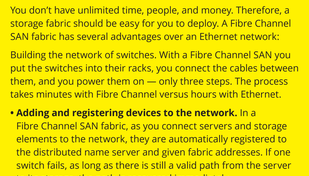
LEARNING MADE EASY

5 Things a Fibre Channel SAN Fabric Can Do for You

The storage market is about to undergo dramatic technological change as recent developments, — such as Non-Volatile Memory Express (NVMe) and automation — usher in remarkable new ways to address your storage needs. How do you plan for the transformation? What characteristics will get you the most benefit for your money in supporting the business and the application base? Those questions drive the intelligent design of the next-gen storage fabric.



Easy Deployment

You don't have unlimited time, people, and money. Therefore, a storage fabric should be easy for you to deploy. A Fibre Channel SAN fabric has several advantages over an Ethernet network:

Building the network of switches. With a Fibre Channel SAN you put the switches into their racks, you connect the cables between them, and you power them on — only three steps. The process takes minutes with Fibre Channel versus hours with Ethernet.

- **Adding and registering devices to the network.** In a Fibre Channel SAN fabric, as you connect servers and storage elements to the network, they are automatically registered to the distributed name server and given fabric addresses. If one switch fails, as long as there is still a valid path from the server to its storage, the path is recovered immediately.
- **Connecting NVMe devices.** If you're running a Gen 5 (16 Gb/s) or Gen 6 (32 Gb/s) Fibre Channel SAN fabric, you can simply connect NVMe devices to the existing SAN and run. The infrastructure is already "good to go" to carry NVMe traffic without a rip-and-replace of the switch elements.

Reliability and Availability

Any storage outage can become a major issue. Therefore, the reliability of the storage fabric is critical. Fibre Channel SAN offers these advantages:

- **Dual, redundant, hardware-isolated SAN fabrics.** With a Fibre Channel SAN fabric, a single error in a configuration doesn't drop both connections to the application server as it might in Ethernet.
- **Reliable transmission.** While Ethernet depends upon the end devices to know if data was lost in transmission and to recover it, Fibre Channel depends upon the network itself. The Fibre Channel SAN fabric never forwards data on a link without knowing in advance that there is space for the data to be received.
- **Shared, consolidated storage services.** A Fibre Channel SAN fabric doesn't face the same rate of service windows as distributed storage systems. As a consequence, the availability of the system is much higher.

Performance

New applications have more functionality, become more feature-rich, and ever-higher performing. However, it's also true that every generation of servers and storage increases performance. With the inclusion of NVMe in the storage mix, the capacity of the storage devices and the performance of the storage devices is increasing drastically.

The Fibre Channel SAN fabric allows line rate utilization, which means that you can achieve even greater density of applications and get the full performance out of your new storage technologies.

Manageability

If you can't measure, you can't manage! While Ethernet traditionally relies upon sampling the traffic performance, the Fibre Channel SAN fabric measures every frame on every port. It also can measure the latency of the traffic on every port at a rate of 400,000 times per second. This capability provides a level of granularity and visibility that becomes crucial to the next-gen storage fabric.

How do you quickly identify the problem? How do you automate the correction of the problem or, at a minimum, the mitigation of the problem? Where Ethernet struggles to find the element that is causing a slow drain or congestion problem, and then drops the traffic from the congested device to clear the traffic, the Fibre Channel SAN fabric moves the slow drain or congested device to a low-priority lane on the link between switches without losing any data.

Security

The need for data security is clear. Data breaches and losses are almost a daily occurrence.

A storage device inside a server platform is owned, in a hierarchical sense, by the server. This arrangement potentially provides back-door access to data that the administrator of that server shouldn't have because the physical system and management of the device belong to the server administrator, and the "sharing" mechanism of HCI or SDS is a higher-level application.

In contrast, the Fibre Channel SAN fabric assigns a portion of storage capacity to a server, and only that server can access that data. Another server in the same network has no access to any part of the storage not specifically assigned to it.

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