

IN BRIEF

Industry

- » Professional Services

Challenges

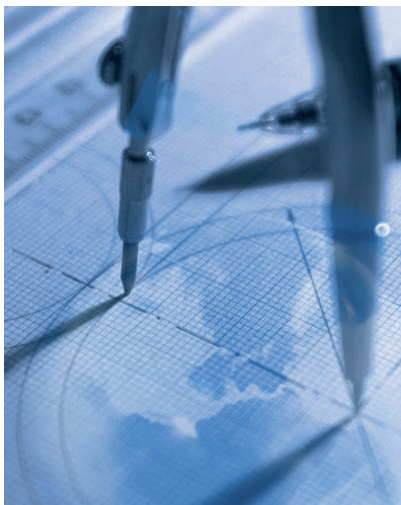
- » Business continuity plan required better DR strategy
- » High tape backup costs and inadequate data retention times
- » Time spent on data backup kept IT staff from other projects

Solution

- » Whitewater 710 cloud storage gateway

Benefits

- » Transitioned to a hybrid cloud model for improved efficiency and IT performance
- » Reduced yearly data storage costs by over 50 percent
- » Saved up to \$60K over two years by eliminating disk-to-disk system



GeoEngineers

Riverbed Whitewater Cloud Storage Gateways Help Ensure Business Continuity and Slash Data Storage Costs by 50 percent.

GeoEngineers, Inc. offers an integrated suite of services for companies looking to build communities, to harness and manage the earth’s resources, and to move products and people. The company operates at the intersection of earth science and technology, and leverages its expertise in both disciplines to deliver results for its clients and improve the world. Since its founding in 1980, GeoEngineers has successfully completed more than 25,000 projects worldwide for clients in the energy, transportation, water and natural resources, development, and federal markets.

GeoEngineers’ 300 employees work in either its Seattle headquarters or at one of 10 branch offices located in Idaho, Washington, Oregon, California, Utah, Louisiana, and Missouri. Professionals from the different locations frequently collaborate on projects, and the company relies extensively on Microsoft SharePoint to facilitate project team communication. The company currently uses SharePoint 2007, but future plans include an upgrade to SharePoint 2010 as well as the deployment of Microsoft Lync, which will give the company a unified communications platform. GeoEngineers also uses Microsoft SQL Server. Other critical applications include CAD (AutoCAD, HydroCAD, RiverCAD, and DeltaCad) and GIS (ArcGIS).

GeoEngineers’ facilities are connected by an AT&T MPLS wide area network (WAN). Most sites have a 3Mbps connection to the network although a 10Mbps connection exists at the company’s datacenter, located at a hosting facility in Lynwood, Washington, to the MPLS cloud. All Internet traffic is backhauled to the datacenter, where there is a 10Mbps connection, which is burstable to 100Mbps.

Challenge: Find a Better Way to Backup and Retain Data

Each of GeoEngineers’ remote offices is equipped with two servers – one that serves as a domain controller, print, DHCP, and file server, and a second which functions as a backup server. Data on the file servers consists primarily of project data in the form of CAD and GIS models, word documents, spreadsheets, and PDFs, which are replicated to the backup server. Full backups are done weekly; incremental backups are done daily. The average amount of data being protected per site in a full backup is about 1TB, and this is growing by about 20 percent per year as the demand for the company’s services grows.

In the past, the backup sets on the backup servers were sent over the WAN at night to a Seagate Barracuda SATA hard drive system in the datacenter. The data was then archived to removable 1TB disks using a Revinetix Sentio system. These discs were stored in a fireproof safe in one of the remote offices, with GeoEngineers handling the transportation.

According to Mitchel Weinberger, information technology manager at GeoEngineers, there were a number of drawbacks to the disk-to-disk backup approach. One was the time it took to manage the process.

“Two people are responsible for all backup processes,” Weinberger explains. “These same people are also responsible for all network and system administration. We were spending four to six hours per week on backup, when things were going right.” When things weren’t going right and they needed to restore a data set, someone had to find the correct archive disk, install it, and search for the data needed. This process took about half a day and happened once a month.

“We had the Whitewater appliance up and running in an hour.”

Another drawback was that GeoEngineers couldn't keep as many backup sets as they would have liked, which meant that most project data was retained for only two weeks and SQL data for only one week. As a result, when someone needed to recover a file that was backed up outside that time frame, he or she was out of luck.

"We're a private company and we have a requirement on most projects to keep data indefinitely. None of the project data is ever intentionally deleted so we are continually backing up the same data and any new project data. With the current system we were only able to archive every quarter and keep one year's worth of archive data," Weinberger explains.

Cost was another issue with disk-to-disk storage. Weinberger estimates that the company was spending about \$6,000 per year in manpower costs to manage the system and another \$7,000 per year to support the disk-to-disk infrastructure. These costs were going to increase as the volume of data being protected grew, and as disks wore out and equipment needed to be replaced. Also, the company's costs at the hosted datacenter would increase as they added more rack space or additional power circuits.

"We expect to save about \$50,000 to \$60,000 over the next two years by removing the current disk system from the data center, and by not having to purchase new devices."

"It costs us \$20,000 to \$30,000 every time we want to add a significant amount of capacity to the backup system," Weinberger adds.

Bandwidth limitations posed an additional problem when backing up the remote sites. Even though backups were sent at night, the transfers sometime carried over into the workday. When that happened Weinberger or his colleague would stop the backup. That put the company at some risk, but even more risky was the fact that GeoEngineers did not have enough storage space for system backups, and no formal disaster recovery (DR) strategy.

"We were only backing up data," Weinberger explains. "If our datacenter had an outage or disaster, we had no DR process."

That was unacceptable from a business continuity perspective, says the company's CIO, Kurt Anderson. GeoEngineers' business continuity plan, which is updated every year, analyzes the probability of potential business risks as well as their consequences. The company's headquarters in Seattle was another concern.

"We had lots of data backed up, but physically we had a single point of failure in a geologically active zone," explains Anderson. "Although the probability of a disaster is low, the consequences to our business are high." One of Anderson's goals was to mitigate that risk by establishing a cost-effective DR strategy.

Solution: Public cloud data storage and a Whitewater cloud storage gateway

The solution to these problems came from one of GeoEngineers' trusted IT vendors, Riverbed Technology. GeoEngineers had been using Riverbed® Steelhead® WAN optimization appliances for about five years when Riverbed introduced its Whitewater® cloud storage gateways, offering the opportunity to switch to a hybrid cloud model.

"We had equipped all of our offices with Steelhead appliances and were very happy with how they were performing," Weinberger says. "They made our goal of real-time collaboration on large CAD and GIS files a reality. The payback on the Steelhead appliances was just a matter of months."

On average, GeoEngineers was seeing a 3.4X to 4X increase in its WAN capacity due the Steelhead appliances, and has not had to make additional investments in physical bandwidth capacity since installing them.

The company's history with Riverbed, in optimizing its private IT infrastructure, the functionality of the Whitewater cloud storage gateways, and the potential DR advantages of moving archived data to the public cloud convinced Weinberger to give the Whitewater appliance a try.

"We didn't want to continually buy more storage and we wanted to lower our footprint within the datacenter, so it made sense to look into cloud storage," Weinberger explains. "The Whitewater appliance deduplicates and encrypts the data, so we were satisfied that our data would be secure in that environment."

A move to cloud data storage was attractive to the CIO, in part because it was more cost-effective than other options.

"We looked at duplicating the data to a secondary datacenter or offices, but the infrastructure and data transfer costs were really cost prohibitive," Anderson says. "Using the cloud eliminates a lot of those costs, and with the data encrypted in transit and deduplicated, there's no risk of anyone getting ahold of our information."

Anderson also liked the fact that a move to cloud data storage would reduce some of the IT staff's workload by eliminating the time spent managing tapes. "We're limited in the number of IT staff we have available to us, so for every process or project, I look at whether there are aspects of it we can outsource."

GeoEngineers installed a Whitewater 710 appliance in its datacenter. One of the appliance's features that appealed to Weinberger was that, like the Steelhead appliances, it was easy to install. "We had the Whitewater appliance up and running in an hour," he notes. All that was required was to connect the Whitewater appliance to the company's backup application (Symantec Backup Exec 2010 R3) and to its cloud service provider.

Whitewater appliances present themselves as CIFS shares or NFS mounts to all major backup tools, so Weinberger simply chose the Whitewater appliance as the backup "disk" target within Backup Exec. For cloud data storage, GeoEngineers chose Amazon Simple Storage Service (S3), one of the many cloud storage providers the Whitewater appliance supports. Connecting to Amazon S3 was a simple matter of setting the appliance's drop-down menu for that provider. According to Weinberger, Amazon was chosen based on price, which runs about \$500 per month for the current amount of data that GeoEngineers is storing. This figure is kept low by the data deduplication performed by the Whitewater appliance. GeoEngineers has seen a deduplication factor of 28X so far.

"We could not do what we're doing right now in terms of project team collaboration without Riverbed."

The Whitewater cloud storage gateway uses WAN optimization technologies perfected in Steelhead appliances, which allows it to significantly reduce the bandwidth required to send the backups to the cloud. The appliance also allows Weinberger to schedule when this transfer occurs, which is another feature he values. The appliance's local disk cache is also a good fit for GeoEngineers.

"We keep a lot of data local," Weinberger explains. "The Whitewater appliance will keep the newest data local, so if a connection goes down we could still get to what we really need, which is the most recent data." A copy of all data processed by the Whitewater appliance is also stored in the cloud to optimize data protection and provide DR capabilities.

Today, data on GeoEngineers' backup servers is copied to the datacenter using the Riverbed copy utility. The file set at the datacenter is then backed up to Whitewater using Backup Exec. From there it goes to the cloud. One change that Weinberger is looking forward to making is putting Backup Exec agents on the remote servers. These will handle the backup of the remote offices to the datacenter.

Benefits: Lower data storage costs; less use of consultants; time for other projects

GeoEngineers' deployment of the Whitewater cloud storage gateway brought about a number of benefits immediately and also provided improved data security. Whitewater has reduced its data storage costs from \$13,000 per year to \$6,000 per year. The fact that the company will no longer need to upgrade its disk systems is another significant source of savings. "We expect to save about \$50,000 to \$60,000 over the next two years by removing the current disk system from the datacenter and by not having to purchase new devices," Weinberger says.

Along with the cost reduction came a reduction in IT staff time devoted to backup processes as well. Weinberger estimates that rather than spending four to six hours a week on backups, they now spend an hour a week at most. Restoring data now takes half an hour instead of half a day. This efficiency is allowing Weinberger and his colleagues to spend more time working on projects to improve the company's IT environment. In the past, much of this work had to be done by consultants. Weinberger expects significant savings here. "Even for relatively small projects, to deploy some additional functionality could cost us \$50,000," he says. "My colleagues and I will be able to handle those now."

Data availability has also improved significantly since Whitewater was deployed. For example, the company's very short data retention times caused by disk space limitations are a thing of the past. "With the backup data now in the cloud, I can keep as much as I want," Weinberger says. In addition, having data in the cloud provides the media change that is one element of a good DR strategy. It also overcomes the problem of having all backed up data in one physical location.

"Moving data storage to the cloud gives us a cost-effective DR strategy that is inline with the goals of our business continuity plan," Anderson says. "Overall, we could not do what we're doing right now in terms of project team collaboration without Riverbed Steelhead and Whitewater." Riverbed gives GeoEngineers the flexibility they need to achieve the best possible blend of public cloud and private IT resources, without compromising performance.

About Riverbed

Riverbed delivers performance for the globally connected enterprise. With Riverbed, enterprises can successfully and intelligently implement strategic initiatives such as virtualization, consolidation, cloud computing, and disaster recovery without fear of compromising performance. By giving enterprises the platform they need to understand, optimize and consolidate their IT, Riverbed helps enterprises to build a fast, fluid and dynamic IT architecture that aligns with the business needs of the organization. Additional information about Riverbed (NASDAQ: RVBD) is available at www.riverbed.com.



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SUMMARY

GeoEngineers, which offers an integrated suite of services for companies looking to build communities, to harness and manage the earth's resources, and to move both products and people, was spending too much time and money on its existing disk-to-disk data storage process. Restoring files could take half a day. What's more, the company could keep only enough data sets to provide a two-week retention period for project data, and only one week for SQL data. The company needed a better data protection plan, so it turned to Riverbed Technology.

Riverbed® helped GeoEngineers store its data in the public cloud using a Riverbed Whitewater® cloud storage gateway in conjunction with the Amazon S3 data storage service. Data storage costs have since dropped by over 50 percent. Meanwhile, maintenance and upgrade costs have been eliminated, saving the company up to \$60,000 over two years. Administration time spent on data storage processes has also dropped by 75 percent, which has enabled its IT team to handle more projects themselves and rely less on consultants, saving thousands of dollars each year. The move to cloud data storage has also greatly improved DR capabilities should the unexpected occur.