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NETWORK TESTING LABS REVIEW



Performance Management Products



World Class Award

Performance Management Products

By Barry Nance

Alcatel-Lucent's VitalSuite Performance Management Software emerged the clear winner in our performance management and monitoring test. VitalSuite was best at identifying performance problems, gave us the best information about the problems, was easiest to use and scaled extremely well.

Network performance problems are notoriously difficult to solve. Some companies try to fix a problem not by diagnosing and identifying it but rather by spending money on faster WAN links, faster servers or software upgrades. Other companies have a local networking expert, or guru, who's been with the company many years and who, because the guru has a (sometimes accurate) picture of the entire network in his or her head, can authoritatively (but all too often wrongly) tell you where the problem lies and which applications are affected. Yet other companies that try to spend as little as possible on performance management and monitoring software wind up with rudimentary products that do little more than ping IP addresses around the network.

The perfect network performance management and monitoring tool helps quickly diagnose connectivity problems, accurately locates bottlenecks and congestion points, comprehensively reveals your network's utilization, proactively spots trends and dependably helps you prepare realistic plans for your network's future capacity needs.

To find out which network performance management product you should be using, we tested six market leading tools in our Alabama lab and at various customer sites. We looked at Alcatel-Lucent's VitalSuite Performance Management Software 10.0, Concord Communications' (now a subsidiary of Computer Associates) eHealth Suite 5.7, Hewlett-Packard's OpenView Performance Insight 5.1 and InfoVista's VistaInsight for Networks 2.0, Enterprise Edition. We also tested Ipanema Technologies' WAN Performance Optimization product and NetQoS' Performance

Center 2.0 suite of products.

VitalSuite earned top honors in the evaluation, exhibiting an uncanny ability to pinpoint the causes of slowdowns and overburdened devices, links and computers. It's easy to use, comprehensive, highly scalable and responsive. It offers excellent reports and is easiest to configure for tracking and measuring custom (in-house-written) business transactions. VitalSuite Performance Management Software merits our Network Testing Labs World Class award for performance management and monitoring software.

Network Performance Problem Solving

ALCATEL-LUCENT'S VITALSUITE PERFORMANCE MANAGEMENT SOFTWARE

exceeded our expectations in several areas, including discovery of our network, monitoring its traffic, helping plan for its future capacities, ability to represent Service Level Agreement (SLA) parameters and thresholds, notifications and alerts when thresholds were breached and allowing us to specify custom business transaction characteristics that VitalSuite could then track and report on.

VitalSuite consists of VitalNET, VitalART Advanced Reporting Tool, VitalReal-time, VitalApps, and VitalAgent

VitalSuite accurately discovered our network's devices and computers, using very little network bandwidth in the process. To our delight, we could not only enter IP address ranges in VitalSuite's auto-discovery window but also specify a text file of IP address, port and community

string data as well as instruct VitalSuite to use a particular router as a starting point for the discovery. All methods produced an accurate and comprehensive picture of our network.

VitalSuite's distributed, multi-tier architecture makes it highly scalable. In an enterprise environment, all the components can run on separate servers, except for the database server (Microsoft

Alcatel-Lucent's VitalSuite Performance Management Software is an eminently scalable, robust, quick and easy to use approach to finding and fixing network performance problems.

Using just the default, out-of-the-box thresholds, VitalSuite obtained a baseline picture of our network and quickly began alerting us to the bottlenecks and slowdowns we deliberately created. VitalSuite emailed us and paged us when problems cropped up. VitalSuite can interface with third-party help desk programs, and it can also automatically restart failed server processes

We found VitalSuite easy to customize for in-house-written transactions. In our Web Services test, for example, we preloaded the Apache Web server with XML-formatted transaction responses, as static Web pages. We then ran scripts on a client machine to send XML-formatted SOAP transactions to the Web server and cause Apache to emit the preloaded transaction responses. The result looked on the network wire exactly like an exchange of real-world Web Services messages. With just a little programming, we were able to get VitalSuite to track and monitor the Web Services transactions.

Representing SLAs in VitalSuite was also easy. We found that entering maximum latency values, minimum downtime values and other SLA parameters into VitalSuite, SLA by SLA, gave us a hands-off SLA monitoring capability that we could rely on.

VitalSuite did an especially good job of monitoring application response times in a mobile Web environment containing IPSEC VPN links. It gave us detailed, accurate response time information for file server, FTP, Visual Basic application, e-mail, Web server and Web Services activities.

VitalSuite offers excellent security via user ID and password challenge access to its operations as well as via HTTPS and SSL, and VitalSuite lets administrators delegate roles to multiple sub-administrators across the network.

SQL Server 2000), which has to run on the same computer as the VitalNET component. We found that VitalSuite easily supports from a few to many tens of thousands of devices, and VitalSuite uses the network bandwidth frugally. Furthermore, it's robust and reliable.

CONCORD COMMUNICATIONS' EHEALTH suite's strengths are its reports, its development of a baseline of network data and its specific support for certain applications. eHealth consists of eHealth Service Availability, eHealth Application Response, eHealth Application Response for Thin-Client, eHealth BT Studio, eHealth AdvantEDGE View and a set of application-specific data gathering and analysis modules. These modules target Microsoft Exchange, Microsoft IIS, Apache, Oracle, Microsoft SQL Server and common TCP/IP network services in the Unix and Windows environments.

eHealth actively polls SNMP-manageable devices to determine their status and condition, and it then displays its results in terms of faults, outages

While BT Studio is highly visual and easy to use, we found that VitalSuite produced more detailed statistics about our custom transaction environments, such as the Web Services application.

and response time delays. Like VitalSuite, eHealth uses agents you install on servers to monitor server resource consumption.

eHealth's component for monitoring custom transactions, BT Studio, is a slick visual design aid for identifying and describing business transactions. Through it, you provide eHealth with information about the nature and behavior of the business transactions you want monitored. The eHealth Application Response component uses this information to track and report on custom transactions. While BT Studio is highly visual and easy to use, we found that VitalSuite produced more detailed statistics about our custom transaction environments, such as the Web Services application.

eHealth's discovery process is quick and accurate. By default, eHealth discovers network devices and computers each day at midnight, but we found that we could use the central console to run the discovery process interactively or schedule discovery to occur on just specific days and at specific times.

eHealth builds a baseline of "normal" network activity in its first week of operation. Thereafter, eHealth is quick to note exceptions and out-of-the-ordinary events. eHealth stores its network activity data in an Open Ingres database.

Via its SystemEdge component, eHealth can e-mail or page someone when a problem occurs, and it offers links to third-party help desk programs. It can also automatically restart failed processes.

HEWLETT-PACKARD'S OPENVIEW PERFORMANCE INSIGHT is one of dozens of OpenView modules for managing and monitoring a large network. Virtually all OpenView customers initially license OpenView Network Node Manager and obtain other components, such as Performance Insight, as necessary. Many OpenView customers use Performance Insight as a reporting arm within Network Node Manager.

OpenView Performance Insight and Network Node Manager are tightly integrated. For example, it's possible to launch Performance Insight's network

performance reports from within Network Node Manager by clicking on its network map. Performance Insight uses Network Node Manager's device configuration information to populate its reports with device details, and Performance Insight notifies Network Node Manager when Performance Insight detects a performance problem (based on thresholds you establish).

Performance Insight also relies on Network Node Manager's inventory of devices and computers because Performance Insight has no network discovery feature. It "understands" devices and protocols only to the extent that Network Node Manager does.

Performance Insight monitors traffic levels and can reveal WAN links that are nearing their capacity. It can also monitor a network for compliance with the terms of an SLA. Performance Insight is a good tool for documenting a network and charting traffic levels, and its historical reports are useful for spotting trends.

Performance Insight has no capability for recognizing and tracking custom transactions. It's also not helpful for determining whether the cause of a performance problem is excessive server resource consumption, overutilization of the network's bandwidth or underpowered clients.

OpenView's architecture is less one of tiered modules and more one of disparate software components able to communicate through a common language.

INFOVISTA'S VISTAIN SIGHT FOR NETWORKS

is very good at monitoring for SLA compliance, identifying under- and over-utilized WAN links and relating business processes to network activity. It can also monitor server resource consumption, but it's of little help in monitoring custom business applications and their transactions. Even for common applications such as Microsoft Exchange, Microsoft SQL Server, Microsoft IIS, Oracle, Apache and Send-mail, VistaInsight provides virtually no insight into their activity levels.

VistaInsight's network discovery feature worked well in the lab, and we found its analysis and reporting capabilities quite helpful. In particular, the

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sophisticated analysis feature uses complex statistical calculations to identify problems and reveal trends.

VistaInsight integrates tightly with Cisco's NetFlow feature. It uses NetFlow to unearth network utilization detail, device by device, to detect the sources of bottlenecks and network congestion.

VistaInsight uses a multi-tier architecture for the sake of scalability. However, we found it to be rather inefficiently designed and programmed. We feel VistaInsight could be enhanced to use computing and network resources much more frugally.

NETQOS' PERFORMANCE CENTER is a Web-based management portal typically accompanied by an application response time measurement tool called SuperAgent, a traffic analyzer called Reporter-Analyzer, an SNMP-based device-polling performance module called NetVoyant and a cost accounting module called Allocate.

The management portal consolidates and displays data from the other modules. The data consists of statistics relating to application response times, network protocol statistics regarding traffic levels and statistics collected from SNMP-aware routers and switches.

By recognizing transaction requests and responses on the network and noting the elapsed times between those request and responses, SuperAgent can identify application response time problems. SuperAgent declares the application, the server or the network to be the bottleneck after analyzing the response time statistics. For example, if long pauses occur between requests and responses but each response is almost immediately followed by another request, SuperAgent concludes the server is taking too long to process the requests. By the same token, if response times are slow and SuperAgent notes high traffic levels at those moments the requests and responses cross the network, SuperAgent concludes that the network is the bottleneck. SuperAgent's analysis is a rudimentary form of the sort of thought process a network administrator uses to solve performance problems.

Reporter-Analyzer uses traffic statistics to show breakdowns of network activity, such as by protocol and by application. It gets these statistics primarily from Cisco routers for which NetFlow has been

enabled. Reporter-Analyzer is less useful if some of your network devices are manufactured by other than Cisco.

NetVoyant polls SNMP-aware devices for the performance metrics that the devices maintain internally.

Using cost center data (for instance, the cost center associated with a particular server or client) that you provide to it, Allocate charges each cost center for the network activity that cost center incurs.

IPANEMA'S WAN PERFORMANCE OPTIMIZATION consists of a central console, termed ip|boss, and a distributed set of hardware-based agents, termed ip|engines. In addition to displaying reports and status information, the central console remotely controls and collects data from the hardware agents.

In our tests, we defined application performance objectives, in terms of thresholds, to the central console. The central console then configured the hardware agents to report on network traffic anomalies. When presented with various kinds of network activity, the central console and remote hardware agents used Quality of Service (QoS) techniques to prioritize network traffic to "shape" traffic flows.

We found that ip|boss and its hardware-based ip|engines can indeed prioritize network traffic, but the product supplied us with much less network performance monitoring and management data than did the other products we reviewed. In particular, we found that identifying and locating bottlenecks are not Ipanema's forte.

Ipanema's WAN Optimization Performance optimizes network traffic by compressing packets (removing inter-packet and intra-packet redundancies before transmission), by assigning bandwidth to different network pathways according to per-session traffic levels and by reordering packets to deliver critical packets first.

To its credit, Ipanema's WAN Optimization Performance did not require the installation of a hardware-based agent at every remote location. Using what Ipanema calls "Cooperative Optimization" and "Tele-Acceleration," it prioritized meshed flows in "some-to-many" and "many-to-many"

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network pathway configurations by inferring the latencies at un-equipped remote locations and adjusting QoS settings accordingly.

Ease of Use

VitalSuite Performance Management Software uses a color-coded heat chart to alert central console users of problems. The heat chart instantly conveys far, far more information than a dashboard metaphor does.

VitalSuite's browser-based user interface is intuitive and easy to navigate. Drilling down for more detail entails just a single click, and the VitalSuite reports are comprehensive and well designed. Configuring VitalSuite to recognize custom business transactions is a simple and nearly foolproof process.

VitalSuite's documentation is easy to follow and accurate. Installation, depending on the number of servers you allocate to VitalSuite, typically takes no more than 45 minutes.

eHealth presents its collected performance metrics and device status data via a browser-based interface as well as Adobe Acrobat-based (PDF) reports. eHealth graphically depicts the network as a "fishbone." eHealth can produce many different highly useful reports, each containing easy-to-understand charts and tables.

Performance Insight essentially uses Network Node Manager as its user interface. Its few windows are easy to navigate but lack the comprehensive drill-down capability embodied by Network Node Manager.

Performance Insight's reports include an Executive Summary report, a Capacity Planning report, a Forecast report and a Service Level report. In addition, Hot Spot, Quick View and Top Ten reports identify the sources of excessive network utilization.

VistaInsight for Networks offers a browser-based interface (InfoVista calls this its "single, integrated portal interface") as well as a dashboard of dial-and-needle network activity charts. The InfoVista reports display such data as availability and SLA compliance for each service over the previous hour and can drill down to live performance data, collected at granular intervals.

NetQoS Performance Center primarily uses a dashboard metaphor to convey performance monitoring data and alerts to a network administrator. Performance Center's reports range from a list of worst-performing applications to a protocol-based analysis of network traffic that shows, for example,

top talkers, overall bandwidth utilization and traffic for each WAN link. A helpful design touch in Performance Center is its ability to allow different users (administrators, troubleshooters, engineers and capacity planners) different views of the statistics that Performance Center collects.

You chiefly use ip|boss, the central console within Ipanema's WAN Optimization Performance product, to define application performance objective policies and monitor the product's optimization (prioritization) of network traffic. An optional module exports performance statistics for manipulation in a spreadsheet environment, while another user interface option helps you allocate WAN link usage on a cost accounting basis.

Conclusion

Alcatel-Lucent's VitalSuite Performance Management Software is an eminently scalable, robust, quick and easy to use approach to finding and fixing network performance problems.

We recommend you evaluate it for use in your own computing environment. We're confident you'll be impressed.

Testbed and Methodology

We evaluated each performance monitoring product's ability to manage, administer, monitor, report on, troubleshoot, reset, audit (inventory) and secure network devices, server computers and client computers. Virtually all our testing took place across WAN links.

We tested the sending of SNMP alerts as well as the processing of incoming alerts. We produced reports to show device and computer status information, inventory results, network usage trends, availability and uptime information, network baseline information and graphical maps of the network. We also tested any special features the product offered.

Our lab's various computing environments included Windows NT, 98, XP, 2000, 2003 and Vista, along with Solaris 8.0, Macintosh OS X and Red Hat Linux 7.0. Relational databases on the network were Oracle 8i, IBM DB2 Universal Database, Sybase Adaptive Server 12.5 and Microsoft SQL Server 2000. Web servers were Microsoft IIS, Netscape Enterprise and Apache.

We ran each product's server components on Windows 2003 Advanced Server, and we used a Dell Latitude D505 notebook for client access.

Performance Management and Monitoring Report Card

Grade scale is A through F, with F = Failing and A = Perfect

	Monitoring, discovery	Ease of Use	Reports	Installation	Documentation	Total Score
Alcatel-Lucent VitalSuite	A	A	B	A	A	A-
CA eHealth	A	B	A	B	A	B+
NetQoS Performance Center	C	B	B	B	B	B-
H-P OpenView Performance Insight	C	B	B	B	C	C+
InfoVista Vistalnsight for Networks	C	C	B	C	D	C
Ipanema Technologies WAN Performance Optimization	C	C	C	B	D	C

About the author

Barry Nance is a networking expert, magazine columnist, book author and application architect. He has more than 29 years experience with IT technologies, methodologies and products. Over the past dozen years, working on behalf of Network Testing Labs, he has evaluated thousands of hardware and software products for ComputerWorld, BYTE Magazine, Government Computer News, PC Magazine, Network Computing, Network World and many other publications. He's authored thousands of magazine articles as well as popular books such as Introduction to Networking (4th Edition), Network Programming in C and Client/Server LAN Programming.

He's also designed successful e-commerce Web-based applications, created database and network benchmark tools, written a variety of network diagnostic software utilities and developed a number of special-purpose networking protocols.

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About Network Testing Labs

Network Testing Labs performs independent technology research and product evaluations. Its network laboratory connects myriads of types of computers and virtually every kind of network device in an ever-changing variety of ways. Its authors are networking experts who write clearly and plainly about complex technologies and products.

Network Testing Labs' experts have written hardware and software product reviews, state-of-the-art analyses, feature articles, in-depth technology workshops, cover stories, buyer's guides and in-depth technology outlooks. Our experts have spoken on a number of topics at Comdex, PC Expo and other venues. In addition, they've created industry standard network benchmark software, database benchmark software and network diagnostic utilities.

Vendor details

Product	Price	Vendor	Web site
VitalSuite Performance Management Software 10.0	Starts at \$35,000	Alcatel-Lucent 232 Java Dr. B-5 Sunnyvale, CA 94089 888-467-8324	www.Alcatel-Lucent.com/vital
eHealth Suite 5.7	Starts at \$15,000	Concord Communications (CA subsidiary) 400 Nickerson Road Marlboro, MA 01752 800-851-8725	www.ca.com
OpenView Performance Insight 5.1	NNM starts at \$6,000 Performance Insight starts at \$12,000	Hewlett-Packard Company 3000 Hanover Street Palo Alto, CA 94304 877-686-9637	www.hp.com
VistaInsight for Networks 2.0, Enterprise Edition	Starts at \$28,000. 2,500 device license is \$97,000.	InfoVista Corp. 12950 Worldgate Dr. Suite 215 Herndon, VA 20170 703-435-2435	www.infovista.com
WAN Performance Optimization	Starts at \$30,000	Ipanema Technologies 199 Independence Rd. Concord, MA 01742 978-369-2952	www.ipanematech.com
Performance Center 2.0	Starts at \$40,000	NetQoS 5001 Plaza on the Lake Austin, TX 78746 877-835-9575	www.netqos.com