

BROCADE ADVANCED PERFORMANCE MONITORING



STORAGE AREA NETWORK

The Growing Need for Performance Monitoring

HIGHLIGHTS

- Increases end-to-end visibility into the fabric for more effective design and planning
- Improves performance tuning and resource optimization
- Shortens troubleshooting time
- Promotes better capacity planning
- Increases productivity with preformatted and customizable screens and reports
- Enables more accurate reporting for service level agreements and charged access applications

Based on Brocade® Frame Filtering technology and a unique performance counter engine, Brocade Advanced Performance Monitoring is a comprehensive tool for monitoring the performance of networked storage resources. This tool helps reduce total cost of ownership and over-provisioning while enabling SAN performance tuning, reporting of service level agreements, and greater administrator productivity.

Advanced Performance Monitoring supports direct-attach, loop, and switched fabric Fibre Channel SAN topologies by:

- Monitoring transaction performance from source to destination
- Monitoring Inter-Switch Link (ISL) performance
- Measuring device performance by port, Arbitrated Loop Physical Address (ALPA), and Logical Unit Number (LUN)
- Reporting Cyclic Redundancy Check (CRC) error measurement statistics
- Measuring ISL Trunking performance and resource usage
- Utilizing Top Talker reports that rank the highest-bandwidth data flows in the fabric for F_Ports and E_Ports (ISL)
- Comparing IP versus SCSI traffic on each port

END-TO-END MONITORING FOR SWITCHED FABRICS

Advanced Performance Monitoring enables administrators to monitor both “transmit” and “receive” traffic from source devices all the way to destination devices. Applications such as Web serving, databases, or e-mail can be analyzed as complete systems with near-real-time performance information about the data traffic between the servers and storage devices. This end-to-end visibility into the fabric enables administrators to quickly identify bottlenecks and optimize fabric configuration resources.

ISL MONITORING

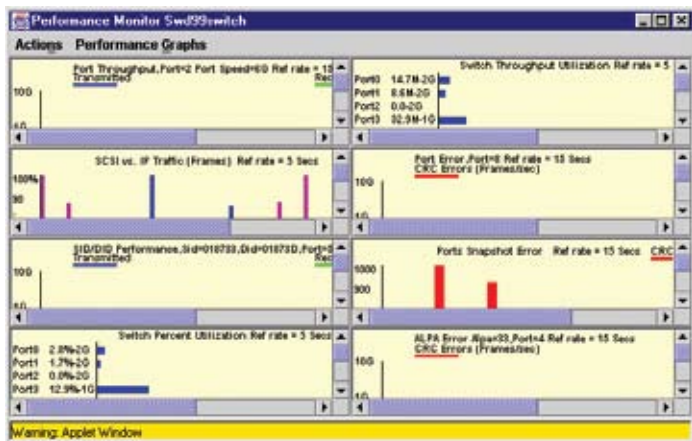
ISL monitoring helps administrators determine the sources of traffic on ISLs and identify potential bottlenecks within the SAN fabric. In addition, the Top Talker E_Port report ranks the highest-bandwidth data flows (source address, destination address) on all E_Ports on a switch.

DEVICE MONITORING

The Top Talker F_Port report ranks the highest-bandwidth data flows (source address, destination address) for any F_Port connection on a 4 Gbit/sec or 8 Gbit/sec switch. It can rank data flows that are

Figure 1.

A graphical interface simplifies end-to-end performance monitoring.



entering the port (ingress) or leaving the port (egress), identifying opportunities to eliminate congestion in the fabric.

ALPA- AND FILTER-BASED MONITORING

In loop SAN topologies, ALPA-based monitoring enables administrators to collect CRC error counts in Fibre Channel frames for each address. For direct-attach SAN topologies, filter-based monitoring provides CRC error counts for each implemented filter.

FRAME FILTERING ON THE FIRST 64 BYTES

Advanced Performance Monitoring also provides the unique ability to filter any of the first 64 bytes in a Fibre Channel frame. The counter is incremented each time a frame is filtered through the corresponding port. Predefined port filter statistics include SCSI read/write, read, or write commands; CRC error statistics; and IP versus SCSI traffic comparisons. These statistics give administrators critical information to monitor SAN fabrics.

A COUNTER ENGINE TO COMPILE RAW DATA

The counter engine works with the Brocade Frame Filtering capability to collect and compile raw data from the filters into meaningful information. In addition to using the standard filters (read, write, read/write, and frame count), administrators can customize filters to qualify frames for statistics gathering.

AN IMPROVED GUI

Advanced Performance Monitoring makes powerful capabilities simple and easy to use. An enhanced GUI launched from the Brocade Web Tools utility gives administrators "at-a-glance" information needed to anticipate and resolve problems. Administrators can display up to eight performance graphs on a single management "canvas." Different canvasses can address different users, scenarios, or host applications. In addition, saved canvas configurations enable administrators to change views quickly and easily.

Because there is no need to identify a single management console, administrators can access and run the tool from any Brocade SAN switch or director using the Web Tools

browser. Moreover, setting up end-to-end monitoring is straightforward, even for large SAN configurations. To further improve productivity, administrators can use powerful sort, search, and selection features to identify source-to-destination device pairs, dragging and dropping them from the topology "tree."

ENHANCED REPORTING CAPABILITIES

Predefined graphs are available for the most common tasks. In addition, administrators can customize performance graphs on virtually any parameter and add them to canvas configurations (see Figure 1). They can also generate printouts or reports in minutes by using previously saved or customized layouts, along with easy-to-use drag-and-drop screens.

To support performance analysis and capacity planning activities, administrators can utilize historical end-to-end performance data collected through Brocade Fabric Manager. They can view information directly in Fabric Manager or export it to other applications (such as Microsoft Excel and Crystal Reports).

SUPERIOR INVESTMENT PROTECTION

To utilize Advanced Performance Monitoring, the data path of the target must flow through a Brocade SAN switch or director with Frame Filtering capabilities. Existing Brocade devices do not need to be replaced or modified.

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.

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