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Product Bulletin

Convergence 101 Tutorial Series: Network and service management

What is network and service management?

Network and service management tools are critical to the successful deployment of a converged network.

These tools and capabilities provide a 'network-level' view that helps to ensure the performance, reliability and quality of the services and applications deployed on a converged network.

These tools are not the individual, device-specific tools used for detailed configuration. Rather, these tools span multiple elements from across the Nortel enterprise portfolio.

For comprehensive troubleshooting, performance analysis and fault management of network services and infrastructure, all converged network solutions should include Nortel Optivity* Network Management System and Nortel Optivity Policy Services.

Why is it important to convergence?

Comprehensive network and security management removes a barrier to convergence — improved security, network and service visualization and troubleshooting capabilities make it easier and safer for network managers to adopt and deploy new converged solutions. In addition, it delivers the promised value and quality with proactive, end-to-end network and service problem resolution

capabilities. These ensure that customers achieve intended availability and reliability.

And, it proves that Nortel solutions deliver expected performance — customers can audit security, benchmark performance, manage SLAs and accurately plan and execute on network evolution.

Key terms/elements

Element management — The process of configuring specific attributes on a device such as IP address, supported protocols and routes. This also includes upgrading system software and establishing administrative access and control.

Network management — Understanding, visualizing and controlling the internetworking between multiple elements in a network. This includes services, protocols, voice elements, data elements, fault and performance management tracking, troubleshooting and resolution.

Service management — Understanding and controlling the internetworking of multiple elements that are integral to the performance and availability of a specific service like multicast or IP-VPN. This includes fault and performance management tracking, troubleshooting and resolution specific to the service in question.

Discovery — A technical process performed by a network management system to 'discover' devices, interfaces, protocols and services that are running on the network. The discovery process requests and receives detailed information about every node in the network.

Visualization — Once discovery has been completed, a network management system will create one or more 'views' of the network. This can be a physical view of the devices or nodes and their physical connections or a logical view showing protocol and service relationships between the nodes. An example is a view of all nodes supporting a multicast service or all nodes supporting IP Telephony traffic.

Fault management — When devices have been discovered and visualized, any fault conditions are reported to the network management system. This can trigger visual alerts, audible alarms and e-mail or pager alerts. Faults can be tracked through to resolution and conditions updated by any network managers with access to the network management system either directly or via Web browser interfaces.

Performance management — Statistical information about any node or interface can be queried, tracked and trended from a network management system. This information can be used to measure SLA commitments, plan upgrades or troubleshoot intermittent fault or performance problems.

Voice quality — A measure of the relative end-user experience, usually on an IP Telephony phone — typically defined as an R-value (measure of voice quality) or Mean Opinion Score (MOS). An R-value of 80 or a MOS between 3.5 and 4.5 is considered optimal.

Network QoS — Defined as the ability for switches and routers in the network to prioritize traffic flows to ensure that real-time and business-critical traffic receives the bandwidth required to meet quality and performance objectives. This is typically facilitated through DiffServ marking and queuing at the edge and in the core network.

Policy — A plain-language approach to defining how, when and under what conditions traffic types are prioritized, shaped, marked or dropped in a network. A policy services application is then used to convert the policy into filters that can be applied to devices to implement the policy.

Proactive Voice Quality Management (PVQM) — A method for measuring, monitoring and reporting on the end-user voice quality experience and overall IP Telephony system health. Typically, this is measured and reported in real-time so that network managers can take proactive measures to avoid service interruption or performance degradation.

Portfolio components

Proactive Voice Quality Management
Co-developed with NetIQ, this capability is unique to Nortel. It provides real-time measurement and reporting on the user 'quality-of-experience.' Customers must purchase Vivinet Manager from NetIQ or their channel partners to access and use this capability in combination with Optivity Network Management System and Optivity Policy Services.

Optivity Network Management System (ONMS)

ONMS is the Nortel enterprise domain manager. It provides end-to-end discovery, visualization, fault management and troubleshooting for all Nortel converged data and voice elements. Unique protocol and service views include multicast, OSPF, IP-VPN and OE-VPLS. These views assist the network manager in troubleshooting problems associated with advanced service deployments including real-time multimedia, collaboration capabilities, Web services and IP Telephony. Explicit views for multi-link trunking, VLAN and wireless components make ONMS a critical component for any converged network.

Optivity Policy Services (OPS)

OPS provides a scalable solution for managing network quality of service (QoS). It is used to create, deploy and manage QoS policies on Nortel infrastructure — key to supporting IP Telephony and other advanced services or applications.

Key advantages of Nortel's management tools

- Single domain manager for end-to-end network management of voice, data, optical and wireless solutions
- Critical protocol and service views to assist network managers in troubleshooting and measuring the performance of advanced applications and services on their networks

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