

DRIVING ADVANCEMENTS IN STORAGE ECOSYSTEM MANAGEMENT AND SECURITY

Brocade and Emulex have initiated a joint engineering, marketing, and standards initiative to define and architect next-generation storage networks that improve performance, increase data availability and security, and simplify enterprise storage management

As more and more organizations implement Storage Area Networks (SANs) to bolster their IT infrastructures, they are realizing a wide range of business benefits. Two of the most valuable benefits are the flexibility and cost savings brought about by a centralized storage management strategy. However, faced with increasingly complex business requirements and exponential increases in data volumes, these organizations are searching for even broader management solutions that cover not only SAN environments, but the entire storage area as well.

Brocade and Emulex have initiated a joint engineering, marketing, and standards initiative to define and architect next-generation SANs and lead the way for efficient Storage Area Management (SAM) solutions. By extending the scope of Brocade fabric intelligence to include data from Host Bus Adapters (HBAs) that reside on storage network hosts, Emulex and Brocade enable a true ecosystem management approach leveraging the Brocade Fabric Access API and Emulex's HBA management suite, HBAnyware™. This collaborative effort addresses current challenges associated with storage network design, implementation, security, and administration. It enables comprehensive management solutions that simplify and automate a wide range of management tasks and advances the adoption of advanced standards. Over time, this ecosystem approach will enable increasingly comprehensive SAM solutions that help organizations increase data security and availability, streamline their business operations, and significantly reduce the overall cost of storage management.

REALIZING NEXT-GENERATION STORAGE NETWORKING

As organizations depend increasingly on information to run their businesses, they continue to strive for seamless, around-the-clock data access. With enterprise data volumes doubling every year and new data-intensive applications—such as customer relationship management, transaction processing, enterprise resource planning, and supply chain management—proliferating the enterprise, many organizations are searching for better ways to manage this data explosion. To remain competitive, IT decision-makers must address all these issues in the context of today's most critical enterprise imperatives: high availability, information security, and business continuance.

Managing the exponential increase in enterprise data requirements into the future will mean extending current SAN management infrastructures to a new level of management known as Storage Area Management (SAM).

SAM addresses the need to manage the entire data path from applications all the way through to storage devices—masking the complexity of that path and enabling applications to communicate directly with the storage pool. However, SAM is much more than a static application. Rather, SAM is a process of best practices that encompass the entire storage environment—including devices, applications, databases, services, facilities, and procedures—along with the complex stack of relationships between those elements. The focus of SAM is to simplify the layers of components and make management tasks transparent to users.

Emulex and Brocade have initiated a strategic alliance that expands their existing partnership of several years. The purpose of the joint engineering, marketing, and standards initiative is to define and architect next-generation storage networks. This collaborative effort also supports the fundamental shift toward the SAM model—moving beyond point management solutions to true end-to-end storage management.

As respective leaders in the industry, Brocade and Emulex are focused on addressing challenges in designing, implementing, administering, and securing fabrics within a unified enterprise management context. As a result, enterprise organizations can take advantage of integrated, end-to-end management functionality that increases performance, improves data availability, and simplifies storage network management.

WHAT ENTERPRISE ORGANIZATIONS STAND TO GAIN

Together with achievements in technology, the advancement of standards in storage networking has given enterprise organizations enormous benefits in the form of assured interoperability, greater performance, high availability, and simplified management—all of which benefit the bottom line in the form of cost and resource efficiencies.

Continually advancing the advantages and benefits of storage networking technology requires concerted and concurrent standards and architectural initiatives, with broad participation throughout the storage networking ecosystem. The collaboration between Emulex and Brocade is driving the adoption of new standards to extend the functionality and value of storage networking.

LEADING ADVANCES IN MANAGEMENT AND SECURITY

The initial focus of the joint initiative between Emulex and Brocade is on increasing the security and manageability of the SAN. These efforts bring innovation to the market by leveraging existing standards and orchestrating the submission of new ANSI T11 standards for Fabric Device Management Interface (FDMI) and Fibre Channel Authentication Protocol (FCAP). The initiative also implements new security and HBA management mechanisms, including firmware download and HBAnyware, an Emulex technology. Below is more information about each of these.

As leaders in the fabric switch and Host Bus Adapter (HBA) industries, respectively, Brocade and Emulex can help accelerate the standards adoption process. The overall purpose of the initiative is to unlock greater intelligence in the fabric and establish a reference platform that other SAN management applications can leverage. In turn, this enables organizations to accelerate their return on investment and lower the total cost of ownership for storage networking.

Enhanced End-to-end Management

The purpose of the Brocade and Emulex joint development is to establish standards for SAN management applications to obtain HBA and host information from a single point. This eliminates the need for SAN management applications to write their own special agents to query and configure HBAs. With the intelligent fabric as the source of this information, applications can leverage a consistent interface in a uniform way, thereby increasing functionality and reducing the total cost of ownership through integrated or federated applications.

The joint initiative addresses the need for enhanced end-to-end SAN management—integrating HBA and switch management and eliminating the need to manage SAN components independently. The ultimate goal is to coalesce all storage management and orchestrate a Common Information Model (CIM)-based Fibre Channel management standard for such an end-to-end integration.

This means that organizations won't have to maintain multiple tools for point management within different portions of the storage enterprise. Unifying storage management reduces administrative overhead and unlocks additional advantages inherent to Fibre Channel storage networking.

This level of management is only the beginning. Together, Brocade and Emulex are extending the reach of the fabric across global enterprises—moving beyond point management solutions to true end-to-end data management and supporting the SAM model.

Enhanced End-to-end Enterprise Security

Joint development between Emulex and Brocade enables added security between end devices and the fabric. This means organizations can establish “regions of trust” among devices that extend beyond the switch fabric. These regions of trust are based on verification by a trusted third party that certifies the identity of each device authorized to participate in the fabric. This level of security already exists within the switch fabric and can now extend to edge devices as well.

Brocade uses a cryptographically strong mechanism for establishing mutual trust between SAN components. The first Brocade implementation, Switch Link Authentication Protocol (SLAP), establishes a region of trust between switches. For an end-to-end solution to be effective, this region of trust must extend throughout the SAN, which requires the participation of fabric-connected devices, such as HBAs. The joint initiative between Brocade and Emulex establishes Fibre Channel Authentication Protocol (FCAP) as the next-generation implementation of SLAP.

The ability to extend authentication and security policies to include HBAs as well as switches will broaden the scope of fabric security and offer a higher level of protection. Customers gain the assurance that a region of trust extends over the entire storage administrative domain.

The Brocade Fabric Access API—A Unifying Platform

The Brocade Fabric Access API provides a unifying platform for development of management applications to tap into the intelligence of the storage network fabric. This intelligence makes it possible for Brocade and partners like Emulex to supply new classes of storage network solutions that are more powerful, more secure, and easier to manage—therefore more cost-effective. The collaborative effort between Brocade and Emulex not only increases the intelligence of the fabric, it enables the Fabric Access API to serve as the single data access point for enterprise-level storage area management applications.

A SOLID FOUNDATION FOR GROWTH

The Emulex and Brocade initiative is based on a solid architectural foundation that will enable further development of advanced functionality and standards. The initial focus is on the deployment of FDMI, FCAP, and firmware download capabilities.

Fabric Device Management Interface (FDMI)

FDMI enable storage network devices to register information into a central repository. Emulex and Brocade are working together to enable SAN management applications to obtain centralized HBA and host information from a single point through a consistent interface. This will alleviate the need to install and manage complex software architectures, such as host-based agents, in order to obtain information about edge devices connected to the fabric. It will also provide better asset management capabilities and reduce SAN deployment costs.

As defined in the ANSI T11 FC-GS-4 specification, FDMI enable devices to register static information to the fabric. Brocade and Emulex have worked jointly to implement the FDMI specification in their products. Emulex FDMI support is in the software driver architecture, while Brocade FDMI support resides in the Fabric OS architecture. Brocade also provides access to FDMI data through Fabric Manager and the Fabric Access API, thereby exposing more fabric intelligence to management applications. The Brocade Fabric Access API architecture supports compliance with the Common Information Model (CIM)—an open standard for developing management applications—as well as Bluefin, which supports FDMI modeling.

Firmware Download

Emulex enables HBA firmware downloads and other HBA management functions using a remote HBA API. Emulex HBAnyware leverages in-band communication to perform firmware upgrades.

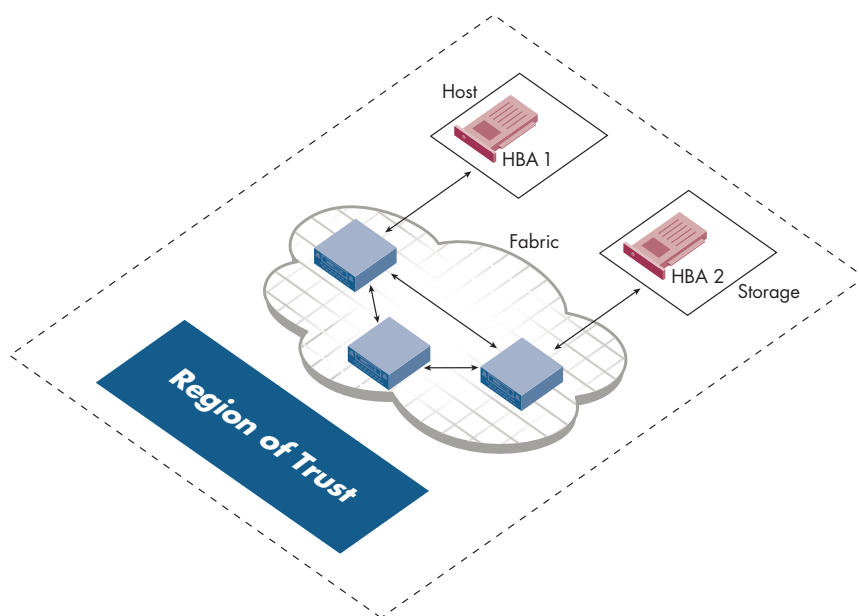
The Brocade Fabric Access API enables management of the firmware download process over multiple fabrics from a single management station connected to one or more fabrics over Ethernet. This enables administrators to distribute HBA firmware from a single location in the same way they currently distribute firmware for Brocade fabric switches.

Fibre Channel Authentication Protocol (FCAP)

FCAP is a next-generation Brocade security mechanism for establishing mutual trust among SAN components. Brocade has incorporated FCAP into its fabric switch architecture and has proposed the specification as a standard to ANSI T11. The joint Brocade and Emulex implementation of FCAP on HBAs is driving acceptance of FCAP as a standard.

FCAP is a Public Key Infrastructure (PKI)-based cryptographic authentication mechanism for establishing a common region of trust among the various entities (such as switches and HBAs) in a storage network ecosystem. A central trusted third party serves as a guarantor to establish this trust.

With FCAP, certificate exchange takes place among the switches and edge devices in the fabric to create a region of trust (indicated by the dotted line in the diagram below).



LEADING THE WAY TO COMPREHENSIVE MANAGEMENT SOLUTIONS

Through their collaborative efforts, Brocade and Emulex are advancing new technologies and standards and providing key elements that lead the way for comprehensive management solutions. And these solutions support the SAM model for enterprise storage management. More than simply a static application, SAM is a strategic process requiring flexible, intelligent solutions that can evolve as business requirements change. Bringing this vision to fruition requires the automation of storage management processes—hiding complexity and delivering a variety of end-to-end services—as modeled by Brocade and Emulex.

This type of functionality enables the SAN fabric to serve as a platform for the dynamic provisioning of resources that meet a variety of application needs. By leveraging these advanced capabilities, organizations will be better able to reduce many labor-intensive and time-consuming aspects of storage network administration. In turn, they will see substantial business benefits as they overcome their data management challenges.

For more information about Brocade storage management offerings, visit www.brocade.com.

SAN Expertise Online

To learn more about the benefits of networked storage environments, visit the Brocade SAN Info Center at www.brocade.com/san.

This online facility contains a wide range of useful information, including a full resource library and detailed guidelines describing the SAN implementation process.



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