Bureau of Reclamation Replaces Quantum with Next-Gen ExaGrid

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>
> **Eric Fahrenbrook**
> **IT Specialist**

Key Benefits:

- No more system downtime and resulting customer support battles
- Integration with Veeam delivers flexibility, speed, and reliability
- Volumes and apps that used to take too long to back up are now protected
- Goal is in sight – increase retention from 1 month to 12-24 months

Customer Overview

Established in 1902, the Bureau of Reclamation is best known for the dams, power plants, and canals it has constructed in the 17 western states. These water projects led to homesteading and promoted the economic development of the West. As the second largest producer of hydropower in the U.S., Reclamation has constructed more than 600 dams and reservoirs, including Hoover Dam and Grand Coulee, and operates 53 hydroelectric power plants.

The Bureau of Reclamation is the largest wholesaler of water in the country, bringing water to more than 31 million people, and providing irrigation water for 10 million acres of farmland.

Hardware Failures Drive Change

After taking a hard look at maintenance costs, the Bureau of Reclamation decided to reevaluate its backup storage process to improve recovery time in the event of a disaster.

Reclamation had a Quantum solution that had reached the point of endless maintenance due to failed hard drives. "We would call Quantum support, and it was always a nightmare trying to fight through contracts to make something happen. We're backing up over 90TB of data and simply cannot afford constant interruptions and downtime," said Eric Fahrenbrook, IT specialist for the Bureau of Reclamation.

Failed hardware continued to frustrate the IT staff at Reclamation, and there was no choice but to seek an alternative backup storage solution. "I was fed up with our former solution and began looking for a next-gen solution. My goal was to completely get rid of tape," said Fahrenbrook.

ExaGrid Selected over EMC Data Domain and Quantum to Meet KPIs

The Bureau of Reclamation completed a comparison with ExaGrid, Quantum, and EMC Data Domain. Reclamation was on its way to becoming 100% virtualized and had already chosen Veeam as its backup software. "I liked the fact that ExaGrid worked so well with Veeam and had many features that I found important – GRID scalability, cache, replication, data deduplication, and the landing zone for instant restores. I also liked the fact that ExaGrid had self-encrypting drives. A lot of the solutions have that, but it's not supported by the right process. Because the other vendors only store deduplicated data, that data requires rehydration before you can do a restore. Now, in fair terms, we're running Veeam, and there are certain things that you can do only with the combination of ExaGrid and Veeam. However, the complete package made the decision easy for us, and we went with ExaGrid. The flexibility, speed, and reliability reinforce our decision weekly.

"We've gotten to the point where we're running synthetic fulls on some of the bigger 15TB volumes like Splunk and our imaging applications that we've never been able to back up, and we're actually able to back those up fairly quickly. I was only able to retain 25 to 30 days with Quantum, and we're setting up a two-site system with ExaGrid to increase that. While building out the GRID, I'll have more compute power for dedupe and compression. When I did the math, I'll be able to retain at least a year on the ExaGrid system with a goal of two years by 2018," said Fahrenbrook.

Because Reclamation has a government mandate to keep data indefinitely, they push data to tape as needed as they continue to build out their long-term storage plan.

EXAGRID®

Easy Install and Intelligent Support Team

"Installation was a slam dunk. You put the appliances in, connect some power cords, make sure the network is set up, add IP information, reboot, and 'boom' – it's part of the GRID," said Fahrenbrook.

"ExaGrid's customer support is always really good. I love how they assign a specific engineer for customers to work with. You're not always getting a different guy on the phone, and spending time bringing them up to speed. We had one issue with how we throttled the ExaGrid system, but once that was fixed, we haven't had a problem in months; our assigned support engineer helped us work through it. Our replication is reliable and stays up to speed. Everything is perfect."

The ExaGrid system was designed to be easy to set up and maintain, and ExaGrid's industry-leading customer support team is staffed by trained, in-house engineers who are assigned to individual accounts. The system is fully supported, and was designed and manufactured for maximum uptime with redundant, hot-swappable components.

Disaster Recovery Provides Insurance Needed

According to Fahrenbrook, ExaGrid gives him peace of mind. "Once in a while, I'll check on the system, but it's always doing what it's supposed to be doing. I feel really good about our DR site knowing I can easily bring data back and spin it up with Veeam," he said.

On average, Reclamation sees a 7:1 dedupe ratio post Veeam. Reclamation's infrastructure is 100% virtualized, so things are very efficient to support future growth.

"I am really happy. The reason I bought it, again, is because I wanted to keep things consistent and be able to get our data on disk for up to a year. The support is the biggest thing – it's very streamlined and ExaGrid continues to innovate. I love that their R&D is forward-thinking, and that right there makes me want to be a customer for a long time."

Veeam-ExaGrid Dedupe

Veeam uses the information from VMware and Hyper-V and provides deduplication on a "per-job" basis, finding the matching areas of all the virtual disks within a backup job and using metadata to reduce the overall footprint of the backup data. Veeam also has a "dedupe friendly" compression setting, which further reduces the size of the Veeam backups in a way that allows the ExaGrid system to achieve further deduplication. This approach typically achieves a 2:1 deduplication ratio.

ExaGrid is architected from the ground up to protect virtualized environments and provide deduplication as backups are taken. ExaGrid will achieve a 3:1 up to 5:1 additional deduplication rate. The net result is a combined Veeam and ExaGrid deduplication rate of 6:1 upwards to 10:1, which greatly reduces the amount of disk storage required.

GRID Architecture Provides Superior Scalability

The Bureau of Reclamation has a two-site ExaGrid solution with systems in Denver, CO and Boulder City, NV. Reclamation will continue to build out its sites to meet its mid- and long-term KPIs.

ExaGrid's GRID computing software makes the system highly scalable, and when plugged into a switch, appliances of any size or age can be mixed and matched in a single GRID system with capacities of up to a 1PB full backup plus retention and an ingest rate of up to 200TB per hour. Once virtualized, they appear as a single system to the backup server, and load balancing of all data across servers is automatic.

About ExaGrid

ExaGrid provides backup storage with a unique landing zone and scale-out architecture. The landing zone provides for the fastest backups, restores and instant VM recoveries. The scale-out architecture includes full appliances in a scalable GRID and provides for a fixed-length backup window as data grows, eliminating expensive forklift upgrades. Learn more at **www.exagrid.com**.

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