FLUKE networks®

OptiView™ Series II
Integrated Network Analyzer

Controlling network performance is just a matter of improving your vision.

The OptiView Series II Integrated Network Analyzer gives you the quick network visibility you need to resolve today's network problems faster and smarter. Combined with its network analysis and monitoring capabilities you'll have complete network vision in one power-packed portable tool.

See how much faster you can resolve even complex network problems. The information rich front page gives you a comprehensive view of your network within seconds and expert functionality makes analyzing packet capture files about as easy as touching the screen.

You'll have control of your wired and wireless networks with touch-screen simplicity. The OptiView Series II Integrated Network Analyzer gives you SuperVision into every part of your network – including VLAN, WAN and WLAN segments.

A new approach to network analysis

Imagine the ability to see what's happening on your network by simply connecting one single tool. Imagine automatically discovering network devices and seeing inside your switches and routers. Imagine using the power of one single tool to see and understand your network. Imagine no further.

Fluke Networks OptiView Series II Integrated Network Analyzer is a new approach to network analysis that provides you with the Network SuperVision you need on all seven layers, along with the speed and simplicity that your organization demands. Get a complete view of your network and take control with the OptiView Series II Integrated Network Analyzer.

Turn it on, connect the network cable and your network appears automatically. The information-rich Network Front Page gives you instant vision into what is happening on your network. The graphical color display with touchscreen user interface provides information in an easy to understand format, while giving you the ability to easily drill down into any area by simply touching the target of interest. LEDs continually display the current status of network activity in 10% increments, providing visual notification when critical performance problems exist. Additional LEDs indicate errors, collisions and transmitted packets.

When a connection is made to a 10BASE-T or 100BASE-TX network, the Series II analyzer automatically performs a cable test, identifying any problems with the cable and measuring the cable showing the length to the attached port. The analyzer also configures itself with a valid IP address, even without the use of DHCP. Then, the advanced discovery system takes over to provide you with immediate information such as percentage utilization of bandwidth, problems detected, protocol statistics, devices and networks discovered. The discovery system differentiates between hosts, interconnect devices such as switches and routers, servers, printers and SNMP devices. The discovery system also shows the number of IP subnets, IPX, NetBIOS and AppleTalk networks.

OptiView Series II Integrated Network Analyzer provides complete seven-layer support in a single package. *Features include:*

- Expert automation, providing network information at a glance
- Advanced active discovery, even in switched environments
- Fully automatic IP configuration – even without DHCP
- SNMP device analysis
- Traffic generation
- RMON2 agent, capable of being managed by any standard management package (Pro Models)
- Packet capture and decode (Pro Models) with Expert and VoIP Analysis Options
- Cable and patch cable testing
- Direct connection to 10BASE-T and 100BASE-TX
- Direct fiber connections for 100BASE-FX (Pro Models)
- Gigabit support with standard 1000BASE-SX, 1000BASE-LX or 1000BASE-T GBICs (Pro Gigabit Model)
- WAN Vision Option
- Wireless Option
- VLAN Vision Option
- Throughput Option

The only traveling diagnostic tool you need.

Technical Data

Statistics at the touch of a button

Selecting the statistics tab on the analyzer provides you with a wealth of information on utilization, protocols, top hosts and conversations.

Utilization and Errors

This function provides an historical analysis on the performance and health of the network segment. The default data source is the OptiView Series II Integrated Network Analyzer but the Data Source drop down menu lists all RMON and RMON2 devices that have a history study enabled. This function allows you to select a device anywhere on your network and display the information gathered by that device. Even multi-port devices can be interrogated on an interface-by-interface basis. The utilization graph shows percentage utilization over time. Based on the pre-configured RMON history studies for the selected device, you can choose from any of the existing history durations. The time interval is selectable from 2.5 minutes to 15 hours. Each sample is time stamped and the cursor may be moved over any sample to provide additional information shown in the table below the graph. The utilization screen also allows you to display the Top Talkers, Top Multicasters and Top Broadcasters.

Switching the view from utilization to error mode displays a graph of errors by CRC Alignment errors, oversize and undersize packets, fragments and jabbers. A touch of the Top Error Sources button displays the names and addresses of the stations responsible for generating the errors.
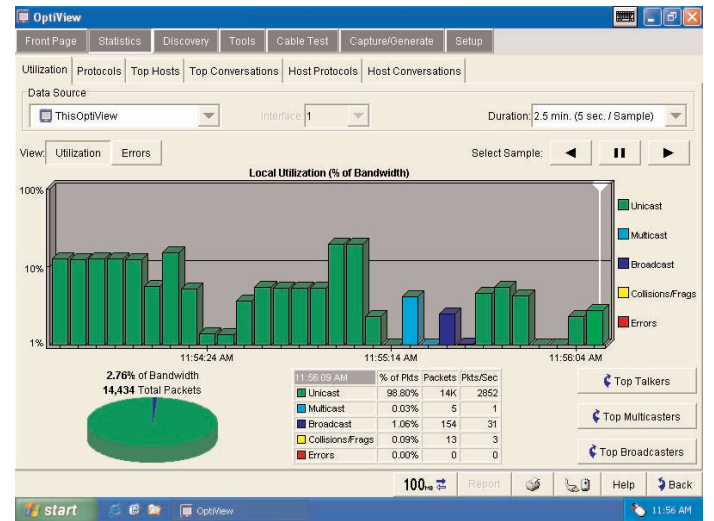
Protocols

The protocols screen displays the current list of active protocols as seen on the network segment to which the analyzer is connected. The left side of the screen displays the protocol tree that may be expanded to show all protocols, and sub-protocols running–from the MAC layer all the way to the application layer. The protocol mix may be displayed at any level in a pie chart or tabular format. When used in tabular mode the protocols may be sorted by Packets or Octets by pressing the Packets or Octets column header. The Top Hosts and Top Conversations keys allow you to display the top hosts or conversations by protocol type. For example, expanding TCP, selecting HTTP and pressing the Top Conversations key will provide a display of all the conversations using HTTP protocol.

Top Hosts and Conversations

The Top Hosts screen displays the top transmitting or receiving devices on the segment to which the analyzer is attached. When the MAC (All) protocols is selected in the left hand pane, the host table may be sorted by Packets sent or received, Octets sent or received, errors, broadcast or Multicast packets. When a specific protocol or sub-protocol is selected, the host table may be sorted by Packets or Octets. The host table may be further sorted in ascending or descending order by name or address. When Top Conversations is selected, the display shows the conversations between hosts for the selected protocol. Top conversations may also be sorted by packets or
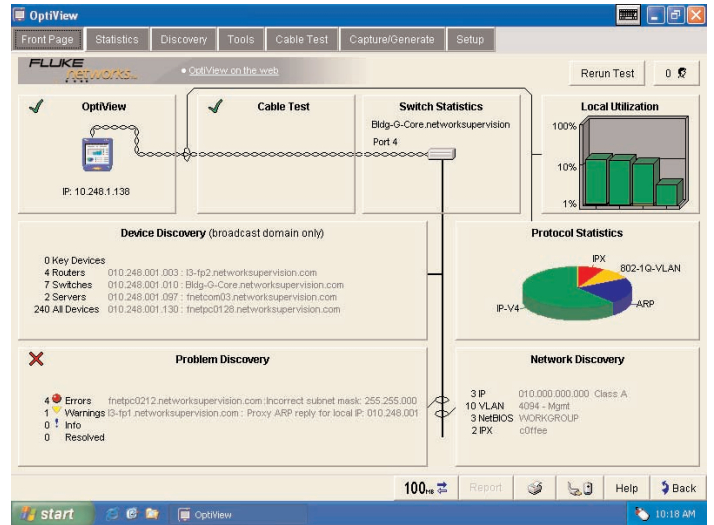
Front Page

Utilization and Errors
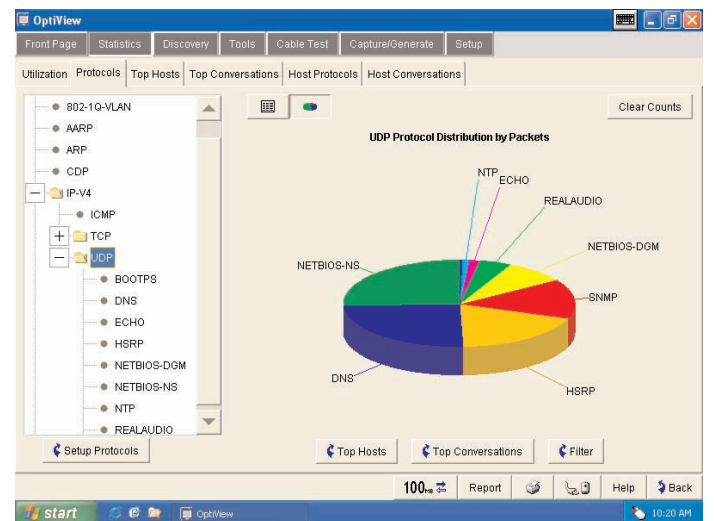
Protocols

octets. You can view additional information on the host devices by selecting a specific conversation and touching Host A or Host B detail buttons. Conversations and protocols can also be individually displayed for any selected host.

## Advanced Discovery Techniques finds Devices, Networks and Problems in seconds.

The analyzer starts its discovery process as soon as it is connected to a network. Real-time results of devices, networks and problems are discovered.
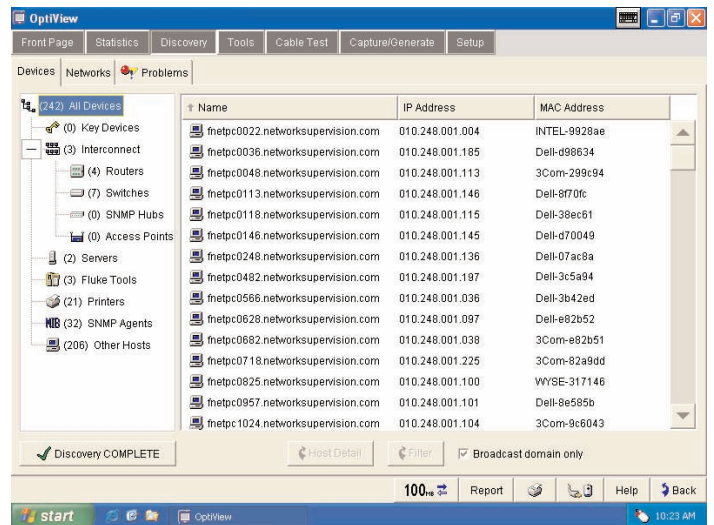
Device Discovery

Devices are discovered by monitoring traffic and by actively querying hosts. For all discovered devices, the analyzer will present the best possible information in terms of DNS Name, NetBIOS Name, SNMP Name, IPX name and also addresses. The analyzer differentiates between various types of host device. Interconnect devices are further categorized by Routers, Switches, SNMP Hubs and Wireless Access Points while Servers, Printers and SNMP agents are also identi-fied. The Device list will also include "Offnet" devices identified by performing a ping or trace route to those devices. The devices listed in the left hand pane is dependent on the category selected on the device type. All devices may be sorted by in ascending or descending order by Name, IP address or MAC address. By highlighting a specific host and selecting the Host Detail button, you can obtain valuable information on that host such as name, address, protocol and net-work configuration. This overview screen allows you to add the device to the "Key Device" category. By adding a device to Key Devices, the analyzer will automatically test connectivity from the attached seg-ment to that device by performing an IP or IPX ping. A key device that fails to respond, will show up in the Problem Discovery as "Key Device not responding," providing you with at-a-glance monitoring of critical network devices.
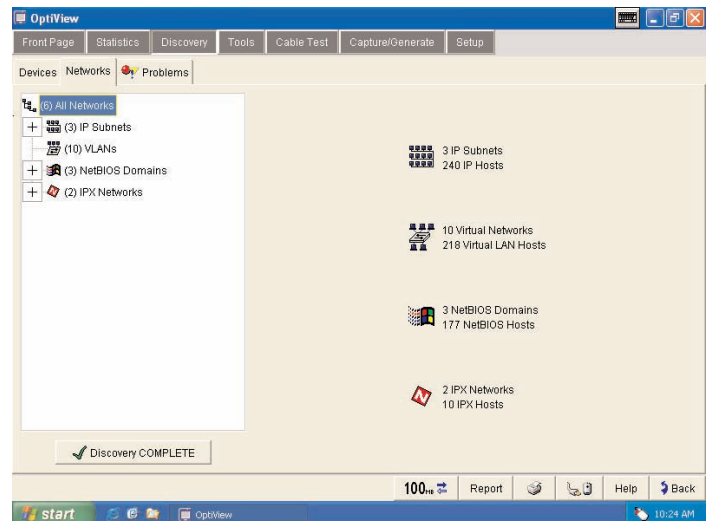
Network Discovery

This screen display shows your network categorized by network type. Networks and all associated devices are discovered by traffic monitor-ing and by actively querying the hosts. The left pane of the display shows the network types (IP, IPX and NetBIOS). By expanding and selecting the network type, a detailed summary is provided for all local networks. For IP networks, the Subnet, Range, Mask and Broadcast address is displayed. For IPX networks, the Network number, Nearest Server and encapsulation types are displayed. For NetBIOS domains, the domain name and Master Browser or Primary Domain Controller information is displayed.
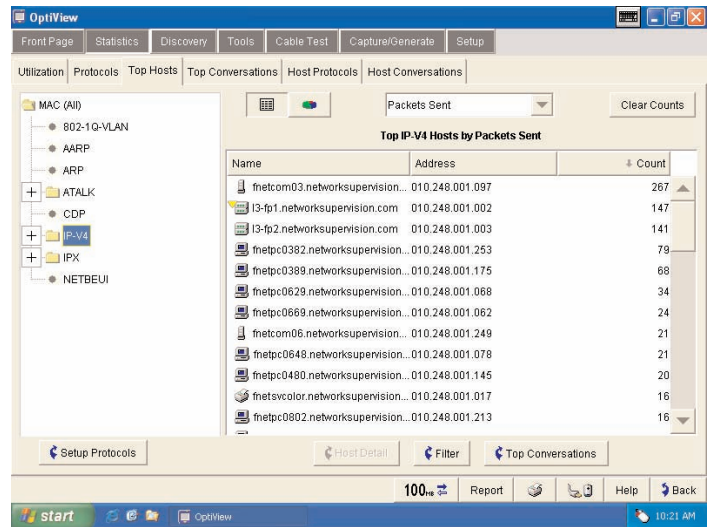
Top Hosts and Conversations

Device Discovery

Network Discovery

Problem Discovery

The Problem Discovery screen shows all network hosts that may be experiencing problems. Problems are reported according to severity–error, warning or informational. Resolved problems are also displayed. An example of the types of problems that are detected by the OptiView Analyzers expert system are:

Errors
- Duplicate IP address
- Incorrect subnet mask
- IP address is subnet address
- IP address is subnet broadcast address
- Key device not responding
- DHCP Server offered IP already in use
- Lost DHCP lease

Warnings
- Default router not responding
- Only device in IP subnet
- Only device in IPX subnet
- Proxy ARP reply for local IP

Information
- Only Device in NetBIOS Domain

The Problem Discovery information may be sorted in ascending or descending order by Host, Severity or Description.
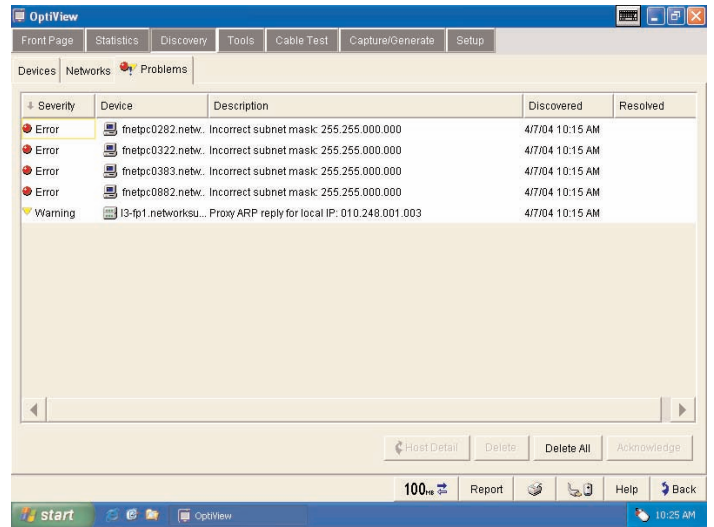
SNMP Device Analysis

The overview screen displays valuable information about a selected device. The device detail can include Names, Addresses, Protocols, NetBIOS, Services, Router, Printer and Remote Monitoring capabilities that the device supports. Names and addresses are reported as DNS, SNMP, IPX and NetBIOS names, IP, IPX and MAC addresses. If a router is selected, the routing protocols are reported and switch configuration is reported by spanning-tree, transparent or source-routed. If the device is capable of supporting remote monitoring, the level of information provided is shown as SNMP, RMON or RMON2.

The integrated aspect of the analyzer is further illustrated in this screen by the "Links and Launchers" drop down menu. The capability of the selected device determines the type of links that are displayed in the menu. Links and launchers are included for Telnet sessions, Web Browser, Terminal Emulation, MIB Browsing and more.
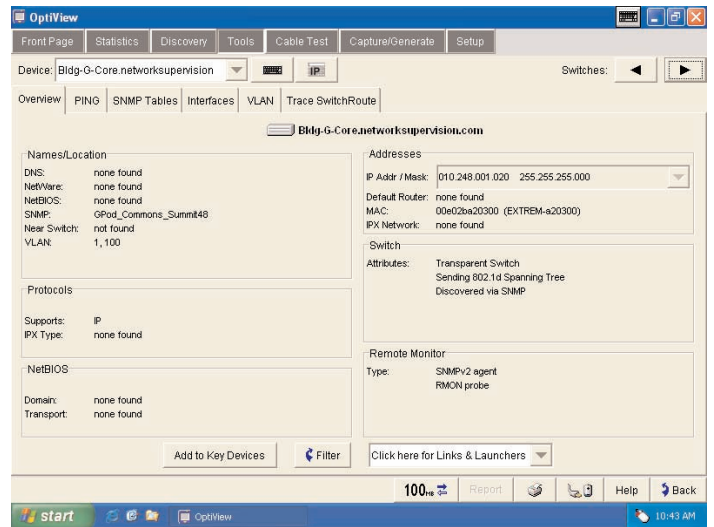
Ping and Trace Route

The analyzer automatically pings (IP or IPX) the selected device and reports the results. The parameters that may be configured for an IP ping are rate (10, 5 and 1 per second or once every 5 seconds) and data size (18 bytes to 1472 bytes - minimum and maximum length Ethernet frames). The results indicate the total number of requests, the number of replies, success rate and minimum, average and maximum response times.
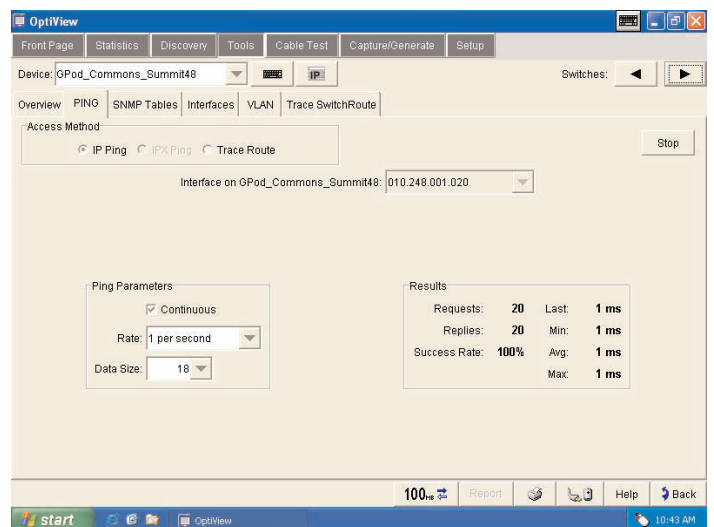
When Trace Route is selected, the analyzer automatically runs a trace route on the selected device. If the device is not in the host list, its address or DNS name may be entered in the "Device" drop

Problem Discovery

SNMP Device Analysis

Ping and Trace Route

down. Results displayed by the trace route are number of hops, name and IP address of each device per hop and total round trip response times for each hop. In addition, the trace route function can also identify Split Routes and Route Flapping. The analyzer may also be used to view the System Group, Routing and ARP tables of all routers that separate the two hosts.

Trace SwitchRoute

The Trace SwitchRoute feature allows you to see the exact path two devices use to communicate through your switch fabric. The Trace SwitchRoute begins its discovery from the specified Source Device and traces the path to the specified Target Device. For each switch in the path, the displayed results include the name, address, slot and port number together with link speed and VLAN information. Highlighting any device in the Trace SwitchRoute name column and selecting Host Detail will allow you to view information on that device's network configuration.

### Interfaces (Multi-Port Statistics)

This screen allows you to view multi-port segments simultaneously, thus enabling you to diagnose hard to analyze switched LAN segments. It also allows you to see the activity on numerous locations on your network.

The Interfaces screen provides graphical and tabular multi-port views of switches and routers at a glance.

This test provides vision into the selected device in two distinctive views:

Tabular View displays the devices interface table and, if the device is a switch supporting the standards based switch forwarding table, will display the host devices residing on the selected port. The analyzer will also display host devices residing on the port in layer 3 switching environments. The display indicates the interface type, status and speed together with the slot and port number, the Maximum Transmission Unit (MTU), MAC address, and, using private MIB support for some vendors, will display VLAN number. This view also incorporates a Find Host feature where the analyzer will locate the port on the device where the host selected in the Find Host box resides.

Graphical View displays port or interface statistics sorted by average utilization, average errors or port/interface number. Any individual port or interface may be selected to view more detailed statistics. If the device supports RMON, the additional History Study button will allow you to view historical information gathered by the device.
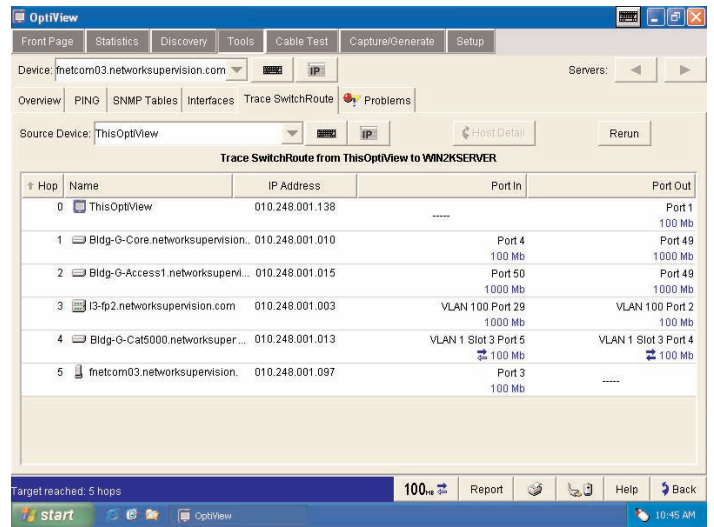
Trace SwitchRoute
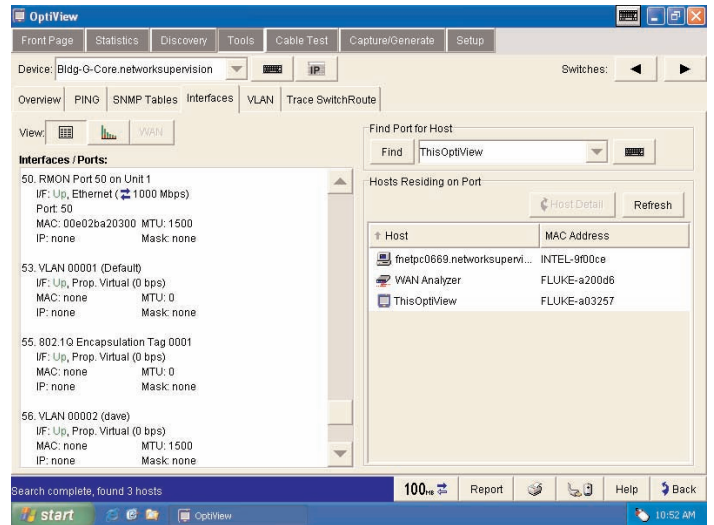
Tabular View
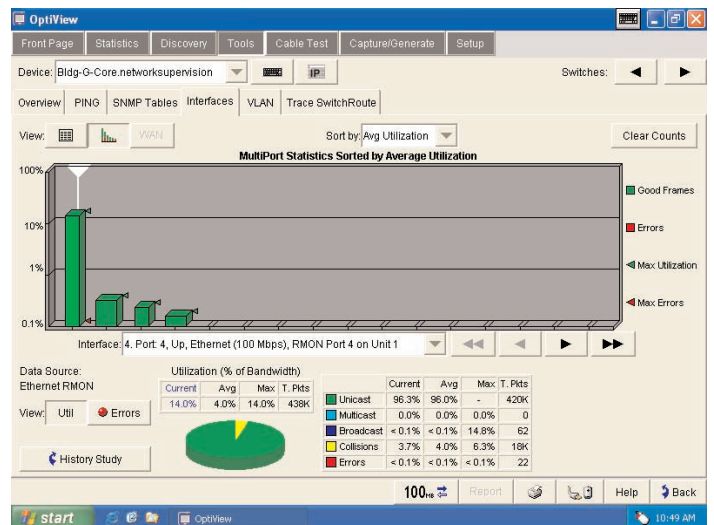
Graphical View

The WAN Vision option displays graphical information relating to T1/E1, T3, Frame Relay, ATM and ISDN wide area links on routers that support standards based MIBs.

Cable Test

When connected to a network using copper media, the analyzer will automatically perform a cable test and provide you with the cable length to the attached device even into a live switch or hub port. When you select the Twisted-Pair detail screen, you will see Cable Wire Pair, Impedance, Length to End, Length to Reflection and Status or Anomalies (shorts, opens, split-pairs) displayed in a tabular format. Additional information such as Receive Pair, Transmit Pair, Receive Voltage and Polarity is also displayed. It even automatically compensates for a cross-over connection, continues to function, and informs the user of an MID-X connection. Various cable types may be selected and measurement units can be displayed in feet or meters.

The analyzer can also measure the power or power loss in optical fiber links using the optional DSP-FTK Fiber Test kit.
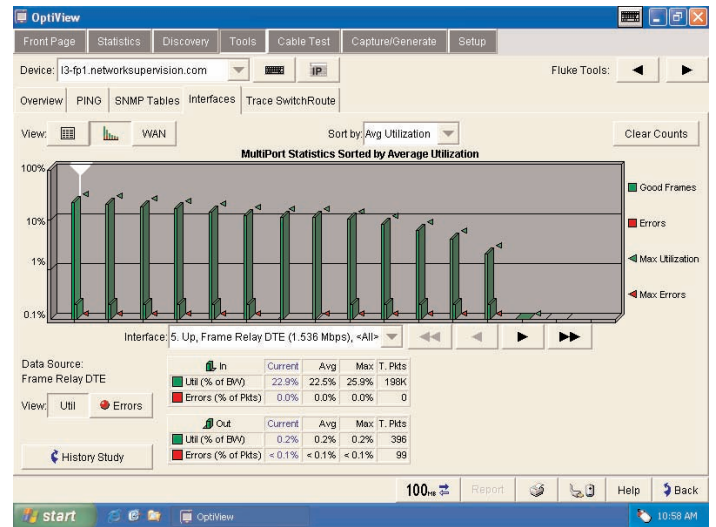
Packet Capture and Filter

For those more difficult to solve problems, the analyzer integrates a full packet capture and decode function.

Just select the Packet Capture tab and without any modifications, start capturing packets on your network. However, for more selective packet captures, use the context sensitive filter–just select the host device from the device discovery screen, or a conversation from the statistics screen, press the filter button and the packet capture engine is automatically populated with source and/or source and destination addresses of your selection. If you need even more selectivity, you can select a host or conversation using a particular protocol just as easily.

Just as you would expect from a traditional protocol analyzer, the packet capture screen allows you to set up the capture buffer size, the slice size, the buffer configuration and various other parameters.
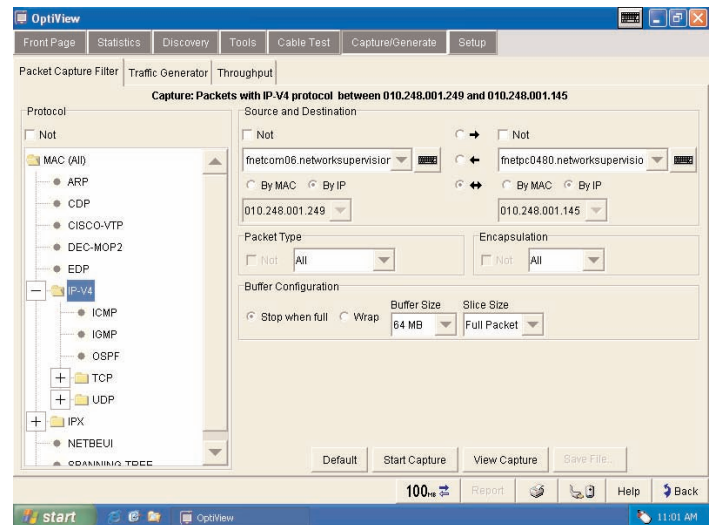
Once you have the configuration you need, press Start Capture and let the analyzer filter and capture while you make another selection from the variety of tests to take a different view of your network. The analyzer continues to capture packets while you look at something else.

WAN Vision Option
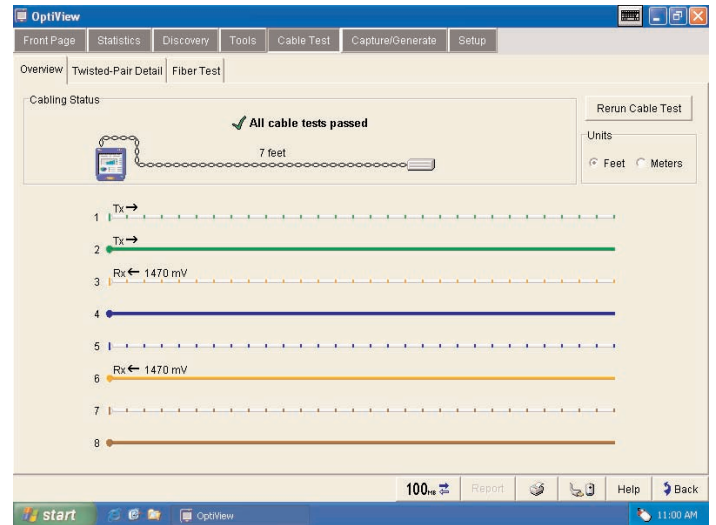
Cable Test

Packet Capture and Filter

Decode

Once you are ready to view the captured packets, stop the capture, press the View Capture button and launch the sophisticated packet analysis tool on the packet capture buffer. Once again, all the features you would expect, including display filters and buffer save and export capabilities.
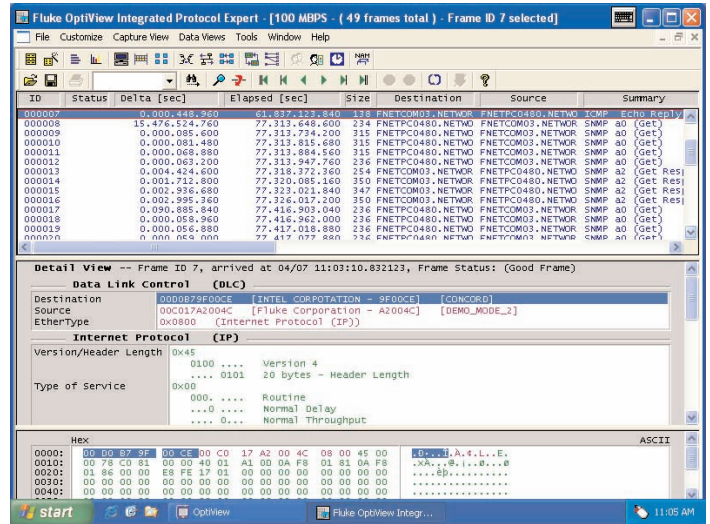
Traffic Generation

The Traffic Generator allows you to create different traffic loads to help stress test your network. The protocol type, frame size, frame rate, percentage utilization and number of frames to transmit are user configurable, along with the type of traffic: Broadcast, Multicast or Unicast.

Protocols that may be selected include Benign Ethernet, Benign LLC 802.2, NetBEUI, Benign IP, IP ICMP Echo, IP UDP Echo, IP UDP Discard, IP UDP NFS and IP UDP NetBIOS. Selecting an IP protocol will also allow you to select Time to live (TTL) parameters and TOS(QOS) parameters such as Minimum Delay, Maximum Throughput, Maximum Reliability, Minimum Monetary Cost and Maximum Security.

The Traffic Generator also provides you with some preset traffic conditions such as 50% of 512 Kbps, 50% of 1.5 Mbps, 50% of 10 Mbps and 50% of 100 Mbps. The lower portion of the Traffic Generator screen has a graphical representation of the traffic path and depending on the traffic type selected will allow you to analyze switch statistics, drill into routers and even perform a trace route measurement.
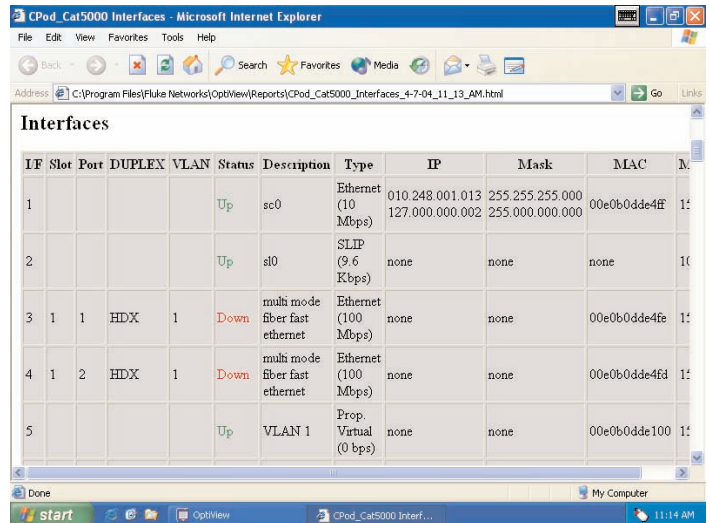
Reporting Features

While viewing the Statistics or Discovery screens, you may press the Reports key to generate HTML reports on Protocols, Top Hosts, Top Conversations, Devices, Networks and Problems. These reports are saved and may be viewed locally or remotely using a web browser.

Decode
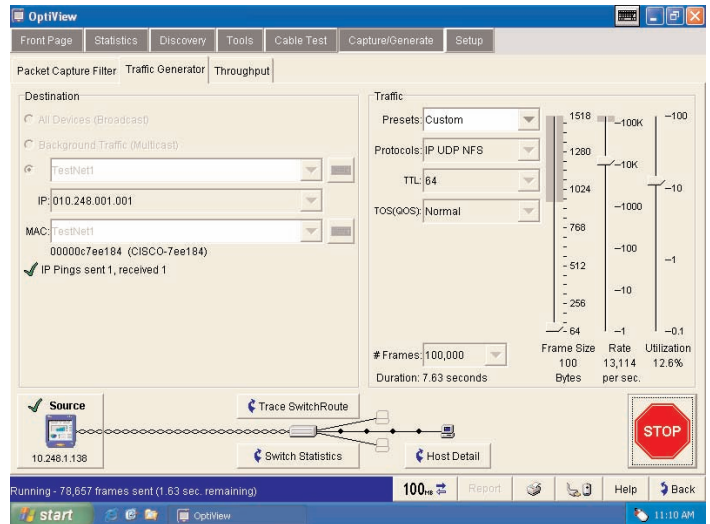
Traffic Generation

Reporting Features

Web Enabled Data Retrieval and Remote User Interface

Simply point a Web Browser at the IP address of a correctly config-
ured OptiView Series II Integrated Network Analyzer to retrieve saved
reports and capture files. While you are there, select Install Remote
User Interface and use your PC to obtain remote access to an analyz-
er over a TCP/IP connection. Once the Remote UI is installed, simply
give the interface the IP address of the analyzer you wish to monitor
and see an almost identical interface to the analyzer's local interface.
The communications between the analyzer and the Remote User
Interface can also be encrypted. Running from the Remote User
Interface does not alter the analyzer's local interface. The Remote
User Interface effectively shares the network data acquisition card
on the analyzer. Multiple remote sessions may be run on a single
analyzer.

Context Sensitive Help

The analyzers help is contextually linked to each screen. While that
help screen is displayed, you may select other information from the
table of contents, choose an index entry, or perform a full text search
on any help topic or term.

OptiView Series II Integrated Network Analyzer Set-up TCP/IP

When the analyzer is first connected to the network, it will attempt
to determine configuration settings using DHCP. If there is no DHCP
response, the analyzer will look at its current configuration to deter-
mine if it is valid. If it is invalid, the analyzer will select a local IP
subnet based on which IP subnet has the most hosts and then pick
an unused IP address valid for the subnet. If another device on the
subnet with the same IP address as the analyzer is connected, the
analyzer will automatically discontinue use of that address and warn
the user in the status bar and also in the problem discovery.

Ethernet

The Ethernet Setup screen allows you to override the default Ethernet
port settings. The default settings are all set to automatic. This
screen also shows you the link capabilities of the port to which the
analyzer is connected. The MAC address of the analyzer can be
changed and placed in a receive only mode where no frames are
transmitted.

User Accounts

The user accounts screen allows you to add and modify analyzer
security information for each individual user. Features that can be
disabled include packet capture and decode, traffic generation,
remote user interface and analyzer configuration.

Self Test

Provides access to the functional verification tests available in the
OptiView Series II Integrated Network Analyzer.

Display

This screen allows you to control the brightness and contrast of the
analyzers screen. Additionally, it can be used to calibrate the touch
screen and to adjust the component size from a larger to a smaller
touch target size.
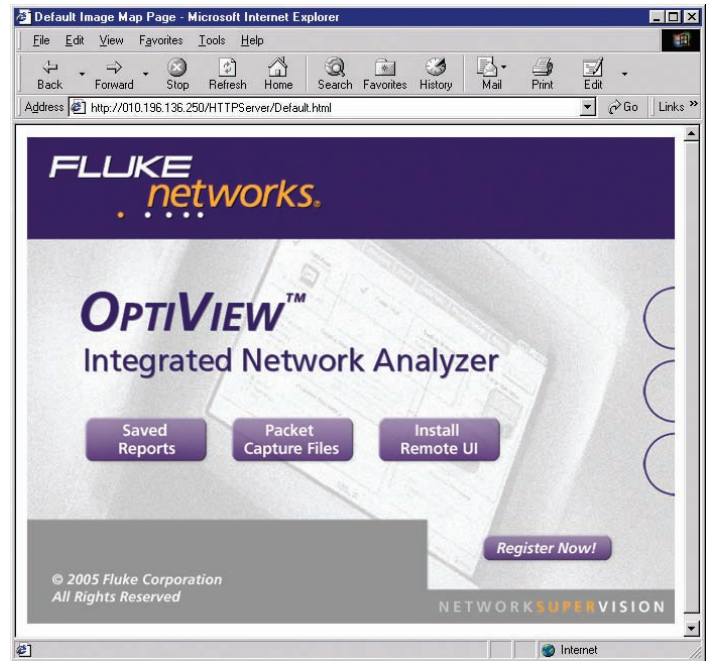
Web Remote Interface

Included with the OptiView Series II Integrated Network Analyzer:
*Soft carrying case, instrument strap (not shown), external battery pack,
cable identifier, ac adapter/charger, stylus, Getting Started Guide, At a
glance quick reference guide, and setup card.*

Integrated Network Analyzer for Classified Environments

OptiView Series II Integrated Network Analyzer for classified environments provides complete seven-layer analysis in a single package.

Features include:
- Removable hard disk drive
- Expert automation, providing network information at a glance
- Advanced active discovery, even in switched environments
- Fully automatic IP configuration – even without DHCP
- SNMP device analysis
- Packet capture and decode
- RMON2 agent, capable of being managed by any standard management package
- Cable testing and patch cable testing
- Direct connection to 10BASE-T and 100BASE-TX
- Direct fiber connections for 100BASE-FX
- Gigabit support with standard 1000BASE-SX or optional 1000BASE-LX GBICs (Pro Gigabit Model)
- WAN Vision Option
- Wireless Option

A new approach to network analysis for classified environments

Imagine the ability to see what's happening on your classified network by simply connecting one single tool that guarantees any sensitive data stored in your network analyzer never leaves that environment.

Imagine automatically discovering network devices and seeing inside your switches and routers. Imagine using the power of one single tool to see and understand your network. Imagine no further. Fluke Networks OptiView Series II Integrated Network Analyzer with removable hard disk drive is a new approach to classified environment network analysis that provides you with the Network SuperVision you need on all seven layers, along with the speed and simplicity your organization demands. Any information discovered by the OptiView Series II Integrated Network Analyzer is only stored on the removable hard drive. This allows the analyzer to be moved from classified environments of different levels and between classified and unclassified systems by simply replacing the hard drive.

OptiView Series II Integrated Analyzer for classified environments includes:
- OptiView Series II Integrated Network Analyzer mainframe
- Soft carrying case
- Removable hard drive in soft case
- Blank access door (for use when a hard drive is not installed)
- Instrument strap
- External battery pack
- Cable identifier
- AC adapter/charger with country specific line cord
- Stylus
- Getting Started Guide

OptiView™ Wireless Option

Fluke Networks gives you the visibility you need to manage both your wireless and wire line networks. By extending the award-winning OptiView Series II Integrated Network Analyzer with Wi-Fi detection, verification and troubleshooting, Fluke Networks again ensures that OptiView is the network visibility tool of choice.

With the OptiView wireless option, you have total visibility into your network. It's a solution that brings value to key wireless network phases and tasks.

Wireless LAN design
Measure access point location and configuration to maximize coverage and minimize installation costs.

Deployment verification
Measure the network deployment from the perspective of wireless clients. Validate that clients will get the connectivity the network was designed to deliver.

Troubleshooting
View the network from a client, network and channel perspective to quickly locate the issue. Drill down on specific conversations to determine the nature and source of connectivity problems.

Network capacity management/monitoring
With mobile clients and shared access points, your wireless LAN is going to change. Proactively add users to unused channels and access points. Plan the expansion of your network before client connectivity becomes a problem. Monitor your network for performance and security issues.

Wireless network view
The OptiView wireless option gives you several ways to view your wireless networks. You can start from the front page where you get immediate vision into what's happening on your network. At a glance, you get a summary of 802.11 a, b and g networks; the wireless devices using the network, including rogues and unsecured devices that may present a security risk, as well as an overview of active channels and the amount and types of traffic found across each channel.

The OptiView wireless option continually scans all 802.11a/b/g channels, displays the devices using the network, and reports key configuration information including bridge and ad hoc modes. With one click, you get additional information about a device or channel including traffic statistics, asso-ciated clients, their signal strength and bandwidth consumption, as well as configuration and security settings details.
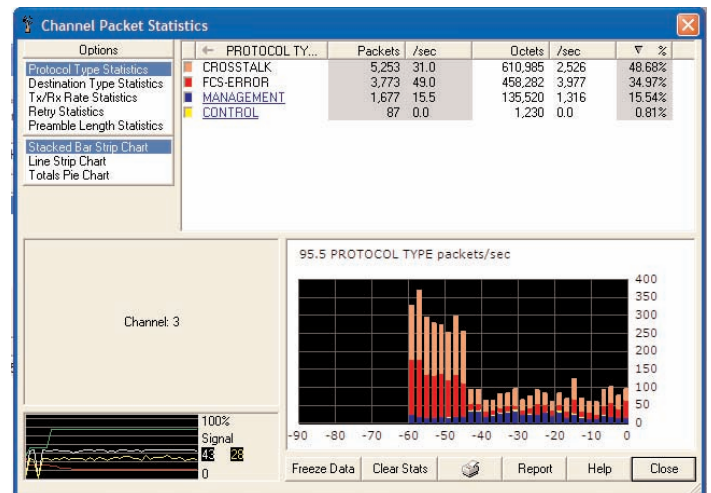
Channels
A view into the 802.11 spectrum provides quick insight into the available capacity of a network and degree of coverage needed for continuous client connectivity and performance. The information provided is valuable for verifying a network has been properly installed and configured.
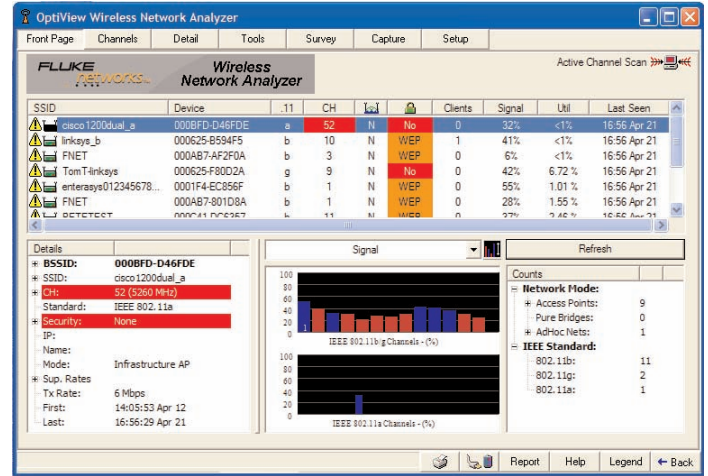
Front Page
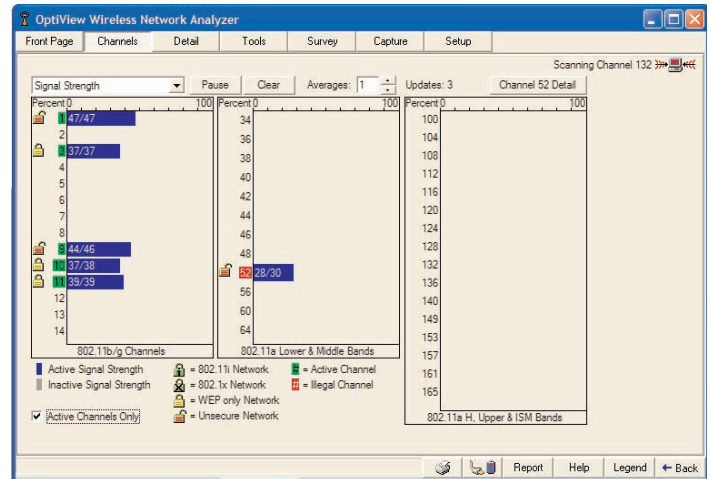
Channel View

Packet Statistics

Each wireless channel is analyzed for signal strength, bandwidth utilization, error transmissions, transmit rates, number of devices and security setting – all indicators of the overall health of your wireless network. Given 802.11 is a shared medium, optimal use of channels is essential. Once a channel is selected, you can obtain client and access point details, do a packet capture on that conversation or physically locate any of the devices that are transmitting on the channel.

Conversations

In the conversation view, the interaction between a specific access point and client can be seen. Details like transmit rate, client signal strength, utilization rates and packet statistics are kept on a conversation basis. These are helpful for troubleshooting specific connectivity problems between a client and access point.

Top talkers

Managing bandwidth usage is particularly important in a shared environment. Excessive or inefficient use of the network impacts client connectivity and performance. The "top talkers" view provides quick visibility into network usage by level and type of network traffic. You can quickly see the key consumers of bandwidth by protocol, by packet destination, and by transmit and receive rate. The product provides ongoing visibility into devices transmitting data at low rates or using applications that consume large amounts of bandwidth.

Site survey

The site survey capability is valuable in deployment, verification and troubleshooting a wireless network. This tool is useful for initially placing access points based on a signal strength reading. Once access points are in place, the survey view can be used to verify the network installation by location. A baseline reading of access points and key metrics of signal strength retries, errors, and utilization rates can be recorded for a select location. Baseline readings can be saved and later compared to subsequent readings for quick identification of changes and potential problems.

Wireless packet capture and decode

The OptiView wireless option allows for 802.11 packets to be captured, filtered and displayed. Filter by sender, receiver, traffic type and error type. By cleverly integrating packet capture into relevant screens, much of the capture setup is automatically configured.
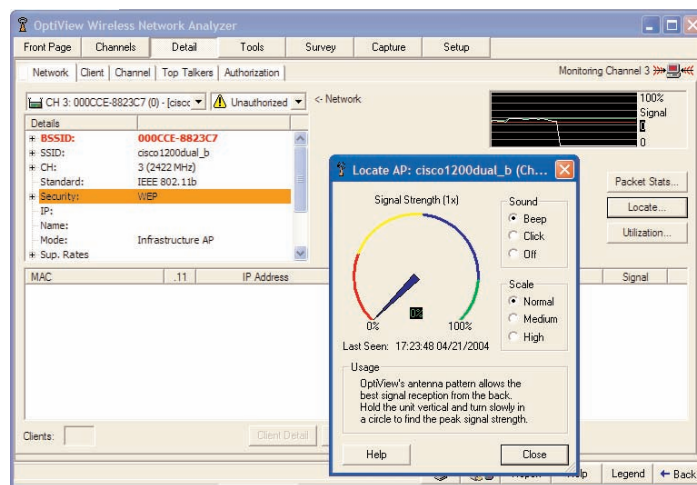
Locate Feature

Troubleshooting and maintenance tools

Link

Unlike most wireless network troubleshooting tools, the OptiView wireless option provides both passive and active testing. The link tool facilitates the configuration of the product for security protocols deployed on the network and is used to establish a connection to an access point. As a client of the network, active troubleshooting tools such as ping and throughput and active discovery become available enabling more visibility and quicker problem resolution.

Ping

The OptiView wireless option includes a super ping utility. In addition to executing normal ping functionality, the user can configure for key devices, vary the rate, data size and count increment. Both absolute and average statistics are reported in real-time.

FTP throughput test

The OptiView wireless option includes a true throughput test, utilizing FTP transfer. Envelope data and a running average are displayed. This tool is useful for verifying a deployment or troubleshooting a client performance problem.

MIB browser

The OptiView wireless option integrates a MIB browser client enabling wireless access point MIBs to be discovered and viewed from the OptiView console.

Reporting

Reporting is integrated throughout the product to facilitate the task of documenting your wireless LAN. Whether documenting network devices, site surveys or network traffic and statistics, the OptiView wireless option automates the process and provides professional html management reports.

OptiView™ VLAN Vision Option

Virtual LAN (VLAN) technology has been available for sometime and with the introduction and widespread adoption of the IEEE 802.1q standard, it is now possible to mix and match switches from various vendors into a single, cohesive network.

The essential premise of a VLAN network is to divide a switched network into effectively isolated networks and then to reconnect them in a controlled manner with routers. This takes advantage of the benefits of routers in terms of broadcast and access control together with layer 3 address management. Additionally, VLAN configuration is performed entirely through the switch management system, allowing the network to be redesigned without the need to move cables and equipment.

However, this is where the problem starts – are compatible trunk protocols configured? Which switch ports are assigned to which VLANs? What devices are connected to which switch ports? The Fluke Networks OptiView VLAN Vision Option now gives you the answers to all these questions.

When the OptiView Series II Integrated Network Analyzer is connected to the network, it automatically begins its advanced discovery process. With the VLAN Vision option enabled, the analyzer will also query switches for VLAN information. When a switch is selected from the Device Discovery screen and the Host Detail key is pressed, the analyzer will provide you with summary information for the selected switch.

For more detail on the VLANs, select the VLAN tab to display all information pertaining to the VLANs on the selected switch including VLAN number, description, subnet, VTP domain and interfaces on that switch belong to a specific VLAN. When the Interfaces mode is selected, the analyzer will display the switch interfaces configured as trunk ports and also indicate the trunk protocol in use on those ports.

To begin VLAN (or off net) device discovery, the address range to be discovered needs to be defined for the analyzer. Select the Setup Scope tab to enter the off net discovery scope.

Off net device discovery will start when the Broadcast Domain Only selection in the Device Discovery screen is unchecked, and all discovered devices will be displayed in the Discovery, Devices screen.

VLAN information is also displayed in the Network Discovery screen where each switch belonging to the selected VLAN is displayed.
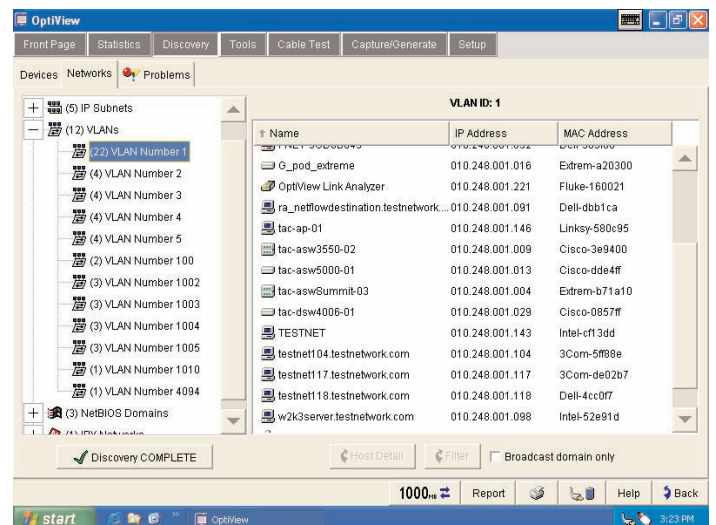
Note: Information displayed by the OptiView VLAN Vision Option is dependent on individual vendor's MIB implementations.
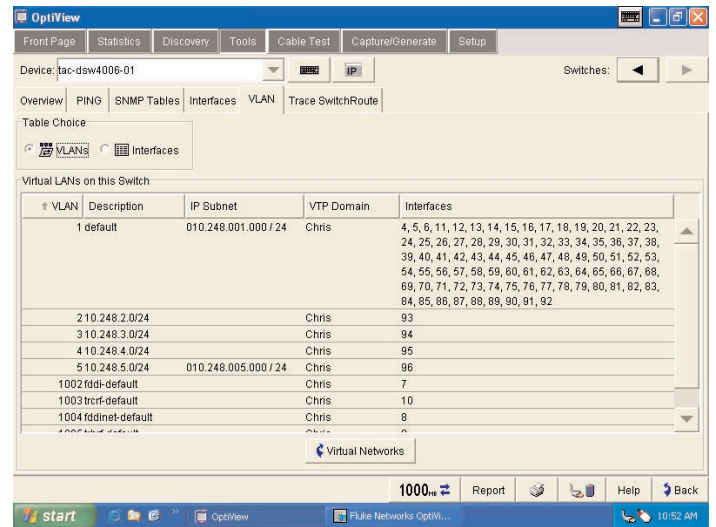
*VLAN Option*
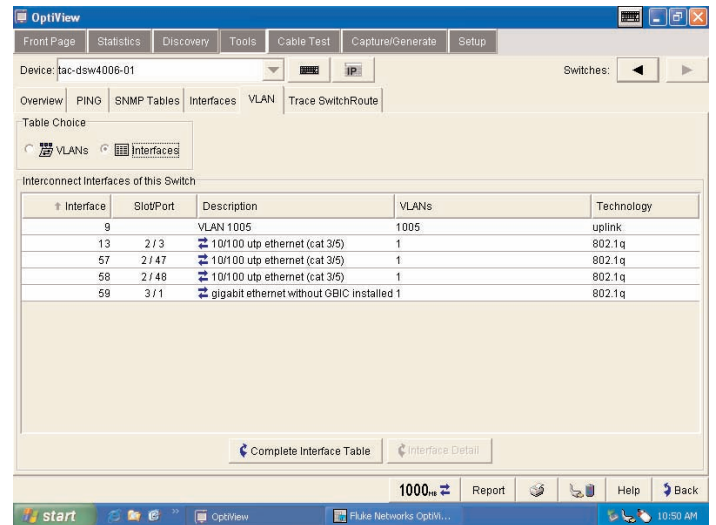
Trunk Ports

Hosts on VLAN

OptiView™ WAN Vision Option

Fluke Networks WAN Vision Option now allows you to discover and diagnose problems on Wide Area Links.

Why is Internet access slow today? Are you constantly concerned about the performance of your expensive Wide Area Links? Fluke Networks gives you the visibility you need to manage and troubleshoot your costly WAN links by extending the award-winning OptiView Series II Integrated Network Analyzer's capability with the WAN Vision software option. Utilizing router SNMP agents and standards based MIBs, the OptiView WAN Vision option provides you with performance and health information on ATM, frame relay, ISDN, T1/E1, T3 and SONET.

Today's increasing demand for greater quantities of information at higher speeds, telecommuting, Internet access and video conferencing have forced LAN/WAN internetworking and data communication equipment and services to keep pace with, and sometimes exceed, the demands of corporate enterprise networks. Consequently, network managers are now concerned with the performance of their Wide Area Links. Am I getting the bandwidth I paid for? Am I under- or over-utilizing my purchased bandwidth? How do I avoid LAN vs. WAN finger-pointing? Is it my network or the ISP? Where is the bottleneck? The OptiView Integrated Network Analyzer, or the OptiView Workgroup Analyzer with the WAN Vision option, utilizing SNMP with standards-based MIBs, lets you see what is happening on your wide area connections from anywhere on the network.

Connect the OptiView Analyzer to the network, and then select Device Discovery. The attached IP segment has been analyzed and all critical network attributes will be categorized and displayed. Selecting Routers from the Interconnect category will display the names of all discovered routers. By highlighting your WAN router and pressing the Host Detail button, you can now drill into the WAN interfaces on the device using the WAN Vision option.
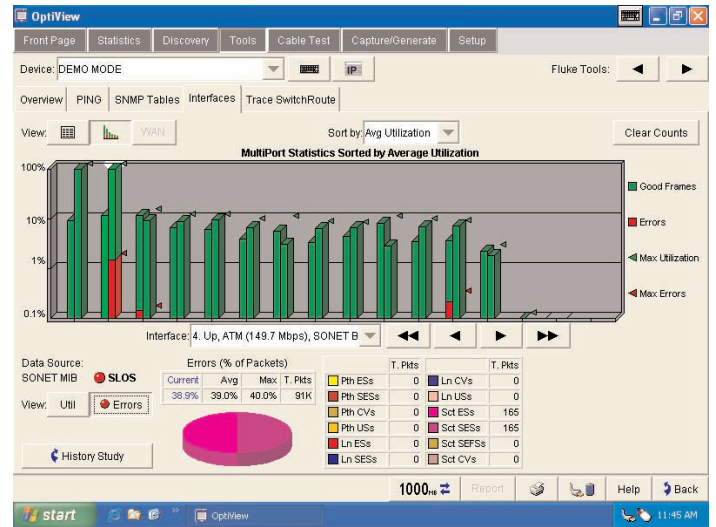
WAN Vision Option

OptiView™ Throughput Option

The Throughput option measures bidirectional data flow between two Fluke Networks devices on low and medium speed WAN links. The throughput test requires a second device to communicate with on your network. That second device can either be an OptiView Integrated or Workgroup Analyzer, or an EtherScope or OneTouch Network Assistant.

The Throughput Option allows you to configure the following parameters:

• Bits/Second (data speed) - The maximum rate is determined by the link speed, duplex, and maximum transmit capabilities for the analyzer.

• Frame Size - There are seven different frame sizes to choose from, or Sweep may be selected to run the test on all seven frame sizes.

• Content – The payload can be selected for all 1's, all 0's, alternating 1's and 0's or random.

• The Duration of the test can be from 2 seconds to 18 hours.

• The test results can be viewed in a tabular or graphical format. The Rate format tabular view indicates the local and remote transmit and receive rates together with the total percentage of frames received by both devices.
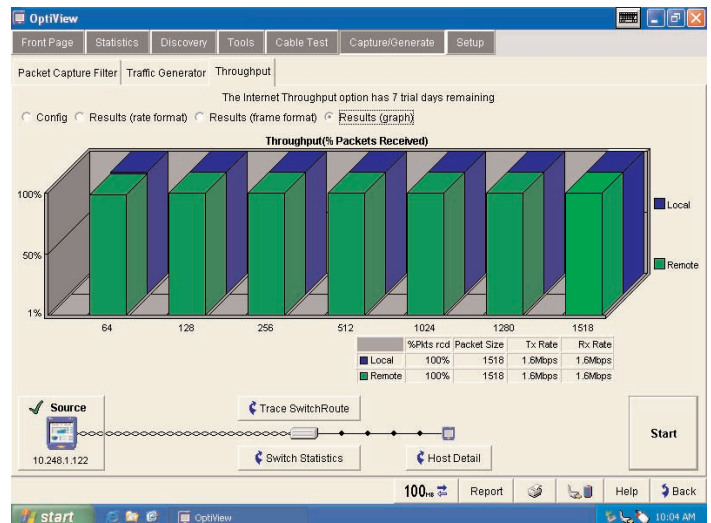
Switching to the tabular Frame Format view shows the number of local and remote transmitted and received frames, together with the total percentage of frames received by both devices. Selecting the Results (graph) displays the results in a graphical format.
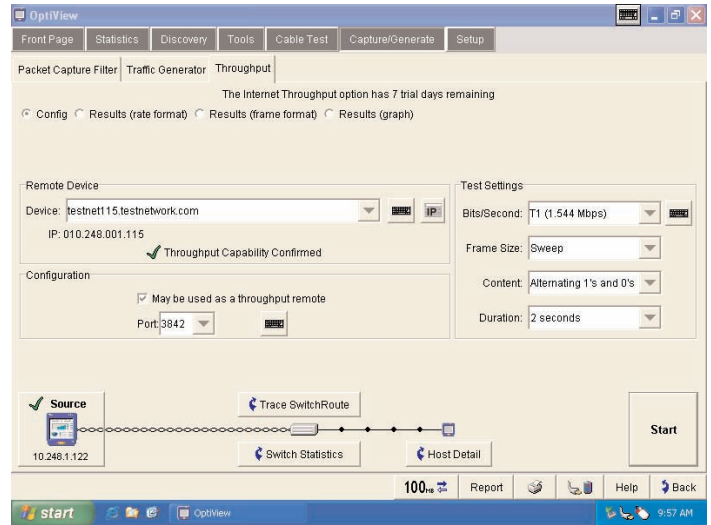
Throughput Option
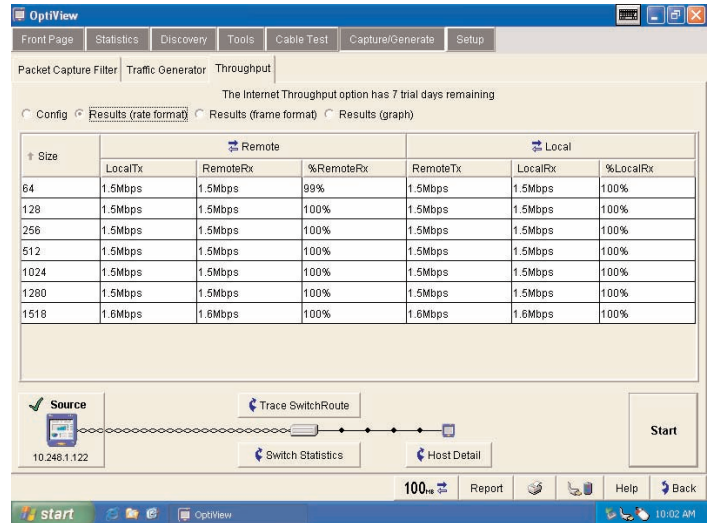
Rate Format


Graphical Result

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OptiView™ Expert Analysis Option

The OptiView Expert Analysis Option speeds up troubleshooting by automatically detecting problems while analyzing captured packets collected by the OptiView Analyzers. The Expert View categorizes the problems detected by OSI layers. It summarizes the address or name of the stations involved, and the position of frames in the capture file that trigger the Expert System to identify the problem.

The Expert System will identify symptoms such as:

- Application Layer: Excessive ARP, Excessive BOOTP, NFS Retransmission, HTTP Get Response, HTTP Post Response, Slow Server Connect, Slow Server Response

- Transport Layer: Non-responsive station, TCP/IP checksum error, TCP/IP Fast Retransmission, TCP/IP Retransmission, TCP/IP Frozen Window, TCP/IP Long Ack and TCP/IP SYN Attack

- Network Layer: ICMP Errors and Unstable MST

- Datalink Layer: Illegal MAC Source Address, Broadcast/Multicast Storms and Physical Errors
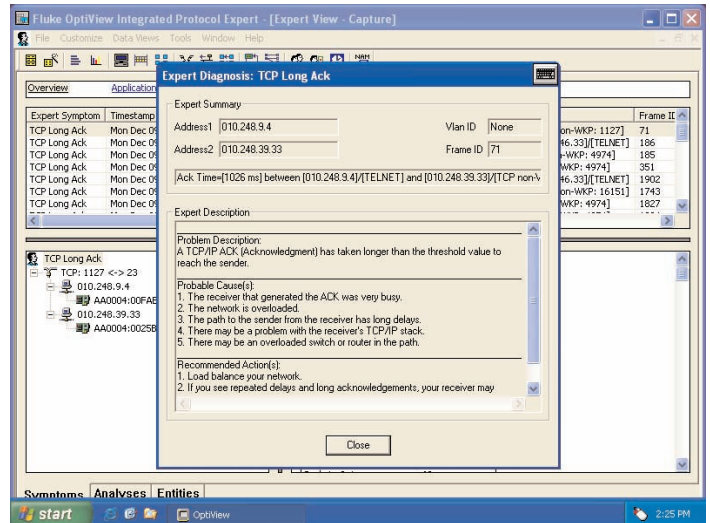
Double clicking on the Expert Symptom button displays the Expert Diagnosis window that provides a description of the station symptom, a probable cause and recom-mended action(s). Click on any of the stations listed in the Expert View to get a detailed view of the traffic captured.
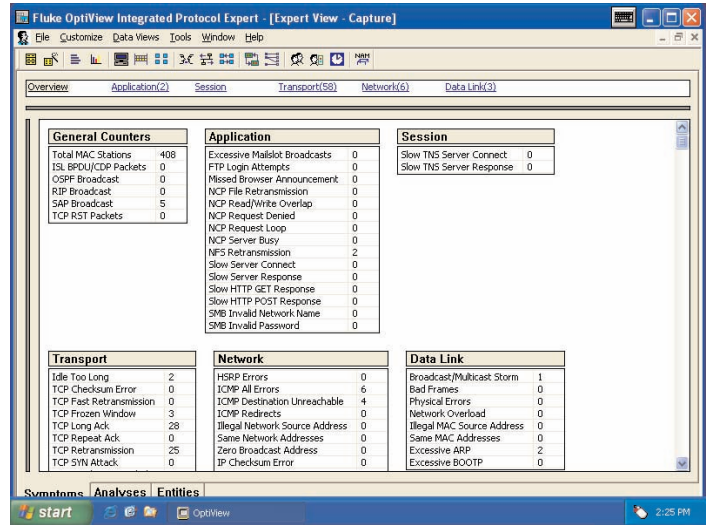
Expert Analysis
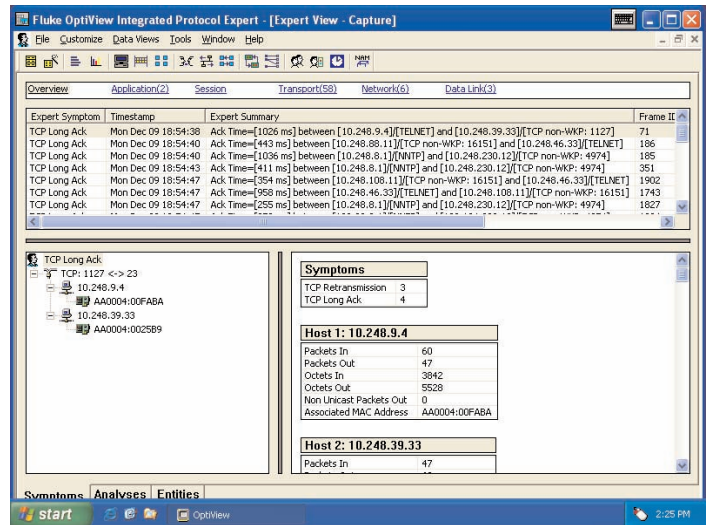
TCP Retransmissions

Expert Analysis

OptiView™ Voice over IP Option

Voice over IP is one of the most mission critical applications being deployed by IT organizations today. The roll-out of VoIP services is accompanied by the expectation of toll availability and sound quality. It is therefore imperative that IT organization have the proper tools to monitor the QoS of VoIP calls during and after implementation on the network. OptiView Integrated Network Analyzer with the VoIP option can process a capture file and use advanced algorithms to grade the voice quality being delivered. QoS assessments are generated for each call without the need to perform detailed decoding.
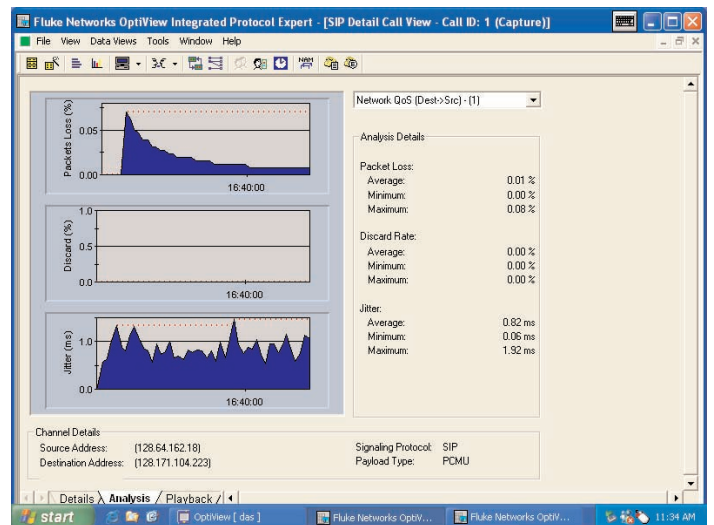
"Quality Grading" thresholds can be set for key VoIP QoS parameters, such as R-Factor, Jitter, Packet Drop and Call Setup Time. The number of calls that fall within each Quality Grade is shown for key QoS parameters. Detailed VoIP call information for every call is clearly shown in a tabular view to allow quick identification of the route taken and the gateway involved, allowing you to troubleshoot quickly. As networks evolve and traffic patterns change with new applications and users, VoIP QoS can often degrade in imperceptible steps, or extreme failure. An initial VoIP deployment might run fine during its early days, but incremental changes to the network can slowly erode VoIP performance or completely eliminate availability. OptiView ensures visibility of VoIP performance and allows quick resolution of issues due to network growth and development.

The VoIP option provides detailed decodes of the most commonly used VoIP protocols including H.323, Cisco Skinny (SCCP), MGCP and SIP. Detailed information supports quick isolation of call setup problems. Combined with the easy-to-use single call filter and Call and Channel Table Views, call setup failures commonly caused by configuration errors, network equipment incompatibilities, or interoperability can be easily solved.
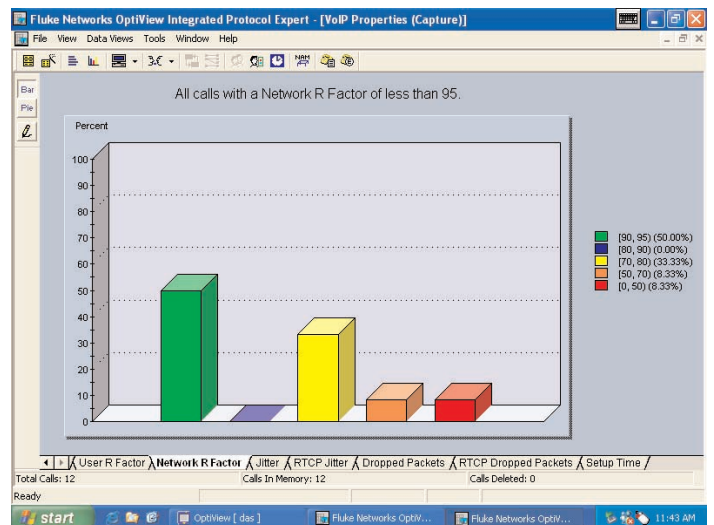
The Voice over IP Option helps you ensure Quality of Service (QoS) for this mission critical application and by measuring call quality at different locations on the network, IT staff can isolate network segments that need reconfiguration or upgrading.

VoIP Option

Call Analysis

R-factor

OptiView™ Fiber Inspector Option

Dirt, dust and other contaminants are the enemy of high-speed data transmission over optical fiber. With today's network applications requiring more bandwidth and loss budgets being tighter than ever before, it is imperative that all optical connections are clean and free of contaminants to ensure network operation. Fluke Networks' OptiView Series II Integrated Network Analyzer together with the OptiView Fiber Inspector Option is the solution.

Save valuable time inspecting fiber at patch panels

The OptiView Fiber Inspector Option, a portable video microscope that connects to a USB port on an OptiView Series II Integrated Network Analyzer, gives you superior vision by enabling you to inspect all types of installed fiber terminations in hardware devices and patch panels. It saves you time by eliminating the need to access the rear of patch panels or disassemble hardware devices prior to inspection. Instead of removing each individual fiber, you need only insert the video probe to inspect the fiber while it's still in place. This is the only practical way to inspect many hardware devices, where disassembly is not a realistic option.

Reduce contamination and signal loss in hardware devices

Fiber hardware devices feature connectors at the front or back. These connectors are very difficult to check since they are mounted inside the device's enclosure. If a contaminated jumper is inserted, the termination inside the device is now contaminated and contributes to signal loss. The OptiView Fiber Inspector option eliminates the chance of contamination because it never makes physical contact with the termination. Once again, the risk of contamination is reduced.

Safely inspect live fiber without harming eyes

The OptiView Fiber Inspector option includes a small, lightweight probe, which contains a long-life LED light source and CCD video camera, and a NTSC to USB converter. The probe adapter tip mates with the connector and projects crisp, clear images of microscopic debris and endface damage on the OptiView Series II Integrated Network Analyzer's display using Kodak Imaging for Windows® already installed on your analyzer. This allows you to look at a fiber endface without looking into the fiber, thereby eliminating all chance of any harmful laser light reaching your eye. OptiView Fiber Inspector Video Microscope This easy-to-use accessory provides the latest in fiber inspection technology.

The OptiView Fiber Inspector:

- Easily inspects fiber connectors already installed on patch panels.
- Quickly determines whether fiber connectors on a hardware device are clean and in good condition – without disassembling the device!
- Eliminates the hazards of inspecting live fiber.
- Is compatible with standard ST, SC, and FC connectors, and other connector types including small form factor connectors with optional adapter tips.
- Leverages off the investment already made in the OptiView Series II Integrated Network Analyzer by eliminating the need for a separate display.

Professional Vision Suite

The Professional Vision Suite turns the OptiView Series II Integrated Network Analyzer into a complete solution for control of switched environments. A few years ago, a protocol analyzer gave you total network visibility. But then switched networks came along and left you in the dark. That's why we developed our new Professional Vision Suite. This powerful package of visionary network management products works with the Integrated Network Analyzer to monitor, analyze and troubleshoot, giving you control of every situation that pops up. You get enterprise-wide vision with the power to drill down seven layers deep.

You can illuminate problems through the application layer with OptiView™ Protocol Expert. It can analyze capture files from the analyzer for full seven-layer decodes with expert analysis. Advanced filtering and triggering let you find offending packets. And, OptiView™ Console software monitors and trends all the ports in your switched network. Or, set it up to collect data from your analyzer. With a single click, you can generate spanning tree and switched server connection diagrams with our unique link to Visio® software. And if a key device, router, or switch port is overloaded, you'll know about it in a heartbeat.

Our Network SuperVision Gold Support plans give you exclusive services and 24/7 technical assistance.

Sign up for our Gold Support plan and you'll enjoy outstanding privileges to protect and add value to your investment in Fluke Networks equipment. They include unlimited technical assistance seven days a week, 24 hours a day via phone or at our web site support center. Repairs on covered items and "next day" dispatched loaner units for uninterrupted service. Free software upgrades. Scheduled annual performance verification service. Web based training. Access to our extensive Knowledge Base library of operation and application related technical articles. And Gold "Members Only" special prices and promotions. Some benefits are not available in all countries.

See **www.flukenetworks.com/goldsupport** for more information.

Specifications

General Specifications	
Weight	Without external battery 2.1 kilograms (4.6 lbs)
	With external battery 2.8 kilograms (6.2 lbs)
Dimensions	26.0 x 23.4 x 6.4 centimeters (10.3 x 9.2 x 2.5 inches)
Display	LCD touch screen, 800 x 600 pixels, active color panel, CCFT back-light and bezel, touch pad
LED indicators	16 (21 with external battery)
Power	
Internal battery	Lithium Ion 11.1V DC (nominal), 2 Ah
External battery	Lithium Ion 11.1V DC (nominal), 6 Ah
External AC adapter/battery charger	AC input: 120V - 240V, 50/60Hz, 1.5A
	DC output: 15V, 3.3A
Ports	
Communication and accessory ports	3 USB, 1 PC Card type II, 1 VGA out 15-pin connector
Network analysis ports	RJ-45 10/100BASE-T Ethernet, Fiber 100BASE-FX (OptiView Pro, Pro Gigabit), fiber 1000BASE-X GBIC (OptiView Pro Gigabit)
Network Standards	
LAN Interfaces	IEEE 10BASE-T, IEEE 100BASE-TX, IEEE 100BASE-F, IEEE 1000BASE-X
Standard SNMP MIBs Used	RFCs: 1213, 1231, 1239, 1285, 1493, 1512, 1513, 1643, 1757, 2021, 2108, 2115, 2127, 2495, 2515, 2558
Media	
Cable Types	Unshielded Twisted Pair LAN cables (100 and 120 Ohm UTP category 3, 4, 5, 5E, and 6 ISO/IEC Class C and D); Foil-screened Twisted Pair cables (100 and 120 Ohm ScTP category 3, 4, 5, and 6 ISO/IEC Class C and D)
Cable Length[1]	Resolution 0.1m (1ft)
Characteristic Impedance	50 to 150 Ohms, cables 3-5 m (10-16 ft.) +/- (5 Ohms +10%)
	50 to 150 Ohms, cables >5 m (16 ft.) +/- (5 Ohms +5%) Resolution: 1 Ohm
Receive Level	100 to 5000mVp-p, +/- 5% Resolution: 1 Ohm
Datalink Signal	500mVp-p to 4000mVp-p Resolution: 10mV
Measuring Terminated Cables	Able to analyze individual twisted-pairs of a cable that are terminated into most equipment vendors' Ethernet ports such as on a hub, switch or NIC. All cable tests other than wiremap and office locator ID are operational in the presence of datalink signal.
GBIC Identification	Identifies and operates with the following GBIC module types per SFF Document Number SFF-8053, Gigabit Interface Converter, Rev. 5.4: LX (1300nm), SX (850nm) and T (Copper Twisted Pair)
Wiremapper/Office Locator Compatibility	Detects combinations of shorts, opens, and connector miswires. Compatible with wire mapper/office locators (also called wire map adapter) labeled for Fluke Networks OptiView analyzer
Open, short or with wire map adapter	1 to 305m (3ft to 1000ft) +/- [2% of reading + 0.3m (1ft)]
Terminated with >=15% reflection	1 to 153m (3ft to 500ft) +/- [5% of reading + 0.3m (1ft)]
Environmental and Safety	
Operating Temperature[2]	10°C to 30°C (50°F to 86°F) with up to 95% Relative Humidity
	10°C to 40°C (50°F to 104°F) with up to 75% Relative Humidity
Non-Operating Temperature	-20°C to +60°C (-4°F to +140°F)
Approvals	AC adapter/charger has UL, CSA, and CE approvals or other approvals valid in the USA, Canada, and Europe
Shock and vibration	Meets requirements of MIL-PRF-28800F for Class 3 equipment
Laser	Class 1 Laser Product, complies with 21 CFR 1040.10 and 1040.11, CFR(J)
Safety	(CSA) Complies to CSA C22.2 No. 950 Canadian standards), and UL 1950 (US standards)
	(CE) Complies with European Union directives EN60950 3rd edition and EN61326
EMC	Complies with EN61326 Class A

[1] Length accuracy is dependent on the actual cable under test matching the cable type selected on the Cable Test/Twisted-Pair detail screen and its NVP (nominal velocity of propagation) matching that of the ideal cable of the selected type.

[2] Battery will not charge below 12° C (53.0°F)

OPV-FT600 General Specifications

Magnification	250X and 400X
Camera type	0.33 in (8.38 mm) CCD with adjustable focus
Light source	LED
Interface	NTSC to USB conversion box
Power source	Powered by the OptiView analyzer via the conversion box
Lighting technique	Coaxial
Dimensions	Probe: 1.8 in x 1.7 in x 5.5 in (45.7 mm x 43.2 mm x 140 mm) (Length depends on adapter tip) Conversion box: 6 in x 2.3 in x 0.7 in (15 com x 5.8 cm x 1.8 cm)
Weight	Probe: 0.4 lb (180 g) Conversion box: 0.17 lb (80 g)
Temperature range	Operating: 32 to 104° F (0 to 40° C) @ 45% RH (non-condensing) Storage: 14 to 140° F (-10 to 60° C) @ 95% RH (non-condensing)
Humidity range	Operating: 0% to 45% RH non-condensing Storage: 0% to 95% RH non-condensing
Certifications	CE

Fluke Networks Wireless LAN Adapter Card Specifications

Specification Compliance	IEEE 802.11a, 11b, 11g, PCMCIA Spec 5.1
Certifications	FCC, CE Mark Commercial
Interoperability	WECA Wi-fi for 802.11a, 11b, 11g
Security	40-Bit WEP, 128-Bit WEP, Open/Shared WPA, 802.1x/EAP, TKIP, LEAP, PEAP
Interface	PC Card Slot
Outdoor Operating Range	Up to 1500 ft. (457.2 meters)
Indoor Operating Range	Up to 300 ft. (91.4 meters)
Data Rate	Up to 54 Mbps for 802.11a, Up to 11 Mbps for 802.11b, Up to 22 Mbps for 802.11g
Output Power	20 dBm (100 mW)
Infrastructure Mode	BSS
Ad Hoc Mode	IBSS
Operating Temp	0° C to 50° C (32°F to 122°F) with up to 95% relative humidity
Storage Temp	-20° C to 70° C (-4°F to 158°F)

Ordering Information

Model	Description
OPVS2-STD	OptiView Series II Integrated Network Analyzer Standard
OPVS2-PRO	OptiView Series II Integrated Network Analyzer Pro
OPVS2-PRO/S	OptiView Series II Integrated Network Analyzer Pro with VLAN Vision, WAN Vision, Expert and Wireless Options
OPVS2-GIG	OptiView Series II Integrated Network Analyzer Pro Gigabit (1000BASE-SX)
OPVS2-GIG/S	OptiView Series II Integrated Network Analyzer Pro Gigabit (1000BASE-SX) with VLAN Vision, WAN Vision, Expert and Wireless Options
OPVS2-PRO/RHD	OptiView Series II Integrated Network Analyzer Pro with Removable Hard Drive
OPVS2-GIG/RHD	OptiView Series II Integrated Network Analyzer Pro Gigabit with Removable Hard Drive
OPVS2-STD/PSVS	Professional Vision Suite with OptiView Series II Integrated Network Analyzer Standard
OPVS2-PRO/PSVS	Professional Vision Suite with OptiView Series II Integrated Network Analyzer Pro
OPVS2-PRO/PSVS/S	Professional Vision Suite with OptiView Series II Integrated Network Analyzer Pro with VLAN Vision, WAN Vision, Expert and Wireless Options
OPVS2-GIG/PSVS	Professional Vision Suite with OptiView Series II Integrated Network Analyzer Pro Gigabit
OPVS2-GIG/PSVS/S	Professional Vision Suite with OptiView Series II Integrated Network Analyzer Pro Gigabit with VLAN Vision, WAN Vision, Expert and Wireless Options
OPVS2-PRO/RHD/PSVS	Professional Vision Suite with OptiView Series II Integrated Network Analyzer Pro with Removable Hard Drive
OPVS2-GIG/RHD/PSVS	Professional Vision Suite with OptiView Series II Integrated Network Analyzer Pro Gigabit with Removable Hard Drive

Accessories and Options for OptiView Series II

Model	Description
OPVS2-EXPT	Expert Analysis Option
OPVS2-VOIP	VoIP Analysis Option
OPV-WNA2	OptiView Wireless Option 802.11 a/b/g
OPV-VLAN	VLAN Vision Option (ordered with a new OptiView mainframe)
OPV-VLAN/K	VLAN Vision Option (ordered for an existing unit)
OPV-WV	WAN Vision Option
OPV-WV/K	WAN Vision Option (ordered for an existing unit)
OPV-ITO	Throughput Option (ordered with a new OptiView mainframe)
OPV-ITO/K	Throughput Option (ordered for an existing unit)
OVC	OptiView Console
OPV-SX	1000BASE-SX GBIC
OPV-LX	1000BASE-LX GBIC
OPV-T	1000BASE-T GBIC
WIREVIEW 2-6	Cable Identifier Kit #2 - 6
OPVS2-KB	Mini Keyboard (USB)
OPVS2-BP	External Battery Pack
OPVS2-RHD	Removable Hard Drive for OPVS2-PRO/RHD or OPVS2-GIG/RHD
OPVS2-RHD/4	Pack of four Removable Hard Drives for OPVS2-PRO/RHD or OPVS2-GIG/RHD
OPV-FT600	OptiView Fiber Inspector
NF430	Fiber Optic Cleaning Kit
DSP-FTK	Fiber Test Kit

Accessories and Options for OptiView Series I

Model	Description
OPV-VLAN/K	VLAN Vision Option (ordered for an existing unit)
OPV-WV/K	WAN Vision Option (ordered for an existing unit)
OVC	OptiView Console
OPV-SX	1000BASE-SX GBIC
OPV-LX	1000BASE-LX GBIC
OPV-T	1000BASE-T GBIC
WIREVIEW 2-6	Cable Identifier Kit #2 - 6
OPV-KB	Mini Keyboard
OPV-BP	External Battery Pack
OPV-RHD	Removable Hard Drive for OPV-PRO/RHD or OPV-GIG/RHD
OPV-RHD/4	Pack of four Removable Hard Drivse for OPV-PRO/RHD or OPV-GIG/RHD
OPV-FT600	OptiView Fiber Inspector
NF430	Fiber Optic Cleaning Kit
DSP-FTK	Fiber Test Kit