

implementing next generation
IT and communications solutions



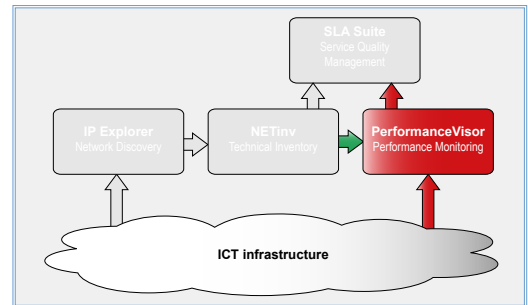
NETvisor
PerformanceVisor

| telecommunication networks | it networks | research and development | cost effective operation

PerformanceVisor 4.1

IT Operations Performance Monitoring Tool for Enterprises, Equipment Vendors and Service Providers

Strategic-minded and quality-oriented IT, network and telecommunications operators find it essential to operate performance management systems to ensure effective operation and high availability for information and communication systems, since this is the only way to identify performance degradations and problematic or critical levels of resource utilization. NETvisor's PerformanceVisor offers useful, detailed and descriptive information and help for operation experts for fault localization and troubleshooting, and also provides the management with a comprehensive picture of service performance. Furthermore, it may also provide data for end users of the information or communication systems being monitored. At the same time, PerformanceVisor generates warnings on network and system anomalies, which enables integration with other OSS applications.



NETvisor's PerformanceVisor enables to monitor performance and availability for the complete IT and communication infrastructure. PerformanceVisor provides historical reporting, trend analysis and the capability to forecast demands. It also empowers operators in handling the incidents by enhancing alarm information with historical performance trends.

Benefits

- Make use of the several built-in diagnostics pages when troubleshooting a problem
- Raise alarms based on performance metrics only when a real problem occurs, instead of overwhelming the operators with notifications, using alarms based on
 - Multiple metrics
 - Baselining
 - Trends
 - Operational times
- Monitor your multi-vendor network and server park:
 - Any SNMP-enabled device, even with complex SNMP walk based analytic metrics
 - Unix style OS (Solaris, Linux, ...)
 - Windows (WMI and WS-MAN)
 - Databases (Oracle, MySQL, ...)
- Monitor thousands of devices thanks to the robust and scalable architecture of PerformanceVisor



- View your measurement results even with one second resolution thanks to the real-time monitoring feature
- Customize your PerformanceVisor to your liking by creating your own metrics, charts, reports, menus, etc...
- Monitoring configuration is aided by templates, bulk configuration and by a north-bound SOAP API as well
- Use the built-in tool to create network level and IT infrastructure resource usage reports. Do these as ad-hoc queries or make use of the pre-calculated statistics, enabling a weekly or monthly report generation is just a couple of seconds
- Automatically generate and send reports via email to anyone in your organization even if they do not have access to PerformanceVisor
- Easy to use owing to its ergonomic WEB user interface
- Provides crucial performance data for Service Quality Management

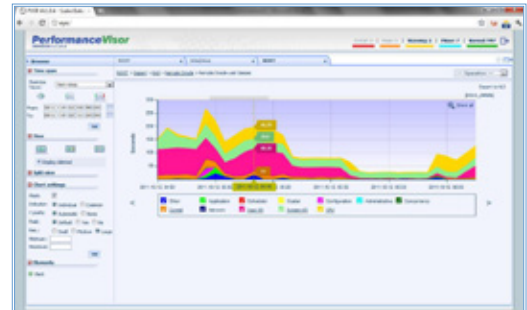
PerformanceVisor, developed by NETvisor, is a comprehensive performance management system designed to monitor large, heterogeneous environments while offering a wide range of configuration options and providing transparency to users. Last but not least, its friendly licensing policy yields an attractive price-performance ratio, which is exceptional in the performance management application market.

Rapid and painless installation and maintenance

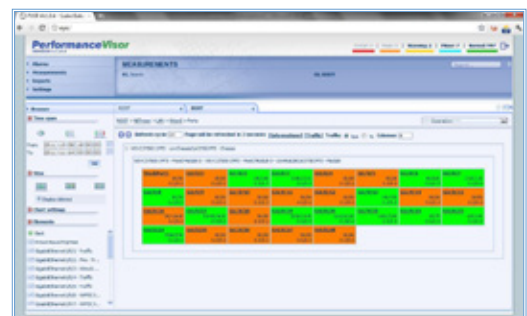
The users are guided through PerformanceVisor installation steps by a graphical setup wizard in Windows environments and by a command line setup wizard in Linux and Solaris environments. As PerformanceVisor has a standard HTML-based user interface, neither client side installation and nor version upgrades are required. PerformanceVisor offers practically all its configuration operations accessible through the web interface, unlike many other performance management systems. This simplifies administration and configuration, and also enables controlling configuration settings in a simple and prompt manner.

Easy to use user interface

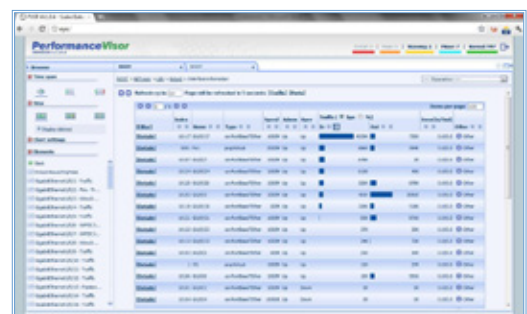
PerformanceVisor's web interface is intuitive enough to be learned in 1-2 hours by anyone. Thanks to AJAX technology it is just as responsive and convenient to work with as a traditional standalone GUI.



Zoomable interactive chart

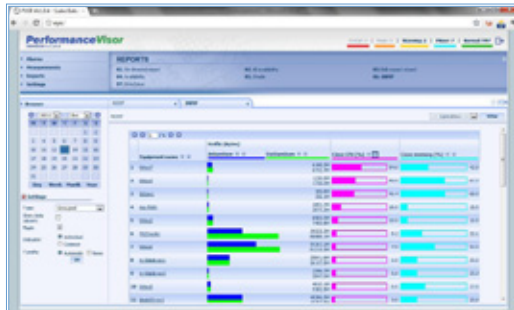


Real-time diagnostic page

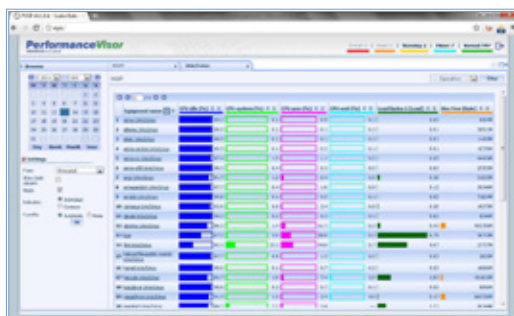


Real-time health chart

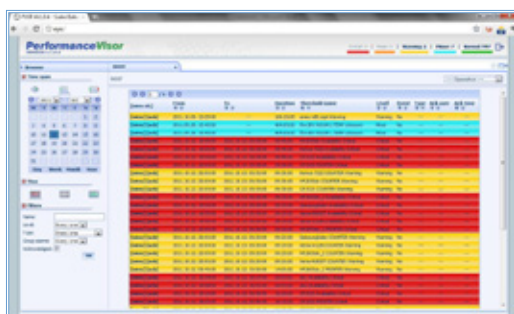




TopN router/switch CPU usage



Device health report



Historical alarm notifications

Four main menu options (Alarms, Measurements, Reports and Settings) are available to initiate common tasks, and customizable submenus enable quick access to often-used functions. Furthermore, users can customize other functions of PerformanceVisor as well, e.g. personalized charts, groups, reports etc. can be easily created.

Using PerformanceVisor's interactive charts, users can dynamically see and interpret measurement data. Smooth zooming and scrolling, selectable visualization of chart lines and the display of trend lines are all available as trivial, mouse-controlled operations.

Reports

PerformanceVisor computes reports over selected measurement values, alerts or events. Reports are either tabular or charted. Report values are aggregated from measurement results (i.e., raw collected data) selected by various criteria (e.g.: devices on a given site) As columns can be freely arranged, reports may emphasize measurements of special interest, like devices or interfaces with the highest traffic, devices with worst accessibility, total traffic at a single site, etc. Fields and variables shown in the daily, weekly, monthly, and annual reports can also be freely configured by the users. Several report elements can be positioned on the same page; and, for better visibility, the number of results displayed simultaneously can be limited, with navigation among results through a paging mechanism. Reports may also be linked to each other, facilitating navigation, e.g. between overview- and sub-reports.

Predefined report summaries are continuously calculated in the background by PerformanceVisor. This enables quick, near real-time presentation of reports which would otherwise require lengthy calculation times. PerformanceVisor also supports so called on-demand reports which need not be defined in advance. Such reports are more flexible, on the other hand their generation takes more time. Additionally, PerformanceVisor can also be scheduled to publish periodic (daily, weekly, etc.) reports via e-mail.

Performance thresholds

PerformanceVisor supports the definition of performance alarms, similarly to many other performance management systems. However, PerformanceVisor is not limited to simple thresholds or baseline violations. PerformanceVisor thresholds may be arbitrary expressions or functions of several KPIs collected on more than just one device. Baseline and trend-based alarms can also be created as standalone



notifications or in combination with other complex expressions, to warn on deviations from normal usage or to predict future performance exceptions.

Threshold violations can be forwarded by PerformanceVisor as e-mails and/or SNMP traps and/or via custom commands to higher-level alarm management systems or human users, and the system can issue a custom command upon violation. Alarm generation can be conditional to the occurrence of several violations over interval windows specified by the administrator for example for 30 minutes during working hours.

The performance alarms are displayed on several places on the interface. Current and former alarms can be viewed by users in an alarm window, with ordering by any column, they can be acknowledged (confirmed) and there is an option for automatically updated alarm views. While browsing different objects, PerformanceVisor uses colors to indicate the current alarm levels. Measurement charts contain threshold lines and index points to represent limit values and violations. Even for data tables exported to Excel, violations are indicated by the appropriate color.

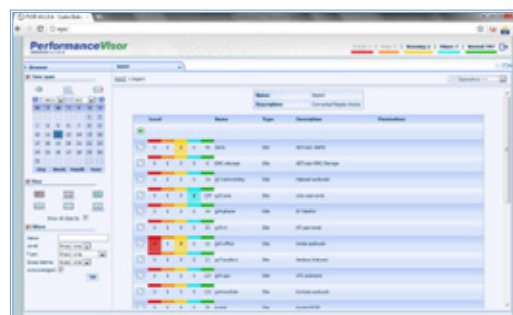
Flexibility of data collection

PerformanceVisor product includes several collector types, and it is easy to create new ones with the help of the provided API (the software also includes the API documentation, test environment and a sample collector application).

The system is capable of collecting data with various frequencies, from one-hour cycles to measurements in every 15 seconds, or even in every second in case of the real-time monitoring. Each data collection period can separately be set to each and every measurement, so even a 15 seconds long resolution can be set for discovering an error that can be reset to a bigger value after locating the error for better disk capacity usage.

Collection can also be turned on and off by device, which is useful if not all the elements in the network are required to be continuously monitored (e.g. end point modems.)

Unlike other performance management applications, PerformanceVisor also offers diagnostic and troubleshooting functions, on top of standard SNMP-based performance measurements, including current traffic and interface information, routing information, customizable MIB browser, etc. . .



Number of violated alarm conditions during a day



Red area showing the alarm period for the selected KPI and alarm definition



Scalable Architecture

PerformanceVisor has been created from the ground up based on a robust, parallel processing architecture; consequently, PerformanceVisor is able to monitor very large and complex systems. Devices are measured, their configuration is traced, and the collected data are evaluated on the basis of time and location within the hierarchy all in parallel, always taking into consideration that data collection has the highest priority.



Multiple charts selected for display on-the-fly

The backbone of the application is the industry leading Oracle database manager. Even with the low-cost Oracle Standard Edition, PerformanceVisor can handle hundreds of thousands of metrics and can store data for several years, all without affecting the responsiveness of the user interface. The data collection continues even in case the Oracle database becomes temporarily un-available, or when the connection is lost between the several application server components.

Thanks to its architecture, PerformanceVisor is capable of operating in HA (High Availability) configuration. PerformanceVisor HA ensures that even the outage of a collector server causes no data loss. Stand-by configuration is also supported, where the entire PerformanceVisor ecosystem, including its database is duplicated on separate servers and PerformanceVisor keeps the stand-by system up-to-date by continuous synchronization. (This PerformanceVisor feature eliminates the need for complex database- or OS-level synchronization components.)



Split view mode showing two devices

What is more, the embedded self-monitoring system, which is independent from the core system, notifies administrators should any kind of problem occur in PerformanceVisor, in its environment or in the monitored network. This further minimizes the chance and length of any outage in the measurements.

Authorization system

PerformanceVisor supports a sophisticated control over users' access to the system. Besides omnipotent administrators, any number of end users can be defined, whose access can be limited not only at device or device group level (at 'site' level in PerformanceVisor terminology), but even at the level of individual measurements. These users can have read or read/write access rights. In the latter case one PerformanceVisor can be used for monitoring different networks, where each network has its own administrators.



Each configuration operation is logged in order to determine changes and the responsible operator.

Integration to 3rd party systems

PerformanceVisor also offers seamless integration capabilities to further management systems:

- Its database for storing the historical KPIs is fully documented and can be used to populate for example third-party SLA reporting systems
- Its Webservice SOAP interface can be used to configure the system as well as to download KPI values and historical alarm notifications
- Its user interface is fully prepared for screen-level integration: additional menu items can be configured to open up views in third-party WEB interfaces already located and filtered according to PerformanceVisor's current context (for objects, time-span, chart resolution, etc...)

Templates

PerformanceVisor is easy to use not only for end users but eases the everyday work of administrators as well by offering different templates. One of these is the device (equipment) template that allows describing all possible measurements on the device, and for pre-defining all settings that can be entered through the GUI in normal case.

By using templates, devices can be created by providing only their names and the basic data (e.g. IP address in case of SNMP) and if accidentally the device is not accessible, then from time to time the system automatically retries to perform the operation. The users can take the advantage of PerformanceVisor being able to discover a network segment and to create the new devices by the help of templates. Other templates help with mass-creation of performance alarms and charts.

Visit our website and see the online demo:

<http://www.netvisor.hu/pvsrdemo/en/>

List of PVSR data collectors

- SNMP (v1, v2c and v3)
- ICMP Availability
- Synthetic transaction
 - HTTP
 - DNS
 - E-mail
 - DHCP
 - SSH
 - TCPw
 - Radius
 - LDAP
 - NTP
 - Custom OS command
 - Nagios
- Cisco QoS
- Cisco IP SLA
- Cisco PING
- Netflow
- Oracle
- Unix/Linux
- ASCII
- Cisco CallManager
- JMX





● NETvisor products worldwide



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