BROCADE

WHITE PAPER

Data Center Modernization with Brocade Gen 6 Fibre Channel

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Introduction

Embracing the digital transformation and taking advantage of new technologies like flash and next-generation NVMe over Fabrics is a critical factor for success in any IT organization. But to reap the full benefit from these investments requires modernizing the storage network. This paper discusses key trends and technology advancements and explains how Brocade® Gen 6 Fibre Channel and Brocade Fabric Vision™ technology with IO Insight delivers the application performance, operational stability, and business agility needed to modernize the network and meet today's and tomorrow's flash-based storage requirements.

Business leaders are embracing the digital transformation as a critical factor for success, and they expect IT to help them innovate faster, increase profitability, and gain competitive advantage. But digital transformation is putting new pressures on IT organizations and pushing mission-critical IT storage environments to the limit. Faced with exponential data growth, hyperscale virtualization, evolving workloads, and new demands for always-on business operations, the IT storage infrastructure must evolve to enable businesses to thrive in this new era. The legacy infrastructure was simply not designed to support these dynamics and the current pace of growth in business requirements. IT organizations need to modernize the data center and deploy a storage infrastructure that can deliver greater consistency, predictability, and performance.

Fortunately, innovation for the storage network is well underway. The newest and most exciting storage advancement today is flash-based storage. The unprecedented speed and rapidly increasing cost-effectiveness of flash-based products are dramatically accelerating data center transformation. Tomorrow, next-generation flash storage based on Non-Volatile Memory Express (NVMe) over Fabrics will provide even greater value through significant performance gains.

To take full advantage of flash-based storage, innovation for the storage network is also required. As companies redefine application performance with flash storage, they require networks that deliver ultra-low latency, higher capacity bandwidth, and greater reliability. In fact, an aging network will bottleneck the performance of an all-flash data center.

30 BILLION
Transactions go through Fibre Channel per day

96%
World's banks, airlines and retails run over Fibre Channel

Brocade Gen 6 Fibre Channel with Brocade Fabric Vision technology is the network innovation required for the virtualized, all-flash data center. Brocade Gen 6 Fibre Channel combines innovative hardware, software, and integrated network sensors, ensuring the industry's highest level of operational stability and redefining application performance. Brocade Fabric Vision technology enhances visibility into the health of storage environments, delivering greater control and insight to quickly identify problems and achieve critical Service Level Agreements (SLAs).

Breakthrough 32 Gbps performance accelerates application response time by up to 71%, eliminating IO bottlenecks and unleashes the full performance of flash and next generation NVMe-based storage. In addition, with diverse deployment options and future-proof integration, organizations can seamlessly adapt, transform, and optimize their business to meet next-generation storage requirements based on NVMe over Fabrics. By leveraging Brocade Gen 6 Fibre Channel, organizations can modernize their networks and optimize virtualized applications to take advantage of the full capabilities of a future-ready all-flash data center.

Network Innovation for the Virtualized, All-Flash Data Center

It is easy to understand the most obvious benefits of upgrading networking technology to increase the speed of data transfers and decrease the number of links and devices that are required to accomplish network tasks. Yet the question often arises of whether this higher level of infrastructure performance and throughput are essential to an organization's network. The answer is a clear "yes." New server and storage technology advancements like flash-based storage are driving up storage network bandwidth demand well beyond current capabilities. In addition, requirements for higher-density server virtualization, new latency-sensitive applications, mixed/dynamic workloads, and overall application growth all are placing unprecedented demands on the network.

Flash-based storage is driving exponential advances in storage, enabling faster block- and file-based storage performance for high-density virtualized workloads and traditional mission-critical applications. As a result, many enterprises are moving to an all-flash environment to eliminate performance issues and scalability challenges. This move, however, drives the need for higher IO bandwidth performance and greater availability from the storage network. Next-generation NVMe over Fabrics will place even greater demands on the network.

Demartek testing[1] of a data warehousing application workload shows that even when using an all-flash array with 8 Gbps target ports, substantial improvements in application performance can be achieved by upgrading the network to 32 Gbps with Gen 6 Fibre Channel—without requiring any changes to the target storage system. In their testing, completion time was a full 71 percent less with Gen 6 Fibre channel compared to a legacy 8 Gbps network, enabling faster decision making and

[1] Emulex/Broadcom TPC-H benchmark Testing: See http://www.demartek.com/Demartek_Emulex_LPe32000_Gen6_FC_Evaluation_2016-03.html

offering substantial business value (see Figure 1).

Whereas the breakthrough application performance and throughput delivered by Gen 6 Fibre Channel is mandatory to meet these performance requirements and fully leverage these new flash storage capabilities, it is also crucial to address requirements for greater availability and predictability from the storage network.

Brocade Gen 6 Fibre Channel addresses such requirements by going beyond performance to offer a variety of unique innovations delivered through the Gen 6 Fibre Channel Application-Specific Integrated Circuit (ASIC), in combination with Brocade Fabric OS® (Brocade FOS) and Brocade Network Advisor. Together, these new capabilities enhance operational stability and increase business agility, providing the mission-critical foundation required to support "always on" business operations and to seamlessly integrate next-generation storage.

Brocade Unique Innovation

The unparalleled bandwidth, scale, and performance of Brocade Gen 6 Fibre Channel are not sufficient on their own to meet the demands of customers who manage a mission-critical IT infrastructure. The drivers behind the bandwidth and performance gains provided by Gen 6 Fibre Channel, such as higher-density virtualization and flash-based storage, also require that they are deployed easily and operated consistently—with low OpEx. The ability to simplify management, provide deep and granular visibility into storage performance, accelerate troubleshooting, and enable performance optimization are essential to ensure operational consistency and stability for any large-scale environment.

Unprecedented Visibility into Storage Performance

Brocade Gen 6 Fibre Channel offers several breakthrough technologies that

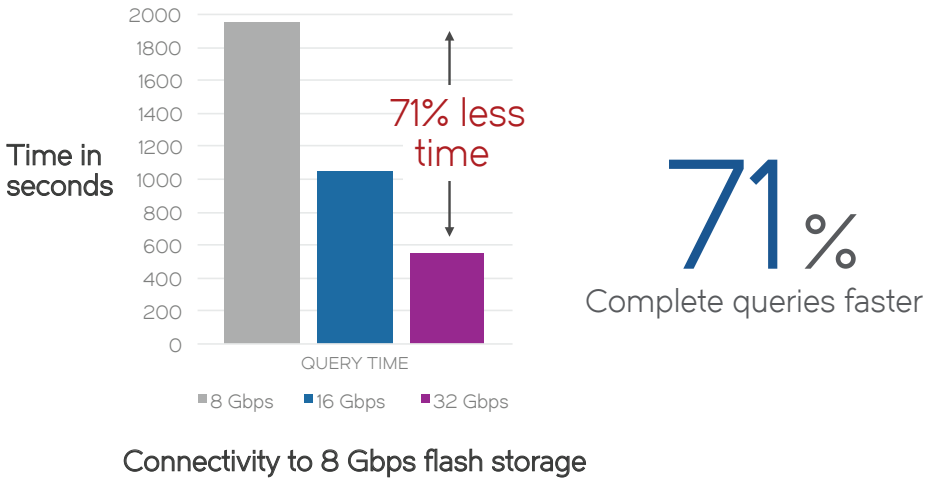


Figure 1: Accelerate 8 Gbps flash storage with 32 Gbps networking.

BROCADE FABRIC VISION TECHNOLOGY WITH IO INSIGHT

- Automatically detect degraded application performance through integrated network sensors for device latency and IOPS metrics.
- Optimize application performance and availability through IO Insight intelligence.
- Increase resiliency by automatically discovering and recovering from device or network errors.
- Validate and benchmark the physical infrastructure to help ensure predictable application performance prior to deployment.
- Simplify end-to-end management of large-scale environments by automating monitoring and diagnostics.

go beyond throughput performance to enhance operational stability and increase business agility. One of the key capabilities, Brocade Fabric Vision technology, provides unprecedented visibility and insight across the storage network, through powerful monitoring, diagnostic, and management tools that dramatically increase uptime, optimize performance, and reduce costs.

New with Brocade Gen 6 Fibre Channel, Brocade Fabric Vision technology now includes the Brocade IO Insight capability. IO Insight extends Brocade Fabric Vision technology by proactively monitoring IO performance and behavior through integrated network sensors, providing deep insight into storage performance problems and helping to ensure service levels. This capability nondisruptively and nonintrusively gathers IO statistics from any device port, feeding a monitoring policy that measures thresholds and generates alerts. Integrated application- and device-level IO latency and IOPS monitoring provides the ability to baseline application performance and detect degraded performance. The integrated network sensors of IO Insight provides IO performance management that is designed to avoid dependence on invasive and disruptive physical taps.

By coupling IO Insight with the built-in monitoring, management, and diagnostic tools of Brocade Fabric Vision technology, IT organizations can make more intelligent resource allocation decisions based on advanced tools that help them more effectively manage operational objectives and ensure optimal performance across the storage network.

Brocade Network Advisor 14.0.1 supports the IO Insight metrics displayed in the Flow Vision real-time performance graph. The screen capture in Figure 2 displays the IO Insight metrics for a flow. Administrators can save this performance graph as a widget and add it to the Brocade Network Advisor dashboard for at-a-glance performance view of the important IO flows.

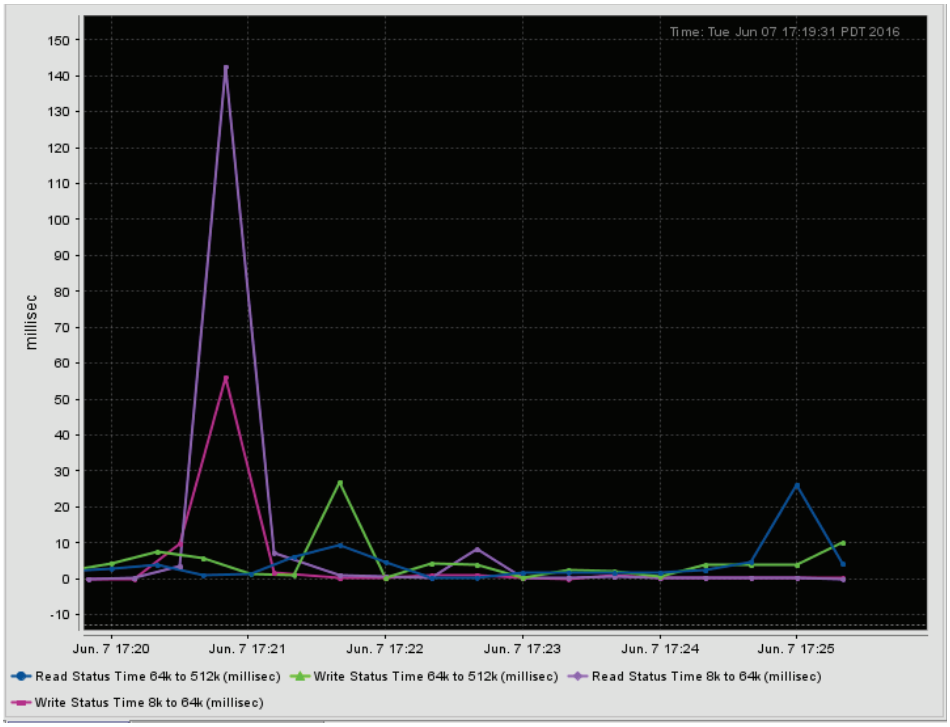


Figure 2: IO Insight metrics displayed in a Brocade Network Advisor real time performance graph.

Simplified Management and Accelerated Deployments

Brocade Network Advisor simplifies Gen 6 Fibre Channel management and helps organizations dramatically reduce deployment and configuration times by allowing fabrics, switches, and ports to be managed as groups. Customizable dashboards graphically display performance and health indicators out of the box, including all data captured using Brocade Fabric Vision technology and IO Insight. To accelerate troubleshooting, administrators can use dashboard playback to quickly review past events and identify problems in the fabric. Dashboards and reports can also be configured to show only the most relevant data, enabling administrators to more efficiently prioritize their actions and maintain network performance.

Brocade Network Advisor provides organizations with a programmable web-based interface through a standard Representational State Transfer Application Programming Interface

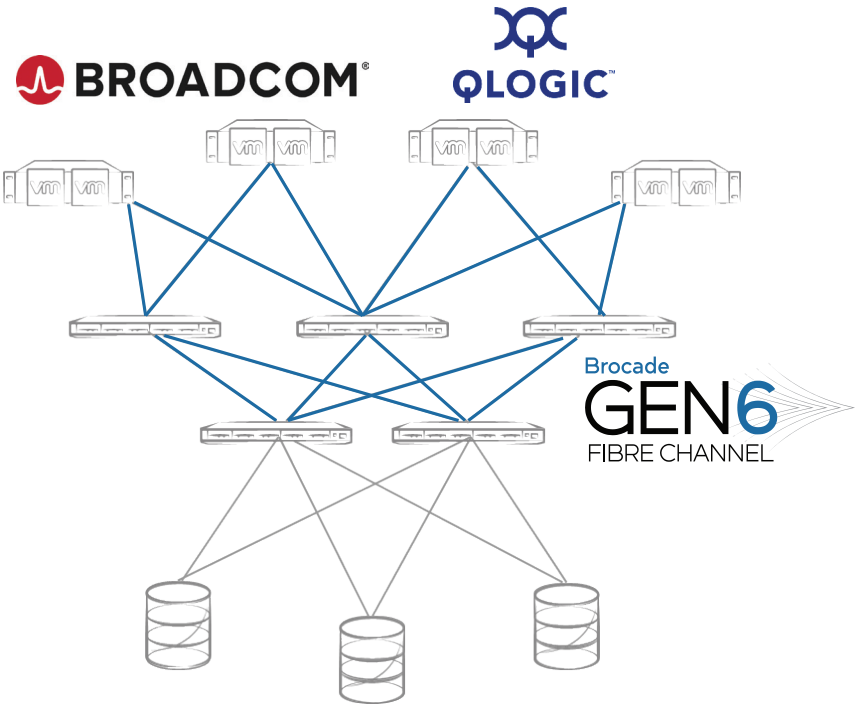
(REST API) that reduces operational tasks by automating zoning, scripting, and reporting. To further simplify management tasks, administrators can quickly search through events, historical data, and base inventory and can apply filters. In addition, the standard REST API leverages Brocade Fabric Vision technology to gain fabric-wide health and performance visibility via easy-to-read dashboards.

Brocade simplifies management further by integrating with leading Host Bus Adapter (HBA) vendors. By sharing technology and partnering with leading HBA vendors, Brocade Gen 6 Fibre Channel with Fabric Vision technology is able to simplify and accelerate server deployments, ensure predictable performance across both the server and storage IO infrastructure, consolidate and simplify end-to-end management, and quickly identify and isolate optics and cable problems (see Figure 3).

Together with its HBA partners, Brocade Gen 6 Fibre Channel with Fabric Vision technology and IO Insight helps organizations increase business agility by offering enhanced, end-to-end storage network stability and predictability, optimized performance, and flexibility.

Multiprotocol Replication over Distance

Leveraging the purpose-built, highly scalable Brocade SX6 Extension Blade for Fibre Channel, FICON, and IP storage replication, administrators can accelerate data replication over distance to meet recovery objectives and secure data flows at full line-rate speed without compromising performance. With industry-leading port density and with up to 80 Gbps application throughput per blade, as well as unique multiprotocol and bandwidth optimization technology, this Brocade Gen 6 Fibre Channel and IP replication solution moves data faster and easily scales to support the world's most demanding environments. It delivers business resiliency at scale with 32 Gbps Fibre Channel and 1/10 Gigabit Ethernet (GbE) IP storage replication over 1/10/40 GbE IP Wide-Area Network (WAN) connections to handle the unremitting growth of data traffic between data centers. To ensure nonstop



- Simplify server deployment
- Ensure predictable performance
- Consolidate and simplify management
- Identify and isolate optics and cable problems

Figure 3: HBA integration with Brocade Gen 6 Fibre Channel.

operations, the Brocade Gen 6 replication solution delivers holistic management through Brocade Fabric Vision technology, providing greater control and insight and simplifying troubleshooting of end-to-end IO flows over distance.

Close Integration with Mainframe

Brocade builds on more than 20+ years of mainframe leadership to deliver the industry's highest performance and most reliable and scalable FICON infrastructure. With seamless FICON connectivity for mainframe storage environments and support for innovative features that only Brocade can offer—including ClearLink D_Port, Fabric IO Priority, FICON Dynamic Routing, Gen 5 and Gen 6 Fibre Channel Forward Error Correction (FEC), and Inter-Switch Link (ISL) Encryption—organizations can achieve the full potential from new IBM z13 and z13S mainframe investments.

Flexible Deployment Options

The Brocade Gen 6 portfolio offers flexible deployment offerings to help organizations maximize their infrastructure, increase business agility, and enable scalability on demand. The Brocade X6 Director, for instance, is available in two modular form factors, the Brocade X6-8 and X6-4. This modular chassis design increases business agility with two optional blades to seamlessly deliver storage connectivity and support disaster recovery and data protection storage solutions over long distances. The X6 directors offer reversible air flow, providing organizations with more cooling deployment options. These new options—allowing non-port-side intake to port-side exhaust (NPI) or port-side intake to non-port side exhaust (NPE)—offer additional deployment flexibility and operational efficiency.

Deployment flexibility is also available with the Brocade G620 Switch. The Brocade G620 provides the industry's highest port density solution in a compact 1RU form factor, along with pay-as-you-grow scalability with its 24 to 64 ports, for on-demand flexibility. The switch also comes with (4) Q-Flex ports—with each port able to support either 4 × 32 Gbps or 128 Gbps speeds for ISL or device connectivity—providing unmatched deployment flexibility and the ability to transparently meet changing connectivity requirements.

Brocade Gen 6 Fibre Channel in Action

Brocade Gen 6 Fibre Channel delivers industry-leading 32 Gbps performance to accelerate data access without oversubscription. With Brocade Fabric Vision technology and IO Insight, Brocade Gen 6 Fibre Channel provides a more stable, predictable network and the transparent adaptability to meet next-generation storage requirements.

Benefits of Brocade Gen 6 Fibre Channel include:

- Breakthrough application performance
- Enhanced operational stability
- Increased business agility

Breakthrough Application Performance: The Need for Speed

Performance matters for critical applications, demanding workloads, and flash-based storage architectures. Gen 6 Fibre Channel delivers the throughput and low latency that are needed to meet these new and evolving server and storage performance requirements. The following use cases highlight the benefits of Brocade Gen 6 Fibre Channel.

Application Growth Use Case

The big growth in all computing environments is the increasing size and number of software applications and workloads that are considered Tier 1, mission-critical. Large and growing databases, virtual server environments with mixed workloads, and servers are putting tremendous strain on the existing infrastructure, driving greater storage capacity and bandwidth requirements.

Gen 6 Benefit: Brocade Gen 6 Fibre Channel with 32/128 Gbps links dramatically increases IO performance and throughput to complete workloads faster, while providing a highly scalable infrastructure that supports massive application growth.

Higher-Density Server Virtualization Use Case

Virtual Machine (VM) densities (the number of VMs hosted on each physical server) continue to rise from 10–20 VMs to 40–50 VMs per physical server—all booting from the Storage Area Network (SAN) and accessing SAN resources. Increased density of VMs is enabled by new, more powerful 16+ core servers, Peripheral Component Interconnect express (PCIe) Gen 3 technology running at 256 Gbps, and Terabytes of RAM that allow VMs and applications to run at their full potential, driving demand for higher performance (bandwidth and IO).

Gen 6 Benefit: The higher throughput delivered by Brocade Gen 6 Fibre Channel supports double the VM density

of Gen 5 Fibre Channel, providing greater server utilization and ensuring optimized performance for high-density VM deployments. Leveraging the 128 Gbps links, Gen 6 Fibre Channel offers up to 8X the bandwidth compared to Gen 5 Fibre Channel, enabling full utilization of today's more powerful server and IO infrastructures, as well as scalability for the growing VM environment.

Flash-Based Storage Use Case

Recent flash technology advancements enable scalability of up to hundreds of Terabytes in a compact form factor, and faster flash arrays are now capable of millions of IOPS, further accelerating application performance. To make flash even more attractive, the cost of flash has dropped considerably. For these reasons, many enterprises are moving to an all-flash environment to eliminate performance issues and scalability challenges. This move, however, drives the need for higher IO bandwidth performance, and it will only increase with flash storage based on NVMe over Fabrics.

Gen 6 Benefit: Breakthrough Gen 6 Fibre Channel performance accelerates application response time by up to 71%, eliminating IO bottlenecks and unleashing the full performance of flash and next generation NVMe-based storage.

High-Performance OLTP Use Case

Online Transaction Processing (OLTP) is foremost about optimizing speed. High-performance OLTP transactions require higher IOPS and lower latency than currently available, to accelerate application response time and complete the workload faster in order to generate more revenue. The infrastructure must also be highly scalable to meet requirements during peak periods and support application growth.

Gen 6 Benefit: In addition to completing workloads 71 percent faster, Gen 6 Fibre Channel delivers lower latency and faster application response time for demanding application workloads. In the Demartek benchmark testing[2], the data warehouse workload query time and latency for both target and initiator was cut almost in half compared to Gen 5 Fibre Channel. Speeding up data-intensive application response times allows more transactions to complete in less time and enables improved service levels while providing a highly scalable infrastructure to support peak loads. Revenue-producing OLTP workloads will benefit by generating more revenue for the business and ensuring that customer service SLAs are met.

High-Resolution Video Use Case

With the advent of faster frame rates and 4K resolution, the amount of digital data created has quadrupled almost overnight. The result for post-production editors is that real-time editing of 4K video is now bottlenecked by a SAN infrastructure deployed to support 2K video.

Gen 6 Benefit: Brocade Gen 6 Fibre Channel removes the SAN bottleneck and provides 32/128 Gbps line rate performance on every port to support 4K video editing.

Replication over Distance Use Case

IT organizations continue to be challenged with effectively managing the growing amount of data that needs to be replicated between data centers. Not only is the amount of data growing, the type of workloads and application data that needs to be protected is expanding beyond the traditional Fibre Channel/FICON block storage to include more business-critical IP-based storage data. The storage network must be able to scale to move more data faster over any distance.

Gen 6 Benefit: The Brocade purpose-built, highly scalable Gen 6 Fibre Channel and IP extension solution accelerates data replication to meet recovery objectives and secure data flows over distance at full line-rate speed—50X higher throughput than native IP storage replication.

In order to deliver the promised breakthrough application performance required by these server and storage infrastructures, Brocade Gen 6 Fibre Channel is closely integrated with—and has deep ecosystem support from—HBA vendors. Leveraging the rich feature set of Gen 6 HBAs together with the breakthrough performance of Gen 6 Fibre Channel switches, administrators can ensure Quality of Service (QoS) for critical applications.

Enhanced Operational Stability: Driving Always-On Business

The digital transformation requirements go beyond performance, however. Required service levels continue to rise, with users expecting data to be accessible from anywhere, at any time, on any device, instantly. The goal is no downtime, ever. The use of virtualization, flash storage, and automation tools has allowed applications and services to be deployed faster and shatter performance expectations. But the unprecedented number of application and service interactions has also increased the complexity, risk, and instability of the overall infrastructure. As a result,

[2] http://www.demartek.com/Demartek_Emulex_LPe32000_Gen6_FC_Evaluation_2016-03.html

IO INSIGHT FOR ALWAYS-ON BUSINESS

- Monitor storage IO health and performance to maintain SLA compliance
- Identify IOs that deviate from expected behavior to facilitate fault isolation and troubleshooting
- Tune device configurations with integrated IO metrics to optimize storage performance

getting actionable intelligence about any performance issues across the storage network is critical for delivering stable operations.

Brocade goes beyond Gen 6 Fibre Channel standards to deliver the innovations and capabilities required to meet these new requirements, enhancing operational stability and providing the foundation required to enable "always on" business operations. Brocade Gen 6 Fibre Channel with Brocade Fabric Vision technology and IO Insight give data center administrators the needed visibility into application IO performance, to ensure SLA compliance, quickly troubleshoot IO performance problems, and optimize storage performance. These use cases are discussed below.

Ensure Storage Performance SLAs Use Case

When administrators are responsible for guaranteeing a certain level of performance and application response time in the SLA to their customer, throughput and latency are often the key metrics they use. For instance, in an environment with mixed storage arrays that support mixed workloads, administrators may be required to guarantee that latency for IO operations is under 25 milliseconds, to ensure adequate application response. For specific latency-sensitive applications that are provisioned on all-flash arrays, latency must be under 5 milliseconds.

Gen 6 Benefit: The built-in capabilities of Brocade Fabric Vision technology with IO Insight nondisruptively and nonintrusively collect the IO metrics needed to ensure SLA compliance. Administrators can simply define which data flows they want to monitor using Flow Monitor, import the flows into the Brocade Monitoring and Alerts Policy Suite (MAPS) with the required latency thresholds, and proactively monitor those flows to ensure compliance. If the required latency threshold is violated, administrators are notified to take early action before customers request support. Reports can also be generated to track SLA compliance over time.

Storage Performance Troubleshooting Use Case

When applications experience IO-related performance problems such as slow response, time outs, or even a crash, administrators are under great pressure to resolve the issues quickly. Because there are many components in a storage network that can impact performance, the administrator must first try to isolate the root cause of the problem—is it within the fabric or a storage device? Or maybe the culprit is a slow drain host. Uncovering the root cause of the performance issue can be extremely difficult and time consuming.

Gen 6 Benefit: Brocade Fabric Vision technology with IO Insight is able to quickly—with just a few commands or mouse clicks—-identify the root cause of performance issues. Using Flow Monitor, data flows can be defined on storage ports to obtain the latency and performance metrics of storage devices. If metrics are abnormal, it is very likely that the problems are due to the storage device itself rather than the fabric. If the metrics are within normal range, the problems are most likely within the fabric or coming from the hosts. With Brocade Gen 6 platforms, administrators can then further troubleshoot by defining a flow on the host ports. If the metrics are within normal range, then the

problem is probably a host side issue. If the metrics are abnormal, problems within the fabric or a slow draining host are likely causing the slow response. Administrators can also confirm whether the host is a slow drain device by correlating with Fabric Performance Impact monitoring from Brocade. If not, it is likely that fabric congestion is negatively impacting performance of the flow. The IO performance metrics provided by IO Insight dramatically accelerate troubleshooting performance issues, helping organizations avoid disruption to operations and reducing costs.

Storage Performance Optimization Use Case

The demand has dramatically increased for a large-scale storage network with optimal performance delivered consistently and with operational stability. However, to ensure that optimal performance is consistently delivered—cost-effectively--requires in-depth intelligence and IO metrics.

Gen 6 Benefit: Brocade Fabric Vision technology with IO Insight can also be used to optimize the performance of a storage infrastructure. For latency-sensitive applications, administrators can use IO Insight metrics to directly measure IO latency to any given storage target and make informed decisions to properly provision and deploy these applications. Administrators can also use IO Insight metrics to tune and optimize the overall network connecting hosts and storage. By using the Pending IO metric in conjunction with the number of servers to a storage port and the number of Logical Unit Numbers (LUNs) to a storage port, administrators can determine if settings for Queue Depth (the number of IOs that can be supported concurrently) should be raised or lowered to ensure that performance is always optimized for latency-sensitive mission-critical applications as well as less critical applications.

Leveraging Brocade Gen 6 Fibre Channel with Brocade Fabric Vision technology and IO Insight, IT organizations will have the predictable application performance they require, as well as unprecedented visibility and insight into highly virtualized application data flows, simplifying management and meeting their "always on" business requirements.

Other features of Brocade Fabric Vision technology—such as FEC at 16 Gbps, ClearLink Diagnostics, and Virtual Channel (VC) level Credit Loss Recovery—enhance reliability, enable easy predeployment testing and postdeployment troubleshooting, and protect against performance degradation due to physical link level issues. These capabilities lead to greater overall operational stability.

Increased Business Agility: Adapting and Optimizing Business

To realize the full benefits of flash storage, organizations will be transitioning their high-performance, latency-sensitive workloads to flash-based storage with next-generation NVMe over Fabrics. The simplicity and efficiency of NVMe over Fibre Channel (FC) enables significant performance gains for flash storage. Moreover, NVMe over Fabrics enables users to achieve faster application response times and harness the performance of hundreds of SSDs for better scalability across virtual data centers with flash.

BROCADE GEN 6 FIBRE CHANNEL

Brocade Gen 6 Fibre Channel offers the industry's broadest storage connectivity and deployment offerings to meet evolving storage requirements, both today and tomorrow. Brocade Gen 6 increases business agility by allowing organizations to:

- Integrate seamlessly next-generation NVMe over Fabrics with Gen 6 Fibre Channel networks without a disruptive rip and replace
- Mitigate risk with backward-compatibility to existing infrastructure, while protecting investments with Gen 7-ready storage networking infrastructure
- Extend replication over distance with a highly scalable extension solution for Fibre Channel, IP and FICON
- Deliver seamless FICON connectivity for mainframe storage environments
- Gain operational efficiency with flexible cooling deployment options
- Reduce power consumption by 28 percent, saving power for new data center components.

Organizations can seamlessly integrate Brocade Gen 6 Fibre Channel networks with next-generation NVMe over Fabrics without a disruptive rip and replace. The efficiency of NVMe over FC combined with the high performance and low latency of Brocade Gen 6 Fibre Channel, organizations can accelerate IOPS to deliver the performance, application response time, and scalability needed for next generation data centers. NVMe over Fabrics is already moving forward and will provide the required networked storage to make clustering and VM mobility a reality.

For investment protection, Brocade offers three generations of backward-compatibility support for connectivity to 4, 8, and 16 Gbps Fibre Channel products. Furthermore, the Brocade X6 Director supports future Fibre Channel generations as a Gen 7- ready storage networking platform, allowing current Gen 6 and future-generation switch blade modules to be added to the chassis.

Summary

Data center modernization starts with Gen 6 Fibre Channel, but modern networks for the all-flash data center need more than just higher throughput and lower latency. Brocade Gen 6 Fibre Channel delivers the enhanced operational stability and increased business agility required to thrive in the new modern data center. Innovations from Brocade such as Brocade Fabric Vision technology with IO Insight ensure a consistent, predictable, and highly scalable foundation that organizations can use to optimize their business and seamlessly adapt to meet next-generation requirements for storage based on NVMe over Fabrics. Leveraging Brocade Gen 6 Fibre Channel, IT organizations can make sure today that their storage networks are adaptable and future-ready, optimizing virtualized applications and unlocking the full capabilities of the all-flash data center both today and in the future.

About Brocade

Brocade networking solutions help organizations achieve their critical business initiatives as they transition to a world where applications and information reside anywhere. Today, Brocade is extending its proven data center expertise across the entire network with open, virtual, and efficient solutions built for consolidation, virtualization, and cloud computing.

Learn more at www.brocade.com.

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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