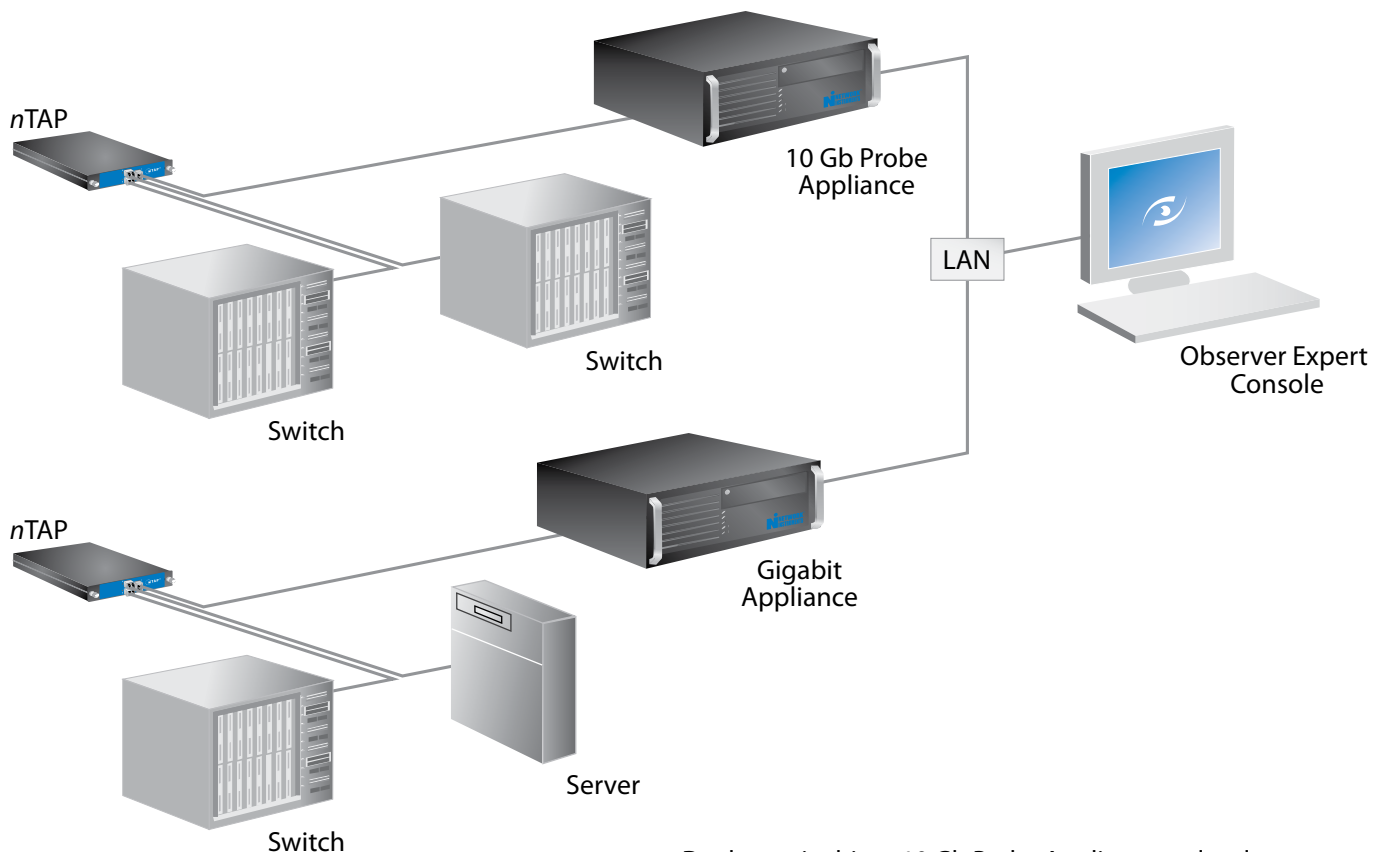# Gigabit and 10 Gb Network Analysis

Monitor Gigabit and 10 Gigabit Ethernet Communication from the Edge to the Core

For enterprise management, gigabit and 10 gigabit Ethernet networks mean high-speed communication, on-demand systems, and improved business functions. For enterprise IT professionals, these networks require diligent maintenance, analysis, monitoring, troubleshooting, and real-time network management. To help fulfill the promise of gigabit technologies, network professionals require a comprehensive, distributed analysis system.

The Network Instruments® Gigabit Observer® product family provides multiple, scalable options for enterprise organizations demanding a complete approach to network management. All appliances are 64-bit Windows systems and include Network Instruments' exclusive Gen2™ capture technology designed to maximize analysis performance on critical links.

Network Instruments Analysis Advantages
- Full-duplex, wire-speed gigabit and 10 Gb capture and statistics
- 64-bit for faster processing and larger capture buffers
- Internally designed capture cards optimize analysis
- Processing at the probe speeds analysis and minimizes bandwidth usage

Deploy a gigabit or 10 Gb Probe Appliance on local or remote mission-critical links for real-time, wire-speed Expert analysis.

In-Depth Analysis for Gigabit and 10 Gb Networks

Every member of the gigabit product family is designed with Network Instruments' unique Distributed Network Analysis (NI-DNA™) architecture. This award-winning analysis technology delivers investment flexibility, prompt problem resolution, proactive network management, complete application analysis, and integrated visibility. Below are a few examples of the powerful functionality found throughout the gigabit and 10 Gb product line.

Statistics – Observer offers over 30 real-time statistics for gigabit and 10 Gb analysis, including Network Summary, Bandwidth Utilization, (DCE and DTE displays), Top Talkers, VLAN Metrics, IP Pairs, Protocol Distribution, and Network Activity.

Link Utilization – Observer provides granular analysis on gigabit links so communication can be viewed on a conversation-by-conversation basis or in aggregation. Monitor up to eight ports for any simultaneous combination of SPAN sessions, full-duplex connections, and trunked gigabit links.

Application Analysis – Monitor the application layer in real time and post capture through Observer's Application Analysis. Track application session flows and failed transactions, gather statistics on errors, monitor response times, and perform network forensics for gigabit and 10 Gb links.

Distributed Expert Analysis – Regardless of location, Observer ensures rapid diagnosis and resolution of network problems for over 570 Expert conditions. Observer's Expert Analysis offers real-time and post-capture Expert event identification, modeling, and analysis for gigabit and 10 Gb networks. View network conditions in a single, concise display. All analysis is done remotely at the probe delivering only screen updates to the Observer console, minimizing impact to the network.
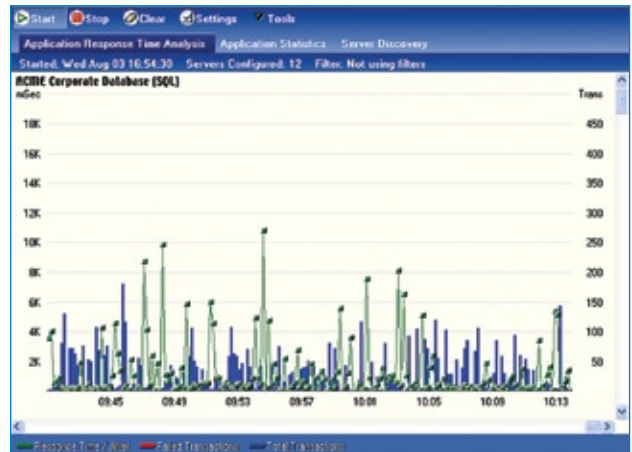
VoIP Expert – Monitor VoIP connections and improve VoIP performance across the organization with VoIP Expert. See VoIP traffic statistics and track call quality with over 20 metrics. Observer offers complete decode of VoIP protocols including SIP, H.323, MGCP, and SCCP. Save or play voice conversations or streaming video. Track jitter or lost packets (in each direction) and total VoIP utilization.

VLAN Statistics – Determine if VLANs are overloaded and verify VLAN setups on gigabit and 10 Gb links. Observer displays real-time VLAN statistics in aggregation or by individual load per station.
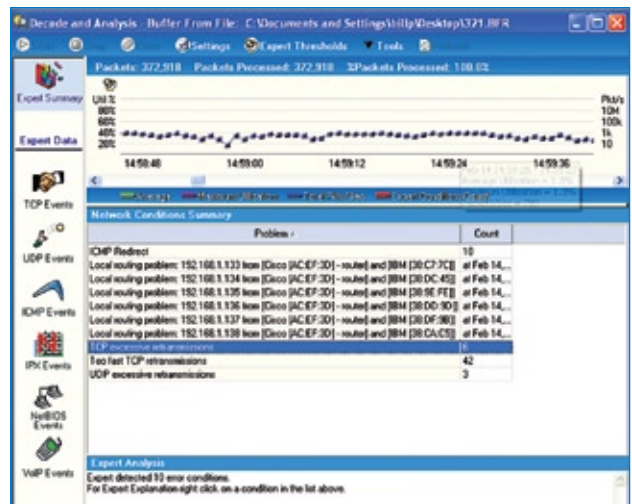
Connection Dynamics – Observer provides a graphical view of network conversations down to the application layer. Conversations are displayed packet-by-packet with Expert Analysis, allowing for instant identification of latency. Drill down on a conversation for granular analysis and to pinpoint problems immediately.

Filtering – Observer offers an extensive range of filtering capabilities for both real-time and post-capture analysis. For data mining tasks, Observer pre-filters capture buffers, resulting in quicker analysis. This feature is vital for sifting through large volumes of data (gigabit and/or long-term captures). Observer can also execute filters concurrently and share filter libraries among users.
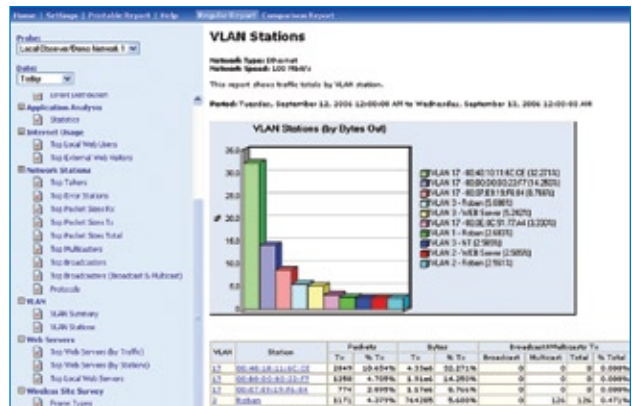
Trending and Reporting – Observer allows users to collect, store, view, and analyze gigabit traffic over days, weeks, months, and even years. Use this data to perform historical analysis and determine if capacity upgrades are needed. Observer also includes over 20 Ready-Made Reports for instant snapshots of network health as well as the ability to create custom reports. Reports can be sent via e-mail or published over the web to share with management.
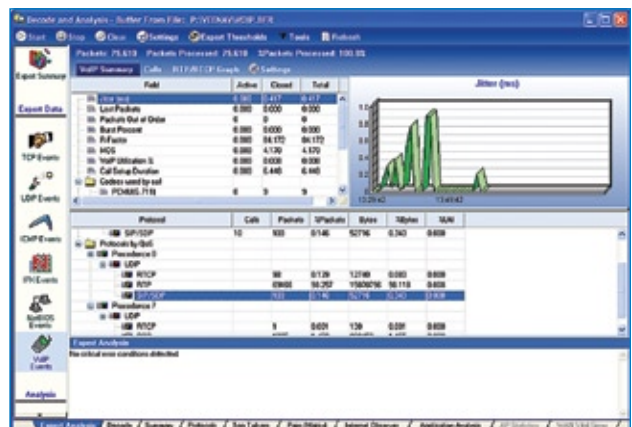

SQL Application Analysis

Expert Summary

VLAN Stations Report

VoIP Summary

Choose From a Variety of Gigabit and 10 Gb Monitoring Options

Common functionality available across the entire gigabit and 10 Gb analysis line:
- 64-bit systems for maximum analysis performance and scalability
- Utilizes internally engineered Gen2 technology for guaranteed, wire-speed captures
- Localizes data processing at the probe to minimize network overhead
- Provides continuous monitoring with included *n*TAPs
- Captures large amounts without packet loss with up to a 24 GB buffer

Gigabit or 10 Gb Probe Appliances

Offers wire-speed, full-duplex analysis on gigabit or 10 Gb links in an easy-to-install rack mount unit.
- Configures as a local console for on-site analysis
- Reports to any Observer Expert or Observer Suite console on the network
- May also be licensed as an RMON/HCRMON probe
- Gigabit Probe Appliances have the added ability of monitoring trunked links independently or in aggregation

Probe Appliance for gigabit or 10 Gb networks

GigaStor™ for Gigabit and 10 Gb Networks

For historical and forensics analysis, the GigaStor technology is the ideal choice. Capture hours, days, or weeks worth of gigabit or 10 Gb traffic directly to disk for historical analysis. Speed problem resolution by completely eliminating the time-consuming task of having to recreate issues.
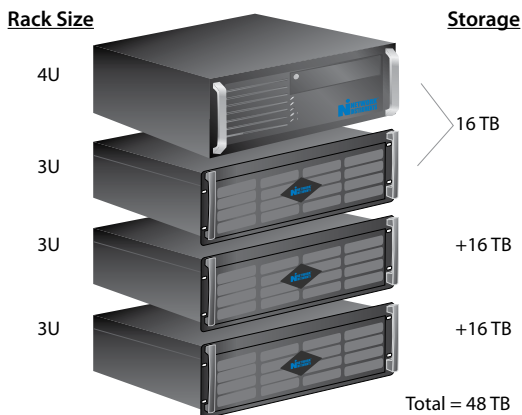- Choose a 2 TB, 4 TB, 8 TB, or 12 TB configuration
- A unique timeline interface makes it easy to isolate and troubleshoot past events
- Stored data can be reconstructed (web pages, e-mail, IM, VoIP) to support forensic analysis

GigaStor Expandable offers more storage options
- Scale up to 48 TB
- Obtain better write speeds with added drives
- Perfect for growing enterprises

GigaStor for gigabit or 10 Gb networks

Rack Size		Storage
4U		
3U		16 TB
3U		+16 TB
3U		+16 TB
		Total = 48 TB

GigaStor Expandable

GigaStor Control Panel

Portable Analysis Systems

The Gigabit Observer Suite System (GOSS) is a fully portable unit that contains all the hardware and software necessary to troubleshoot and manage the most advanced gigabit and 10 Gb networks. Designed for convenience in travel and shipping, this all-in-one unit is ideal for field service engineers tasked with solving elusive network abnormalities at particular points across the organization.

The GOSS is a portable analyzer and includes a copy of Observer Suite. The system does not require any additional hardware or software.

All-in-one System
- Observer Suite console software
- Gen2 Gigabit or 10 Gb capture card
- 10/100/1000 Ethernet management port
- All required cabling
- *n*TAP
- Built-in display, keyboard, trackpad, and DVD-RW drive
- Durable, hard case appropriate for airline travel
- Also shares data with any Observer Expert or Observer Suite console on the network

Field Service Solution for gigabit or 10 Gb networks

Top Five Hardware Advantages for Maximum Analysis Performance

1 Provides capture and analysis flexibility with Gen2 technology
All gigabit and 10 Gb probes include Network Instruments' internally designed gigabit capture cards to ensure accurate, high-performance gigabit capture on fully saturated gigabit and 10 Gb links.

- Allows for driver updates to be implemented in the field with a simple downloadable firmware patch
- The probe relies on one card (one clock) for timestamping and as a result data is marked to the nanosecond ensuring accurate tags across multiple links

Exclusive features for full-duplex gigabit capture:
- Monitor up to eight ports for any simultaneous combination of SPAN sessions, full-duplex connections, and trunked links
- Switch between monitoring copper or optical connections with the card's SFP technology

Exclusive features for full-duplex 10 Gb capture:
- Provides sustained 10 Gb full-duplex capture
- Functions such as filtering and statistics are performed directly on the card
- Provides real-time Expert analysis for 10 Gb networks

2 64-bit systems ensure maximum Observer performance
Network Instruments' 64-bit systems offer faster processing and larger capture buffers.

- With 64-bit, the capture buffer permits up to 24 GB, the largest in the industry
- By integrating with Observer's 64-bit application core, gigabit and 10 Gb appliances can crunch Expert data, perform comprehensive analysis, and deliver statistics faster for rapid problem resolution

3 Manages all data processing and Expert analysis locally at the probe
All gigabit and 10 Gb products have the capability to collect, store, and process data on the probe itself.

- Only screen updates are sent back to the Observer console
- Speeds up tasks like Expert analysis
- Minimizes unnecessary network traffic
- Decreases troubleshooting time

4 Comprehensive analysis
Gigabit and 10 Gb products report to any Observer Expert or Observer Suite console located on the network.

- Over 30 real-time statistics for monitoring application response times, VoIP traffic, viruses, hack attacks, and more
- Triggers and alarms can be configured to instantly alert an administrator of problem activity
- Perform long-term tending and baselining
- Multiple Observer users can log on simultaneously to collaborate or perform individual tasks

5 Includes *n*TAPs for guaranteed data delivery
Only a TAP can copy data from full-duplex links at line rate for monitoring devices.

- Insert and remove the probe without network disruption
- Acquire and independent view of gigabit or 10 Gb data flow
- Eliminate dependence on a SPAN or mirror port
- Ensure full-duplex, wire-speed passive analysis

About Network Instruments
Network Instruments provides in-depth network intelligence and continuous network availability through innovative analysis solutions. Enterprise network professionals depend on Network Instruments' Observer product line for unparalleled network visibility to efficiently solve network problems and manage deployments. By combining a powerful management console with high-performance analysis appliances, Observer simplifies problem resolution and optimizes network and application performance. The company continues to lead the industry in ROI with its advanced Distributed Network Analysis (NI-DNA™) architecture, which successfully integrates comprehensive analysis functionality across heterogeneous networks through a single monitoring interface. Network Instruments is headquartered in Minneapolis with sales offices worldwide and distributors in over 50 countries. For more information about the company, products, technology, NI-DNA, becoming a partner, and NI University please visit www.networkinstruments.com.

Solution Bundles
Contact a Network Instruments representative or dealer to ask about product bundles that cover all of your network management needs.

Corporate Headquarters
Network Instruments, LLC • 10701 Red Circle Drive • Minnetonka, MN 55343 • USA
toll free (800) 526-7919 • telephone (952) 358-3800 • fax (952) 358-3801
www.networkinstruments.com

European Headquarters
Network Instruments • 7 Old Yard • Rectory Lane • Brasted, Westerham • Kent TN16 1JP • United Kingdom
telephone + 44 (0) 1959 569880 • fax + 44 (0) 1959 569881
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