FCIA's President Emeritus Introduction

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With 2020 in the rearview mirror, we can see the impact the global pandemic has left on us all and the resulting changes to our everyday lives and the way we work. Even as we bring 2021 to a close, it's becoming clear the changes in the way we interact and work together may have longer implications for the future than we imagined.

The back end of all our lives in modern times relies on data like medical records, banking, government and regulatory data that connect us with a touchless workflow. Now more than ever, we rely on reliable application access to data with security and efficient utilization to allow business utility to function seamlessly. Fibre Channel has been relied upon for over two decades to be the network transport most depended on to access enterprise data. The Fibre Channel industry is proud this storage network technology has played a majority role in accessing important data just when society needs it most.

Adoption of Fibre Channel as the enterprise storage networking transport of choice continues to remain strong. The year 2021 is a milestone, for it is forecasted by Quillin Research[1] the number of Fibre Channel ports shipped since 1998 will exceed 150 million at the end of 2021! Over that period of time a number of new storage transport protocols over Ethernet have been hyped as the next greatest thing to replace Fibre Channel but never quite seem to fulfill the promise to do so. Having an estimated 35 million Fibre Channel ports or more in current use[2] proves that point.

In fact, Fibre Channel continues to show periods of growth even as the trend toward enterprise workload placement has shifted to a hybrid-cloud model over recent years with Fibre Channel being viewed as the safe haven protocol for on-premise data storage networking. Near term forecasts indicate a trend toward continued Fibre Channel growth; Quillin Research forecasts[3] single digit growth through 2023.

Fibre Channel is well positioned to continue its preferred role in the datacenter as IT organizations transition to cloud-native applications in their on-premise hybrid-cloud deployments. Fibre Channel is included in the major Kubernetes container orchestration distributions for use as a persistent volume storage interface. Nearly all the major storage array vendors are adding their support by contributing vendor-specific Container Storage Interface (CSI) drivers. Fibre Channel storage arrays that utilize the CSI driver can not only aid the provisioning of persistent volumes of the defined storage class for Kubernetes, but also allow the container management to take advantage of advanced features that enterprise SAN storage customers are used to, like volume snapshots and replication.

The Fibre Channel industry is always innovating through the INCITS T11 standards organization. This continual development of the protocol always keeps Fibre Channel a series of steps ahead of other storage networking technologies. Fibre Channel fabric services and zoning are just a few of the long-standing advancements developed into the protocol for ease of management at a large scale; so valued that other network protocols are now trying to copy it.

Another recent innovation gaining a lot of traction from Fibre Channel component vendors is the addition of fabric notifications. The Fibre Channel fabric switches are a great place to detect and analyze traffic pattern trends and error conditions as end devices (hosts and storage devices) communicate over the fabric, but often the end devices or applications above them are the best places to solve issues. These devices could be contributing to a traffic condition while they remain unaware of how it effects other devices within the fabric; the fabric itself being the best place to gather a global view of traffic conditions.

If an error condition is detected, the fabric can selectively send a fabric notification to the end device and the end device can take action, log, or pass the message higher up the software stack for remediation. These new standards for fabric notifications have strong applicability for issues regarding traffic congestion management, link integrity, oversubscription and many others conditions.

The publication of the 64GFC standards in 2019 is the starting signal for Fibre Channel component vendors to design and build 64GFC products. History shows that it takes a few years from when the specification is complete until actual products first become generally available. That is the case again, and we are now seeing the first host bus adapter (HBA) and switch products available from component vendors. 64GFC is capable of 6400MB/s of IO bandwidth in each direction for each port and is an ideal match to the latest generation of servers released this year that ship with PCIe 4.0 IO interfaces. Work is well underway in the INCITS T11 standards committee for the next Fibre Channel speed increase with FC-PI-8 nearing final technical definition.

Fibre Channel SAN education is a key initiative within the FCIA. The FCIA BrightTalk channel has new webcasts added bimonthly presented by the technology experts that craft the industry standards for storage networking. FCIA's website, is also a key area to find articles, blogs and the latest news on Fibre Channel technologies and products. The FCIA also offers its YouTube channel highlighting dozens of video presentations organized into playlists according to skill level, offering something for everyone from Fibre Channel basics to expert courses. Please follow the Fibre Channel industry's progress on FCIA's social media channels on Twitter, LinkedIn, and Facebook.

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[1] *Quillin Research 2021 SAN 5-year Forecast Report*

[2] *Ibid*

[3] *Ibid*