## Have You Ever Felt Like the Beta Test Site for the Latest Technology Gear?

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You purchased a new Fibre Channel storage system replete with the best new features and functions including support for your legacy implementation and equipment, and it sets the table for incorporating the new, higher speed connectivity and devices you intended. You install the shiny and bright new appliances, connect them to the existing fabric, and voila, to your amazement, it works!

## **Ever Wonder How?**

There's an adage in the automotive industry I've lived by for as long as I've been into cars; you don't buy a first model year of any vehicle. You wait for the subsequent year deliveries of that new car or truck in expectation the manufacturer will have worked out the bugs and made the required operational, structural or functional improvements.

The same has been said for technology products as they roll off the assembly lines. The "latest and greatest" tech products promise fantastic new features, incredible gains in performance and usability and guarantees of support and interoperation with legacy devices and applications. Whereas the "latest and greatest" from any one manufacturer do have the indicated gains in speed and performance, the products have often not held up to their promise of interoperability with legacy implementations and equipment, nor have comparable new products from other manufacturers.

As Fibre Channel speeds have increased – doubling data rates approximately every four years – and as the complexity of communications has evolved, the need for ensuring products in the fabric work seamlessly has become paramount. The test and measurement community works diligently to advance new tools and services to address the interoperability requirements. The network equipment manufacturers have also seriously invested resources, time and money to reach the goal of complete and seamless interoperability.



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Interoperability seems easy enough; follow the INCITS T11 technical specifications and you're on your way to a compliant product offering that meets the standard and works with all other equipment in the fabric. Unfortunately, that has not always been the case. Design and validation teams from all corners of the ecosystem strain to accumulate the variety of switch, host bus adapter (HBA) and interconnect solutions in attempt to replicate an "average" system and validate products with the goal of ensuring the best possible purchase and user experience.

The test and measurement community has long engaged in developing tools, equipment and test routines with the sole goal of enabling the Fibre Channel ecosystem to achieve interoperability. Beyond the compelling need to ensure products work for the consumers, there is also the need to reduce the support burden and associated costs when those goods either don't work or require substantial effort to integrate into existing fabrics.

## The Rise of the Plugfest

In the late 1990s, when USB products were on the rise, the concept of the open forum "plugfest" was born. These private industry events usually lasted the better part of the work week, brought together the key stakeholders in the ecosystem to a neutral location (often the local Embassy Suites hotel,) and were attended by engineers from each respective company to test out their product designs. That



model has been reused by most every other standards group since. Fibre Channel is no exception. The Fibre Channel Industry Association (FCIA), in conjunction with respected test labs – notably the UNH-IOL and Austin Labs – has hosted these events for many years now.

The upside of the plugfest model is the ability to get into the weeds with product validation and testing to confirm specification compliance, and most importantly, interoperation with other Fibre Channel products currently in use and those expected to be in the market soon. These plugfest events are conducted under the cover of a nondisclosure agreement (NDA) so those new products yet to be released can be tested and validated confidentially.

There is no one arbiter of the test plans used; the Fibre Channel community comes together well in advance of the date to create the test plans and address the concerns of the participants. No stones are left unturned at these events. Often there is "out of band" testing conducted between parties during breaks in the testing schedule (usually after hours and well into the late evening hours). Engineers discuss challenges, test the implementation of specifications and generally lay aside company allegiances to ensure Fibre Channel remains the preeminent storage fabric it is today and well into the world of tomorrow's fabrics.

Fibre Channel storage fabrics work as well as they do for several reasons. First and foremost is the commitment to advancing and codifying the associated specifications. Physical layer attributes as well as protocol enhancements are discussed at great length by many engineers from all corners of the market. A very close second is the commitment by these same engineers and their teams to validate the interoperability of their products. The culmination of these efforts is then tested in the interoperability events long before any new Fibre Channel product hits the market.

No longer will the end-user be the canary in the coal mine. User satisfaction with their Fibre Channel product purchases is significantly higher, support calls and product

returns are dramatically reduced and confidence in their Fibre Channel deployments is unmatched. To this day, there is still no replacement for the stability, capability and surety of a Fibre Channel storage fabric. Period.

## Looking Forward

Fibre Channel will continue to evolve to support the demands of the storage market and the expectations of users. The INCITS T11 technical committee membership remains committed to the advancement and efficacy of relevant specifications, maintaining and updating these to keep pace with new applications and requirements. The FCIA and its member organizations are devoted to the advancement of public awareness and education, hosting the plugfest events and producing webinars and trade show expositions, all in effort to ensure the promise of Fibre Channel remains forefront.

Specifically, the test and measurement community is on the leading edge of the new technologies, the bell-weather if you will. If the test and measurement sector has difficulty with making products for validation and compliance test solutions, it's likely the rest of the ecosystem will have trouble with actual product development and deployment. Thankfully, the test and measurement folks are committed to the advancement of tools and services to develop specification compliant, and more importantly, completely interoperable Fibre Channel products.

Other technologies will continue to attempt to meet the stability, efficacy and maturity of Fibre Channel storage solutions. The inherent strength of Fibre Channel is currently unmatched despite the good works of many in other technology sectors. Efforts to add capabilities and functions that are the foundation of Fibre Channel solutions abound. There is, however, only one true storage fabric and that is Fibre Channel.

As noted by the late great Oscar Wilde, "imitation is the sincerest form of flattery that mediocrity can pay to greatness." Fibre Channel is often imitated, but never duplicated.

