IBM Network Advisor
IBM Redbooks Product Guide

This IBM® Redbooks® Product Guide describes IBM Network Advisor Version 14.0. Although every network type has unique management requirements, most organizations face similar challenges managing their network environments. These challenges can include minimizing network downtime, reducing operational expenses, managing application service level agreements (SLAs), and providing robust security. Until now, no single tool was able to address these needs across various network types.

Under pressure to reduce costs and increase agility, organizations can get stuck in reactive mode, overspending through inefficiencies to keep their networks running. By standardizing and automating processes, however, network teams can proactively address availability and performance issues, and dramatically reduce costs.

To address this issue, the IBM Network Advisor software management tool provides simplified network management for today's increasingly dynamic storage area network (SAN) fabrics. This single application can deliver end-to-end visibility and insight across network types by integrating with Fabric Vision technology. It supports SANs (including Gen 6 and Gen 5 Fibre Channel (FC) platforms), IBM FICON®, and other non-IBM, Brocade based FC networks. In addition, this tool supports comprehensive lifecycle management capabilities across different networks through a simple, seamless user experience.

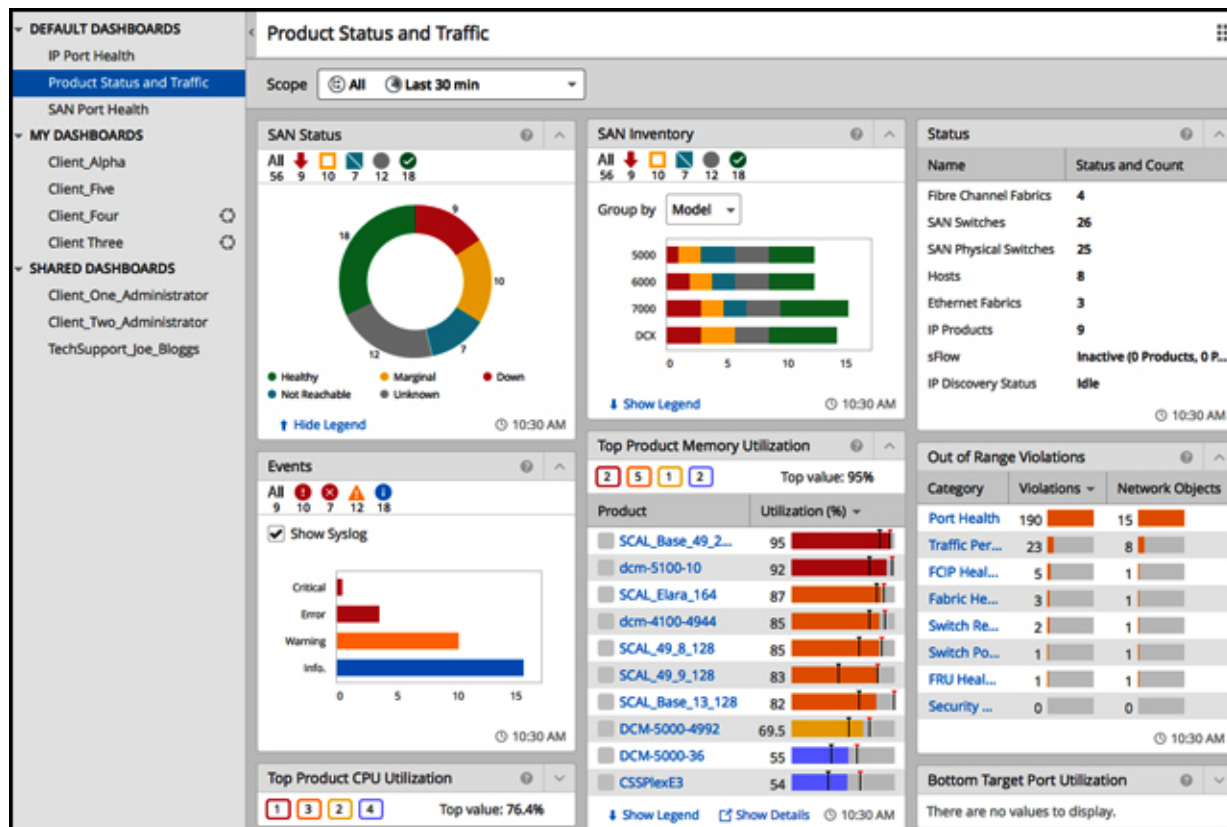Figure 1 shows the customizable IBM Network Advisor SAN dashboard.

Figure 1. Customizable IBM Network Advisor SAN dashboard (web client view)

Did you know?

IBM Network Advisor simplifies storage network management and helps organizations proactively diagnose and troubleshoot issues to maximize uptime, increase operational efficiency, and reduce costs.

IBM Network Advisor provides simple wizards and right-click menu options to automate critical tasks, from configuration through troubleshooting and reporting.

Product highlights

You can use IBM Network Advisor to gain the following benefits:

- Deploy 20 years of storage networking preferred practices in one click to simplify the deployment of monitoring with predefined, threshold-based rules, actions, and policies.
- Monitor Fibre Channel and Fibre Channel over Internet Protocol (FCIP) health and performance indicators by using a customizable, browser-accessible dashboard.
- Help reduce costs by automating tasks across the network management lifecycle.
- Provide unprecedented visibility and insight into the SAN fabric through integration with Fabric Vision technology.

Simplified network management for dynamic storage fabrics

IBM Network Advisor simplifies storage network management and helps organizations proactively diagnose and troubleshoot issues to maximize uptime, increase operational efficiency, and reduce costs. Customizable, browser-accessible dashboards represent data from discovered devices, including advanced diagnostic information that is delivered through integration with Fabric Vision technology. As network issues arise, teams can drill down through the interface for more details, and rapidly identify, diagnose, and troubleshoot problems before operations are affected.

Proactive monitoring

Fabric Vision technology, an extension of Gen 6 and Gen 5 Fibre Channel, provides unprecedented insight and visibility across the storage network through critical monitoring and diagnostic capabilities. To transform this data into intelligence that storage teams can easily act upon, IBM Network Advisor visualizes health and performance data, along with details about out-of-policy conditions, in customizable dashboards and interactive SAN topology views.

Administrators can then quickly identify potential issues, abnormal behaviors, and trends at the device and fabric level. To further simplify network management and reduce costs, IBM Network Advisor provides simple wizards and right-click menu options to automate critical tasks, from configuration through troubleshooting and reporting. These powerful capabilities enable storage teams to proactively manage storage networks, maximize uptime, and optimize resources.

The following Fabric Vision technology features can be managed through IBM Network Advisor:

- **Monitoring and Alerting Policy Suite (MAPS):** Apply pre-built, customizable rules and policies to multiple ports, switches, or fabrics in a single click. Instantly visualize health and performance statistics of the SAN infrastructure in the dashboard, topology, and event views. Click through wizards to adjust configurations to ensure that availability is maintained with minimal expertise needed.

- **Fabric Performance Impact (FPI) Monitoring:** Set predefined thresholds in a single click from MAPS, and act on latency alerts highlighted in the dashboard or through email. Use customizable topology views to pinpoint visually which devices and hosts are impacted by a bottlenecked port (see Figure 2). Use the wizard and right-click menus to diagnose and troubleshoot before performance degrades.

- **ClearLink Diagnostics:** Configure ports to diagnostic mode, and view reports to validate optic and cable signal integrity before deployment.

- **Configuration and Operational Monitoring Policy Automation Services Suite (COMPASS):** Guard against drift from preferred configuration settings with COMPASS configuration and policy violation monitoring in IBM Network Advisor dashboards.

- **Flow Vision:** Automatically configure specific application flows directly from the network topology view to accelerate and simplify troubleshooting and maximize performance.

- **IO Insight:** Non-disruptively and non-intrusively gather input/output (IO) statistics from any device port, then apply this information within an intuitive, policy-based monitoring and alerting suite to configure thresholds and alarms. Integrated application-level and device-level IO latency and input/output operations per second (IOPS) monitoring provides the ability to establish baseline application performance profiles and detect degraded storage performance.

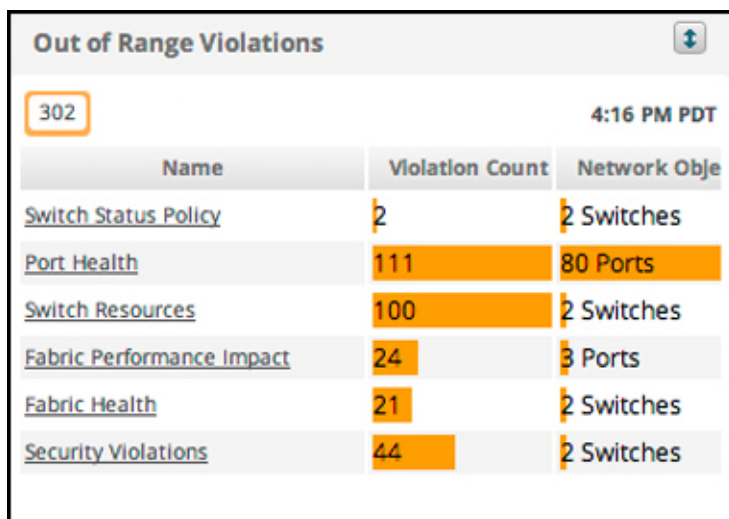Figure 2 shows a summary of out-of-range violations in a single widget.

Out of Range Violations

Name	Violation Count	Network Obje
Switch Status Policy	2	2 Switches
Port Health	111	80 Ports
Switch Resources	100	2 Switches
Fabric Performance Impact	24	3 Ports
Fabric Health	21	2 Switches
Security Violations	44	2 Switches

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Figure 2. Summary of out-of-range violations in a single widget

Rapid troubleshooting for increased availability

When network issues are identified, organizations must be able to diagnose and fix them quickly. IBM Network Advisor enables rapid troubleshooting with multiple dashboard views, highlighting out-of-range conditions, and providing drill-down menus for more details. As a result, administrators can correlate multiple data points across storage networks to make fast, informed decisions. IBM Network Advisor provides the following troubleshooting features:

- **Live monitoring and point-in-time playback:** Correlate real-time or historical device data across a choice of time scopes for advanced troubleshooting and performance management (see Figure 3).

- **Network and time scope filters:** Set a variety of network and time scope filters across dashboard widgets to quickly isolate, correlate, and troubleshoot error conditions.

- **Event management:** Receive Simple Network Management Protocol (SNMP) traps, syslog event messages, and customizable event alerts for monitoring and reporting on specific conditions

- **Configuration change management:** Select a default configuration, and track changes between the current and default state to isolate the root cause. If a failure occurs, the default configuration can be restored to minimize disruption during troubleshooting.

- **Advanced Call Home:** Automatically collect diagnostic information and send notifications for fast fault diagnosis, isolation, and remote support operations.

Figure 3 shows how IBM Network Advisor software can be used to analyze historical data and identify issues with point-in-time playback.
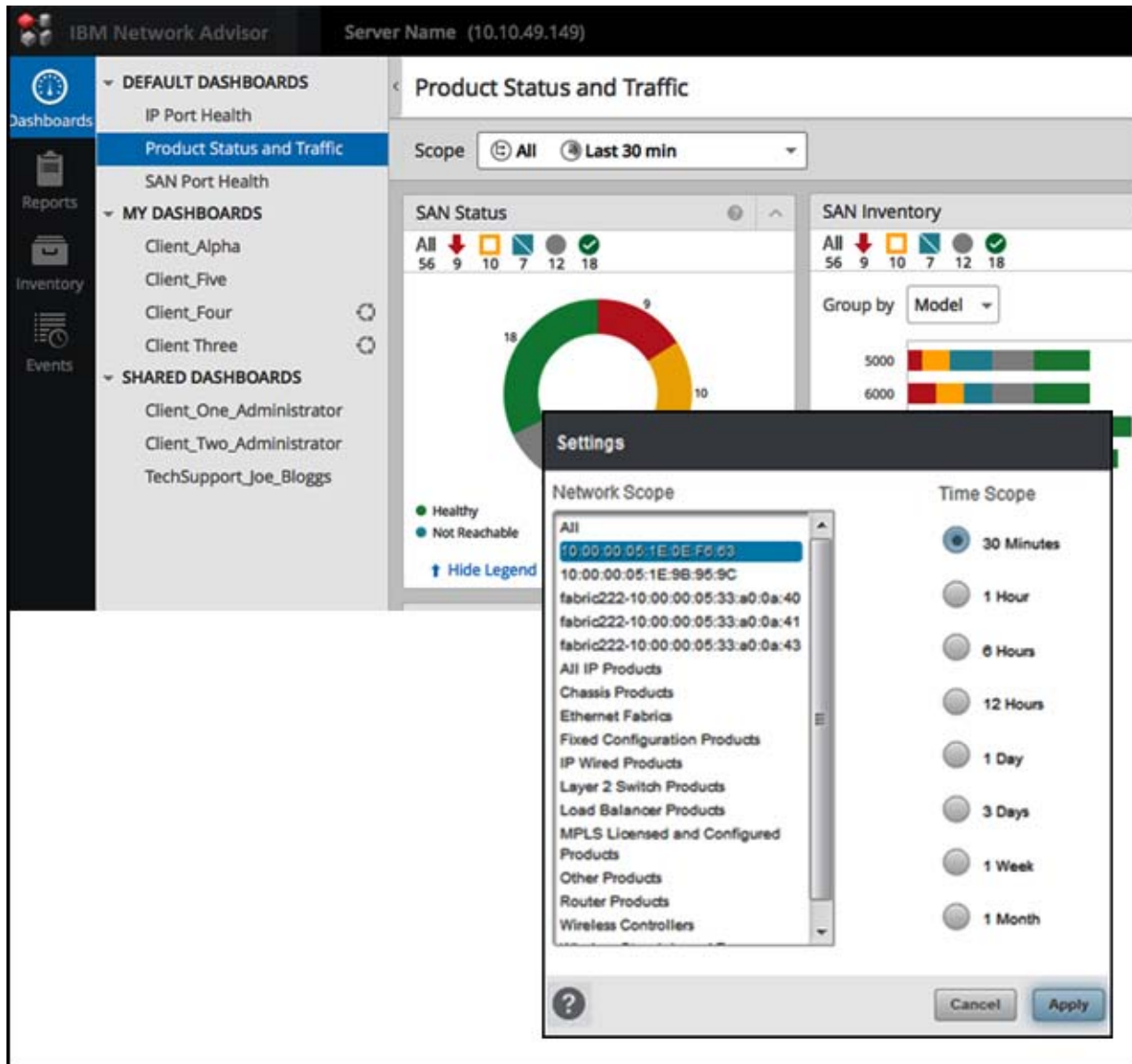

Figure 3. Analyze historical data and identify issues with point-in-time playback

Simplified management and optimized resources

IBM Network Advisor helps organizations manage the entire network management lifecycle, automating time-consuming tasks, and freeing valuable resources. The easy-to-use graphical user interface (GUI) minimizes administrative effort, guiding the user through otherwise complex operational tasks. In addition, bulk deployment and configuration offer significant time savings over repetitive switch-by-switch administrative tasks, reducing costs and increasing resource efficiency.

Other key capabilities that help simplify SAN management include the following items:

- **Multi-vendor adapter management:** Monitor and report on adapter properties for a more holistic view of the SAN.
- **VM-to-storage visibility:** Gain virtual machine-to-logical unit number (VM-to-LUN) visibility and management by integrating IBM Network Advisor with leading virtualization solutions, such as VMware vCenter.
- **Multi-protocol support:** Automate manual operations with configuration wizards for Fibre Channel connection (FICON) and cascaded FICON environments, and FCIP tunnels.
- **Zoning operations:** Configure devices logically into zones to increase security and network availability, and to test changes before deployment to avoid downtime.
- **Role-based access control (RBAC):** Define granular administrator roles and privileges to support multiple SAN teams.

Flexibility through partner integration

To ensure organizations maximize their existing investments, IBM Network Advisor integrates with a wide range of network management solutions (including tools from VMware, Microsoft, and IBM) to provide end-to-end network visibility. Organizations also have the flexibility to extract data directly from IBM Network Advisor for integration with homegrown applications by using Open Database Connectivity (ODBC) or Storage Management Initiative Specification (SMI-S).

Integration options include:

- **IBM Network Advisor REST APIs:** Enables third-party applications to leverage Representational State Transfer (REST) services to access Fabric Vision performance data, events, dashboard summaries, SAN zoning, and inventory. This enables further programmability and paves the way for cloud, virtual, and software-defined storage (SDS).
- **Integrations with VMware vRealize Operations:** Delivers Fibre Channel and IP network health, risk, and efficiency insights to VMware vRealize Operations, enabling faster root-cause analysis and better VM and application performance. vRealize Log Insight integration helps virtualization and cloud teams further troubleshoot from within vRealize by presenting b-type device log data.
- **Management Pack for Microsoft System Center Operations Manager:** Provides visibility into the network connectivity of Microsoft System Center Operations Manager (SCOM) servers, and proactively responds to bottlenecks through policy-based actions.

Investment protection

IBM Network Advisor provides a nondisruptive path and functional continuity for organizations upgrading from earlier versions of IBM Network Advisor. The latest version is available with flexible package and licensing options for a wide range of network deployments and for future network expansion. IBM also offers a path for customers that use the IBM Network Advisor Professional Plus license to upgrade, for a fee, to IBM Network Advisor Enterprise.

Specifications

Table 1 lists the IBM Network Advisor specifications.

Table 1. IBM Network Advisor specifications

Item	Description
Product number	5639-NAU
Supported client/server operating systems (64-bit)	● Windows Server 2008 R2 Standard, Enterprise, and Datacenter ● Windows Server 2012 Standard, Enterprise, and Datacenter ● Microsoft Windows 8 and 8.1 Enterprise ● Red Hat Enterprise Linux Adv 6.4, 6.5, 6.6, and 7.0 ● Oracle Enterprise Linux 6.4, 6.5, and 7.0 ● SUSE Linux Enterprise Server 11.3 and 12.0 All of the preceding operating systems are supported as Guest VMs on VMware ESXi 5.1, VMware ESXi 5.5, KVM (Red Hat Enterprise Linux 6.4/6.5/6.6/7.0 Adv), and Microsoft Hyper-V (Hyper-V Server 2008 R2 SP1, Microsoft Windows Server 2012, and Microsoft Windows 2012 R2 Datacenter).
Hardware requirements	The system requirements and recommended configuration options vary depending on the size of the SAN fabrics that IBM Network Advisor V14.0 manages. Consult the user manuals or contact IBM Support for details.
Required Fabric OS features	Some IBM Network Advisor Enterprise features require specific Fabric OS licensed features to be enabled.
Supported platforms (one is required)	● Microsoft Windows Server 2008 R2 (x86 64-bit) Standard, Datacenter, and Enterprise Edition ● Microsoft Windows Server 2012 Standard, Datacenter ● Microsoft Windows Server 2012 R2 Standard, Datacenter ● Microsoft Windows 8 Enterprise (x86 64-bit) ● Microsoft Windows 8.1 Enterprise (x86 64-bit) ● Red Hat Enterprise Linux 6.4 Adv (x86 64-bit) ● Red Hat Enterprise Linux 6.5 Adv (x86 64-bit) ● Red Hat Enterprise Linux 6.6 Adv (x86 64-bit) ● Red Hat Enterprise Linux 7.0 Adv (x86 64-bit) ● SUSE Linux Enterprise Server 11.3 (x86 64-bit) ● SUSE Linux Enterprise Server 12.0 (x86 64-bit) ● Oracle Enterprise Linux 6.4 (x86 64-bit) ● Oracle Enterprise Linux 6.5 (x86 64-bit) ● Oracle Enterprise Linux 7.0 (x86 64-bit) The Enterprise option is required to manage the 2499-384 and 2499-816 fabric backbones and systems running FICON. For customers who use the Pro Plus feature, a path is offered to upgrade, for a fee, to the Enterprise option.
Options	● IBM Network Advisor V14.0 Professional Plus, licensed to manage up to 36 fabrics and 2,560 ports ● IBM Network Advisor V14.0 Enterprise, licensed to manage up to 100 fabrics and 15,000 ports

Related information

For more information, see the following documents:

- IBM Network Advisor product page
  http://www.ibm.com/systems/networking/switches/san/b-type/na/

- IBM Offering Information page (announcement letters and sales manuals):
  http://www.ibm.com/common/ssi/index.wss?request_locale=en

  On this page, enter `IBM Network Advisor`, select the information type, and then click **Search**. On the next page, narrow your search results by geography and language.

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