

# FCIA's President Introduction

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Society is living through a difficult time. The crisis of the COVID-19 pandemic has left no one untouched, and the virus continues to claim human lives. We at the FCIA, wish all of our members, colleagues, and their families, good health and hope they stay safe.

In terms of the world's economies, the pandemic is putting industries and businesses under extraordinary stress rarely seen in peacetime. Now more than ever, we are relying on our datacenter storage networks to operate reliably at high levels of utilization as companies adapt to a remote workforce in response to personnel distancing requirements.

Rest assured, nothing has slowed our progress to continually improve Fibre Channel. While we have temporarily suspended meeting face-to-face, we are proud to report we have continued on-schedule with remote INCITS T11 standards meetings, FCIA member meetings and regular FCIA educational webcasts.

There is a resurgence of interest in Fibre Channel that we first experienced a few years ago, accelerated by companies repatriating their cloud storage back on premise and migrating to hybrid cloud solutions using Fibre Channel. Principal market analyst Casey Quillin of Quillin Research, estimates by the end of 2020, over 142M ports of Fibre Channel will have shipped, and 37M Fibre Channel ports are in use today.

This data points to both the long and loyal customer base for Fibre Channel, as well as the significant increase in recent sales of Fibre Channel equipped solutions. IT organizations are discovering that Fibre Channel storage solutions are still the centerpiece in a balanced datacenter storage design, because they provide the security, reliability and performance for their organization's most premium data. All indications are this trend will continue due to both the massive growth of structured data and the increased focus on security and data governance.

The FCIA maintains a [speed roadmap](#) for Fibre Channel, and has forecasted and directed the development for increasing storage network speeds as required by the evolving needs of the datacenter. Since the first 32GFC Gen6 devices went into production in 2016, the amount of world wide data has increased by 4X, according to a report published by [Statista](#). Organizations are going through a Business Intelligence (BI) revolution in which many more employees can access BI tools on their desktops to mine and analyze data from their data warehouses, once an application only reserved for a few data scientists.

Storage arrays have increasingly moved to high performance all-flash designs that have drastically increased the performance of even modest configurations, and server CPU core and memory capacities have increased drastically. We are once again seeing all the elements for the next storage IO transition come together to justify increasing storage network speeds to the next level. In 2018, FCIA announced the INCITS T11 standards committee completed the Fibre Channel Physical Interface (FC-PI-7) standard specifications for 64GFC, effectively doubling the data bandwidth over 32GFC. Since a number of FCIA member companies have released Gen 7 products capable of 64GFC for use when optics become available, FCIA predicts 2021 will be the year of 64GFC Gen 7!

FCIA is really proud how the industry has coalesced around NVMe over Fibre Channel solutions (FC-NVMe). It has been almost five years since the T11 Technical Committee began work on the standard, and the industry is now at a point now where FC-NVMe has near complete solution coverage across the ecosystem. All the component and fabric suppliers and most of the major array vendors are now offering production NVMe/FC options. This year, VMware ESXi 7.0 launched with support for NVMe/FC in-box, improving both IO performance and efficiency.

Work has been completed on the next iteration of the FC-NVMe standard to take advantage of Fibre Channel's inherent sequence level error recovery capabilities. FC-NVMe-2 detects and corrects bit level errors before the protocol detects them, thus preventing the need for the protocol association to reset. INCITS has now [published](#) the FC-NVMe-2 standard developed by the T11 Technical Committee, and the enhancements will work their way into production via product software updates.

Another recent important area of work in Fibre Channel standards is fabric notifications. Multiple standards define the purpose and use of Fabric Performance Impact Notifications or FPIN. From within, the fabric conditions effecting congestion or link integrity can be detected and notifications (FPIN) can be sent in-band to end points to be acted upon. Devices registered to receive the FPIN can choose to log the condition, send it to upper level software, or chose to correct the condition within the device.

One example is FPIN-CN. This is a congestion notification for when the fabric detects congestion from a port. The fabric then sends the FPIN-CN to the port where the device receives and corrects the congestion by altering its traffic flow. Because both fabric and end devices are communicating and responding together, we can see the makings of an autonomous SAN.

Another example is FPIN-LI, or link integrity notification. Imagine a case where a link is impaired, but not dead enough for the multi-path I/O (MPIO) software to detect the link is down and failover. Based upon fabric management policy, the fabric could detect the condition and send FPIN-LI in-band to either the target or server, and up their software stacks so the devices could intelligently redirect the I/O path to storage. It's not hard to imagine that how this mechanism could be leveraged for increased SAN self-healing capabilities.

While improved storage management applications and SAN automation will be great aids to help organizations manage their storage resources, there is no replacement for human knowledge. The trend in IT education is moving towards less specialists and more generalists. According to a recent [ESG storage trend survey](#), 62% of new IT positions are being filled by generalists. As more seasoned storage administrators and architects retire, the need for Fibre Channel SAN education increases.

Fibre Channel SAN education is a key initiative within the FCIA and the most popular resource that the FCIA produces for the public. The [FCIA BrightTalk](#) webcast channel adds new content bimonthly, presented by technology experts crafting the industry standards for storage networking. The [Fibrechannel.org](#) website is also a key resource where you can find articles, blogs and the latest news on Fibre Channel technologies and products. This year the FCIA also launched its [YouTube channel](#) highlighting dozens of video presentations organized into [playlists](#) according to skill level. There's something for everyone, from Fibre Channel basic to expert courses.

Looking forward to 2021 and beyond, developments continue to position Fibre Channel as the network protocol of choice for datacenter storage. The FCIA roadmap points to next network speed transition, and work is already underway for the follow-on to Gen7 64GFC. Work study groups have also been formed to investigate Fibre Channel's role in a variety of new emerging data technologies.

Please stay up-to-date on Fibre Channel's progress by visiting [www.fibrechannel.org](#), [subscribing](#) to FCIA's quarterly newsletter, or following FCIA on [LinkedIn](#), [Facebook](#), or Twitter at [@FCIAnews](#).