BROCADE

Brocade Analytics Monitoring Platform

- Enables deployment of application and device performance analytics within minutes, without downtime

- Monitors the behavior and response time of any device without the performance impacts caused by highly invasive physical taps

- Identifies anomalies and ensures predictable performance through benchmarks of latency, IOPS, and pending I/O metrics

- Generates customized reports with real-time and historical events to correlate and summarize trends for behavior analysis

Breakthrough Analytics for Optimized SANs

Organizations are facing unprecedented data growth, pressure to transform IT into an economic engine, and demands for actionable intelligence. To achieve these objectives, administrators need tools that can provide real-time predictive, advanced, and operational analytics not available in legacy SAN platforms. Specifically, they need to be able to pinpoint a problem anywhere—from an application to a storage system—and provide trend analysis to understand the severity of the problem. Although third-party tools can provide device- and application-level performance visibility, such solutions are extremely costly, highly disruptive, permanently invasive, and do not typically provide direct visibility into all devices.

The Brocade® Analytics Monitoring Platform provides advanced storage telemetry, including storage device I/O performance, latency, and other SCSI metrics, across the network. Leveraging Brocade Fabric Vision™ technology, this platform ensures non-stop operations, identifies potential points of congestion, and maximizes end-to-end application performance.

Unmatched Monitoring

IT organizations with large, complex, or highly virtualized data center environments often experience symptoms of a problem from a single source. Such symptoms usually go unnoticed until they become severe enough to disrupt operations. To detect these problems early on and ensure compliance with

Service Level Agreements (SLAs), administrators need tools that can proactively identify performance issues across the SAN.

The Analytics Monitoring Platform includes several breakthrough diagnostic and monitoring capabilities integrated into Brocade Gen 6 and Gen 5 Fibre Channel technology to non-invasively provide visibility into application, host, fabric, and storage performance. The Analytics Monitoring Platform delivers:

- Application-level performance monitoring with zero downtime

- SCSI command behavior and response time monitoring of any device without impacting distance or link integrity, unlike physical taps that cause light degradation

ACTIONABLE INTELLIGENCE TO OPTIMIZE APPLICATION PERFORMANCE

The Brocade Analytics Monitoring Platform is a purpose-built SAN appliance dedicated to measuring application- and device-level I/O performance and analyzing traffic behavior within a Brocade Gen 6 or Gen 5 Fibre Channel network. These analytics deliver actionable intelligence to administrators, enabling them to maximize performance across the data center. The Analytics Monitoring Platform utilizes Brocade Fabric Vision technology to non-invasively and non-disruptively provide insight into performance and analytics data collection to dramatically reduce troubleshooting time.

- Normal device behavior learning by measuring time to first response, exchange completion time, read/write IOPS, and pending or outstanding I/Os to ensure predictable performance and flag unusual behavior or potential problems

- The ability to discover and deploy monitoring automatically to tens of thousands of initiator/target and initiator/target/LUN pairs in a fabric

Advanced Troubleshooting

With an ever-increasing number of workloads in virtualized environments, a large quantity of minor errors in the network, such as CRC or Class 3 discard errors, can lead to congestion, a decline in performance, or outages. To correlate these errors into actionable intelligence, administrators are often forced to use invasive tools that impact optical light strength, reducing the distance hardware can be apart.

To keep pace with troubleshooting these environments, IT administrators need in-depth visibility and advanced analytics data in order to make intelligent decisions. Moreover, they need to access this end-to-end data without impacting operations. The Analytics Monitoring Platform provides 100 percent non-disruptive analytics data collection to dramatically simplify troubleshooting. Key features include:

- Customizable reports to correlate metrics and events and summarize trends for behavior analysis

- On-demand, non-disruptive diagnostics of server, storage, and fabric devices to help quickly pinpoint problems

- Integrated device-level and fabric behavior metrics to provide visibility into the entire environment and simplify correlation of performance problems

- Granular threshold settings and automated alerts of unusual device behavior to enable early problem detection

Increased ROI

To meet the demands of application and data growth, organizations are deploying virtualized and cloud environments with the trade-offs of increased costs, complexity, and potential downtime. The Analytics Monitoring Platform leverages Brocade Gen 6 and Gen 5 Fibre Channel and Fabric Vision technology to deliver in-depth, fabric-wide metrics at half the cost of alternative solutions while reducing complexity and the risk of downtime.

The Analytics Monitoring Platform uses Analytic Switch Links (ASLs) to gain access into a Gen 6 or Gen 5 Fibre Channel fabric, and non-invasive virtual taps at the edge of the storage and server path to monitor performance data and device behavior. This architecture provides flexibility and scalability, from a few application data flows to tens of thousands of flows. In addition, the Analytics Monitoring Platform:

- Reduces the time to deploy advanced monitoring and analytics from days or weeks to minutes

- Automates monitoring, alerting, and troubleshooting tasks to save administrators critical time

- Scales out analytics for large environments without additional OpEx to maximize ROI

- Integrates with existing Brocade Network Advisor, Fabric Vision technology, and Brocade Fabric OS® CLI tools to reduce the learning curve and save OpEx

Monitoring, Management, and Reporting

The Analytics Monitoring Platform can be configured in minutes with Brocade Network Advisor. Ongoing operations are also simplified with automated workflows for key configuration tasks, such as flow mirroring. Users can visually correlate I/O latency metrics in real time using the standard analytics

dashboard and customize their views to include other Brocade Fabric Vision metrics. To accelerate troubleshooting, administrators can use dashboard playback to spot potential event triggers, and use drill-down functionality for more detailed root-cause analysis. To facilitate proactive management, Brocade Network Advisor helps users spot trends, establish baselines, and determine behavioral threshold settings. Reports can be generated to show granular or summary data, so that storage teams can demonstrate compliance with performance SLAs.

Professional Services for the Brocade Analytics Monitoring Platform

Brocade offers a variety of professional services for the Analytics Monitoring Platform. These services include physical implementation and configuration, initial setup of monitoring, tuning, reporting, and optimization to maximize network performance. Based on years of practical experience and best practices developed in a wide range of storage networking environments, Brocade Professional Services are designed to align with key business requirements while minimizing the impact and cost to the entire organization.

Brocade Global Services

Brocade Global Services has the expertise to help organizations build scalable, efficient cloud infrastructures. Leveraging 20 years of expertise in storage, networking, and virtualization, Brocade Global Services delivers world-class professional services, technical support, and education services, enabling organizations to maximize

their Brocade investments, accelerate new technology deployments, and optimize the performance of networking infrastructures.

Maximizing Investments

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

Brocade Analytics Monitoring Platform Specifications

System Architecture	
Enclosure	2U chassis
Firmware	Brocade FOS AMP OS
Ports	24 ports, 16 Gbps, Fibre Channel (for AE_Ports used for Analytic Switch Links, or ASLs, and AF_Ports) and two 10 GbE ports (unused)
Fibre Channel performance	8.5 Gbps line speed, full duplex; 14.025 Gbps line speed, full duplex; auto-sensing 8 Gbps and 16 Gbps port speeds
Fibre Channel port types	AF_Port, AE_Port, D_Port (Diagnostic), and self-discovery based on switch type (U_Port)
USB	One USB port for system log file downloads or firmware upgrades
Media types	Fibre Channel: Brocade hot-pluggable Small Form-Factor Pluggable (SFP) and SFP+, Short Wavelength (SWL) transceivers for 8 Gbps and 16 Gbps SFPs
Fabric services	Fabric Vision technology
Licensing	Pre-installed Analytic Capacity upgrade license, pre-installed Advanced Analytics Management license
Management	
Supported management software	SSH v2, HTTP/HTTPS, SNMP v1/v3, Telnet; SNMP (FE MIB, FC Management MIB); Brocade Network Advisor SAN Enterprise or Brocade Network Advisor Professional Plus; Command Line Interface (CLI); NTP
Security	DH-CHAP (between switches and end devices), FCAP switch authentication; HTTPS, IP filtering, LDAP with IPv6, OpenLDAP, Port Binding, RADIUS, TACACS+, user-defined Role-Based Access Control (RBAC), Secure Copy (SCP), SFTP, SSH v2, SSL, Switch Binding, Trusted Switch
Management access	10/100/1000 Ethernet (RJ-45); serial port (RJ-45) and one USB port
Diagnostics	POST and embedded online/offline diagnostics, including D_Port

Brocade Analytics Monitoring Platform Specifications *(continued)*

Mechanical

Enclosure	Back-to-front airflow; 2U, 19-in., EIA-compliant, power from back
Size	Width: 44 cm (17.32 in.) Height: 8.64 cm (3.4 in.) Depth: 60.9 cm (24.0 in.)
System weight	20 kg (44.2 lb) with two power supplies, without SFP/SFP+ and without media 20.07 kg (44.25 lb) with two power supplies, without SFP/SFP+ and with media

Environmental

Temperature	**Operating:** 0°C to 40°C (32°F to 104°F) **Non-operating:** –25°C to 70°C (–13°F to 158°F)
Humidity	**Operating:** 10% to 85% (non-condensing) **Non-operating:** 10% to 90% (non-condensing)
Altitude	**Operating:** Up to 3,000 m (9,842 ft) **Storage:** Up to 12 km (39,370 ft)
Shock	**Operating:** 20 g, 11 ms, half-sine **Non-operating:** 33 g, 11 ms, half-sine, 3/eg axis
Vibration	**Operating:** 1.0 g sine, 0.5 grms random, 5 to 500 Hz **Non-operating:** 2.4 g sine, 1.1 grms random 5 to 500 Hz
Airflow	Maximum: 158 CFM

Power

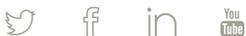|	
Power supply	Dual hot-swappable, redundant power supplies
Power inlet	C14; requires C13 plug
Input voltage	90 to 264 VAC nominal
Input line frequency	47 to 63 Hz nominal
Inrush current	Maximum of 40 amps for a period of 10 to 150 ms
Power consumption	Short-range optics: 355 W; 16 Gbps SWL optics, fans at nominal speed, two power supplies

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Corporate Headquarters
San Jose, CA USA
T: +1-408-333-8000
info@brocade.com

European Headquarters
Geneva, Switzerland
T: +41-22-799-56-40
emea-info@brocade.com

Asia Pacific Headquarters
Singapore
T: +65-6538-4700
apac-info@brocade.com

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