

# Enhanced Reliability and Diagnostics for QLogic® Enhanced 16GFC and 32GFC Fibre Channel Adapters

Advanced Link Diagnostics Leveraging Brocade® ClearLink with QLogic® StorFusion™

## StorFusion™

### Key Benefits

- Quickly and easily diagnose links and fabric components
- Leverages Brocade® ClearLink™ Diagnostic Port (D\_Port) diagnostic features
- Ideal for new deployments and existing SANs
- Eliminate ad-hoc, time-consuming diagnostic methods
- Optimize performance, while freeing IT resources for other projects
- Simple, single pane-of-glass management and integration with Brocade SANnav

## End-to-end 16Gb and 32Gb Fibre Channel Infrastructure Validation and Diagnostics Ensures SAN Robustness and Performance.

### Challenges

Leading enterprise organizations depend on their Fibre Channel (FC) Storage Area Network (SAN) for fast, reliable access to mission-critical storage. Administrators understand the importance of maintaining network performance, since slow and unreliable links can lead to lost productivity and revenue. Unfortunately, identifying faulty links and components can be a very time consuming, manual process. In a large environment with thousands of servers, switches, and network links, IT staff can easily spend hundreds of man-hours per year testing and troubleshooting, especially if the problem is intermittent. Multiple testing methods and management interfaces can cause further delays. Ensuring optimal network performance is an ongoing process. By leveraging the latest diagnostic tools, SAN administrators can quickly identify and resolve performance issues at pre-production or even during short maintenance windows.

### Joint Marvell and Brocade Solution

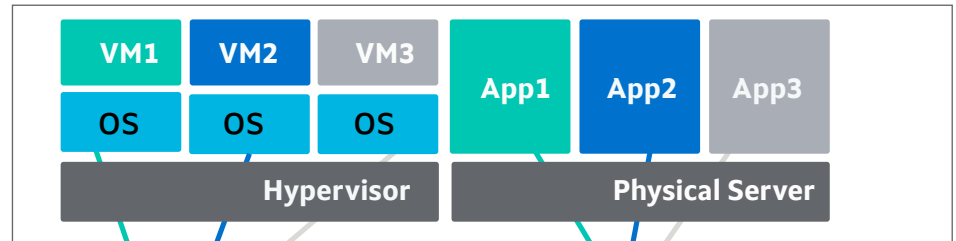
QLogic® StorFusion™ from Marvell is a new suite of Enhanced 16GFC and 32GFC (Fibre Channel) features leveraging Brocade's Gen 5 (16GFC) and Gen 6 (32GFC) FabricVision® to address the needs of IT organizations that require reliability, security, and guaranteed network performance. This advanced link diagnostics suite enables administrators to verify the integrity of new connections when adding components to the fabric before placing the systems into a production environment.

### Brocade Clearlink Diagnostics is Fabric-Integrated

QLogic Enhanced 16GFC and 32GFC Host Bus Adapters (HBAs) from Marvell enable Brocade ClearLink diagnostics (D\_Port) by seamlessly integrating with Brocade's FabricVision® technology. This enables administrators to quickly diagnose and manage the SAN links when connected to Brocade Gen 5 (16GFC) and Gen 6 (32GFC) SAN fabrics with QLogic Enhanced 16GFC and 32GFC HBAs. Integration with Brocade SANnav enables administrators to use a single management console to quickly run D\_Port diagnostics across multiple QLogic Enhanced 16GFC and 32GFC Adapters and fabric components. As a result, large enterprise organizations can save thousands of man-hours per year, freeing IT staff, budget, and resources to work on other projects.

When diagnosing potential disruptive links or prior to deploying new components in the FC SAN, administrators can take the relevant ports offline and put them into ClearLink D\_Port mode.

As illustrated in Figure 1, the administrator can then quickly perform diagnostic tests, including:

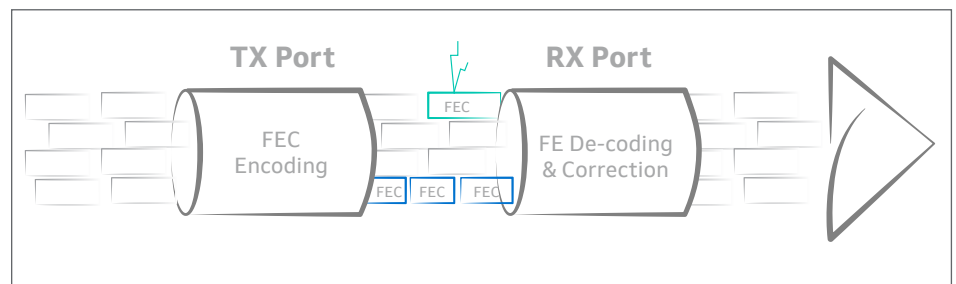


**Figure 1. ClearLink D\_Port Diagnostics**

The D\_Port tests can also be utilized in the following situations:

- Testing new ISL before adding it to the fabric
- Testing a trunk member before joining it with the trunk
- Testing long distance cables and SFPs
- Testing loopback ports

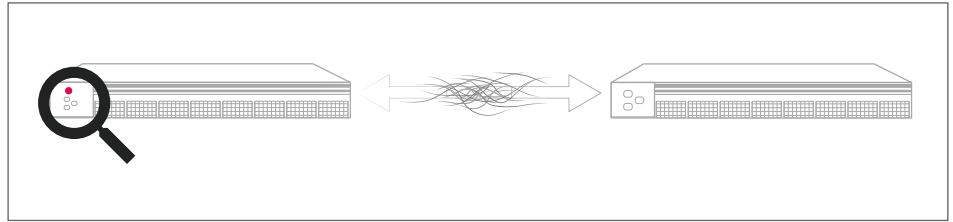
As a result, administrators can quickly and easily pinpoint the faulty component (such as a port, cable, or transceiver) and take corrective action—saving valuable time and maintaining network performance (Figure 2)



**Figure 2: Quickly Diagnose SAN Fabric Components for Optimized Performance and Availability**

## One-Click Identification of Network Issues

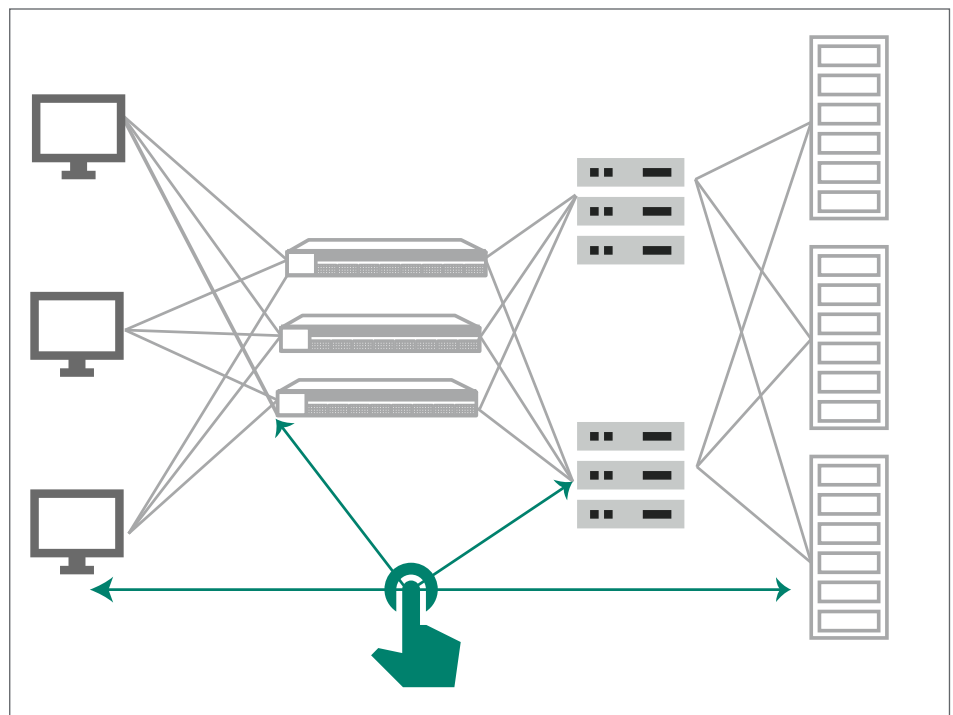
The Enhanced 16GFC and 32GFC features in StorFusion™ (available only in the QLogic Enhanced 16GFC and 32GFC Adapters) also support link cable beaconing (LCB), which enables administrators to visually identify both ends of a physical link. In a large data center with hundreds of ports and cables to manage, a simple command turns on port LED beacons on both ends of a link cable connection. Administrators can use LCB to quickly identify connection peer ports without tracing the cable.



**Figure 3: LCB Assists Operations When Attempting to Identify an End Point Link in a Large Storage Environment**

### Troubleshoot Failing Components Faster

Another StorFusion™ technology available in the QLogic Enhanced 16GFC and 32GFC Adapters is the read diagnostic parameters (RDP) feature, which provides optics and media diagnostics. From any point in the fabric, an administrator can use RDP to easily discover and diagnose link related errors and degrading conditions on any N\_Port-to-F\_Port link.



**Figure 4: RDP Allows Administrators to Easily Identify the Source of Network and Media Errors, such as CRC and LOS, by Remotely Accessing Diagnostic Information from Anywhere in the Fabric**

QLogic Enhanced 16GFC and 32GFC Adapters are further augmented by capabilities that provide powerful visual connectivity and path analysis. FC Ping will help to validate configurations by enabling users to ping a Fibre Channel N\_port or end device. FC Traceroute is used to ensure correct switch and multi-path configurations.

## Technology Requirements

Enabling the D\_Port advanced diagnostics capabilities with QLogic StorFusion™ requires:

- Servers with one or more QLogic 2600 Series 16GFC or 2700 Series 32GFC and Enhanced 32GFC Adapters
  - Brocade Gen 5 (16GFC) or Gen 6 (32GFC) switch with FOS 7.3.0a or higher and Brocade FabricVision® License
  - Qualified 16Gb FC or 32Gb FC transceivers on both ends (server and switch)
- Enabling RDP and LCB capabilities with QLogic StorFusion™ requires:
- Servers with one or more QLogic 2690 Series Enhanced 16GFC or 2700 Series 32GFC and Enhanced 32GFC Adapters
  - Brocade Gen 5 (16GFC) or Gen 6 (32GFC) switch with FOS 7.4x or higher and Brocade FabricVision® License
  - Qualified 16Gb FC or 32Gb FC transceivers on both ends (server and switch)



To deliver the data infrastructure technology that connects the world, we're building solutions on the most powerful foundation: our partnerships with our customers. Trusted by the world's leading technology companies for 25 years, we move, store, process and secure the world's data with semiconductor solutions designed for our customers' current needs and future ambitions. Through a process of deep collaboration and transparency, we're ultimately changing the way tomorrow's enterprise, cloud, automotive, and carrier architectures transform—for the better.

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