

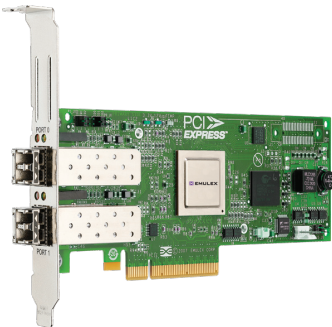


Emulex LPe12002 vs. Brocade BR825

At a Glance

Emulex Advantages

- Proven reliability
- Interoperability
- Management scalability
- HBA virtualization leader



With over 7 million ports installed, Emulex HBAs and Universal Converged Network Adapters (UCNAs) are well known as the premier connectivity solution for data centers. Superior reliability, interoperability, performance and the most scalable hardware and software architecture in both standard and virtual server deployments is why data centers worldwide choose Emulex.



OneCommand™

Emulex Advantages

Proven Reliability

Emulex Host Bus Adapters (HBAs) are field-proven with over 7 million HBA Fibre Channel ports installed. Additionally, Emulex 2Gb/s and 4Gb/s HBAs feature 10 million hours of field-proven Mean Time Between Failure (MTBF), the most reliable in the industry. In a survey by IT BrandPulse, Emulex 8Gb/s HBAs were ranked first in terms of reliability, service and support.

Brocade's HBA reliability is not field-proven, and its support team has no history with HBAs.

The errata list for Brocade HBAs includes many issues that need to be resolved. Brocade recently addressed 58 items, as mentioned in their errata list, but have since added an additional 52 items. Some of the noted errata items can have a significant impact on the proper operation of the Storage Area Network (SAN). Brocade has no public claims of deployed port count or MTBF for its current HBAs.

Data centers require an HBA that has proven reliability and an expert support team in place to assist if needed. Emulex has a proven, field-tested track record for reliability and support.

Interoperability

Emulex solutions have a proven track record with SAN hardware OEMs and software vendors. Emulex HBAs have been qualified and certified on a broad range of server, storage and software solutions, ensuring seamless integration between existing and new data center deployments.

In sharp contrast, Brocade HBAs have limited hardware and software qualifications and certifications, which presents a significant interoperability obstacle for data centers. Brocade's interoperability shortcomings include:

- No Solaris 8 and 9 support
- No VMware ESXi support
- No Oracle VM or Oracle Enterprise Linux support

- No solutions for blade server platforms
- No qualified solutions for Sun server platforms
- HP qualification limited to specific models within the ProLiant G5 server product line (no Intel Xeon 5500 - Nehalem servers)
- No products for PCI, PCI-X 1.0, PCI-X 2.0 bus types
- No UEFI support, outdated user functionality and restricted boot-from-SAN capability

The fact remains that data center environments are comprised of a heterogeneous set of hardware and software platforms, and interoperability is paramount to ensure efficient management and SAN availability.

Management Scalability

Increasing business demands and budget constraints are forcing data centers to do more with existing resources. Improving management efficiency is one way to address resource constraints. Emulex's adapter management application, OneCommand™ Manager (previously called HBAnyware®), streamlines administrative functions through adapter automation and provisioning capabilities. OneCommand Manager's ability to manage multiple adapters at one time is just one of the key features that IT administrators have used to improve efficiency. Whether it is one HBA or thousands of adapters, OneCommand Manager can update driver or firmware code quickly and effortlessly.



Emulex LPe12002 vs. Brocade BR825

8Gb/s Fibre Channel PCI Express HBA

- Industry-leading performance and reliability
- Available for all leading environments



Emulex Advantages (continued)

Brocade's management utility, HCM, lacks critical management capabilities expected for an "enterprise"-class solution. Brocade's HCM lacks the ability to manage multiple HBAs at one time. For IT administrators, this means spending hours to perform driver and firmware update tasks. This definitely is not the way to increase efficiency within the data center. Data centers require a combined view of the entire network for effective SAN management. Emulex's OneCommand Manager application is a proven management product, while Brocade's HCM utility lacks features that data centers require.

Emulex is the HBA Virtualization Leader

Emulex's leadership in the market is validated by the following:

- Co-creator of N_Port ID Virtualization with IBM
- In-box Emulex ESX drivers, which saves deployment time and money. Brocade drivers are not in-box
- Emulex supports VMware ESXi—Brocade does not support ESXi, which requires use of in-box driver
- Emulex has the greatest Virtual Port (vPort) creation capability of all the HBA vendors. For example, in lab trials run with VMware ESX 3.5 Update 2, Emulex HBAs were able to achieve a maximum vPort count of 64. Brocade HBAs were limited to 20 vPorts.

Using Emulex HBAs, storage and server administrators can fully leverage server virtualization for maximum cost savings.

Emulex Responses

Low Price, Low Value

Brocade is more concerned about switches than HBAs and is "buying" its way into the market. This is the only strategy available to Brocade, as its HBAs do not have the enterprise-class features, capabilities or maturity of Emulex HBAs.

Performance

Brocade claims to have the leading performance of any HBAs. This is simply incorrect. The HBA is a critical component that should support high I/O rates with minimum use of CPU resources. Emulex conducted benchmark tests to compare the performance of Emulex and Brocade 8Gb/s HBAs. Rather than artificially measure maximum I/O rates, the goal was to simulate real-world applications workload environments like Microsoft Exchange and SQL Server.

The Emulex 8Gb/s HBAs achieved substantial performance benefits in total I/O throughput, CPU effectiveness and response time versus the Brocade 8Gb/s HBAs. This best-in-class performance is a critical factor when choosing components for a SAN infrastructure that supports business-critical, real-world applications.

End-to-end (E2E) Vendor Lock-in

Brocade has been pushing E2E for ease of management, Quality of Service (QoS) and encryption as reasons for purchasing their HBAs. Brocade's E2E is "marketecture." After analysis, Emulex's findings are summarized here:

- **Management**—There is no single unified application for E2E management. Brocade's solution consists of two separate management utilities, one for HBA management (HCM) and the other for switch management (DCFM). So, there is no single console as Brocade claims. Infact, Emulex OneCommand Manager application can be invoked from Brocade DCFM in exactly the same manner as Brocade's HCM, thereby giving Emulex HBAs the same level of management integration as Brocade's HBAs.
- **QoS**—Brocade's QoS capabilities are proprietary. They do not interoperate with non-Brocade Fibre Channel switches or HBAs. SAN environments deploy HBAs and switches from a broad range of manufacturers.
- **Encryption**—Brocade's encryption features do not address the needs of customers. The Brocade HBA does not encrypt data at rest and does not provide a "simple defensible proof of encryption." The Emulex Secure™ HBA architecture provides the features customers want. The Emulex Secure HBA encrypts data at rest, which the Brocade HBA does not. The Emulex Secure HBA provides protection on the network, at each fabric switch, and in the host, providing complete protection that customers need and want.

Brocade's HBA E2E capabilities are based on proprietary implementations. Data centers want open solutions based on standards that interoperate with their entire data center. Brocade's E2E solutions are based on a "fabric centric" architecture, which creates unnecessary complexity, introduces a host of management issues and increases the cost for host I/O management.

Conclusion

The Emulex enterprise-proven LPe12000 family of 8Gb/s Fibre Channel HBAs is based on open standards, delivering superior reliability, performance, ease of deployment and operation. When compared to Brocade's BR825, the Emulex LPe12002 is clearly the ideal choice for a data center.



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