



Wide Area Network Analysis

Monitor, Troubleshoot, and Maintain Your WAN Links
with Solutions from Network Instruments



Wide Area Network (WAN) connectivity and throughput validation is a key part of a healthy, cost effective remote connectivity strategy. With WAN costs accounting for the majority of the network's ongoing operating budget, tracking performance is critical. The ability to monitor WAN links for flow, errors and Service Level Agreement (SLA) verification is no longer just for carriers and expensive WAN consultants.

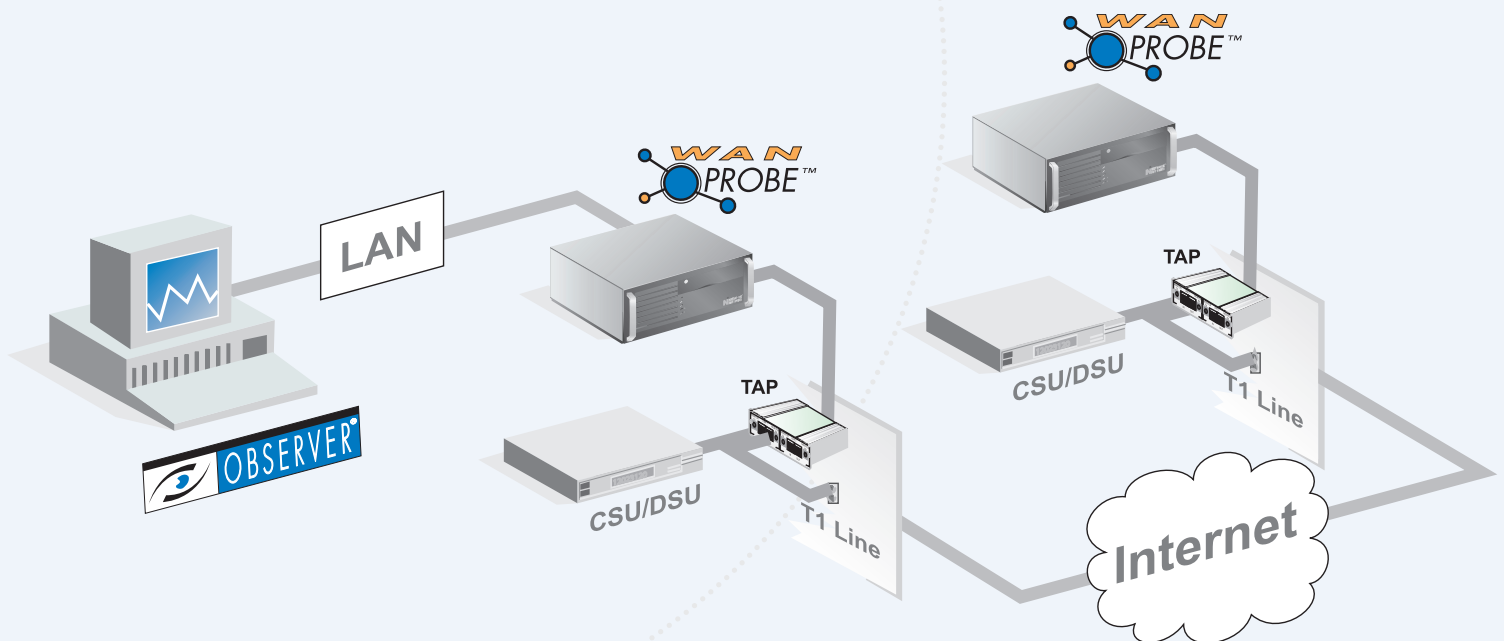
The Network Instruments family of products provides WAN, LAN, 802.11a/b/g and Gigabit monitoring and analysis all from a single console, making monitoring your WAN as easy as monitoring other network resources. Just one solution keeps track of WAN links, remote links and the network side of WAN connections simultaneously.

With a WAN Analyzer from Network Instruments you can:

- Verify and enforce Service Level Agreements
- Monitor and troubleshoot problems occurring across the WAN circuit
- View all WAN link encapsulated data to keep track of link congestion, sense transmission problems and verify WAN connections
- Extend your analysis capabilities and monitor not only WAN links, but Wireless, LAN and Gigabit networks with one comprehensive solution

Pinpoint WAN Flow Problems Without Leaving Your Desk

- Real-time statistics for capacity planning and provider performance measurement
- Long-term trending for reporting and baselining
- Passive capture and decode for all WAN traffic
- WAN speeds up to DS3/T3/E3 supported
- Real-time error displays for faster problem resolution
- Demarcation-point (digital) or between CSU/DSU and router (serial) monitoring options
- Choose from multiple encapsulation methods



Deploy a WAN Analyzer to monitor WAN links,
remote links and WAN connections simultaneously.

Trusted, Independent Metrics for Troubleshooting, Capacity Planning and Vendor SLA Verification

Statistics – Observer offers over 30 real-time statistics for WAN Analysis. Real-time information is displayed by Data Link Connection Identifiers (DLCI), Private Virtual Circuit (PVC) or whole link. DLCI and Committed Information Rates (CIRs) can be auto discovered or user defined. Data flow rates are displayed by link, DLCI and percentage of CIR for each DLCI or PVC.

Errors – Recognize WAN errors instantly with Observer. Errors are displayed by link, DLCI or PVC. Congestion errors (i.e. FECN, BECN) and DE are displayed in aggregate or when encountered as data rates are below CIR.

Alarms – Observer provides triggers and alarms to warn of congestion, errors, utilization and the occurrence or non-occurrence of a DLCI. Set Observer to send an SNMP trap, notify by pager, email, SMS (text) message or sound an audible alarm. Run one or multiple alarms simultaneously.

Capture/Decode – Observer performs complete capture and decode of WAN encapsulation and payload data with detailed packet-by-packet information. Filter traffic by DLCI or IP address, using one of the hundreds of pre-defined protocol filters, or create your own. Observer decodes over 500 protocols decoded and supports packet capture buffers of up to 4GB.

Filtering – Observer offers many WAN specific filtering options. For example, choose the DLCI Address Filter rule to enter the address number you wish to include or exclude. Select WAN Conditions to include or exclude packets based on flow direction, forward/backward congestion and discard eligibility.

Trending – Observer's award-winning long-term trending and baselining facility help determine usage trends and puts today's statistics into perspective. Historical information is kept for days, weeks, months or years. Use trending data to better plan and prepare for upgrades and capacity planning in the future.

Reporting – Publish WAN reports via the Web to share findings and trends with managers, outside consultants or across the company as needed. Quickly run Observer's Ready-Made Reports or configure Custom Reports to analyze network trending data. Provide non-Observer users controlled access to WAN baseline data.

Real-Time Expert – Observer's Real-Time Expert system displays hundreds of Expert items in a format that makes troubleshooting effortless. A summary window shows critical WAN and network anomalies. Break down conversations by application or problem device for further investigation.

Passive Solution – All WAN data is analyzed via a passive Test Access Point (TAP) device that continues to function whether the analyzer is installed or removed, and whether power is provided or not. Since the TAP is completely passive, your WAN traffic is fully protected and data integrity is ensured.

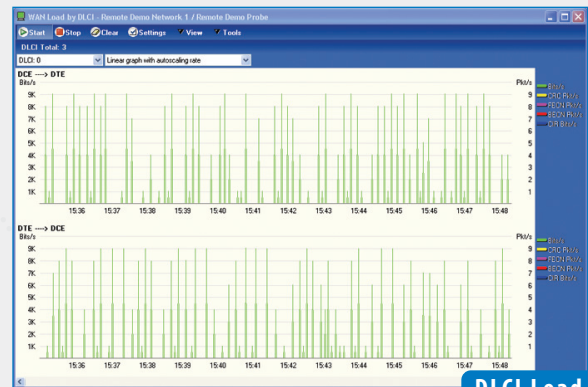
Unique WAN Views with Observer

WAN Delay Analysis – A compare capture feature with time synchronization technology to troubleshoot WAN or network delay. Quantifies transaction time between PC and server using our exclusive method of synchronizing captures. Quickly determine how long it takes for data to transfer across a WAN.

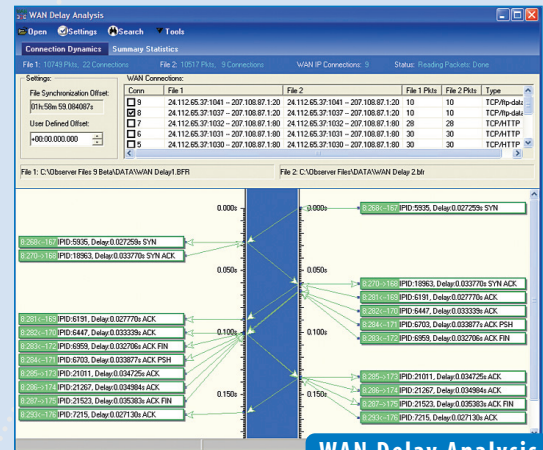
WAN Vital Signs – A comprehensive summary mode of WAN errors, statistics, utilization and congestion. View DCE/DTE traffic individually or in aggregate. Review key statistics on errors (i.e. FECN, BECN), discard eligibility packets, utilization rates and more. View statistics in terms of number of packets, bytes or average and percentage ratios. Compare between maximum line utilization and maximum CIR utilization of your WAN link.



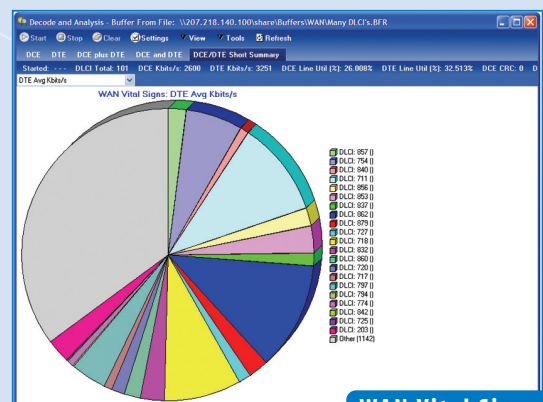
Award-winning Observer Interface



DLCI Load



WAN Delay Analysis



WAN Vital Signs

For flexibility in implementation and performance, Network Instruments offers three options for WAN Analysis

WAN Probe

WAN Probes are designed to passively capture WAN traffic and provide a direct link into the data stream, offering an independent and trusted view of network traffic. WAN Probes have specific capture adapters based on link speed and port density requirements. A complete range of WAN Probe configurations is available to accommodate most types of WAN circuits. WAN Probes report to any Expert Observer or Observer Suite console.

Probes include TAPs that provide a copy of WAN traffic while maintaining the signal through the WAN link. Once a TAP is added to a link, the Probe can be attached or removed without interruption of the WAN data flow.



WAN Probe

Advantages of the WAN Probe:

- Completely configured and ready-for-use
- Reports to any Expert Probe, Observer Suite or RMON console
- Performs WAN RMON Data Collection with Included MIB
- Includes TAPs

Probe System Requirements

The rack mount probe is a complete system, and only requires a copy of Expert Observer or Observer Suite to report to. RMON Probes will report to any Observer Suite or RMON console. The WAN Probe can also be licensed as a WAN RMON probe and will report back to any Observer Suite or RMON console.

WAN Probe Kit

Use a WAN Probe Kit to create your own WAN Probe system. The software that drives the WAN Probe is based on the Windows platform and integrates perfectly with all security and corporate policies that may be in place. Choose between a T1/E1 (Serial or Digital), DS3/T3, E3 or HSSI adapter. Once integrated into a system, the WAN Probe software will report to any Expert Observer or Observer Suite software. The Kit can also be licensed as a WAN RMON and will report back to any Observer Suite or RMON console. WAN Probe Kits have configurations for one or more WAN links. All Probe Kits include a 10/100/1000 Ethernet management port for out-of-band communication to the Observer console.

Advantages of the WAN Probe Kit:

- Create your own WAN probe
- Reports to any Expert Probe, Observer Suite or RMON Console
- Performs WAN RMON Data Collection with Included MIB
- Includes the following components
 - WAN Adapter (serial or digital)
 - Advanced Expert Probe software
 - TAP
 - All required cabling



WAN Probe Kit

Probe Kit System Requirements

Kit components can be installed into any Windows based system running at least 800 Mhz, containing two free 32-bit PCI slots (for the WAN adapter and 10/100/1000 adapter), with 1GB RAM, CD drive, keyboard, mouse and running Windows 2000/XP/2003. Once installed, the WAN Probe will report to any Expert Observer or Observer Suite console. When licensed to support WAN RMON, the probe will report to any Observer Suite or RMON console.

WAN Observer Suite System (WOSS)

The WAN Observer Suite System is a portable, feature-complete WAN Analysis solution requiring no additional hardware or software. The WOSS provides metrics for SLA verification, end-to-end application monitoring, long-term statistical trending, user alarms and an Expert system.

This portable analyzer includes an integrated copy of the award-winning Observer Suite software, a WAN adapter, a 10/100/1000 Ethernet management port, as well as all required cabling and a TAP for passive analysis. All components are installed onto a fully ruggedized single processor Windows system running Windows XP with a 14" active matrix display, CDRW drive and built-in keyboard and mouse. For portability the WOSS also includes a soft-sided travel case.

The WOSS not only stands on its own as a complete network analyzer but also connects to any Expert Observer or Observer Suite console for advanced communications across your network. With NI-DNA™, the Network Instruments product line can link to each other for complete monitoring and real-time analysis across multiple locations. For example, use the WOSS to retrieve data from any remote probe or allow a network administrator at another site to access your data. The WOSS not only offers complete portability but also maintains uninterrupted visibility into your entire network.



WOSS

Advantages of the WOSS:

- All-in-One System, No Additional Software or Hardware Needed
- System Includes:
 - Observer Suite console software
 - WAN Adapter
 - 10/100/1000 Ethernet Management Port
 - All required cabling
 - TAP
 - Built-in display, keyboard, mouse and CDRW drive
 - Travel case

WOSS System Requirements

The WAN Observer Suite System is a complete analyzer, and includes a copy of Observer Suite for analyzing a WAN link(s) and does not require any additional hardware or software. Any Network Instruments probe (hardware or software) can connect to any WAN Observer Suite System (sold separately).

Speed / Link Options:

For Link Speeds up to T1/E1: 1-Port Serial (V.35, RS232/EIA530, RS449, X.25), 2-Port Digital (RJ48), 4-Port Digital (RJ48)

For DS3/T3/E3 Links: 1-Port Serial (HSSI), 1-Port Digital (Coax)

Encapsulation Supported: HDLC-Cisco, Frame Relay (IETF & Cisco), PPP, LAPB modulo128, LAPB Modulo 8, X.25 (over LAPB modulo128), X.25 (over LAPB Modulo 8) and ATM-DXI (ATM Data Exchange)

WAN RMON Option

The WOSS, the WAN Probe Appliance and the WAN Probe Kit can be licensed for WAN RMON. The WAN RMON Probe works with Network Instruments WAN capture hardware to track WAN-specific statistics (FECNs, BECNs, etc.) through an included open standard Management Information Base (MIB). WAN Probes licensed for WAN RMON will report back to any Observer Suite or RMON console.

Network Instruments WAN Probes support the following industry standards:

- RMON1/2, HCRMON
- Frame_Relay_DTE (Cisco)

WAN Probes includes the following Network Instruments MIBs:

- NetInst-Products-MIB
- NetInst-SMI-MIB
- NetInst-WAN-MIB
- NetInst-TC-MIB

RMON Console Functionality:

- Displays Real-Time Statistics
- Packet Capture and Decode
- Post Capture Expert Analysis
- Triggers & Alarms

Driven by Distributed Network Analysis (NI-DNA™)

Since all Network Instruments products are created using the Distributed Network Analysis architecture, our WAN solutions integrate seamlessly with Observer. With NI-DNA, monitoring multiple links or multiple topologies is effortless. Select any Probe located anywhere on your network within the Observer console for real-time statistics, real-time decode views and more.

About Network Instruments

Network Instruments is the industry leading developer of distributed, user-friendly, and affordable network management, analysis and troubleshooting solutions. The award-winning Observer family of products combines a comprehensive management and analysis console with high-performance remote Probes to provide integrated monitoring and management for the entire network (LAN, 802.11a/b/g, Gigabit, WAN). All Network Instruments products are designed utilizing our Distributed Network Analysis (NI-DNA) architecture. With NI-DNA, the Observer solution set simplifies network troubleshooting and management, optimizes network and application performance and scales to meet the needs of any organization. Founded in 1994, Network Instruments is headquartered in Minneapolis, Minnesota with offices in London, Paris and throughout the USA with distributors

in over 50 countries. More information about the company, products, innovation, technology, NI-DNA, becoming a partner and NI University can be found at: 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
8800 West Highway Seven
Fourth Floor
Minneapolis, MN 55426
USA
800-526-7919 toll-free
(952) 932-9899 telephone
(952) 932-9545 fax
www.networkinstruments.com

European Office

Network Instruments
7 Old Yard
Rectory Lane
Brasted, Westerham
Kent TN16 1JP
United Kingdom
+ 44 (0) 1959 569880 telephone
+ 44 (0) 1959 569881 fax
www.networkinstruments.co.uk

Additional Resources for WAN Analysis

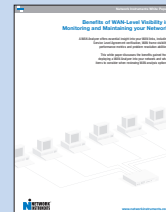
White Papers

For more assistance in deciding if a WAN Analyzer is right for you, download our free white paper:

"Benefits of WAN-Level Visibility in Monitoring and Maintaining your Network"

Learn how to choose a WAN Analysis solution for your network and how a heterogeneous, distributed solution compares to a point-only application. This paper shows how a WAN Analyzer can:

- Offer insight into WAN links
- Verify Service Level Agreements
- Report on performance metrics
- Resolve WAN issues



To download this paper, visit

www.networkinstruments.com/white_papers.html



NI University Courses

Increase your WAN troubleshooting skills with a course on WAN Analysis from NI University.

"WAN Analysis using the Observer Analyzer"

This course focuses on issues and protocols in the Wide Area Network environment. With this course, students will know how x.25, Frame Relay, HDLC, ATM and other WAN protocols work to deliver packets to their intended destination. Course attendees will also learn the ability to distinguish different WAN protocols in analyzing trace files for erroneous conditions and solve problems quickly based on Observer's Expert data.

For more information on NI University, to sign up for a course and for the latest schedule, visit the Network Instruments web site.

US Class Schedule: www.networkinstruments.com/training

UK/Europe Class Schedule: www.networkinstruments.co.uk/training