

Brocade Mainframe BC/DR Solution

HIGHLIGHTS

- Enables greater replication of data between data centers to meet BC/DR objectives with industry-leading performance and scalability
- Encrypts replication data without penalty to mitigate risk of theft or snooping
- Extends proactive monitoring to automatically detect WAN anomalies and avoid unplanned downtime
- Advanced QoS control for traffic policing of disk and virtual tape replication traffic
- Industry-leading port density, low latency, and high throughput with modular architecture for ease of adding interface ports to meet growing traffic requirements
- Provides a highly robust 16 Gbps platform for enterprise data centers supporting z Systems
- Support for 10 GbE, 40 GbE, and 100 GbE ports with long-range optic support to enable flexible data transmission to and from any offsite BC/DR sites

Multisite Replication Networks in IBM z System Environments

Multisite replication networks in IBM z Systems environments need an end-to-end extended distance architecture that enables fast, continuous, and easy access to mission-critical data from anywhere in the world. Brocade delivers a resilient integrated replication solution for mainframe data center connectivity to provide organizations with the best reliability, availability, scalability, and performance in a world where critical mainframe information and applications reside anywhere. This paper provides an overview of the capabilities and advantages included within a Business Continuity/Disaster Recovery (BC/DR) solution for mainframe IBM z Systems data centers.

Customer Challenges

Availability and predictability are key in the mainframe world, which means ensuring infrastructure uptime, while at the same time controlling operating costs. Robust BC/DR solutions are challenging for mainframe data center replication networks for these reasons:

- The ever-increasing need for High Availability (HA) for applications
- Efficiency, portability, and hardware independence provided by Virtual Machines (VMs)
- Private cloud-based services driving new DR demand for "always on" services
- Data growth and prevalence of 10 gigabit Ethernet (GbE), which demands greater BC/DR throughput
- The problematic nature of Wide-Area Network (WAN) connections

To address these problems, Brocade delivers a robust disaster recovery solution that delivers increased performance, continuous availability, and simplified monitoring and diagnostics for enterprise-class storage replication across data centers. This solution enables customers to build a mainframe extension infrastructure capable of exceeding requirements driven by nonstop data growth, higher Service Level Agreements (SLAs), and faster connections.

Insights Into Recent Trends and Directions

The Aberdeen Group and Ponemon Institute published in-depth analyses of factors surrounding data center downtime:

- \$138,000 was the average cost per hour of downtime.¹

- 91 percent of data centers had an unplanned outage in the past 24 months.²
- \$627,418 was the average outage cost per incident.³

One of the key findings from these studies was that the total cost of partial and complete outages can be a significant expense for organizations. The total cost of outages is systematically related to the duration of the outage and the size of the data center.

Working with customers, Brocade has found that one of the most problematic component tied to outages is WAN connections. These disruptions are frequent, and a great range of errors can occur, leading to a complete loss of connectivity, especially in networks where multiple hops and multiple vendors are involved.

For these reasons, mainframe professionals should be concerned about the IP network component in their extended network. Extension between data centers requires mainframe professionals to review beyond the storage infrastructure to protect mission-critical data and minimize risk and exposure. Historically, Local-Area Network (LAN)/WAN technologies have often not been highly available or predictable.

Pointing to a New Direction for BC/DR Replication Networks

Consulting with mainframe customers for over 28 years, Brocade has often discovered that a customer's z Systems environments are suboptimal. They span multiple geographically dispersed data centers, and yet different groups and stakeholders implement different strategies and components—and these groups seldom meet to share information. Typically, no overall responsibility exists for complete end-to-end architecture solution planning, deployment, and monitoring.

Customers report that this situation results in these issues:

- Lower performance and higher costs
- Complex and difficult network changes and updates
- Less flexibility, resilience, and availability for an enterprise's most important applications and data

These weaknesses in existing DR networks point to the need to build end-to-end connectivity architecture teams in z Systems environments, so that a true, coordinated, extended distance architecture can be built with these benefits:

- Is managed by one team responsible for end-to-end connectivity
- Has an identified single point of control and ownership
- Has representation from all stakeholder groups working together

The reward for such an initiative is simple: a less fractured infrastructure that is less complex and thus easier to manage. Today, data center Storage Area Network (SAN) teams go to LAN teams for additional network bandwidth for their enterprise BC/DR solution. But a better scenario calls for the SAN team to become the focus for IP connectivity so that they can architect an integrated BC/DR network solution.

Requirements for BC/DR Solutions for z Systems

The following requirements for a BC/DR solution must be met by the provider. These requirements can be considered mandatory for regulatory compliance and, in some cases, for company survival. The solution must do the following:

- Eliminate single points of failure to increase system resiliency and maximize data availability
- Incorporate failover software to prevent or better tolerate both planned and unplanned system outages
- Enable high-performance remote backup, electronic vaulting, and mirroring at data centers separated by great distances

¹ Aberdeen Group, February 2012.

² Ponemon Institute Study, "Cost of Data Center Outages," 2013.

³ Ponemon Institute Study, "Cost of Data Center Outages," 2013.

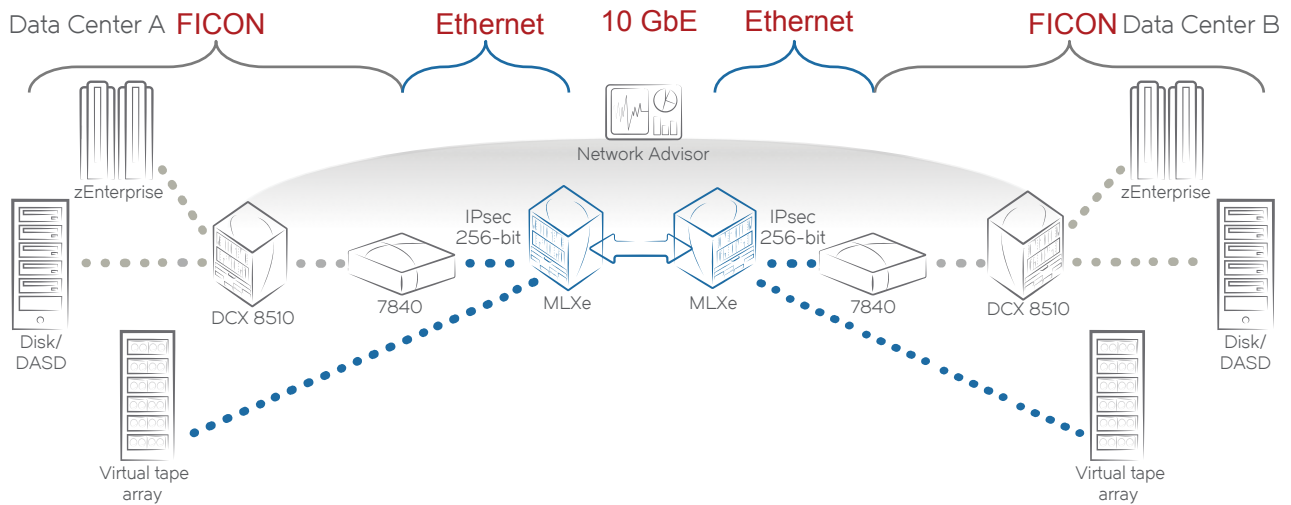


Figure 1. Brocade Resilient Integrated Replication Network (IRN) Architecture for an end-to-end, integrated, synergistic BC/DR network.

Architecting an Integrated BC/DR Network

To address these requirements, customers need a purpose-built data center BC/DR solution for mainframe that maximizes performance and scalability for large, complex environments, allowing IT organizations to future-proof their storage extension infrastructure by adding more throughput capacity as their needs grow.

Brocade advocates a resilient BC/DR network solution to unify management in highly dynamic storage, Ethernet, and converged networks. Brocade® Network

Advisor helps organizations unify and simplify management, providing a single view of the performance and health of all of the links and devices on the FICON and Ethernet LAN/WAN.

The Brocade solution is ideal for building a high-performance data center infrastructure for replication and backup solutions. This solution leverages the Brocade DCX® 8510 Directors, Brocade 7840 Extension Switches, and Brocade MLXe® Core Routers to extend mainframe disk and tape storage applications over distances.

About Brocade

Brocade networking solutions help organizations achieve their critical business initiatives as they transition to a world where applications and information reside anywhere. Today, Brocade is extending its proven data center expertise across the entire network with open, virtual, and efficient solutions built for consolidation, virtualization, and cloud computing. Learn more at www.brocade.com.

Corporate Headquarters

San Jose, CA USA
T: +1-408-333-8000
info@brocade.com

European Headquarters

Geneva, Switzerland
T: +41-22-799-56-40
emea-info@brocade.com

Asia Pacific Headquarters

Singapore
T: +65-6538-4700
apac-info@brocade.com



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