



MAINFRAME

FICON and Mainframe Disaster Recovery Insourcing

The performance advantages of FICON technology make it a reliable, cost-effective choice for IT organizations that want to bring their disaster recovery infrastructure in-house and improve their Recovery Time Objectives (RTOs).

BROCADE

While many IT organizations utilize secondary data centers for disaster recovery, others rely on “hot site” contract services, which involve a shared services site designed to accommodate disaster recovery operations for multiple clients. However, as many organizations have realized during recent disasters, hot sites are not necessarily a guaranteed means to disaster recovery.

Although the hot site approach works fine for a geographically contained event, a widespread catastrophe can quickly overwhelm a hot site when multiple clients simultaneously declare a disaster. In such a scenario, these hot sites are not designed to accommodate every client at once. as a result, an increasing number of IT organizations are bringing disaster recovery in-house, an approach referred to as “disaster recovery insourcing.”

THE GROWTH OF DISASTER RECOVERY INSOURCING

The growing trend of insourcing disaster recovery operations addresses many of the limitations associated with the hot site recovery scenario:

- **Money:** An organization might spend a great deal of money on a hot site service but not see any sustained benefit.
- **Success:** In real-world scenarios, many tape-based recoveries performed at a hot site actually fail. Even though there might be a signature on paper declaring that the test was a success, in many cases there are files missing or applications that could not run successfully—and this is in a controlled test where great care is taken to check all the data.
- **Use:** Organizations should be able to get more use (and value) from money spent on disaster recovery instead of just paying for an insurance policy.
- **Guarantee:** Even though an organization is paying regularly for the right to use a hot site, there is no guarantee that it will be able to recover at the same place where it normally tests.
- **Cost:** A hidden cost in all hot site contracts is the “declaration fee.” This is a fee charged when the subscribing organization declares that there has been a disaster and wants to utilize the hot site facilities. Often, this precludes an organization from declaring a disaster for the loss of a single application or subset of applications.

For these reasons and others, many organizations are now looking to insource their disaster recovery operations. The methodology is straightforward. First, organizations need to decide whether to utilize existing facilities or leverage available data center floor space to deploy a disaster recovery solution that is owned and managed internally (which enables use of the equipment during non-disaster recovery times). Next, they must weigh the cost-benefit tradeoffs and evaluate whether or not to build a new data center specifically designed for insourcing disaster recovery.

FICON AND DISASTER RECOVERY INSOURCING

One of the key enablers of a disaster recovery insourcing infrastructure is FICON®. The greater bandwidth and distance capabilities FICON has over ESCON have made it an essential and cost-effective component in a wide range of business continuance solutions. With the growing importance of corporate data and a greater potential financial impact from an ever-growing list of threats, today’s IT organizations are seeing greater value in insourcing disaster recovery. Those that are doing so are building the mainframe piece of their new disaster recovery data centers using FICON, including cascaded FICON.

Cascaded FICON involves one or more FICON channel paths defined over two Storage Area Network (SAN) directors connected through an Inter-Switch Link (ISL). The processor interface is connected to one director, while the storage interface is connected to the other. This configuration is supported for both disk and tape environments, with multiple processors, disk subsystems, and tape subsystems sharing the ISLs between the directors. This approach enables a longer maximum distance between sites: Up to an unrepeated distance of 6 km at 2 Gbit/sec bandwidth and up to 10 km at 4 Gbit/sec bandwidth.

Recent natural disasters have underscored how critical it is for an organization to be prepared for disaster. This is especially the case for organizations with large enterprise mainframe environments. Rather than plan for relatively isolated problems such as fires or small floods, these organizations must consider and plan for the possibility of losing an entire data center. As a result, organizations should consider the following:

- To maintain business continuity it is absolutely critical to maintain geographical separation of facilities and resources. Any resource that cannot be replaced from external sources within a given Recovery Time Objective (RTO) should be available within the enterprise. It is also preferable to have these resources—including buildings, hardware, software, data, and staff—in multiple locations. Cascaded FICON provides this type of geographical separation.
- The most successful business continuance implementations are often based on as much automation as possible.
- Financial, government, military, and other organizations now have critical RTOs that are seconds or minutes rather than days and hours. These organizations have found it increasingly necessary to implement an in-house disaster recovery solution. In the case of insourcing, cascaded FICON provides considerable cost savings compared to ESCON.

ISSUES TO CONSIDER

Before deciding to insource their disaster recovery operations, organizations need to consider a few key points. First and foremost are licensing concerns. Particularly in mainframe environments, licensing costs can be a significant factor. However, more and more organizations are utilizing creative licensing options where emergency-use licenses are relatively inexpensive until they are enabled at the time of a disaster. For instance, organizations can move the test/development partitions on a mainframe to the disaster recovery site—and a disaster recovery partition can be on standby, not being used until testing or an actual disaster event.

A second item that organizations must address is the proximity to the main production site:

- How far away should the disaster recovery site be?
- What methods are available to get data to the recovery site?
- How much cost savings and performance efficiencies can be gained by using FICON rather than ESCON as the protocol for extension?

KEY BENEFITS OF A FICON SOLUTION

While it might first appear that the expense of bringing disaster recovery in-house is too high, organizations need to consider the amount of money they are spending for a hot site on a yearly basis. In many cases, there is substantial expense involved in what is essentially just an insurance policy.

In fact, the ability to reduce or eliminate the costs and risks of sending tapes offsite can go a long way in justifying an insourced disaster recovery strategy. Even though the initial entry fee to mirror data and install additional equipment at the disaster recovery site would likely be far greater than the yearly hot site cost, there are several tangible benefits:

- **Greater control:** The organization owns the site and the equipment and decides how and when to use it most effectively.
- **Similar costs:** Although the initial outlay is higher, the monthly cost savings should enable a break-even point within two to three years. From that point on, technology refreshes will be on par with the monthly hot site costs.
- **Increased and more complete testing:** No longer do organizations have to wait to test their disaster recovery plan and spend extra money to fly, feed, and house employees. Since the site is always connected to the primary facility, a disaster test can be more spontaneous and closer to a real-world scenario than the “staged” tests at a hot site.
- **Ability to reduce tape costs:** Tape is being replaced by low-cost disk (virtual tape), and that solution can support data mirroring between sites. Additional savings can result from using tape strictly for archival purposes.
- **Ability to build a data center at lower cost with FICON:** The performance gains of FICON over ESCON have enabled significant consolidation not only for channel environments, but also for disk and tape storage. FICON DASD typically yields 40 percent or greater improvements in subsystem response times along with better consolidation.

GETTING STARTED

In much the same way that initially deploying a disaster recovery strategy can appear to be a complex challenge, so too can the process for disaster recovery insourcing. First things first: Organizations should categorize their applications into tiers of recovery priority based on the applications’ business value (because recovering everything at the same time is simply not feasible). After they have categorized their applications, organizations need to develop both a technology strategy and a secondary site. Paramount in this effort is understanding the RTOs and Recovery Point Objectives (RPOs) for each priority tier in order to align the appropriate technology with each tier. This helps dictate the data replication technology/method and how far away the recovery site can be.

A practical approach is to implement different aspects of the disaster recovery strategy over time. For instance, organizations could place a remote tape and recovery system in the recovery site without initially changing the RTOs/RPOs. This enables implementation of the disaster recovery insourcing strategy without having to incur higher costs for data replication except for the remote tape solution. The second phase could introduce top-tier data replication, and subsequent phases could enable enhanced recovery for all other tiers over time. By deploying in phases, organizations can spread out the costs while implementing a disaster recovery insourcing strategy and reducing their RTOs and RPOs.

SUMMARY

Although mainframe disaster recovery insourcing might not be right for every organization, the potential benefits certainly demand serious consideration. If, for instance, organizations can keep their run rates at a similar level or just slightly increase them and get additional use out of their disaster recovery equipment, the cost/benefit analysis will only be that much better.

Moreover, insourcing provides greater control over the disaster recovery infrastructure while enabling more complete testing in order to meet shorter RTOs that align with corporate objectives and industry regulations. Rather than relying on an outsourced contract, which is primarily an insurance policy, organizations can leverage their own recovery site investments for multiple purposes to justify the investment and maximize its value.

For more information, visit www.brocade.com.

Corporate Headquarters

San Jose, CA USA
T: (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

© 2007 Brocade Communications Systems, Inc. All Rights Reserved. 12/07 GA-WP-1115-00

Brocade, Fabric OS, File Lifecycle Manager, MyView, and StorageX are registered trademarks and the Brocade B-wing symbol, DCX, and SAN Health are trademarks of Brocade Communications Systems, Inc., in the United States and/or in other countries. All other brands, products, or service names are or may be trademarks or service marks of, and are used to identify, products or services of their respective owners.

Notice: This document is for informational purposes only and does not set forth any warranty, expressed or implied, concerning any equipment, equipment feature, or service offered or to be offered by Brocade. Brocade reserves the right to make changes to this document at any time, without notice, and assumes no responsibility for its use. This informational document describes features that may not be currently available. Contact a Brocade sales office for information on feature and product availability. Export of technical data contained in this document may require an export license from the United States government.



BROCADE