

Get Ready for Unified Fabric

These five tips can help you pave the way.

Data center architecture has been stable for many years based on store-and-forward 1/10 Gigabit Ethernet switches. But changes are coming that will cause organizations to re-evaluate and move away from that old architecture in favor of unified fabric and new super-speedy Gigabit Ethernet switches.

The drivers for these changes include server virtualization, new economics associated with moving storage to the IP infrastructure, and the higher bandwidth demands of multicore server processors.

Because virtualization requires new flexible switches, when you create a new virtual image of a server on a physical server, the switches need to instantly recognize the virtual machine and its applications and then apply the correct policies, virtual LAN, access control list (ACL), quality of service and security.

Moving storage to the IP switching infrastructure puts new demands on switches while providing significant cost savings and easing provisioning. Connecting storage directly to the IP switch requires extremely low latency (at the microsecond or nanosecond level) and no discarded packets (losslessness).

The last generation of switches cannot meet these requirements. New switches will be needed to support increased Ethernet speeds of 40 to 100 gigabits per second. These five tips can help you make this leap forward.

Tip 1: Start at the edge.

An entire new generation of low-latency and lossless switches based on unified fabric are on the way from multiple vendors. The best place to start the migration is with server aggregation or top-of-rack switches.

Not all the switches will have every feature desired, such as support for Fibre Channel over Ethernet, so make sure the manufacturer of the product you select has a path that allows for evolution and support of future requirements. If the product does support FCoE, it's also a

good place to start merging FC and IP traffic and reducing adapters on servers.

Tip 2: Watch the standards.

Many of the key features for new data center switches are being standardized. This includes support for automatically configuring policies for virtual machines when they appear, lossless forwarding through a data center switched network and support for bridging between VMs on the same server.

Some manufacturers offer their own pre-standard solutions. Make sure the switch you choose has a clear path to the new standards and a plan to get there.

Tip 3: Check the cabling.

When cabling between switches in the data center, make sure the fiber can support the new 40/100 GigE standard. Multimode fiber has been adequate for the interlink between switches but may be inadequate for 40/100. It is better to spend extra money putting in single mode than having to re-cable when you make the move to faster speeds.

Also, remember that all the fiber does not have to be the more

expensive single mode because a single 100G link can replace multiple 10G links.

Tip 4: Start working on storage strategy.

There are potential big

savings from the move to unified fabric. Unified fabric robustly supports storage, removing the need for a separate Fibre Channel network and providing more of an incentive to use iSCSI and network-attached storage.

It's best to start working on a unified storage strategy now because it will require significant coordination and cooperation between your organization's networking and storage groups.

Tip 5: Don't forget systems management.

The use of new unified fabric will place new requirements on the switching infrastructure. Make sure your management and monitoring systems can keep pace.

Your otherwise successful implementation will quickly turn into a failure if there are problems with integrated storage and you have no way to monitor storage traffic to identify and address the hiccups. **FT**

Robin Layland, who has managed networks for American Express and Travelers Insurance, has his own consulting business in West Hartford, Conn.

To learn more about high availability, check out our May e-newsletter on the topic at fedtechmagazine.com/may. Plus, sign up to receive it directly in your inbox.

