Today’s enterprise data centers not only need to keep their networks and business applications up and running, but also performing optimally. However, monitoring and managing these heterogeneous, and increasingly virtualized, environments can be challenging—requiring significant resources, time, and multidomain expertise. Given the complexity of these networks, IT organizations usually find it difficult to quickly troubleshoot network issues or determine the cause of application performance degradation. In turn, this can lead to persistent and costly performance issues, as well as unacceptable service levels.

To help organizations more effectively manage application and network performance end to end across their data center fabrics, Brocade provides a new generation of remote monitoring service.

The Brocade Network Monitoring Service (NMS) helps organizations reduce downtime, optimize resource utilization, and better meet business requirements for application performance. The service includes:

- Around-the-clock expert monitoring and analysis of network health
- Real-time and historical performance information
- Customizable reporting via an online Web portal
- A flexible architecture for future support of event correlation and policy-based business intelligence

Brocade NMS provides a secure architecture for proactive, remote network monitoring, alerting, and reporting. As part of the service, Brocade domain experts monitor customer networks 24×7—quickly identifying bottlenecks and problem areas before taking proactive action to accelerate resolution and reduce downtime. In addition, tight integration with the Brocade service request system enables Brocade Support customers to receive the fastest possible response to issues, thereby maximizing their network uptime and availability.
REMOTE OPERATIONS CENTER
At the core of Brocade NMS is an operations center that is staffed 24 hours a day, 7 days a week, and 365 days a year with experienced remote monitoring engineers. These experts work closely with Brocade service engineers to provide overall problem diagnosis, reporting, escalation, and resolution.

As soon as an issue is detected or an event occurs in an organization’s network, the network operations center opens a service request. Experts begin to diagnose and pinpoint the problem while the customer’s organizational staff is alerted to the issue. The Brocade NMS password-protected Web portal is automatically updated, enabling the organization to track the progress of the open service request.

MAXIMIZE NETWORK AVAILABILITY
On average, Brocade NMS prevents almost an hour of downtime per event, saving organizations thousands or even millions of dollars, not to mention a lot of headaches. Like a second pair of eyes, Brocade NMS helps keep networks available and optimized.

For instance, a banking operations center in Maryland recently broadened its relationship with Brocade to add Brocade NMS. Within two minutes of bringing the Brocade NMS system online, a Brocade engineer detected that the bank had two Private Virtual Circuits (PvCs) that had been inoperative for more than six days prior to the monitoring activities.

Brocade contacted the customer’s operations center and the telecom provider to correct the situation. Although the bank never lost its network, it was paying for unavailable circuits and at risk because the backup circuits were unavailable.

After operations are restored, the service request is closed and the organization is notified of the outcome. The integration of Brocade NMS with the Brocade service request system helps ensure the fastest possible response and resolution to prevent downtime and costs (see Figure 1).

EXPERT ANALYSIS OF DATA AND STATISTICS
The Brocade NMS staff utilizes a wide range of information to monitor Brocade network environments 24×7 and maintain the highest level of network quality and availability. They monitor bandwidth and interface utilization, interface availability, compression ratios, and other factors affecting the quality of the network. In addition, they monitor many quality statistics of the WAN, including end-to-end Cyclical Redundancy Check (CRC) errors and network packet loss.

With over 26 years of experience in designing, deploying, and managing complex local and remote networks, the Brocade NMS staff have the expertise and tools to review these statistics, understand which event messages are meaningful, and quickly identify service level issues before they become critical. For organizations with limited resources, Brocade NMS can augment or replace in-house monitoring personnel—enabling organizations to optimize staff resources and reduce training costs while gaining peace of mind.

Figure 1.
Brocade NMS accelerates problem identification and resolution.
CUSTOMIZABLE PERFORMANCE REPORTS
Brocade NMS collects a variety of real-time performance information from several sources, including individual network elements and devices, the Brocade NMS onsite appliance, Brocade Data Center Fabric Manager (DCFM™), Brocade SAN Health, Brocade Fabric OS® (FOS), and—in the future—third-party management applications.

This comprehensive collection of data helps organizations better understand the current health and performance of their networks while gaining valuable insight into resource utilization and capacity planning. In addition to real-time data, customizable historical and live reports are available—enabling organizations to tailor their data views and reports to meet specific requirements. These reports are available via a password-protected Brocade Web portal, providing access to all Brocade information in a single pane of glass, whenever and wherever it is needed.

IMPROVED BUSINESS INTELLIGENCE
Brocade NMS goes well beyond network monitoring, real-time alerts, and reporting. Leveraging future event correlation techniques, it will be able to associate network events with the affected application, providing organizations with the intelligence to make more-informed decisions and take action based on business needs.

In addition, the flexible Brocade NMS architecture supports the configuration of various performance thresholds and "yellow light" alerts, enabling future policy-based monitoring and reporting according to specific application Service Level Agreements (SLAs). This intelligence will provide crucial information and enable proactive actions to help ensure continued availability of business-critical applications.

NETWORK ELEMENTS MONITORED
Brocade NMS monitors end-to-end data center fabrics, including Brocade and third-party networking equipment, the WAN and LAN circuits connecting the equipment, and the channel connections going into and out of the networks (typically Fibre Channel or ESCON). In the future, Brocade plans to expand the performance monitoring and reporting capabilities to include business-critical applications such as backup and recovery, SAP, and Oracle.

Figure 2.
Brocade NMS provides a flexible, secure environment.
**CONNECTIVITY AND SECURITY**

Brocade NMS integrates with existing security frameworks while extending remote monitoring capabilities to the support technicians at the Brocade NMS operations center (see Figure 2). The operations center can connect to organizations' networks using a choice of secure methods:

- **Via the Internet using existing or new customer-side ISP service:** Security is provided by an IPSec VPN with strong encryption and authentication, as well as Access Control Lists (ACLs).

- **Via private network using MPLS private lines:** An optional VPN can provide an additional layer of security.

- **Customized connectivity:** Brocade experts can work with organizations to develop other types of network monitoring connections as requested.

In addition, Brocade NMS utilizes a multilayer hardened security design, including:

- 3DES encryption with shared key authentication with the customer site
- Customized access lists on both ends of the connection
- Proxy firewalls that work at the application layer above layer 3 or 4
- Hardened operating systems with strong authentication supporting all internal applications
- Continuous access auditing and logging for intrusion detection and notification

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**BROCADE NETWORK MONITORING SERVICE**

- Real-time monitoring, predictive support, and diagnosis
- Real-time event notification
- Problem resolution management for Brocade device-related problems
- Real-time corrective action notification and documentation
- Real-time and historical network performance and resource utilization statistics for capacity planning and optimization
- Trending and analysis to identify potential bottlenecks before they become problems
- Web portal access for service request information and customizable reports
- Planned support for event correlation and policy-based monitoring

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**MAXIMIZING INVESTMENTS**

To help optimize technology investments, Brocade and its partners offer complete solutions that include education, support, and services. For more information, contact a Brocade sales partner or visit www.brocade.com.