Hewlett Packard Enterprise

Case Study

Cloud solution allows Ricoh to transition to tapeless backup

HPE Cloud Object Storage and Riverbed SteelStore provide cloud backups

"Having the option of cloud backups on the table is a big step towards a future of tapeless backups. I envision a system where various methods—disk, tape, and the cloud—are used as appropriate for the situation."

– Toshiyuki Miyakoshi, Senior Specialist, Systems Infrastructure Section, Information Infrastructure Control Department, Management Transformation Division, Ricoh Company, Ltd.

RICOH

Objective

Create a flexible, scalable and cost-effective solution to cope with increasing backup requirements.

Approach

Implement deduplication and encryption for selected data within Ricoh data centers and use the existing internet connection to enable secure backup to the cloud within a limited timeframe.

IT Matters

- Reduced deduplication data sets to one tenth of their original size while ensuring security via encryption
- Used existing internet connection, avoiding the need to implement a new high-speed dedicated line or VPN and lowering start-up costs
- Made the move to cloud backups without changing operational procedures or backup software

Business Matters

- Gained the ability to back up data without the need for tape devices or media by using cloud backups
- Reaped the benefits of starting small and gradual expansion, made possible by cloud backups
- Provided the backup scalability to cope with future increases in data

Smaller initial investment

Ricoh is using Hewlett Packard Enterprise Cloud Object Storage and Riverbed SteelStore to implement cloud backups. Using a backup virtual appliance has reduced initial investment while making deduplication and encryption of data possible. The result is efficient and secure backups to the cloud without the need for a new dedicated line or VPN.

Challenge

Increased back-up requirements

Ricoh is a global brand that specializes in printers, industrial products and digital cameras. In 2012, Ricoh was recognized as one of the Top 100 Global Innovators[1]. It is the only Japanese company to be listed in the Global 100 Most Sustainable Corporations in the World (Global 100)[2] index for 10 years in a row.

The supporting IT environment is governed by policies set in four regions—Japan, the Americas, Europe, and Asia-Pacific.

"The Information Infrastructure Control Department of Management Transformation Division consists of around 250 members who formulate IT strategies, put plans into action and take care of system operations," says Toshiyuki Miyakoshi, Senior Specialist, Systems Infrastructure Section, Information Infrastructure Control Department, Management Transformation Division, Ricoh Company, Ltd. "We also develop the shared infrastructure and primary systems in use by approximately 110,000 users in the group. Our policy is to do the work in-house. There is no information systems subsidiary at Ricoh."

The Systems Infrastructure Section of Information Infrastructure Control Department oversees the entire Japan IT infrastructure, including server systems, WAN/LAN/voice networks, and datacenters.

"We have several hundred systems running on our backbone system, which is built on UNIX®. We also have more Windows®/Linux®-based systems in operation, but we're in the process of migrating these to a virtualized integrated infrastructure," notes Miyakoshi.

Over the years, Ricoh has worked with IT partners to develop and operate its systems on-site. Even though it had built a virtualized integrated infrastructure in its own datacenter, Ricoh continued to have issues with data backup operations.

"There are several different backup methods in place and used depending on the level of importance," says Yusuke Nishiwaki of Systems Infrastructure Section at the Information Infrastructure Control Department in the Management Transformation Division. "The backbone system uses Disk to Disk to send backup data to a remote location while other systems store data snapshots on tape media. Policy changes led to an increase in systems needing to be backed up on remote tape media. Dealing with these needs on-site meant that more backup devices would be necessary and transfer and external backup costs would also increase. Ricoh realized it needed to reassess its backup operations policy.

"That's when we turned our attention to backups in the public cloud," notes Miyakoshi.

Solution

Realistic alternative

Miyakoshi and Nishiwaki met with a number of cloud vendors to learn about their various storage services.

"Cloud backups offer a realistic alternative to remote-location tape media backups. We imagined it as having disk backup devices in the cloud, and the convenience of that was very appealing," says Nishiwaki.

[1] Thomson Reuters (US)

[2] Corporate Knights Inc. (Canada)

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Miyakoshi and Nishiwaki estimated costs for on-site backup equipment purchases and operations, as well as media transfer and storage, and examined the ROI (Return On Investment) of cloud backups. They decided on HPE Cloud Object Storage, a storage service aimed at businesses and offered as part of HPE Helion Public Cloud. Data files in various formats can be saved at the object level, making the service a perfect fit for data backup needs.

"We judged the effectiveness of HPE Cloud Object Storage in a real operational environment, so we needed to be able to limit initial investment costs," notes Miyakoshi.

To keep costs down, HPE Japan Technology Consulting Services advised against implementing a high-speed dedicated line, instead using the existing internet connection to backup data.

To ensure security, HPE suggested using the backup virtual appliance Riverbed SteelStore to de-duplicate and encrypt data within Ricoh's data center before backing it up to HPE Cloud Object Storage. This would reduce the data set to around one tenth of the original size. HPE Cloud Backup Services provided basic operating procedures in Japanese for Riverbed SteelStore.

"Other proposals offered deduplication/ encryption solutions using hardware appliances, but HPE's proposal allowed us to limit implementation costs by using a virtual appliance, and this is ultimately what led us to choose HPE," notes Miyakoshi.

Benefits

Third choice

"To begin, we chose two systems for backup to the cloud: a business system made up of 12 virtual servers for a total of 5TB of data, and an even smaller two-server system. The systems themselves, including the OS (Operating System), and all of the data would be backed up weekly," recalls Nishiwaki.

Nishiwaki says the team learnt a few lessons once they started backing up to the cloud in a real operational environment.

"We found deduplication, encryption, and transfer to the cloud was quickest when sequential backups were split and done on a per-virtual machine basis. Measuring data transfer speeds allowed us to estimate the time required for completion. In turn, this allows us to set up scheduling with our existing backup software to almost fully automate the backup process."

By using effective scheduling, he adds, they felt that even more systems could be backed up without needing to expand the current backup system.

"What if the media is damaged and the data can't be recovered? Years later when someone wants to restore some data, will our tape drives still be functional? These kinds of questions have always been a concern with tape backup operations. I think having the option of cloud backups on the table is a big step towards a future of tapeless backups," says Miyakoshi.

"For the backbone system, we combine daily Disk to Disk backups with remote copy. Other large-scale systems use weekly tape backups and then media is transferred externally. For small-scale systems, we'll make weekly backups to the cloud. Various methods will be used as appropriate for the situation," comments Miyakoshi.

Ricoh immediately noticed the unique sense of immediacy offered by the cloud.

"We've fulfilled all of the requirements for responding in a timely manner to user demands to provide a server environment, including backups. An environment that would have taken months to prepare on-site can now be offered in a matter of days," notes Nishiwaki.

Case study
Ricoh

Industry
Manufacturing

Customer at a glance

Application
- Riverbed SteelStore

HPE Services
- HPE Cloud Object Storage
- HPE Cloud Backup

Ricoh is now considering using HPE Cloud Object Storage as a long-term storage/ archiving solution.

Miyakoshi sums up: "What if the media is damaged and the data can't be recovered? Years later when someone wants to restore some data, will our tape drives still be functional? These kinds of questions have always been a concern with tape backup operations. I think having the option of cloud backups on the table is a big step towards a future of tapeless backups."

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