profile

HEWLETT PACKARD
Expanding Possibilities

HP | Internet Advisor | WAN

Solve complex internetworking problems the first time

The HP Internet Advisor WAN was designed with one goal in mind: to make you more effective when isolating and solving problems on wide area and local area networks the first time you connect. The HP Internet Advisor WAN lets you connect anywhere on the network, capture all the necessary data, and comprehend that information as it reveals problems and suggests solutions.

WAN testing made easy

To install, maintain, or troubleshoot a wide area network, you need to test for many things: physical errors, equipment interoperability, and traffic problems. The HP Internet Advisor WAN offers integrated WAN and LAN protocol analysis capabilities, along with BERT (bit error rate testing), stimulus and response measurements, and statistical analysis capability — everything you need in a powerful, cost-effective test instrument.

No matter what the traffic level, the HP Internet Advisor WAN will capture every frame on your network. It non-intrusively monitors and decodes WAN, LAN, and ATM data at full line speed, without missing a bit. In addition, it can simulate either direction of a line under test, and process previously captured data from the buffer or from a file. The analyzer doesn't just capture traffic when the network is working, it gives you information when the network is broken when you need it the most.

Support for all major technologies

The HP Internet Advisor WAN allows you to monitor all major WAN and ATM communications protocols, as well as all major LAN protocols running over the wide area network. All major WAN interfaces are already built into the platform. Others are available via slide-in modules.

Platform Specifications

- 300 MHz CPU with 128 Mbytes of memory.
- 26.4 cm (10.4 in) diagonal active matrix 800X600 SVGA standard.
- 3 Gbyte hard drive.
- 1.4 Mbyte 3.5 inch floppy disk drive.
- Two Type I/II PCMCIA slots or one Type III slot.
- Built-in tracking device or external mouse.
- 9-pin serial and 25-pin parallel port.
- VGA or SVGA external monitor port.
- Windows® 98 and MS-DOS®
- Expansion slots provided via the undercradle.

Extensive test capabilities help you uncover and solve even the most subtle WAN problems

No matter how complex your network, the HP Internet Advisor WAN has you covered. It provides comprehensive testing capability for all major WAN technologies, including:

- frame relay, X.25, ISDN, HDLC, SNA/SDLC, PPP, and SMDS.
- encapsulated LAN protocols are supported.
- you can add LAN and ATM testing capability easily.
- built-in interfaces include RS232/V.24, RS449/422/423, V.10/11, V.35/V.36, RS530.
- DDS 4-wire, full and fractional T1 and E1, ISDN BRI and PRI, X.21, G.703 at 64 kbps, J2, DS3/E3, OC-3c/STM-1, 155 UTP, and OC-12c/STM-4c are available as options.

The Internet Advisor offers a host of powerful test and analysis capabilities that help you track down even the most subtle protocol problems:

- decodes for the upper and lower layers of all major protocol stacks at speeds of 50 bps to 622 Mbps.
- statistics, including LAN traffic analysis over WAN, and logging of statistics to disk.
- extensive real-time data filtering (both capture and display filtering).
- counting and statistics of user-definable events.
- line status monitoring and statistics.
- comprehensive bit error rate testing.
- simulation and emulation capability.

Networking technologies supported by the HP Internet Advisor

WAN
Frame Relay
ISDN
X.25
Encapsulated LAN over WAN
PPP
SDLC/HDLC

LAN
10 Mbps Ethernet
Fast Ethernet
Gigabit Ethernet
Switched Ethernet
Token Ring
FDDI

ATM
DS-1/E1
DS-3/E3
OC-3c/STM-1
155 UTP
OC-12c/STM-4c

Monitor and decode upper and lower layer protocols in real time

The HP Internet Advisor WAN monitors your network, captures data, and decodes it in real time. The analyzer can selectively capture data using its 16 capture filters, so that the memory buffer contains just the information you want. In addition, you can use the analyzer's display filters to search the buffer for specific values, patterns, or addresses.

The HP Internet Advisor fully decodes frames and cells and displays all fields in configurable summary, detail, or hexadecimal format (see figure 1). In addition, the multitasking Microsoft Windows-based interface lets you view different protocol decodes, Vitals, statistics, and other displays simultaneously. The various data can be printed, or stored to a file and retrieved for later analysis.

With the HP Internet Advisor's extensive statistics software, you won't need to spend much time decoding individual protocol frames. But when you do, the protocol decodes will let you dig as deeply into the data as you need to go, quickly and easily. For example, the analyzer extracts and decodes encapsulated LAN data automatically, without the need to specify cumbersome offsets or know exactly which LAN protocol stacks are present on the link.

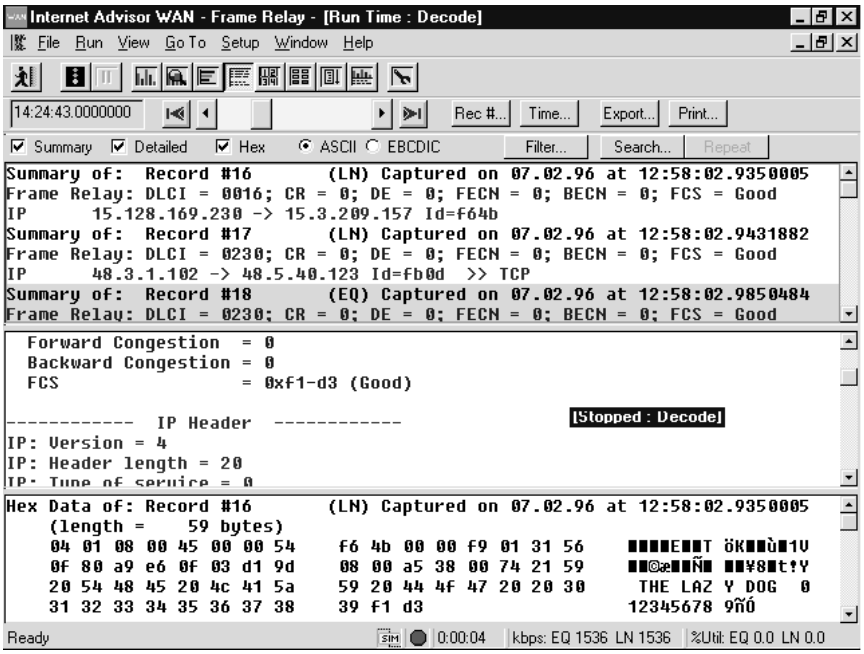


Figure 1. The HP Internet Advisor fully decodes frames and cells, and displays all fields.

Post processing and analysis

You can use the Internet Advisor's post-capture analysis capability to view the contents of captured data files, one frame at a time. Post-processing display filters let you quickly zoom in on selected criteria, from the traffic passing between specific devices to individual conversations. With post-processing you can:

- search through the data by record or by time stamp
- search for events or strings
- verify event-to-event timing
- view protocol errors
- print the current display or the entire buffer
- export data to other programs
- analyze statistics from the buffer data

You'll spend less time searching through frames, and more time focusing on problems.

Simulation and emulation

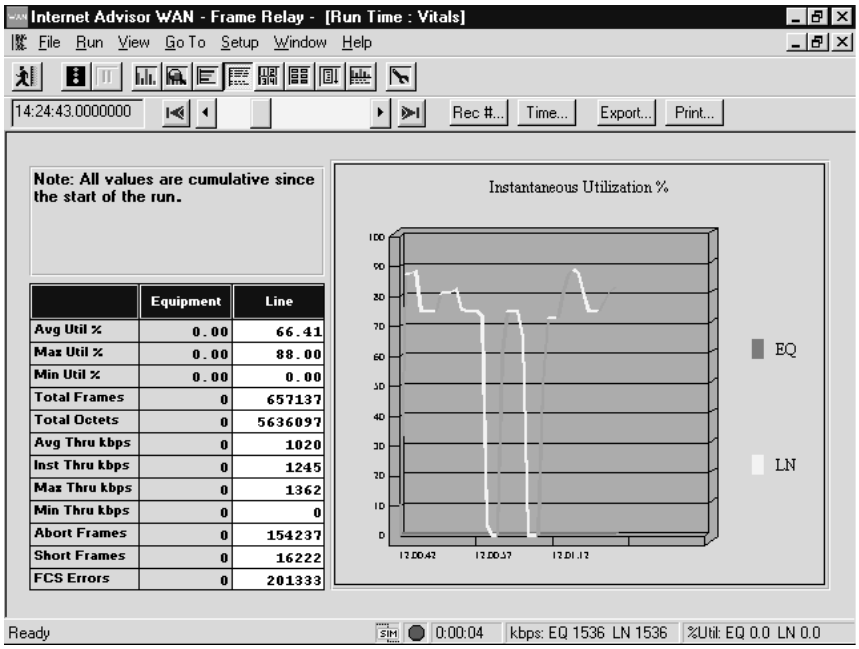
To help you isolate protocol implementation problems the Internet Advisor's high-level simulation language, or one of the many pre-written tests, allow you to create normal or abnormal protocol behavior on demand. A pre-written test, for example, will help you send a frame relay PING. You simply enter the IP address and the software does the rest by creating an IP/ICMP frame that uses the IP address to test network operation and connectivity.

Network Vitals

Isolating a protocol error or tuning a network often requires searching through hundreds or thousands of captured frames to decide what is important. Even a highly skilled troubleshooter can be quickly overwhelmed. The Vitals feature saves valuable time by automating this process.

Vitals provides real-time measures of network conditions that provide a statistical picture of what is happening on the network links. Working simultaneously with decodes, filters, and other measurements, Vitals interprets data traffic as it occurs (see figure 2). This feature can be used to identify network problems or to assist you in optimizing the configuration of network components and software.

Values in the Vitals display are given in tabular form and are cumulative from the start of a test. An exception is instantaneous utilization, which is also displayed in graphical format for a quick look at overall usage of the network. Vitals data are provided for both the line (network) side and the equipment (subscriber) side and include such statistics as average utilization in percent, instantaneous utilization in percent, total bytes, total frames, FCS errors, code violations, frame alignment errors, and many more.



	Equipment	Line
Avg Util %	0.00	66.41
Max Util %	0.00	88.00
Min Util %	0.00	0.00
Total Frames	0	657137
Total Octets	0	5636097
Avg Thru kbps	0	1020
Inst Thru kbps	0	1245
Max Thru kbps	0	1362
Min Thru kbps	0	0
Abort Frames	0	154237
Short Frames	0	16222
FCS Errors	0	201333

Figure 2. Vitals provides real-time measures of network conditions.

Stimulus/Response Tests

To maximize your productivity, the HP Internet Advisor WAN combines protocol decoding and statistical performance measurement with powerful active testing capability.

You can execute any of the stimulus/response tests and simultaneously monitor their effect on the network. The analyzer will continue to capture data traffic and monitor network performance with the statistical measurements to ensure that you do not miss a network event. Pre-written stimulus-response tests included with the Internet Advisor can be used, for example, to activate a link, to establish calls from the network or subscriber side, and to generate data packets.

BERT (Bit error rate testing)

Many times problems on the network can be attributed to the transmission medium. Although the physical medium may be good for normal data transmission, it may not be able to handle high speed WAN data. That is why the HP Internet Advisor WAN has a powerful built in BERT.

Traffic generation

Network faults related to traffic levels are often difficult to isolate. With the HP Internet Advisor WAN, you never miss a frame, no matter what the data rate. Users can generate traffic and make measurements simultaneously, so that you can recreate problems and analyze them for solutions.

Powerful traffic generation capability in the HP Internet Advisor WAN lets you transmit virtually any type of message or cell onto the network one time, a specified number of times, or continuously. To generate traffic for network simulation, you can leverage the many testing scenarios already defined in the analyzer. Previously captured frames in the capture buffer can be used to duplicate events or to create complex messages, and a library of test scripts is available for building commonly used message types.

The Internet Advisor, with its powerful multi-tasking operating system, lets you increase the traffic load while measuring network performance, or reproduce a particular data sequence while monitoring the effect on other conversations. By simultaneously generating traffic and monitoring the network, you'll be able to measure the effect of adding other devices on overall network performance.

Use the HP Internet Advisor for all your WAN testing applications

LAN over WAN testing

LAN over WAN testing typically checks router and bridge configurations for problems, and determines such things as the types of LAN traffic being routed over the WAN, how much bandwidth is available, and how bandwidth is being used.

The HP Internet Advisor WAN automatically extracts and decodes encapsulated LAN data, without the need to specify offsets or know exactly what protocol stacks are present on the link. Even complex protocols are supported, such as RIP, UDP, and IP within X.25 inside Frame Relay, (ANSI T1.617a, Annex G).

All major LAN protocols are supported on the HP Internet Advisor WAN, including those for

- TCP/IP
- Microsoft LAN Manager
- DECnet
- XNS
- IBM/SNA
- AppleTalk
- Banyan/Vines
- OSI
- SUN
- CDPD

Additionally, the analyzer is programmed with filter templates for commonly used applications, including Application Layer LAN and Network Layer LAN protocols.

Frame relay testing

For frame relay testing, the HP Internet Advisor WAN provides functionality for automatic DLCI discovery with drill down capability, DLCI statistics and Vitals, and real-time decoding capability for all layers of the frame relay protocol according to relevant RFC 1490/2427, ITU-T Q.933 Annex A, ANSI T1.617 Annex D and the original Frame Relay consortium specifications (see figure 3).

Using the Internet Advisor's display filters, you can turn the following functions on or off:

- any part of the frame relay header or payload
- line status information
- LAN information
- original LMI information
- Annex A LMI information
- Annex D LMI information

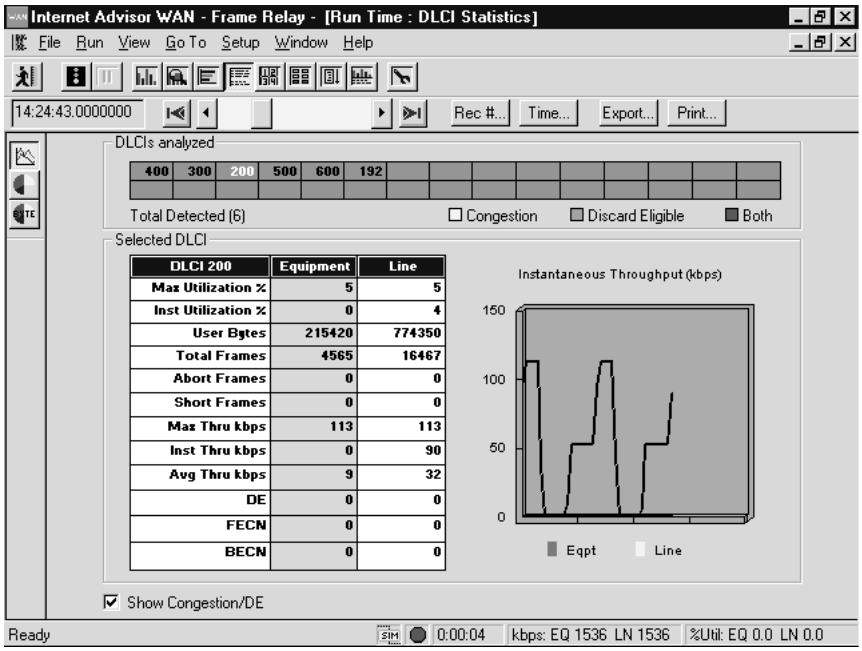


Figure 3. DLCI statistics and vitals.

- LAPB address
- frame type
- transmission headers
- request/response headers
- path control
- transmission control
- data flow control
- management services, and more

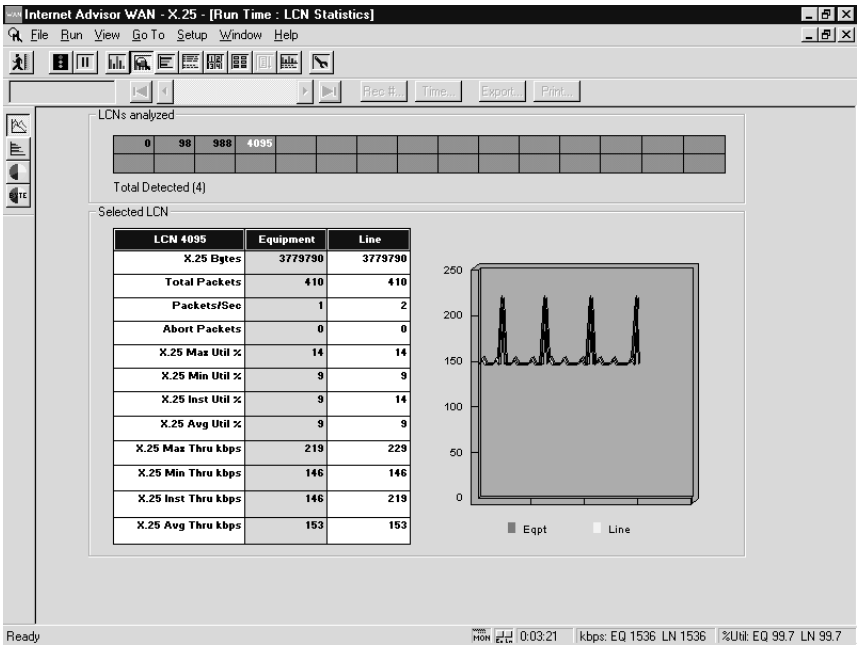


Figure 4. LCN statistics and vitals.

SNA/SDLC testing

In an SNA network, the HP Internet Advisor WAN monitors, decodes, and processes SNA and SDLC protocols, including

Filters and counters for SDLC layer 2 statistics and an SNA emulator are included.

X.25/HDLC testing

The HP Internet Advisor WAN can be used as an end station, a node on the network, or a passive monitoring device in an X.25 network to provide a range of functionality. In addition to the analyzer's general capabilities, it also offers:

- automatic LCN discovery with drill down capability
- LCN statistics and vitals (see figure 4)
- decodes for all three layers of the X.25 protocol according to CCITT X.25-1988
- X.25 filters and counters
- X.25 emulator with full layer 2 and partial layer 3 emulation

ISDN testing

The HP Internet Advisor WAN has a number of capabilities for maintaining and troubleshooting ISDN connections on Basic and Primary Rate ISDN circuits.

- monitoring, decoding and post-processing of ISDN and upper layer protocols, including X.25 on the D-channel
- statistical analysis of B and D channel activity
- emulation, traffic generation, and stimulus response tests, including BRI and PRI tests
- call placement and BERT
- support of Basic Rate S, T and, U interfaces and Primary Rate interface
- extensive B-channel traffic statistics

PPP testing

The HP Internet Advisor WAN provides monitoring, decoding, and post-processing of synchronous and asynchronous PPP protocols. Decodes include HDLC header (address, frame type, and FCS), PPP header (protocol ID and CP code), LCP, NCP/NSCP (including IPCP, IPXCP, CCP, and NetBios CP), PAP, and CHAP. PPP data filters allow you to turn on or off any part of the PPP header or payload, line status information, BOP information, or LAN information.

SMDS testing

For SMDS networks, the HP Internet Advisor WAN monitors SMDS DXI data on T1 and E1 circuits. The analyzer provides run-time and post-run-time examine summaries and a detailed display of the Layer 1 PLCP decode, the Layer 2 PDU decode, and the Layer 3 SMDS header decode according to Bellcore specifications. It also decodes encapsulated protocols, including IP and SNAP.

Operate your test system remotely

Remote capability lets you connect the HP Internet Advisor WAN to other Internet Advisors or to PCs using standard Microsoft Windows remote operation software, such as pcANYWHERE. With remote operation, you can monitor and troubleshoot WAN networks from a local console, bringing problem-solving expertise normally available only at the central management site to a remote location.

Leading-edge solutions when you need them

It costs your company a lot of money (and doesn't do much for your credibility) when you get stuck with equipment that no longer meets your needs. Because of its modular design, the HP Internet Advisor can grow with you as your network evolves and your testing needs change. As new applications and faster hardware come to market, we'll continue to enhance HP Internet Advisor capabilities. Subscribing to the HP Internet Advisor Software Update Subscription Service assures that you always have the latest software releases.

Training and consulting customized to help bridge the knowledge gap.

We know that it takes more than the best tools to keep your network healthy. That's why we offer training and education services to help you increase your troubleshooting effectiveness, as well as on-line technical support and consulting when you need them. We're here to help you succeed.

Ordering Information

HP J2300D Internet Advisor WAN

Related Literature

HP Internet Advisor LAN	Product Overview	5966-0828E
HP Internet Advisor LAN	Technical Specifications	5966-0829E
HP Internet Advisor WAN	Technical Specifications	5967-3279E
HP Internet Advisor DS3/E3 Cells and Frames Module	Technical Specifications	5968-3185E
HP Internet Advisor WAN ISDN Test Solutions	Technical Specifications	5967-5560E
HP Internet Advisor ATM	Product Overview	5968-1437E
HP Internet Advisor ATM	Technical Specifications	5968-1436E
HP Internet Advisor 622Vu	Product Overview	5968-3996E
HP Internet Advisor 622Vu	Technical Specifications	5968-3911E
HP Internet Advisor	Brochure	5968-6076E

Services

HP J2899A Software Upgrade and Subscription Service	Product Overview	5965-5815E

Warranty

Standard 3-year (or optional 5-year) hardware warranty.
For software, 90 day replacement warranty only

Connect with us!

http://www.hp.com/go/internetadvisor

Year 2000 Compliance

http://hp.iwcon.com/tm-y2k/single_search.html

HEWLETT PACKARD

Expanding Possibilities

HP Sales and Support Offices
For more information about Hewlett-Packard Test and Measurement products, applications, services, and for a current sales offices listing, visit our web site, http://www.hp.com/go/tmdir. You can also contact one of the following centers and ask for a Test and Measurement sales representative.

United States:
Hewlett-Packard Company
Test and Measurement Call Center
P.O. Box 4026
Englewood, CO 80155-4026
Tel: 1 800 452-4844

Canada:
Hewlett-Packard Canada Ltd.
5150 Spectrum Way
Mississauga, Ontario
L4W 5G1
Tel: 1 877 894 4414

Europe:
Hewlett-Packard Company
European Marketing Organisation
P.O. Box 999
1180 AZ Amstelveen
The Netherlands
Tel: (31 20) 547 9999

Japan:
Hewlett-Packard Japan Ltd.
Measurement Assistance Center
9-1, Takakura-Cho, Hachioji-Shi,
Tokyo 192-8510 Japan
Tel: (81) 426 56 7832
Fax: (81) 426 56 7840

Latin America:
Hewlett-Packard Company
Latin American Region Headquarters
5200 Blue Lagoon Drive 9th Floor
Miami, Florida 33126
U.S.A.
Tel: (305) 267-4245/4220
Fax: (305) 267-4288

Australia/New Zealand:
Hewlett-Packard Australia Ltd.
31-41 Joseph Street
Blackburn, Victoria 3130 Australia
Tel: 1 800 629 485 (Australia)
Tel: 1 800 738 378 (New Zealand)
Fax: (61 3) 9210 5489

Asia Pacific:
Hewlett-Packard Asia Pacific Ltd.
17-21/F Shell Tower, Times Square,
1 Matheson Street, Causeway Bay,
Hong Kong
Tel: (852) 2599 7777
Fax: (852) 2506 9285

Technical data subject to change
Printed in U.S.A. 7/99

5967-5566E