Managing Your Storage Area Network Has Never Been So Easy

The EMC® VisualSAN® network management software suite - consisting of VisualSAN Network Manager (NM), VisualSAN Configuration Manager (CM), and VisualSAN Performance Manager (PM) - automatically discovers, manages, and monitors Dell/EMC SAN devices, generating a topology map that depicts the SAN environment and its interconnects. This drill-down map, viewed via an intuitive user interface, indicates the realtime status of the health of the SAN. The VisualSAN software actively polls SAN devices and also monitors for traps, quickly and intelligently distinguishing urgent SAN events and generating alerts based on user-defined policies. It also allows the administrator to compare SAN configurations against previous point-in-time configurations - a powerful troubleshooting and change-management tool.

The suite includes historical and realtime SAN performance monitoring for throughput optimization. Special Discovery Modules, called Dell Device Managers (DMs), have been designed to support Dell PowerVault and Dell/EMC devices and supply detailed information about the devices and their status.

The Big Picture

- Helps reduce storage network administration costs by providing visual access to all SAN devices and their health status
- Identifies problems fast with real-time event notification and alert generation
- Generates automatic alerts when performance thresholds are crossed, alerting network managers of performance problems
- Compares SAN configurations, providing detailed device information on what has been added, deleted, or modified
- Visualizes performance data for quick discovery of SAN hotspots and high and low-traffic areas
- Customer installable with an intuitive browser-based user interface to access all functionality, both locally and remotely
- Device managers provide for application management and product integration with Dell specific hardware and software

EMC VisualSAN Network Manager (NM)

Active service-level management

VisualSAN NM provides service-level and centralized management of storage area networks. It enables the system administrator to proactively manage the SAN, helping to ensure network accessibility and that SAN service-level commitments are met. VisualSAN NM does not solely rely on receipt of traps, but actively monitors SAN components for immediate notification of problems.

Automatic discovery and topology rendering

VisualSAN NM automatically discovers devices on the storage area network, including host bus adapters, interconnecting devices, storage systems, and zone configurations. This information is mapped and presented in an intuitive, graphical format and is continuously updated in real time. VisualSAN NM goes beyond trap processing for network status, and also continuously polls the network for new devices and status.

Visit [www.dell.com/emc](http://www.dell.com/emc) for more information.
Visualization and centralized management

VisualSAN NM has a centralized interface that is Web-enabled, offering access to SAN devices from virtually anywhere, at any time. It provides the consolidation of all storage management devices and interconnects, allowing system administrators to troubleshoot problems with just a quick glance at the console.

Through the VisualSAN Device Status Summary, the user has a single “console” from which to manage the SAN. The Device Status Summary provides the user with an active management summary of all devices in the SAN, categorized by device type and state. The user can drill down on any device to obtain detailed property and connectivity information.

Zone management

VisualSAN NM provides zone management for industry-leading switches, supporting switch port, device port, and node zoning. Through the VisualSAN Zone Explorer, the user can create, define, and manage storage zones. The Zone Explorer minimizes SAN complexity by enabling the user to directly define zones, activate zone configurations, and visualize all zones.

Event and alert management

VisualSAN NM enables IT administrators to monitor all events in real time. Events are logged and consolidated, and user-defined alerts are then generated via e-mail, page, or SNMP trap to notify the system administrator of fault conditions.

VisualSAN NM maintains a persistent database and an ongoing log of historical faults and events. The user can view the event log at any time for details including event type, device, time logged, and description.

EMC VisualSAN Configuration Manager (CM)

Seamless integration

VisualSAN CM - another application within the EMC VisualSAN network management software suite - delivers configuration management tools for comparison, historical reference, change management, asset management, and replication. VisualSAN CM extends the capabilities of VisualSAN to view and compare detailed configuration information about the SAN.

Configuration capture

VisualSAN CM captures all device details discovered through VisualSAN NM. These details include device manufacturer, model name, serial number, driver version, firmware version, port configurations, LUN information, and more. The administrator can use this information to create asset reports and to compare captured configurations against each other.

Configuration captures can be taken automatically or manually using the interface in VisualSAN CM. Rules can be included such as “only take a capture if the configuration has changed” and “e-mail an alert to the administrator if there is a change.” VisualSAN CM keeps all configuration captures in a database for quick access.
Configuration comparison

With VisualSAN CM, a user can make a comparison between the configuration of a current SAN environment and one that was previously saved. The comparison between configurations is viewed in a textual format and as a topological map. At a minimum, the administrator is provided with information regarding what has been added, deleted, or modified in the SAN, as well as the related time and date of the occurrence.

Change management

VisualSAN CM provides a change management system to accurately track the changes made to the SAN configuration over time. A baseline capture can be taken for historical reference and used to make comparisons if problems arise in the future. When a problem is identified, a new configuration capture can be taken and a modification history is automatically created. This modification history identifies all of the changes that have been made to the SAN between captures.

Replication

VisualSAN CM provides an easy, automated way to take a point-in-time capture of a SAN configuration for replication in a remote site or environment. Comparisons can then be made to the current configuration to identify any anomalies in connections, device properties, or firmware versions. This quickly helps identify the modifications needed at the remote site to match the desired SAN configuration.

Proactive alerts

VisualSAN CM can be configured to take automatic captures at scheduled intervals according to a set of defined policies. This enables the SAN administrator to regularly check the SAN for specific types of configuration changes, capture the SAN configuration once a change has occurred, and generate an alert when the change is detected. This capability can be used to regularly check for unauthorized SAN changes.

EMC VisualSAN Performance Manager (PM)

Seamless integration with Network Manager

VisualSAN PM is a seamless, active element of the VisualSAN network management software suite. It blends into the menus, navigation panes, and topological map of VisualSAN NM using the existing SAN elements to graphically represent threshold information for fast changing SAN statistics — such as performance information or error rates.

Realtime performance

VisualSAN PM’s strength comes from its ability to gather and display realtime SAN performance information. This data is represented in live graphs that can contain one or more links and devices, and in the SANMeter, displaying the top-performing links in order of performance. Additionally, alerts can be defined to automatically notify the administrator when threshold levels are crossed, thus decreasing the need for hands-on management of the SAN.
VisualSAN Network Management Suite

Visualization
The topology map in VisualSAN provides a consolidated view of the SAN devices that have been discovered by VisualSAN NM. VisualSAN PM overlays performance thresholds on switch links. Color-coded lines are displayed on the topology map and correspond to their threshold values. Users can monitor the throughput of the entire SAN in a single window to quickly locate hot and cold spots. This gives SAN administrators the ability to optimize the network and maximize the throughput of SAN devices.

Alerts
When a performance threshold is crossed for a specific link, VisualSAN can be configured to automatically notify administrators of the event via e-mail, pager, and SNMP traps. Alerts can be generated for both link saturation as well as link quiescent situations.

Historical analysis and trending
VisualSAN PM maintains a persistent database of performance data that can be used to analyze traffic patterns, perform predictive analysis, and create performance reports from the performance data that is collected. The historical graph plots performance data, including traffic and errors, for one or multiple links over a user-specified time period. The graph can also scroll through the database by day, week, or month to provide a complete historical overview of SAN performance.

Database management
VisualSAN PM’s historical database includes database management tools that allow users to control the amount of information that is gathered, as well as the ability to compress the database size while retaining the capability to perform predictive analysis. Users can independently select devices to be logged, variables to be stored for each device, as well as data collection frequency. Alerts can also be set to notify the administrator when the database size exceeds a predefined threshold. Database compression can be automated as well.

EMC VisualSAN Support Manager
Enables customers to send SAN configuration information in the form of email back to the Dell Support Center to aid in troubleshooting.

Dell Device Managers
The Dell Device Manager Plug-in for EMC VisualSAN provides for application management and product integration with Dell specific hardware and software. With the use of this free Plug-in, Dell customers will be able to manage and integrate Dell and Dell/EMC hardware and software within the EMC VisualSAN application.

Take the Next Step
For more information on the EMC VisualSAN network management software suite from Dell, contact your sales representative or visit our website at www.dell.com/emc/visualsan.