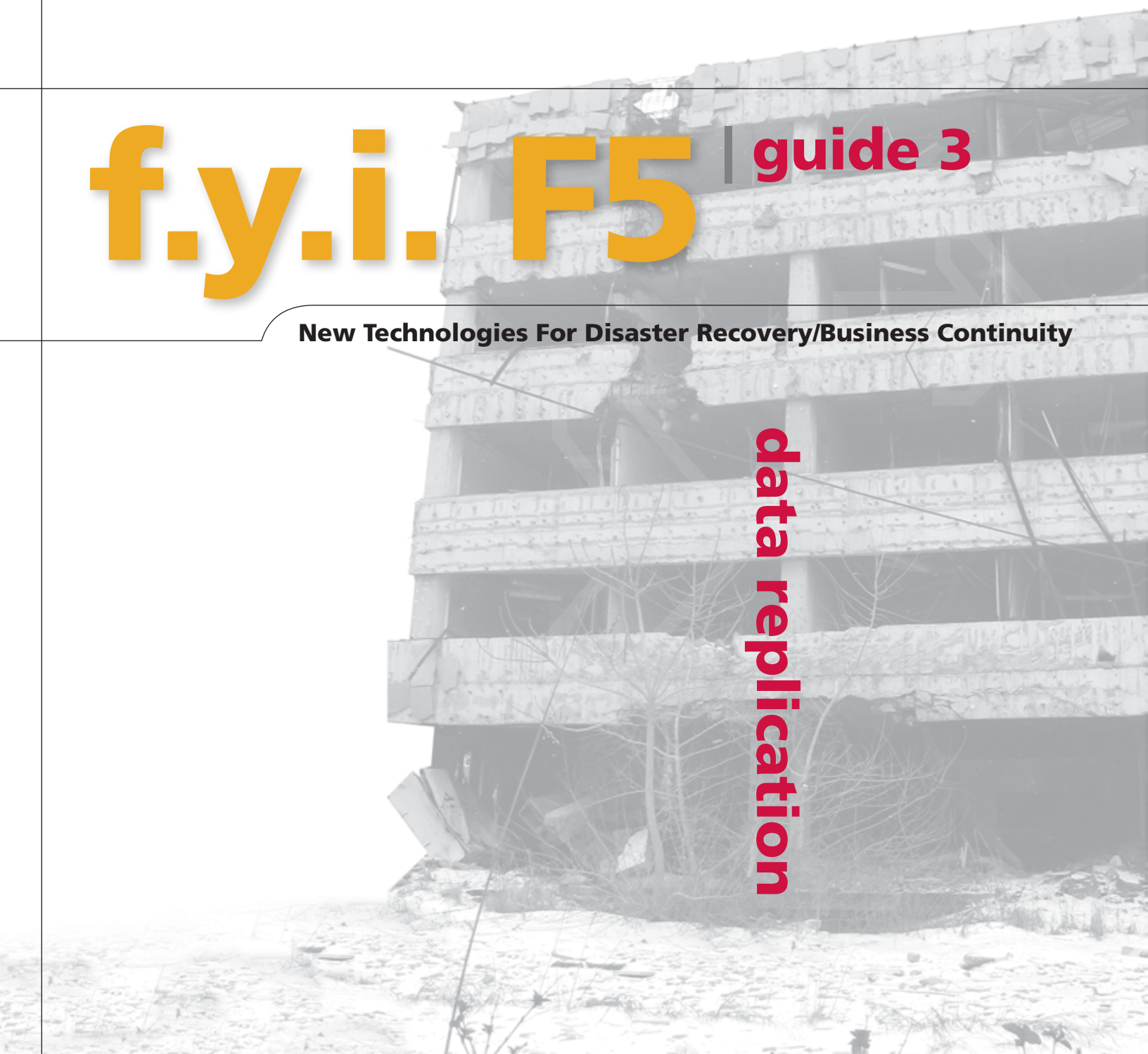
courtesy of
F5 NETWORKS

# f.y.i. F5 | guide 3

**New Technologies For Disaster Recovery/Business Continuity**

## data replication



# Data Replication And Redundancy: The Growing Need For Speed

With the frequent threat of virus attacks, hackers, and the uncontrollable forces that can lead to a loss of data, a data protection plan is serious business. If your organization trusts and relies on digital information, it's imperative that you have the proper systems and technology in place to defend against data loss. If data loss does occur, recovering it must be done quickly and efficiently.

Enterprise data protection has grown up. The complexity and increasing regulation of data protection requirements have created a wealth of new products and solutions. These newer solutions for redundancy and data protection generally have a common attribute—greater reliance on IP-based WAN services to implement the data protection scheme. Data protection solutions require the ability to move data quickly and cost-effectively across the WAN.

## Data Replication

In simplest terms, data replication represents large-scale data backups for the purpose of disaster recovery in case one site goes down. Typically, the data in question represents high-impact data, with data loss or downtime bordering on being catastrophic to a business. Another characteristic is the high cost of the bandwidth between two or more sites (commonly served by T-3, OC-1, or OC-3 links). Requirements for the sites include mirror images of the data and hardware setup; both sites are production-ready, and both must provide zero or near-zero data loss (i.e. can be down for only seconds or minutes).

## Increasing Data Volumes

One of the primary factors driving the need for speed is the sheer volume of data that enterprises need to backup. Let's look at a relatively small network. Assume you have assorted servers for files, e-mail, and the web that hold about 80GB of data. These servers and their databases are networked and linked through disks and take up a total of about 700GB. You have some application servers, say three that hold about 400GB of data. Add your users disk data (assume 60 users) with around 20GB of data each. The amount of data for off-site back-up is already about 3 terabytes!

To back up that amount of data on a 10BaseT network would require roughly 614 hours to a single server, assuming your performance is good (about 5GB per hour). Even on a gigabit Ethernet network backing up at 60GB per hour, that's still around 50 hours to complete the data transfer.

You obviously can't back up through a single link, unless you always work weekends and don't care what happens to data Monday through Friday. It's a complex problem, with many pieces required to completely solve it, but speed and efficient use of WAN links are clearly part of the solution. Any improvement in the WAN speed will directly translate to more efficient data transfer, and better data protection.

## Shrinking Backup Windows

Data protection usually includes some requirement to migrate data offsite over the WAN. For some companies, it is sufficient to migrate data during off hours. Unfortunately, as companies grow, this window of "downtime" becomes increasingly

**The replication process, when implemented properly, allows very high availability of critical applications and data.**

smaller. If usage of the WAN link is near capacity, running data protection applications during peak usage times can seriously degrade the performance of other applications.

Any increased utilization of bandwidth can effectively serve as a simple downtime backup process for off-site data protection or data merging. If your data moves across the WAN faster, it's easier to deal with a smaller backup time window. The effective gain of increasing your bandwidth usage could also save you the cost of having to pay for more bandwidth to solve your data protection issues.

## High Availability Requirements

The replication process, when implemented properly, allows very high availability of critical applications and data. Data can be striped or mirrored across disk networks and the WAN, essentially replicating the system at an offsite location.

For some industries, the requirements for redundancy and replication can be rather daunting. High system availability, even in the case of site failure, means that you may need to move massive amounts of data around very rapidly so identical sites can be prepared to take over operations within minutes.

Moving data for high availability to redundant systems puts a premium on not only your link speed, but also the effectiveness of how you use all that bandwidth.

## Data Protection Planning and Regulations

### What You Need To Consider

Companies must support their disaster recovery planning with the right processes and technology. An effective contingency plan covers all the facets of the institution's business operations. This means personnel, customers, facilities, functions, assets and records; in brief, everything. You must have technology that will protect your critical data, simplify the management of data backup and recovery, and provide consistent, reliable data protection. A straightforward, uncomplicated approach to resuming business operations in case of a disaster is also critical.

There is a new factor when planning data protection—it's not just protecting your data, but also containing your legal exposure. Soon-to-be-enforced government regulations and ISO standards are driving companies to rethink and retool their data protection strategies. Effective disaster recovery plans are becoming a requirement.

Haphazard solutions court disaster and now risk governmental intervention. Data protection and backup suppliers have developed products that address the entire issues of data lifecycle management. More sophisticated tools, such as products from suppliers like VERITAS, EMC, and Network Appliance, are available to solve these complex storage issues within the data center, but stop short of addressing the WAN.

## Summary

If you can count on greater utilization of the links involved in the WAN portion of your protection plan, it allows you that much more flexibility to plan properly. Greater bandwidth usage helps you deliver a cost-effective solution. WAN accelerators can help you deliver the effective WAN utilization that is a major component in redundancy or data protection plans. It's that simple.