

THE STATE OF FIBRE CHANNEL

By Storage Switzerland

Potentially, the only technology pronounced dead more often than Fibre Channel is tape, yet both are alive and well. In 2018, the Fibre Channel (FC) market saw a return to growth. According to Dell'Oro Group, FC SAN port shipments were up over 11 percent (7.7 million) compared to 2017. Total 2018 FC SAN revenue is expected to approach \$2.5 billion, up nearly 22 percent over 2017. Not only is FC not dead, its growing and has the potential to surpass its glory years (2007-2014) where approximately nine million ports per year were sold.

What's Driving FC Resurgence?

Three data center trends are driving FC adoption. One of the biggest is the rapid growth of all-flash arrays thanks to NVMe & NVMe-oF. Today, most vendors supply all-flash arrays that are internally NVMe but connect to the network via standard SCSI (FC or iSCSI). Of the two choices, FC offers the latency that comes closest to matching the latency of NVMe. As these vendors move to adopt NVMe-oF, many are adopting NVMe-FC first and NVMe over FC adoption is expected to outpace the various NVMe over Ethernet configurations.

Customers who are counting on NVMe and NVMe-oF need consistent high performance and reliability. NVMe-oF delivers these capabilities and it also seems to be the best channel for delivering mixed SCSI / NVMe environments. Support for legacy and modern protocols is critical, given that network infrastructures tend to evolve and change slowly over time. Customers want to use their existing investment in networking hardware and cable infrastructure.

Another key driver is the increase in demand for high-velocity analytics and artificial intelligence. Disaggregation of storage across scale-out clusters and to the cloud can hurt high-velocity analytics initiatives. The clusters add latency. Centralizing storage, at least for primary processing, reduces latency and makes finding data easier. Fibre Channel, combined with NVMe all-flash, enables highly scalable infrastructures without disaggregation.

A new driver is the repatriation of workloads from the cloud. Organizations are concluding that they were too aggressive in their cloud migration and cloud-first strategies. As a result, 41% of businesses brought at least one workload back from the cloud, according to an ESG study. Organizations often underestimated how sensitive their workloads were to the performance and consistency that on-premises storage architecture brings.

The Future of FC

Storage Switzerland believes that as technology continues to reduce latency in the infrastructure, bandwidth speed and total capacity of the network becomes increasingly important. With less latency, workloads are free to send and receive more data and more workloads can share connections. Gen 7 (64GFC) provides the fastest single lane networking speed available while still being backwards compatible with two generations of hardware and cabling. We expect to see Gen 7 products in 2019.

In addition to Gen 7, FC-NVMe-2 will soon become a published standard. FC-NVMe-2 provides refinements to the existing FC-NVMe standard. It improves error recovery to a more granular level, which enables the network to respond and correct minor error conditions instead of forcing an NVMe subsystem to disconnect/reconnect. The result is even more predictable performance.

StorageSwiss Take

Fibre Channel is alive and well. Much of its recent success is driven by organizations with an FC investment having the confidence to continue to leverage and upgrade the technology. For organizations with the experience, FC presents a very strong value proposition. For those that don't have an FC investment or have transitioned out, it may be time for another look as it provides value for most legacy and modern workloads.