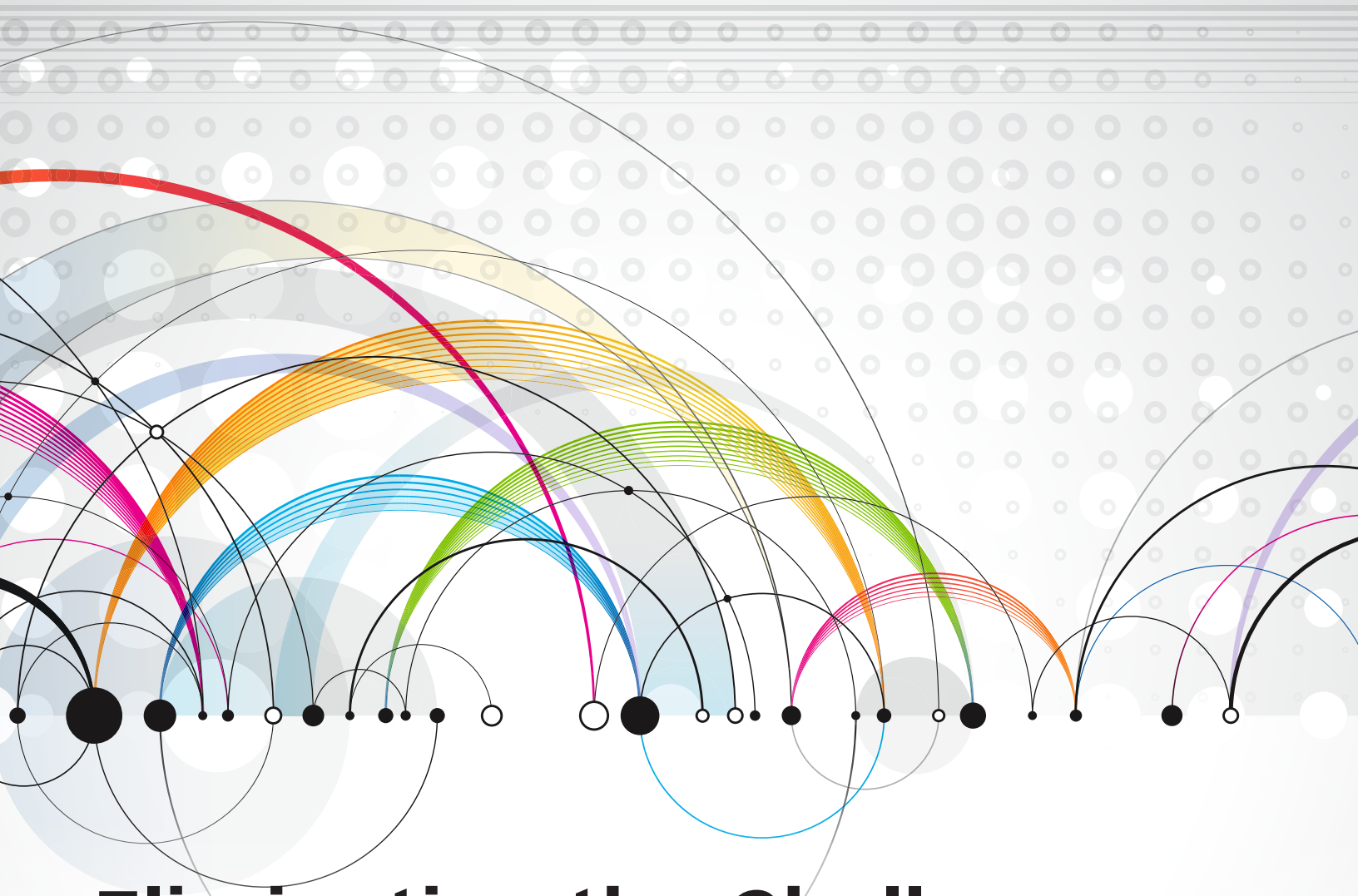

Eliminating the Challenge of Branch Office Recovery

AVOID THE RISKS OF DOWNTIME AND DATA LOSS IN FAR LOCALES

Nobody can afford to lose data. But managing the backup and recovery of data and services in far-flung locations can present many logistical and technology challenges that add complexity, expense, and risk. A new branch converged infrastructure approach allows IT to project virtual servers and data to the edge, providing for local access and performance while data is actually stored in centralized data centers. IT can now protect data centrally and restore branch operations in a matter of minutes versus days.

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/// BRANCH RECOVERY LIMITATIONS FROM AFAR

In today's global economy, many companies are increasingly distributed. That puts IT in a precarious position, especially when it comes to backup and restore processes.

Providing IT services to remote locations generally requires investment in local servers, storage, and networking. In fact, market research firm IDC calculates spending for this infrastructure to exceed $4 billion in 2014. Protecting and recovering data in remote offices and ensuring business continuity is costly and problematic. Branch operations typically rely on local tape backup, which involves expensive hardware in each office.

Even with all the equipment in place, supporting it administratively is a whole different challenge. Many branches rely on staff who are ill-suited to perform tape operations and physically ship media to a data center or backup service. And if backup is a secondary job for that staff, it may be put on the back burner in favor of more pressing tasks.

With such variables, backup and replication of crucial data is often erratic or even overlooked; and removable media is at risk of being lost or stolen. In addition, recovery can be a daunting exercise when branch services go down because of natural or man-made disasters and human error. It can often take days to restore operations, and that impacts business.

Equally troubling, IT is often found supporting operations in locales that lack reliable electric grids or are subject to natural disasters such as earthquakes and tsunamis. Other regional disruptions caused by political and economic factors, for example, can also wreck havoc. In 2012, in the U.S. alone, according to the Federal Emergency Management Agency (FEMA), there were almost 50 major disaster declarations ranging from hurricanes to fires to flooding, and that was down from 99 in 2011. A Blackout Tracker report from Eaton Corp. tabulated 2,808 power outages in the U.S. in 2012.

What's more, ever-increasing amounts of data and bandwidth limitations between remote operations and data centers can result in larger than acceptable gaps between recovery point objectives—the maximum acceptable level of data loss. Crucial data can be lost because backups are not done frequently enough. Less than optimum backup cycles can also produce inconsistencies in the data housed in different locations throughout the enterprise, leading to errors and incorrect assumptions that can impact business performance.

/// BILL BARRETT CORP. TAKES A NEW APPROACH

When Jerry Vigil joined Bill Barrett Corp. (BBC) as director of IT in September 2011, the oil and natural gas exploration and development company was saddled with remote systems that were aging, performing poorly, and unable to provide adequate remote backup. Headquartered in Denver, with assets located in the resource-rich Rocky Mountain region, BBC operates five remote sites, each of which collects voluminous data from hundreds of wellheads.

The IT team was investigating new solutions that would rely on rack-housed servers, switches, and storage and backup devices. But that type of implementation would still lack IT support in the remote operations, where administrative staff and even roughnecks would have to swap out tapes and perform any other needed daily functions.

Instead, BBC opted for a new architectural approach from Riverbed Technology that consolidates servers and storage to the data center for easier management, while still providing local access. BBC implemented Riverbed® SteelFusion™ branch converged infrastructure that incorporates all the elements of the rack-mounted alternative in an easy-to-administer appliance through which data is managed and backed up in the data center. SteelFusion Core, a storage delivery controller in the data center, mounts centrally provisioned storage and extends it to branch offices running SteelFusion Edge. This is a converged appliance that integrates server, storage, network, and

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virtualization to run local branch apps, eliminating the need for additional branch infrastructure.

/// INSTANT RECOVERY FOR THE BRANCH

Using the SteelFusion branch converged infrastructure approach literally turns the table on remote office provisioning, protection, and recovery. "Managing backup and recovery in 200 separate offices is a lot more difficult than managing these operations for the same data in a data center, where you have skilled, dedicated staff," says Eric Carter, director of product marketing with Riverbed. With the data residing in the data center, enterprises can easily and cost-effectively back it up. Additionally, the SteelFusion solution enables IT to improve branch office recovery time objectives —the time it takes to restore systems and data.

In the case of branch office disaster or disruption, services can be booted instantly in the data center or alternate branch to provide temporary remote access because data is stored safely in a central location. When a replacement SteelFusion Edge appliance is installed and reconnected to the data center, services can be rebooted and data made available back in the affected branch within minutes.

When a virtual machine is powered on, the SteelFusion solution predicts and streams required data from the data center, allowing a server running Windows, in this scenario, to boot across a T1 line with 100ms latency in two to three minutes. This new way of provisioning and recovery returns branch locations to service significantly faster than waiting for server rebuilds, software reloads, and a return of backup tapes to restore data. By effectively centralizing branch office data, enterprises can save on the hardware, software, and administrative costs of local backup, tape duplication, and manual off-site transportation of tapes. Instead, branch data is incorporated with an organization's automated, reliable, and faster data center backup and disaster recovery operations.

"In our remote locations we had physical file servers, domain controllers, and SQL servers that we were able to provision as virtual servers on SteelFusion," says BBC's Vigil. "While data [is] being replicated back to our co-location site we are able to capture backups. If we lose the link, data is still accessible to users in the remote site."

/// MEETING THE RESILIENCY NEEDS OF REMOTE LOCALES

The situation Vigil confronted at BBC in 2011 is not unique. According to a survey by ZK Research, 72 percent of companies do not feel confident that their branch office backup solution can restore 100 percent of data in the event of a failure. Using virtualization technology to manage branch servers and data centrally is a logical step for data centers experienced with virtualizing assets, says Riverbed's Carter.

With SteelFusion, distributed data and servers that used to be managed as islands of infrastructure can now reside centrally and be projected to branch and remote office locations where they perform as if they were local. That's a whole new way of looking at data and server management.

The business continuity implications are far-reaching. Data center teams can proactively respond to foreseen remote office problems to avoid a disaster in the first place, rather than merely recover. SteelFusion enables businesses enacting disaster avoidance (DA) to migrate workloads easily from the data center, with minimal risk, effort, and time.

The same solution provides for resiliency even in the event of a disruption in the network link back to the data center. If the WAN is down or slows, remote users are able to keep working. New data writes are committed locally so that users and applications are unaware and unaffected by the interruption. The SteelFusion Edge appliance synchronizes changed data back to the data center when communications resume.

Enterprises using SteelFusion branch converged infrastructure can eliminate backup servers, backup software, and backup storage in remote locations, cutting costs and making it easier to support and recover remote operations from the data center.

/// THE BRANCH CONVERGED INFRASTRUCTURE ADVANTAGE

In SteelFusion branch converged infrastructure eliminates the headache of branch office IT, consolidating servers and storage into the data center without sacrificing any of the benefits of having servers at the edge close to users.

Unlike traditional converged infrastructures, SteelFusion enables "stateless" branch services. Users access applications running locally in the branch while the primary data is centralized in the data center. By decoupling compute from underlying storage, IT organizations achieve new levels of efficiency in serving edge locations from the data center, with its lower cost, reduced risk, improved security, and reliable controls.

SteelFusion is the first converged infrastructure solution purpose-built for the branch. It integrates three capabilities that drive consolidation with local performance. The first is BlockStream™, Riverbed-patented storage delivery technology that centralizes data in the data center and projects a working data set out to the branch. The second is Riverbed SteelHead®, the industry's leading WAN optimization solution that accelerates all user traffic in the branch across the optimal networks at the lowest cost. The third is the Riverbed Virtual Services Platform (VSP), a fully integrated instance of the VMware® vSphere® hypervisor, optimized to run remotely on a hardened branch appliance.

SteelFusion significantly simplifies what is required in a branch to deliver an optimal user experience. What's more, enterprises using SteelFusion branch converged infrastructure can eliminate backup servers, backup software, and backup storage in remote locations, cutting costs and making it easier to support and recover remote operations from the data center.

This new architectural approach supports consolidation with leading data center storage providers such as EMC, NetApp, IBM, and Dell, and enables the capture of point-in-time snapshots in the data center for data protection and recovery, and for efficient restarting of applications. In effect, IT can manage, back up, provision, patch, expand, and protect the data within the four walls of the data center.

"The SteelFusion solution can preserve the local server experience, yet let IT get their arms around the data and deliver new options for branch recovery and provisioning," says Carter. "Enterprises can better use the skills and resources they've established for the data center—taking the burden off the edge—while ensuring things still 'feel' local to users."

/// BENEFITING FROM BETTER BACKUP AND RECOVERY

At Bill Barrett Corp., says Vigil, "We were really going after a cookie-cutter solution that many people refer to as a 'site in a box.' We looked at an approach with a traditional half-rack full of equipment, and the only differentiator from what we already had was that the new servers would have given us the ability to virtualize workloads. But the problem I had with that was the cost was kind of high for remote sites, and I don't have IT resources at those sites."

With SteelFusion, Vigil says, "We started seeing the benefits immediately. We could perform backups here in the data center and are now much better prepared for disaster in our remote sites."

By taking advantage of this new approach, organizations can recover faster, reduce risk, and save money.

For more information, please visit **www.riverbed.com/instantrecovery.**

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—ERIC CARTER, RIVERBED