification is also available via pager, fax or email when certain alarms are triggered or thresholds exceeded

- **Traffic Analysis** – used to analyse switch resources and to forecast growth. It will provide information such as trunk usage, peak periods, processor loads and loop traffic
- **LDAP Synchronisation** – provides the ability to link the OTM Common Database to an external LDAP server. Netscape, Novell NDS, Microsoft Active Directory and Microsoft Exchange LDAP servers are supported. LDAP synchronisation will save the administrator from having to do repetitive data entry of common data
- **Station Administration** – simplifies the day-today station adds, moves and changes to single and multi-line phones
- **Web Based Desktop Services** – provides end users with an easy-to-use on-line help; end users can also be given permissions to make feature changes on their phones
- **Virtual Terminal Service** – provides a single point of connectivity to the Meridian 1 system and other telnet enabled Meridian applications (ie Meridian Mail, MIRAN, MICB, etc) via a terminal emulator that can be launched using a Web browser. It also provides context sensitive on-line help for Meridian 1 overlays
- **Corporate Directory** – enables enterprises to define parameters and generate reports from corporate station and user data that is associated with a terminal number. These reports can include up to 100 different data fields including name, extension, location and department associated with each terminal number
- **Access Server** – offers terminal server-like capabilities. It provides the ability to access OTM via Command Line Interface (CLI) and have the input passed through to a specific connected device
- **Telecom Billing System** – is a fully integrated telecom costing and billing application.
- TBS can collect call records and allocate costs to the appropriate users or departments using flexible cost models. It also generates meaningful reports that supports multiple currencies

The Optivity Telephony Manager Release 2.0 (OTM 2.0) provides concurrency up to (and including) release 25.40 as well as CSE 1000 release 2.0.OTM 2.0 includes the feature enhancements described below:

Succession CSE 1000 Release 2.0 Concurrence.
The OTM 2.0 applications have been modified to support the introduction of new components in the CSE 1000 Rel 2.0 solution. It includes the support of new set (i2002) as well as the support for branch office and virtual office.

Empowered Web Navigation. The OTM navigators (Windows and Web based) provide a display of Succession CSE 1000 elements in a network view. Succession CSE1000 network elements that can be displayed include Gatekeepers, Call Servers and Signaling Servers. The OTM navigators will allow administrators to select specific elements by clicking on the displayed element, which will cause their browser to link to the CSE "on-board "Web server and proceed to management "direct to the element".

Also, since CSE is a distributed system, a new network view (called Gatekeeper Zones) is created in the OTM navigators. It provides a "logical " view of components that are linked to a given Gatekeeper as opposed to a "geographical" view of components in given physical locations.

Improved Security and User Access Control.
Starting on OTM Release 2.0, administrators can now create new user groups and define for all type of accesses one or more authentication methods. The authentication can be done through a local OTM server account, a Windows NT domain account or using an LPAP server.

All passwords stored in OTM database will be encrypted (Windows Crypto API) as well as passwords used for synchronisation with LDAP servers (SSL encryption).

Web Station Scheduling.

The OTM Web Scheduler was first introduced in OTM 1.1 as a capability to run the station synchronisation tasks instantaneously. This enhancement now introduces the capability to schedule a synchronisation task for a future time and date.

Courtesy Change in Station Administration.

This feature offers an option to checks if a telephone is busy/idle before transmitting changes to the switch. In the case where a phone is busy, changes are not transmitted thus avoiding a disconnection of an active call.

Backup/Restore Improvements.

This feature supports information in the OTM database (Web Station data, Web Navigator data such as user groups, client list) that were not previously included in the full OTM backup/ disaster recovery operations.

Updated OTM Sample Data.

Sample Data are updated on OTM 2.0 to include components of CSE 1000 offer.

Billing Improvements.

The Billing application is enhanced to support Network Wide Billing consolidation and billing support for transferred calls.

IP Trunk 3.0 on Meridian-1.

Some changes are performed in the OTM 2.0 ITG ISDN trunks application to allow IP trunks 3.0 installed on Meridian-1 to be registered on the Signalling Server – H323 gatekeeper

Co-residency with Anti-virus software and PC-Anywhere.

Co-residency with Norton and McAfee anti-virus software as well as with PC anywhere is now tested and supported with OTM 2.0 servers and clients.

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Ordering Information

For further information, please contact your local Nortel Networks Representative.

Nortel Networks

SOLUTIONS GUIDE

One Network - A World of Choice

A sustainable, profitable solution for the new enterprise network.

New business realities bring profound implications for network and information management strategies. IT executives have had to reassess the way they build, manage and use the information infrastructure. Under constant pressure to do more with less, they have to constantly push for more competitive and proactive information management models.

Could the enterprise network be doing more? More efficiently? More 'intelligently?' It supports business functions, but could it also be creating new revenue opportunities and new sales channels? Could it revolutionise the very nature of how business is done... how customer contacts take place... how information about suppliers and customers is shared and used? And how much or how quickly IT delivers return on investment? Nortel Networks says yes.

Nortel Networks has defined an enterprise networking vision called One Network - A World of Choice, which promises to deliver greater flexibility and innovation for deploying new business applications and services. This is based upon converging networks to create a seamless end-user experience, however, unlike the usual meaning of convergence, it's not simply about breaking down the barriers between voice and data. Instead, the One Network - A World of Choice breaks down the barriers between public and private networks, LAN and WAN networks and wireless and wireline networks - allowing the user to treat them all as essentially the same system.

Eliminating the Boundaries

In practice, this means that remote or mobile workers are able to take the office network and environment with them throughout the world - without compromise. Not only can they get fully secure, high speed, remote access to their corporate systems, but they can also access the full functionality of their telephone system through their laptop. In addition, this degree of access can be extended to whole offices, presenting a more convenient way to help grow the global enterprise.

Designed to take full advantage of the Internet, the new paradigm confirms IP Telephony as not only a successor to traditional telephony but as a foundation for new ways of working. From a financial point of view, its ability to converge and therefore simplify network infrastructures dramatically reduces overall cost of ownership.

Another hallmark of the vision is to be technologically innovative. For example, it will fully exploit optical networking and Optical Ethernet technology for data centre and storage network connectivity.

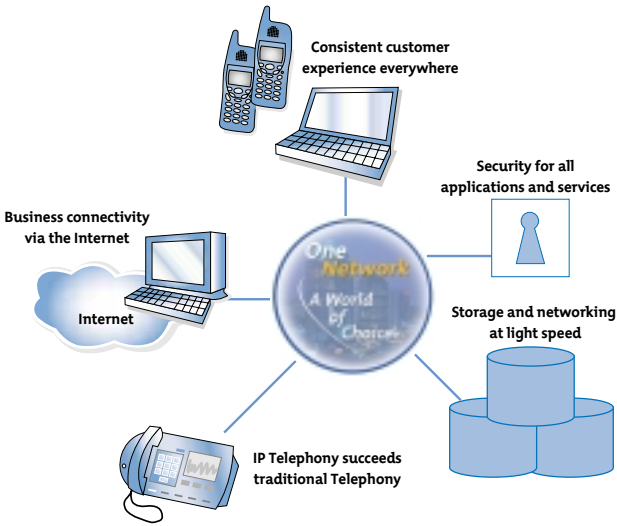
One Network - A World of Choice directly enhances customer relations with contact centres that span multiple channels coupled with highly efficient self-service applications. And it empowers employees with collaboration, mobility and messaging tools that eliminate network boundaries. What's more, the technology finally makes security an intrinsic part of the complete networking environment.

Nortel Networks understands that simply responding to customers' requests isn't enough. Our enterprise solutions provide a proactive, value-added dimension that will help you achieve a new level of engagement with your customers, partners and suppliers, making it possible for you to anticipate customers' needs and wants and seamlessly deliver the appropriate solutions — sometimes before the customer even knows there is a need. By evolving to this Engaged Business approach, enterprises can achieve a higher level of Return on Engagement with customers, essentially

optimising the customer relationship and every encounter with the customer, which can lead to increased profitability and accelerated business success. Using new technologies such as Voice over IP (VoIP), Internet Protocol Virtual Private Networks (IP-VPN) and Optical Ethernet, Nortel Networks delivers solutions that cost less to operate, have fewer or no bottlenecks, and are open and flexible to support new applications and services that drive business results.

What does the future enterprise network look like?

The One Network vision is composed of five key elements:



The enterprise network evolves into a unified, adaptable infrastructure

A consistent customer experience, everywhere. "Engaged applications" flow seamlessly across customer contact channels (in-person, telephone, Web, chat, fax, e-mail) and provide a positive experience, where the business is not just reacting to but engaging with the customer. By delivering time-sensitive, critical information in the user's choice of context and access device, the new enterprise network makes service and convenience a tangible competitive differentiator in an increasingly commoditised world. By moving telephony into the Web paradigm, the new enterprise network offers multi-media capabilities that give users control over where, when, how, and in what form they can be reached.

Consistent information is delivered through increased centralisation of IT infrastructure enabled through Optical Ethernet.

Business connectivity over the Internet. With innovations in privacy and quality of service, the Internet takes on an expanded role as the backbone of enterprise applications. The Internet and IP-based intranets bring new agility and economies to the tasks of connecting data centres, delivering content to users, and supporting the flow of private information cross the extended supply chain.

Storage and networking at light speed.
The new enterprise network takes advantage of CWDM/DWDM, next-generation SONET, and Ethernet for optical storage networking, ever-aging optics for performance and reliability. These aspects are critical requirements for business continuity and disaster recovery applications. Protocol-independent optical wave-lengths support all storage protocols and the end-to-end delay, reliability, and capacity requirements of the most stringent storage applications, while Optical Ethernet provides a lower cost storage networking solution.

IP Telephony solutions from Nortel Networks can now scale from a single user to branch offices, to regional offices, to campuses - right up to global networks with hundreds of thousands of users. IP Telephony has matured to offer the fundamental requirements of full-scale enterprise deployment: centralised or distributed control, enterprise-wide access to applications such as unified messaging, uncompromised voice quality, choice of features and functions, multiple migration paths, and coexistence with legacy systems. Converging voice and data onto one infrastructure integrates critical communications capabilities into a single platform to lower total cost of ownership and build productivity through new applications.

Security inherent in all applications and services.
High-performance, multi-layer security protects data integrity and privacy across all environments, including mobility, without compromising the performance of the network and applications. Routing is transformed by building in IP-VPN and firewall security into routing devices that naturally understand security protocols.

By using these elements together, customers will gain a competitive business edge through:

Cost reduction - simplified operations with faster & cheaper bandwidth

Increased productivity - converged communications over a secure, reliable network

Innovation in customer experience - improved application performance and engaged applications.

One Network is not just a series of Nortel Networks products. It's a view of how business can innovatively respond to new situations.
The following section illustrates how.

Consistent Customer Experience

IP Contact Centre Solution

Customer Needs

- Converge voice and data infrastructure in the contact centre for increased savings and reduced operating costs
- Optimise resources by creating a virtual contact centre with skills distributed across a wide geographic area
- Extend the reach of the contact centre and harness the unprecedented potential of the Internet by implementing IP Contact Centre solutions
- Provide reliable and cost effective remote solutions to individual agents and supervisors at home and branch locations
- To improve overall customer satisfaction through better utilisation of distributed or virtual resources
- Enhance contact centre flexibility to manage peak and seasonal loads and provide 24x7 service
- Allow customers to do business anytime, anywhere while enjoying seamless access to the best possible service
- Create a virtual contact centre using IP that spans wide geographic areas and crosses multiple time zones, ensuring the best agent available handles each caller's needs promptly
- Evolve gracefully or move immediately to a VoIP environment without compromising on the existing Meridian 1 and Symposium Contact Centre capabilities
- Migrate to a VoIP environment with absolutely no disruption to the daily operations of the existing contact centre
- Move immediately to an all VoIP environment, keeping the existing Symposium Call Centre Server or Symposium Express Call Centre without losing any contact centre features
- Maintain telco-grade reliability in a mission critical VoIP contact centre environment with fallback to PSTN and fully survivable local calling capability

Nortel Networks Solution

Customers can use either Symposium Call Centre Server or Symposium Express Call Centre with an IP-enabled Meridian 1 (Figure 1) to leverage the power and performance of Internet Telephony. Regardless of their business environments – single site or geographically dispersed – they can use Internet Telephony to simplify management and administration and to extend contact centre capabilities to agents. This flexibility results in lower operating costs and increased employee retention, both of which improve profits.

Customers who wish to maintain an all IP environment can use Symposium Call Centre Server or Symposium Express Call Centre with Succession Communication Server for Enterprise (CSE) 1000 (Figure 2). The Succession CSE 1000 is a server-based, IP-distributed communication system that delivers an unprecedented level of performance and range of system features. It allows customers to implement IP Telephony without sacrificing the quality of business communications that an enterprise requires.

With IP Contact Centre solutions from Nortel Networks, you can choose the technology solution you need to conduct business today without having to overhaul or invest in completely new communications infrastructures.

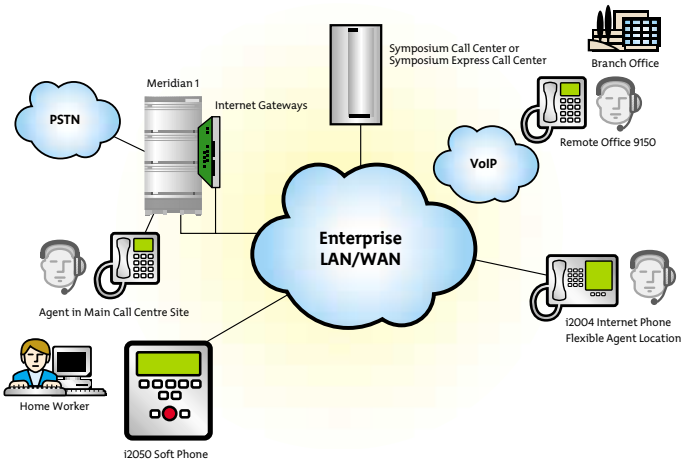


Figure 1: Nortel Networks Meridian 1 IP Contact Centre Solution

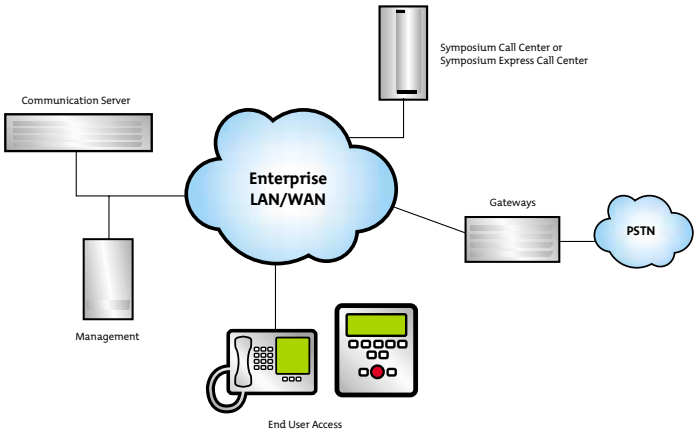


Figure 2: Succession Communication Server for Enterprise 1000 (CSE1000) Solution

Nortel Networks IP Contact Centre Solution Building Blocks

The Nortel Networks IP Contact Centre solutions leverage existing and new products in the Nortel Networks Enterprise portfolio. The underlying network infrastructure in the contact centre can be built on a choice of IP or TDM technology.

The IP Contact Centre solutions building blocks are:

- Infrastructure based on Meridian 1 Option 11 to 81 or Succession CSE 1000 product lines, including Meridian Internet Telephony Gateway (ITG) and i2004 Internet telephone sets
- Contact Centre functionality based on Symposium Call Centre Server 4.0 or higher and Symposium Express Call Centre 3.0 or higher
- CTI using Meridian Link Services, TAPI Server 2.3 or higher and Symposium Agent 2.3
- IVR based on Meridian Mail, Periphonics MPS100 or VPS/is

These Nortel Networks IP Contact Centre solutions have been pre-tested and verified to work with Meridian 1 Internet Enabled (IE) and Succession CSE 1000 configurations. New products in the portfolio have also been tested and verified to work with existing applications (eg CTI control of the new i2004 Internet Telephone sets).
This removes integration risks when deploying these solutions.

Solution Value Proposition

Nortel Networks IP Contact Centre solutions enable businesses to unleash the unprecedented profit potential of the Internet, offering unparalleled choice and customisable solutions for integrated business communications.
With Internet Telephony, businesses can extend their contact centres to agents anywhere, while still providing a seamless experience for customers and suppliers. This flexibility can help attract and retain customers by making it easier to conduct business with them – anyway and anytime.

Benefits of Nortel Networks IP Contact Centre Solution include:

- Build more profitable customer relationships by giving remote agents the powerful, feature-rich applications they need to deliver superior service
- Speed up answering and extend your hours of service to meet the high expectations of today's customers
- Increase savings and reduce operating costs by converging your voice and data infrastructures and simplifying contact centre management
- Extend your contact centre to reach the most appropriate agents - by distributing calls to company branches and even home offices via reliable, cost-effective Voice over IP (VoIP) solution
- Deploy VoIP technology for your business today without overhauling or buying entirely new communications infrastructures
- Improve employee satisfaction and staff retention by addressing the needs of your geographically dispersed workforce
- Simplify contact centre expansion to support seasonal business or new program requirements

For further information contact your local Nortel Networks Representative

Consistent Customer Experience

Multimedia Customer Contact Centre Solution

Customer Needs

- Create a tightly integrated Customer Contact Centre that converges voice and data technologies with Internet services in a reliable, flexible and scalable way, evolving seamlessly in line with business requirements
- Make optimum use of skilled resources in handling customers' queries by applying skill-based routing to telephone, email and web queries, ensuring that the customer is served by the agent with the right knowledge every time
- Automate the Multimedia Contact Centre, bringing applications (such as CRM) together with CTI, automating tasks and empowering agents with critical customer information
- Deliver personalised one-to-one service that differentiates your business while at the same time increasing profitability
- Equip customer service representatives with powerful tools to provide outstanding customer service, delivering seamless, personalised and consistent responses to customers for email, web requests, or telephone transactions
- Provide 24/7 access to services via Periphonics IVR self-service solutions that tightly integrate with Web and CTI applications
- Transform the traditional call centre into a powerful, unified, multimedia customer interaction centre
- Respond to customers constantly changing demands by delivering superior personal service over the web
- Direct customers to the right help, right away, regardless of the contact method with skill-based routing
- Comprehensive, easy-to-use management tools to provide managers and supervisors with the real-time information required to monitor performance and react immediately
- Detailed reports to provide historical information - to measure Contact Centre and agent performance, to track trends and to plan
- The ability to operate more effectively, reducing operating costs and to build customer loyalty in today's highly competitive world
- Give customers the reassurance that live agents are available should they need help or if something goes wrong with their Web-based order
- Offer sophisticated customer guidance through web collaboration and page sharing – with a choice of voice or text chat
- Provide self service applications that free up agents from repetitive and tedious tasks in order to deliver superior customer service to valuable clients and more complex calls
- Customer information input to be displayed on the agent 's desktop, eliminating the need to ask the customer for information twice

Nortel Networks Solution

The Nortel Networks Multimedia Customer Contact Centre solution incorporates many of the Symposium and Periphonics portfolio products to create a powerful portfolio of customer-focused business applications. No longer "just call centres", Nortel Networks CRM Integrated Multimedia Contact Centre provides true multimedia-based transaction processing.

So whether you choose an off the shelf integrated solution or create your own via our suite of open interfaces, Nortel Networks offers a powerful set of products to create world-class customer care applications.
The specific products in the Multimedia Customer Contact Centre consists of:

- **Symposium Web Centre Portal** - facilitating e-mail, Web-based and telephony-based communications that enable companies to optimise call centre effectiveness and enhance customer service with a comprehensive set of modular Web-based business solutions

- **Symposium Call Centre Server** - providing networked skill-based routing, comprehensive management and reporting and real-time displays for supervisors and managers with a complete communication solution for dynamic contact centres.

or

- **Symposium Express Call Centre** can also be used to deliver sophisticated skill-based call routing and management reporting to departmental or small to medium enterprise customer care centres

- **The Symposium TAPI Service Provider** - acts as the 'glue' that enables a business to bring together disparate systems and multiple customer touch points, such as phone, email and the Web. TAPI Service Provider 2.3.1 is making integrations with business applications even easier with Symposium Communications Driver for Siebel 7 that will be available from January 2003 and SAPphone R/3 compliancy from SAP.

- **Symposium Agent** - offering an excellent desktop computer telephony framework that takes full advantage of industry standard desktop and server components

- **Symposium Agent Greeting** - automating the agent's greeting enabling the agent to pre-record a standard greeting that can be played to the customer before the agent handles the live call

- **Symposium Call Centre Web Client** - offering superior management tools that better equip call centre managers using Symposium Call Centre Server Release 4.0 or higher to make improved business decisions and respond faster to customer needs

- **Media Processing Server 100 (MPS 100)** – a compact, aggressively priced Interactive Voice Response (IVR) system designed specifically for the small to medium-sized contact centre environment. Features tight integration with Symposium Call Centre Server via IPML

or

- **Periphonics VPS/is** – is a scalable multi-media, self-service platform that provides sophisticated self-service solutions. VPS/is offers a full range of Advanced Speech Recognition capabilities including Natural Language Understanding, Speaker Verification and Text-to-Speech. Features tight integration with Symposium Call Center Server / Symposium Express Call Center via IPML

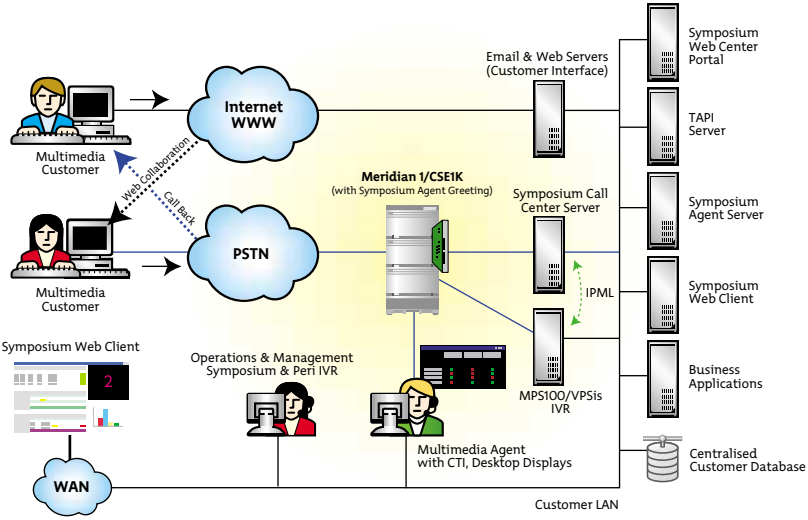


Figure 1: Nortel Networks Multimedia Customer Solution

Value Proposition

With an increasing number of customers choosing mixed media interactions, the CRM Integrated Multimedia Contact Centre solution can help companies capture new customers and deliver higher levels of service to customers who choose to interact over the Web, e-mail or by traditional means such as the telephone. By blending phone calls and Web inquiries into the same service queue, customers can choose to interact with a service centre through traditional, Web-based channels or sophisticated self-service options and can expect high-calibre service with each contact.

Key Benefits

- Phone calls and web enquiries blended to the agent 's desktop, to make full use of your customer care resources
- Helps to improve customer satisfaction and loyalty through telephony self-service, online self-service and live interaction in a truly collaborative environment
- Skill-based routing to ensure both voice callers and web visitors are routed to the right agent whilst reducing costs and increasing efficiency
- Enables your customers to use their preferred form of communication - email, Web, phone or fax - to reach you 24 hours a day, 7 days a week
- Handles Web interactions and e-mail with the same ease and efficiency as telephone calls, improving your overall customer service
- Helps to increase job satisfaction and staff retention by making your agents more productive and adding variety to their work
- Helps you improve agent productivity and address your customers concerns effectively using superior management tools including real-time and historical reporting that unify information on managers' and supervisors' desktops
- Adapts and grows with your evolving business needs and easily integrates with other contact centre solutions and 3rd party applications such as CRM applications from Siebel, SAP and others.

For further information contact your local Nortel Networks Representative

Consistent Customer Experience

Speech Enabled Self Service Solutions

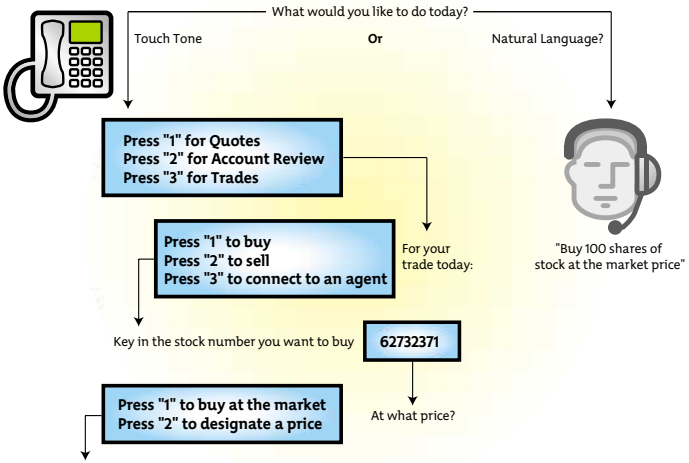
Customer Needs

- The ability to provide a differentiated customer care application that operates more effectively, reducing operating costs and to build customer loyalty in today's highly competitive world
- Provide 24/7 access to services via Nortel Networks IVR self-service solutions that tightly integrate with Web and CTI applications
- Create a tightly integrated customer contact centre that converges Agent Assisted and Self Service technologies, evolving seamlessly in line with business requirements.
- Provide self service applications that free up agents from repetitive and tedious tasks in order to deliver superior customer service to valuable clients and more complex calls
- Open up a database to be accessed by customers, using speech as the navigation tool, not touch tone

"...by 2003, 30 percent of the new automated lines in call centres will respond to customers' speech. The technology pays for itself within six to 18 months in call centres with more than 50 agents..."
Gartner Group.

Nortel Networks Solution

- Unmatched experience in speech recognition solution deployment and the most deployed speech applications in the industry
- Lower risk, thanks to our industry-leading experience in making speech recognition work in real-world situations
- Speech Processing Platform:
  - VPS/is server for a modular, resilient and scaleable foundation.
  - OSCAR (Open Signal Computing and Analysis Resource) architecture is designed to support advanced speech-processing applications in an open and scaleable environment
- Best-in-class technology with industry-leading large vocabulary speech recognition (LVR), Natural Language Understanding (NLU), Text-to-Speech (TTS) and Speaker Verification technologies:
  - Natural language speech recognition is one of the core enabling technologies available with the Nortel Networks Speech Processing Platform. Our advanced systems are able to adapt to the channel characteristics of telephone connections and recognise tens of thousands of words with very high recognition accuracy. Natural Language Understanding (NLU) capabilities allow customers to speak in complete sentences, using a variety of phrases to relay the same information. This more natural flow to customer transactions and the ability to simplify complex menu choices results in shorter calls, an improved customer experience and savings in call time and agent interaction.
  - Text-to-Speech (ITS) converts ordinary text into intelligible speech. This core technology works well when information to be spoken to callers is drawn from large numbers of items, or from multiple diverse sources that change regularly. It is used for very large databases of information where pre-recording is impractical or not possible.
  - Speaker Verification - this biometric technology confirms a claimed identity on the basis of voice characteristics. Speaker Verification compares live speech samples against a stored voiceprint – a pre-recorded sample of the user's speech – to either approve or deny the caller's claimed identity. In addition to boosting security, it can lower an organisations operating costs by reducing the amount of agent-based customer service required to verify a caller's identity.



Value Proposition

Nortel Networks Advanced Speech Processing solutions allow customers to do the talking, they dramatically enhance your ability to provide the highest levels of personalised service. Callers perceive a better experience, because they are able to accomplish more in less time, while using a more natural method of communication. Speech processing solutions allow them to conduct complex transactions that were not possible with touch-tone input. The result is the opportunity to build strong, long-term relationships that are based on increased customer satisfaction and loyalty.

The Nortel Networks Speech Technology Portfolio also brings significant benefits to your internal organisation. These include greater automation, as well as the ability to reduce call lengths and allow agents to focus on high-value transactions, sales opportunities and complex customer issues.

The result is greater agent job satisfaction, which reduces turnover. Our solutions also improve employee productivity, lower your operational costs and increase revenue, all of which lead to a rapid return on investment. In fact, Nortel Networks customers report up to a 50 percent reduction in transaction costs as a result of deploying a Nortel Networks speech recognition solution

Key Benefits

- Automating services to provide accessible and cost effective customer service
- Greater automation and reduced talk time results in decreased overhead costs and staffing requirements
- Creation of significant opportunity for revenue enhancing offerings
- Consistent delivery of information to customers in a speedy, secure and private manner
- Customer loyalty building service offering

For further information contact your local Nortel Networks Representative

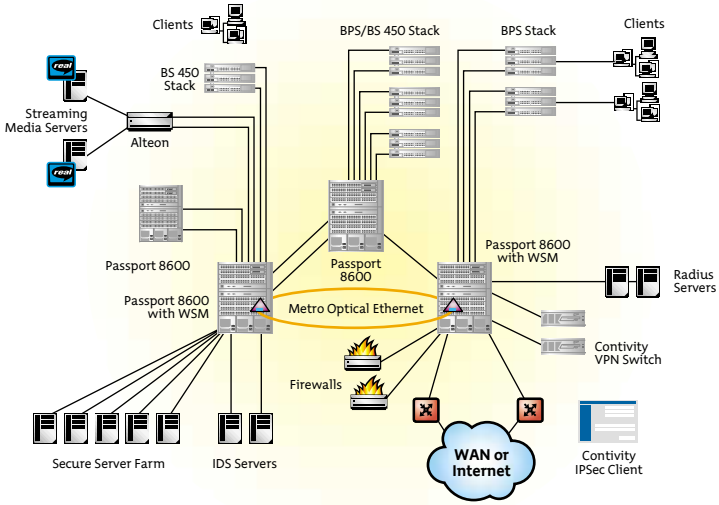
Business Connectivity via the Internet

Data Centre Solution (Converged LAN and Server Performance Optimisation)

Customer Needs

- Maximise utilisation of server resources, increasing the number of hits whilst improving the end user experience
- High density, high performance, high resilience connectivity for the server farm and also extending to the metropolitan area beyond the data centre
- Increase end user service level through implementation of Disaster Recovery capabilities

Nortel Networks Solution



Nortel Networks **Passport 8600 Ethernet Switch with WSM (Web Switch Module) and Optical Ethernet (OE)** provide the capacity, scalability and stability required for performing critical functions within an Enterprise data centre.

The Passport 8600 delivers high performance, robust Ethernet switching to connect between servers, internal LANs and external WANs.

Split Multi Link Trunking (SMLT) enables network convergence in less than one second, compared to Spanning Tree which can take up to 40 seconds and Rapid Spanning Tree which can take up to seven seconds for network convergence.

With the optional WSM module installed, the 8600 offers additional server farm and data centre application-focused functions.

- Local server load balancing
- Web cache redirection
- Content-intelligent switching
- Firewall Load Balancing
- VPN Load Balancing
- Global (multi-site) server load balancing
- Bandwidth management
- Streaming Media load balancing
- Intrusion Detection server load balancing
- SSL Acceleration offload

Nortel Networks OE solution enables high speed Ethernet-based connectivity to be established over metropolitan areas. This removes the bandwidth bottleneck which can exist between end users and contents/applications residing within the Data Centre. OE is also an effective way to interconnect between multiple physically diverse data centres to enable redundancy and disaster recovery.

Solution Value Proposition

- **Maximises utilisation of server resources** – the Passport 8600 with WSM provides an integrated solution for both the connectivity (via Ethernet) of servers but also intelligent traffic and load management as well. The WSM is a direct evolution of Alteon Webswitch technology and is a proven solution already used in data centres around the world.
- **High density, high performance, high resilience connectivity** – the Passport 8600 platform has the necessary Ethernet density as well as built in redundancy and network resilience to meet the challenges of data centre operations. Furthermore, the Passport 8600 is also a cornerstone of Nortel Networks' Optical Ethernet solution. Optical Ethernet greatly increases the 'reach' of data and applications hosted by extending the reach of the Data Centre into the metropolitan area at Ethernet bandwidth levels.

For further information contact your local Nortel Networks Representative.

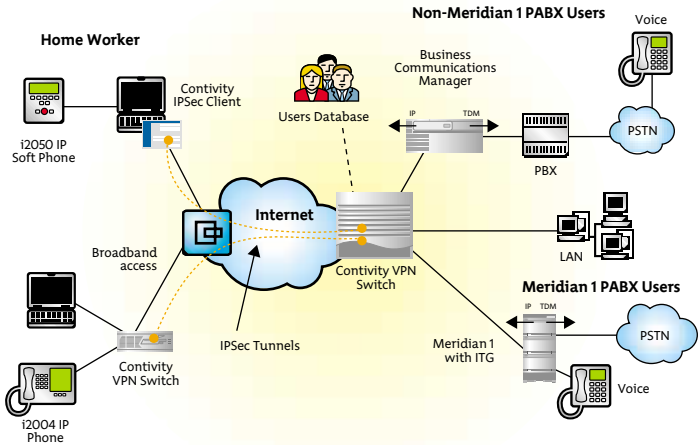
Business Connectivity via the Internet

Secure Remote Connectivity
Home Worker Solution

Customer Needs

- Extend coverage of LAN and phone network to home users
- Provide secure high performance access to home users via any IP transport
- Extend PABX dialling plan to remote users
- Provide in-office phone functionality to home users
- Enable home-worker calls to be made on internal network (carrier arbitrage)

Nortel Networks Solution



Home workers have VPN access with office PABX connectivity

The Nortel Networks Home Worker solution is built from a range of IP-capable products. Secure access into the corporate LAN is provided by the **Contivity** suite of VPN switches. Contivity integrates all of the elements needed to build a high performance, scalable and secure VPN – routing, firewall, bandwidth management, encryption, authentication and data integrity – into one single platform for secured tunnelling across the Internet. Home-side telephony is provided by the Nortel Networks suite of IP telephony solutions, including the **i2050 Soft Client** (can be used with a USB headset), USB phones that connect into the PC and the **i2004 IP phone**.

In the office, Enterprises can leverage the evolution of their existing **Meridian-1 PABX** solutions by adding a line-side ITG (Internet Telephony Gateway) card to enable connectivity of IP clients to the PABX. For non-Meridian-1 users, a **Business**

Communications Manager IP PABX solution can be added as an interface to control IP handset traffic and to provide the IP-TDM gateway functionality.

For home workers using the i2050 soft client, an IPSec session can be initiated from the home PC, through the Internet to the corporate Contivity. All VoIP traffic from the soft client traverses the secure tunnel into the Enterprise where it exits the terminated IPSec tunnel at the Contivity and progresses forward to either the Meridian-1 ITG or Business Communications Manager.
Users can utilise the microphone and speakers of their PC, or plug in a USB headset for improved quality.

Home workers utilising the i2004 IP phone for a more permanent and "telephony-like" solution are challenged by the need to create a secure tunnel. If the PC creating the tunnel has routing functionality and multiple network interfaces, the phone can plug directly into the PC's second Ethernet port. For most situations, a Contivity VPN switch at the home office provides an easier solution. The Contivity switch opens up a branch tunnel between the home office and the office, and secures all traffic between the two sites. Everything that plugs into the Contivity (phone and PC) is therefore encrypted and has IP access to the corporate LAN – effectively creating an Intranet VPN link to the home office.

Solution Value Proposition

- Work becomes an activity not a location
- Seamless usage transparency between office and home
- Bypasses carrier tariffs on voice calls
- Allows use of internal dialling plans for simplicity in dialling
- Gives access to productivity tools such as conference calling, call forward etc.

For further information contact your local Nortel Networks Representative

Business Connectivity via the Internet

Secure Remote Connectivity - Intranet IP-VPN (Virtual Private Network) Solution

Customer Needs

- Integrate inter-office communications across an IP infrastructure
- Minimise expense of leased lines and international private line circuits
- Leverage Internet economics in the WAN
- Provide encryption and strong authentication between sites
- Implement a low-cost mesh between sites

Nortel Networks Solution

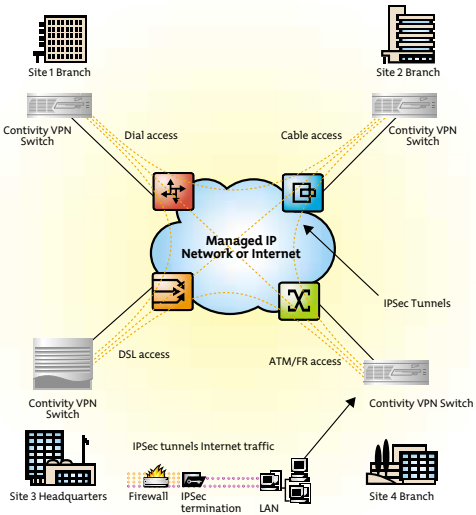


Figure 1: Nortel Networks Intranet IP-VPN Solution

The Nortel Networks **Contivity VPN Switch** integrates all of the elements needed to build a high performance, scalable and secure VPN – routing, firewall, bandwidth management, encryption, authentication and data integrity – into one single platform for secured tunnelling across the Internet. The range of VPN solutions in the Contivity portfolio allows the implementation of solutions tailored to fit small, medium and large companies.

- Contivity switches are placed at each branch office
- Connectivity into the managed IP network is via any available transport technology
- Secure IPSec tunnels encrypt and encapsulate traffic between sites

- Firewalls in each Contivity switch protect the site LAN from outside threats
- Firewalls in each Contivity switch protect the site LAN from outside threats
- Secure Routing Technology (SRT) enables dynamic packet re-routing should a fault occur on the Internet, without compromising the secure tunnel.

Solution Value Proposition

- Provides the performance and security of a private network with the bandwidth and cost of a shared network
- Decreases the cost of wide area networking between 30-80%
- Faster activation of new sites
- Ability to extend inter-office network to all sites, regardless of size
- Harnesses ubiquity of the Internet for almost-global connectivity
- Single connection into the IP network for VPN, Internet and IP services
- Delivers confidentiality, integrity, privacy and non-repudiation to all transactions
- Simple to configure, simple to maintain
- Provides a competitive advantage through enabling new business models, allowing the adoption of e-business, improving communication between the workforce, introducing more efficient work practices and increasing profitability
- Foreign sites are a "no-brainer" cost saver
- Replace expensive international circuits
- Centralises key applications and staffing functions
- SRT returns dynamic re-routing to the Internet without compromising security

For further information contact your local Nortel Networks Representative

Business Connectivity via the Internet

Secure Remote Connectivity - Extranet IP-VPN (Virtual Private Network) Solution

Customer Needs

- Establish e-relationships with external business partners, suppliers and dealers
- Controlled access of information between interested parties
- Protection for private, sensitive data
- Leverage Internet economics in the WAN
- Provide encryption and strong authentication between sites

Nortel Networks Solution

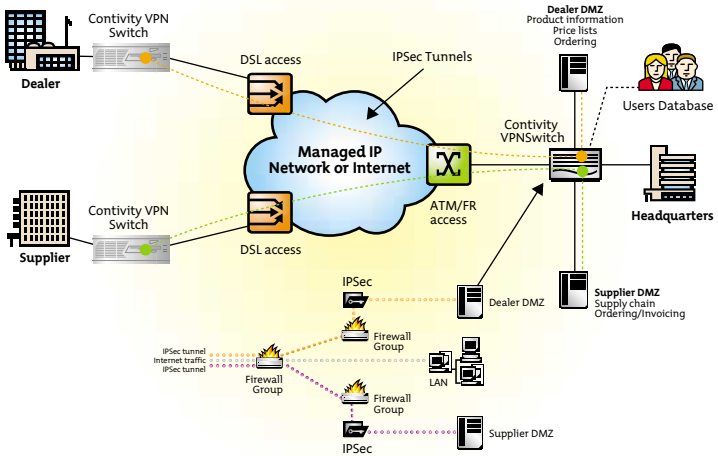


Figure 1: Nortel Networks Extranet IP-VPN Solution

The Nortel Networks **Contivity VPN Switch** integrates all of the elements needed to build a high performance, scalable and secure VPN – routing, firewall, bandwidth management, encryption, authentication and data integrity – into one single platform for secured tunnelling across the Internet. The range of VPN solutions in the Contivity portfolio allows the implementation of solutions tailored to fit small, medium and large companies.

- Contivity switches are placed at each partner's office
- Connectivity into the managed IP network is via any available transport technology
- Secure IPSec tunnels encrypt and encapsulate traffic between sites
- Firewalls in each Contivity switch protect the site LAN from outside threats
- Group policies on the firewalls control which partners have what access

- Establishes a Demilitarised Zone (DMZ) which allows extranet data to be isolated from LAN data
- Secure Routing Technology (SRT) enables dynamic packet re-routing should a fault occur on the Internet, without compromising the secure tunnel

Solution Value Proposition

- Harnesses improved e-business models and B2B commerce
- Enables on-line interaction between customers and suppliers, opening up access to a segment worth US$1.3 trillion by 2003
- Increases transactional performance
- Better customer service
- Reduces costs and delays of dealing with suppliers and customers
- Reduces administration complexity, turn-around time and potential for human error
- Better achieves JIT operating principles
- Removes psychic-distance for transactions
- Lessens human dependence of e-partnerships
- SRT returns dynamic re-routing to the Internet without compromising security

For further information contact your local Nortel Networks Representative

Business Connectivity via the Internet

Secure Remote Connectivity - Remote Access IP-VPN (Virtual Private Network) Solution

Customer Needs

- Replace dedicated dial-up access equipment with Internet-based alternative
- Remove PRI circuits and RAS infrastructure
- Integrate replacement solution with existing authentication systems
- Provide global access
- Provide encryption and strong authentication between users and the core sites
- Support Windows, Unix and MacIntosh operating systems
- Extend PABX dialling plan to remote users
- Provide in-office phone functionality to home users
- Enable home-worker calls to be made on internal network (carrier arbitrage)

Nortel Networks Solution

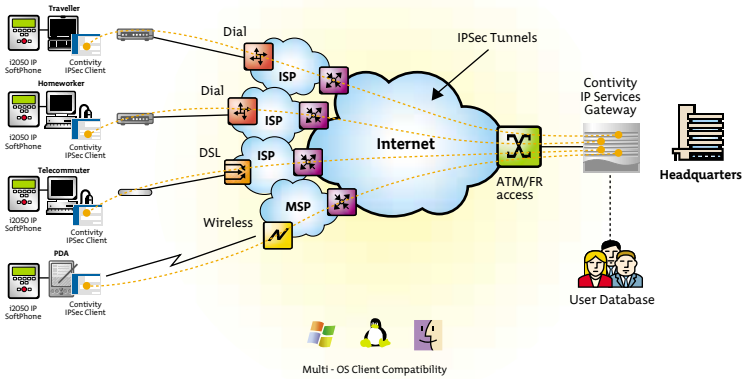


Figure 1: Nortel Networks Remote Access IP-VPN Solution

The Nortel Networks **Contivity VPN Switch** integrates all of the elements needed to build a high performance, scalable and secure VPN – routing, firewall, bandwidth management, encryption, authentication and data integrity – into one single platform for secured tunnelling across the Internet. The range of VPN solutions in the Contivity portfolio allows the implementation of solutions tailored to fit small, medium and large companies.

Telephony is provided by the Nortel Networks i2050 Soft Client (can be used with a USB headset).

- Contivity switches are placed at the core location
- User machines have secure client software installed
- Users connect to local ISP / Internet via whatever mechanisms are available – dial, DSL, cable, wireless or Ethernet

- Secure IPSec tunnels are initiated between the user and the core Contivity
- Contivity authentication tunnel initiation request against local data stores – may be RADIUS from old RAS infrastructure, LDAP etc.
- Secure IPSec tunnels encrypt and encapsulate traffic between the user and the Contivity
- Firewalls in each Contivity switch protect the site LAN from outside threats
- Split-tunneling on the IPSec client protects customer's machine from outside threats while tunnel is up

Solution Value Proposition

- Reduces corporate remote access expenses by 60-80%
- Accommodates an increasing dispersed and mobile workforce, estimated to be 83% of all employees by 2003
- Gain anywhere access with minimal access charges
- Reduces ongoing expense of dial access
- Eliminates costly toll-free access numbers
- Eliminates dedicated RAS infrastructure
- Secures access from anywhere where the Internet is
- Allows use of broadband access, increasing productivity
- More effective use of work at home models
- Increases geographic coverage

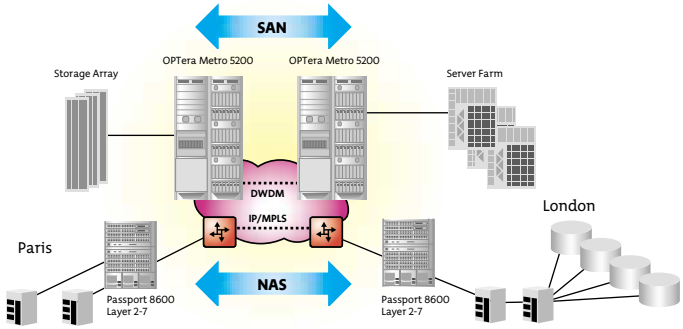
For further information contact your local Nortel Networks Representative

Storage Area Networking Solution

Customer Needs

- Disaster recovery – disk and tape back-up solutions for rapidly recovering data from offsite facilities and contingency planning for unforeseen circumstances
- Business continuity – the business continues to function even if a data centre disaster is suffered.
- Store and access a large amount of data online, quickly and cost effectively, no matter where the data is held geographically
- Higher levels of system availability, faster scalability of resources and better storage management
- Server and Storage Consolidation, to enable more efficient scaling in the face of unpredictable demands for processing power and storage
- A Wide Area Storage Area Network (SAN) based upon a reliable, high performance network

Nortel Networks Solution



Storage Area Networking solutions use a number of integrated infrastructure components to enable a variety of storage applications. The solutions are typically comprised of a number of disk storage arrays and tape drives connected to a Fibre Channel (FC) switch via FC links. The **OPTera Metro 5200 Multiservice Platform** enables service access delivery providing the solution with flexibility and scalability.

Until recently, businesses transported most of their data within Local Area Networks (LANs) at a single location. Today this trend has reversed and more and more traffic and protocol types are demanding transport across public Metropolitan Area Networks (MANs). Unfortunately, storage centric protocols such as ESCON and FC are seldom handled by these networks.

Nortel Networks Storage Area Networking solution overcomes this problem, by transporting all of these and other essential protocols in their native format to interconnect an organisation's critical storage devices.

The Storage Area Networking concept consists of setting up a separate high-speed mesh network that links servers and storage devices. Typically Fibre

Channel is used as the means of connecting the various devices together. Sometimes Gigabit Ethernet, ESCON and ATM are also used, but these have distance limits. The Nortel Networks Storage Area Networking solution offers the connectivity to accommodate any of these protocols over extended distances. The Nortel Networks Storage Area Networking Solution supports a variety of complementary storage applications.

These applications include:

- Disaster Recovery - the ability to resume core business functions as quickly as possible following a disastrous data loss, such as viruses or other data corruption, natural disasters, hardware or software failure, theft or vandalism and electrical disruptions
- Business Continuity - enables core business applications to continue in the event of a disaster with little or no disruption. Typically, business continuity implies a distributed server architecture using clustering and/or load balancing, together with mirrored disk storage
- Data Warehousing - works across enterprises. It organises and stores a wide variety of data over time, which can be used to create reports and extract data at a later date. Data mining involves processing large volumes of data and can take advantage of the processing, storage and querying potential of a data warehouse
- Data Sharing - entails using computer software and systems designed to aid with group decision-making, communication and coordination
- Centralised Storage Management - a broad category of storage functions that includes centralised disk and tape management. Data is centralised to a common location and data administration is handled by software

Solution Value Proposition

- Enables disaster recovery over reliable high speed connectivity
- Centralised management of mission critical information storage
- Improves performance of database and information retrieval systems
- Reduces equipment costs in centralised storage management due to shared devices
- Reduces staffing costs because of automation and improved resource utilisation
- Faster provisioning of storage and reduced downtime

For further information please contact your local Nortel Networks representative.

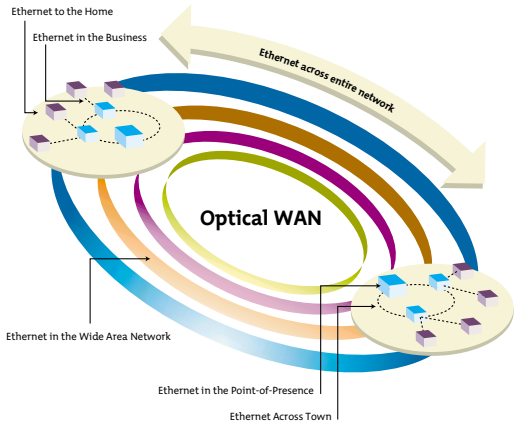
Optical

Optical Ethernet Solution

Customer Needs

- Remove bottlenecks and limitations of traditional WAN
- Provide inter-office bandwidth ranges from 1Mbps to 1000Mbps
- Simplify LAN and WAN networking
- Provide network support for multimedia adoption including VoIP and desktop video
- Provide the ability to adopt centralised computing models – such as terminal / thin client computing
- Improve usage of data centres for centralised storage and content distribution
- Provide a comprehensive, high performance and easily accessible disaster recovery / dark-site solution

Nortel Networks Solution



The End-to-End Ethernet concept

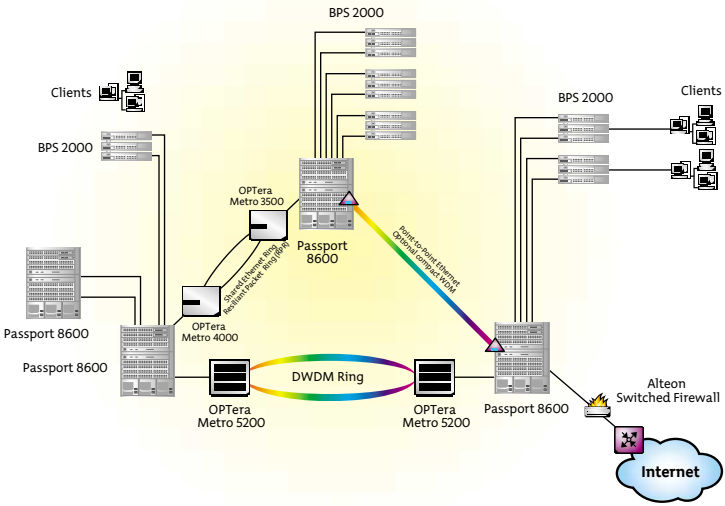
The end-to-end Ethernet, known as the optical Ethernet, allows large Enterprises with access to optical fibre, to establish next generation networks that deliver simplicity, low cost and reliability through extending the popular Ethernet protocol into the MAN and WAN, taking with it cost points, performance and familiarity.

Nortel Networks Optical Ethernet solutions are varied and provide the implementing Enterprise with many options for flexibility, based on the scale of the network, the performance required and the mix of applications. At the heart of the Nortel Networks solution are three critical elements:

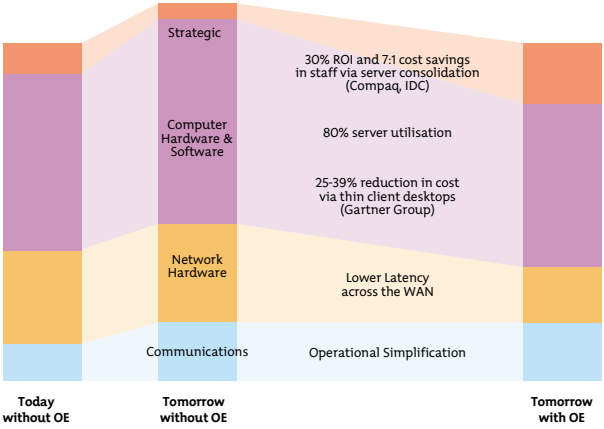
- **The Business Policy Switch 2000** – an advanced layer 2 switching device, the BPS2000 brings all the benefits and strengths of the Baystack line of stackable Ethernet solutions while combining the intelligent quality of service mechanisms to set application traffic priorities at the network edge

- **The Passport 8600 Ethernet Routing Switch** – delivering layer 2-7 intelligence that enables not only the switch and routing of frames and packets, but the manipulation of content flows across servers. The Passport 8600 brings leading scalability, port density and performance, while providing the depth for new multimedia application demands through extensive multicasting capability and extended prioritisation and queuing mechanisms
- **The OPTera Metro 5200** – intelligent metropolitan optical solution, enabling Enterprises to extend the capacity and capability of their fibre assets. The OPTera Metro uses DWDM and CWDM technologies to increase the number of wavelengths traversing a fibre, and through its protocol and bit rate transparency, can support any optical service up to 10Gbps – IP, ATM, Ethernet, ESCON, Fibre Channel, FICON, PDH, SDH, SONET, Digital Video etc. Wavelength efficiency is achieved by a rich set of sub rate multiplexer cards. The OPTera Metro 5200 allows Enterprises to extend fibre capacity up to 240Gbps if required, while preserving the ability to offer individual wavelengths 50mS protection switching for high availability applications.

Nortel Networks provides end-to-end service connectivity through the integration of its OE and IP Services portfolios. Applying the scenario in the diagram below, in-building LANs are interconnected using the Business Policy Switch 2000 (BPS 2000) and the Passport 8600 Ethernet Routing Switch. The BPS2000 collects the floor-by-floor Ethernet connections and after applying QoS measures, performs layer 2 switching of the packet to the Passport 8600 through a gigabit uplink. The Passport 8600 enables internal routing between BPS2000s, further QoS and queuing mechanisms and provides the external connection to the network at rates up 10Gbps. Metropolitan connectivity can be achieved through clustering of Passport 8600s over dark fibre connections, or by interfacing localised Ethernet deployments onto an optical backbone with Ethernet on SDH supported by OPTera Metro 4000, or DWDM with the OPTera Metro 5000 series of metropolitan optical transport solutions.



Solution Value Proposition



Projected future IT cost models with and without Nortel Networks Optical Ethernet

- Optical Ethernet attacks the total cost of ownership, by impacting the costs of LAN and MAN/WAN, providing the catalyst for cost reduction in computing and support models, giving rise to greater efficiencies. The end result is a compound fiscal benefit to the Enterprise ownership of IT that ultimately affects the total user cost and consequently improves earnings and profitability. Optical Ethernet allows Enterprises to implement the networks of tomorrow while maintaining the costs at levels equal or better to those of current modes of operation.
- All branches and inter-site connections are just like the connection to another floor in the same building
- Access bandwidth to the site has the same high capacity, scalability and low latency as the LAN
- MAN/WAN network becomes as simple to manage as the campus
- Creates a simpler, more efficient network
- Enables fundamental change in computing services models
- IT users receive faster access to corporate data and applications
- Reduces IT cost
- Simplifies network architecture (layer 3 to layer 2)
- Reduces support costs (fewer routers in the WAN)
- Consolidates computing support resources
- Ethernet traffic remains the same end-to-end
- Positions for outsourcing of high-value applications and services
- Enables new applications to be introduced
- Provides internal efficiencies for programs such as staff training
- Familiarity and skills requirements are consistent with existing office LANs
- Increases profitability and corporate efficiency through new business models

For further information please contact your local Nortel Networks representative.

IP Telephony Solutions

Customer Needs

There are two types of enterprise customers for Succession IPT Telephony solutions:

- Greenfield sites.
- Customers looking to upgrade or change out existing voice networks.

Succession is applicable to all vertical markets and most enterprises from the SME to the large global multi-site corporation due to the scaleable range of Succession platforms.

Enterprises adopting converged voice and data solutions will typically have the following characteristics:

- Companies wishing to achieve infrastructure savings by moving to a converged voice & data network.
- Multiple branch offices, especially international sites where the traditional PBX installations and toll fees are expensive.
- Enterprises undergoing change through a move to new office space where PBX installations are costly and the need to be connected and online is time critical.
- Business continuity of voice communications is required in case of catastrophic events; IP was designed with this in mind.
- Organisations that need to accommodate rapid moves and changes.

Lower total cost of ownership (TCO) & platform for new services.

Convergence in the WAN (VoIP)
(Centralised services = centralised support)

- Faster roll-out of new services network-wide
- Flexible working "Death of distance"
- Reduced long distance changes

Convergence in the LAN (VoIP)

- Reduced wiring costs
- Lower cost of adds, moves, changes
- Increased productivity
  - Instant moves (DHCP)
  - Extension mobility
  - Hot desking
  - Full telephony services

Convergence at the Desktop (IP Telephony)

- Drive productivity and customer service
- Unified Messaging, IP contact centre, multimedia collaboration, PC/Web management

- Telemarketing environments and call-centre users such as banks, financial institutions, betting shops, mail order companies.
- Enterprises wishing to deploy Unified Messaging.
- Need to update employees with live updates of critical information (such as market movements and breaking news stories) in an unobtrusive manner.
- Company with remote workers that need to access their corporate data and voice services in exactly the same way, in the office, at home or on the road.
- Enterprises that require powerful voice features, data connections, LAN communication, CTI and information services.

Nortel Networks Solution

Succession is the brand name for IP telephony (IPT) solutions from Nortel Networks. IP telephony offers exciting possibilities for all types of organisation as they combine the reach and power of the Internet with the convenience of the telephone offering customer a full suite of business-building applications and cost saving technologies.

With all the possibilities of IP telephony, it is important not to forget the basics of providing a reliable, feature rich telephone service – so Nortel Networks has focussed on using IPT for innovation but without compromising traditional qualities of reliability, quality, and functionality. Our strategy is to provide a smooth and cost effective migration path for our massive installed base of 43 million business extension lines plus win new greenfield business by providing the best converged network and applications solution sets in the industry. Our strategy can best be summarised with the phrase "Innovation without Compromise" as we provide innovative, converged network services without sacrificing the quality, reliability, and functionality of existing business telephony services. For example, the Business Communications Manager (BCM) contains all the business telephony features of Norstar; and Succession Communication Server for Enterprise 1000 (CSE 1000) contains all the business telephony features of the Meridian 1.

There are 3 main areas of convergence in Nortel Networks Succession IP Telephony Portfolio.

Convergence in the WAN

This involves converging separate voice and data networks connecting offices together into a single, converged network. Voice equipment with IP addresses can be distributed remotely resulting in the coined phrase "death of distance" – enabling IP phones and remote branch office IP to PSTN gateways to be distributed across a global network. This in turn enables telephony and applications servers to be centralised with remote users gaining access through the converged network. Savings result from centralising your applications and support teams, reducing voice circuit leased lines, toll bypass and productivity increase through flexible working. For example, a PC with softphone can be used for teleworking from any IP access point.

Convergence in the LAN

This involves connecting all your office communications equipment over a single, converged LAN including your IP phones, IP to PSTN gateways, and telephony call servers and applications. Value includes flexible deployment of phones, instant moves using DHCP services, telephony service from any Ethernet connection. Saving result from increased productivity, easier and faster adds, moves, and changes, and reduced cabling requirements. LAN convergence also helps prepare for new converged desktop applications.

Convergence at the Desktop

Convergence opens the door to innovative new applications that blend voice, video, text and picture sharing to enrich communications. Applications like Unified Messaging, web and multimedia contact centres, video collaboration, and picture and file exchange are possible. Value is in increased productivity and smarter customer collaboration.

Solution Value Proposition

The main customer benefits are:

Lower Total Cost of Ownership

- Increased flexibility and geographical reach (use a phone from any data network connection) (i2000 series).
- Reduced moves/adds/changes costs (PC/Web management, DHCP "Plug and Play ", PIN number log-in network wide)(i2000 series, M3900 series telsets).
- Replace multiple PBX 's with centralised call server/distributed gateway architecture (Succession CSE 1000, BCM).
- Centralised administration and management (configuration, dialling plans, adds, moves and changes) (Optivity Telephony Manager, Business Communications Manager).
- Reduced wiring costs.

Increased Productivity

- "Work anywhere " solutions – hotdesking, portability, mobility (i2000 series telsets).
- Instant office moves (i2000 series,M3900 series telsets).
- Screen-pop customer information with phone call (Microsoft TAPI server).
- Collaborate using video, voice, text chat, file transfer and whiteboarding (Succession CSE MX, Symposium).
- Dial from LDAP corporate directory (M3900,i2000).
- Unified Messaging (CallPilot).

New Revenue Opportunities

- Improve customer relationship management (integrate real-time voice with customer web sites, screen-popping, multi-media collaboration with customers, integrate self service, advanced speech recognition applications with contact centres) (Symposium, Periphonics).

Our Succession Enterprise strategy is to provide a seamless evolution from today's voice and data enterprise networks to tomorrow's fully converged enterprise network. This means giving our customers the choice of what to evolve, when and the option of blending old and new together, whether on the desktop or in the network. For example, our Succession 1000 IP Call Server offers 100%feature interoperability with our Meridian 1 PBX; our CallPilot Unified Messaging platform works equally well with traditional digital phones as with IP phones; our i2050 softphone works perfectly with an IP-enabled Meridian 1 PBX. We even offer IP adaptors to IP-enable any Meridian 1 digital telephone to be redeployed over the LAN. The seamless evolution path is achieved through the adoption of open standards within the applications, the converged network and the terminals. The strategy is innovation without compromise!

For further information please contact your local Nortel Networks Representative.

Nortel Networks Unified Security Architecture – 'Security in our DNA'

Nortel Networks, a global leader in secure data networking, offers proven solutions to satisfy end-to-end network security requirements. "Security in our DNA" is a key principle of our enterprise strategy – One Network. A World of choice.

By providing robust network security and working with alliance partners, our Unified Security Architecture delivers:

The components businesses need to secure their information and resources. The help organisations need to implement a simple single security policy

As more flexible ways of working (telecommuting, for example) become increasingly widespread, businesses gain additional entry points and therefore become more vulnerable to security breaches. Organisations should not have to compromise on productivity because of fears over information security. Unified Security Architecture allows companies to embrace new ways of working while retaining the security they need.

Key Components of Security

Nortel Networks has identified 6 components of security that businesses need to address in today's market.

Authentication, intrusion detection and risk assessment - Integration with third-party systems provides verification of users and acceptable utilization.

Protecting confidential data in transit (encryption) - Virtual private networks and virtual local area networks protect data through encryption, tunneling, segmentation, dynamic routing and more.

Perimeter defence – certified stateful firewalls protect a network or its nodes against unauthorised users.

High availability and redundancy of the security system – Load-balancing, hardware/software redundancy and failover mechanisms provide premium uptime and recovery time.

Managing performance demands of security – balancing schemes enable activation of a full complement of security measures without performance penalty.

Audit trails – Detailed records of all user and administrator activity and system events can identify and deflect potential security issues.

Unified Security Architecture lets organisations standardise on single platforms for authentication, encryption, and perimeter defence knowing that their choice will be supported on the network infrastructure.

Nortel Networks Security Portfolio

Security is intrinsic to the design of all Nortel Networks products, helping customers gain business advantage:

The Secure Routing Technology of the Contivity switch allows a business to build a more reliable and flexible network than would be achievable with traditional routers and at a much lower cost.

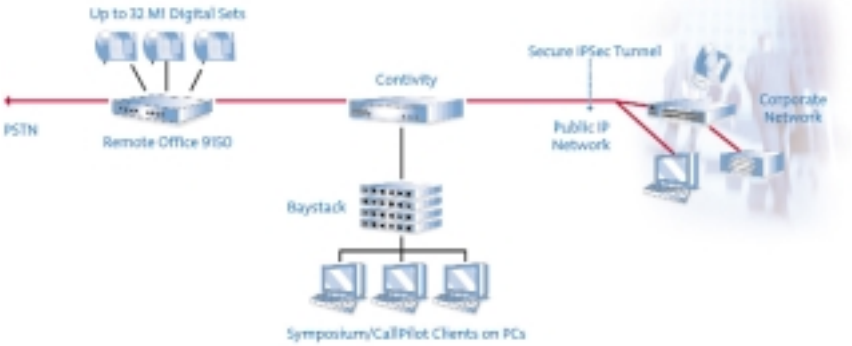
The SSL VPN function in the new Alteon SSL Accelerator gives companies the opportunity to introduce secure working without compromising on performance.

Nortel Networks LAN switches and Access products provide authentication that interoperates with the leading application vendors and supports smart cards and biometric systems.

Contivity and Alteon provide strong levels of encryption.

Alteon Switch Firewalls give strong perimeter protection.

All Nortel Networks management systems have a full-featured Audit trail. For example, features like S-MLT and SRT provide high system availability.



An example of Secure Branch Office Networking.

The Alteon SSL accelerator means that performance does not have to be compromised for security.

With Nortel Networks Security Solutions, enterprises can confidently and confidentially use the Internet as an extension of their trusted internal network.

Protection from external attacks, application abuse, viruses, unauthorised access, interception or manipulation of data en route – for all these critical concerns, Nortel Networks Security Solutions ensure information integrity and confidentiality across a full range of applications and architectures.

The Nortel Networks Unified Security Architecture provides a comprehensive physical and procedural framework of network elements, capabilities and best practices to provide multi-faceted, end-to-end security for networks and applications.

For further information please contact your local Nortel Networks representative.

PRODUCT & SOLUTION INDEX

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