drillinginfo
better, faster decisions

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Global Leader in Software-Defined Storage.

Drillinginfo
Case Study

Big Data Software-as-a-Service Provider for Oil and Gas Industry Strikes it Rich with Nexenta's Software-Defined Storage

Austin, Texas
www.info.drillinginfo.com
Cloud / Service Provider

Summary

Challenge: Maxed out capacity, suffering performance, and a need for rapid scalability
Solution: NexentaStor High Availability Cluster
Platform: Supermicro, Cisco, VMware, IBM
Use Case: Big Data, File Share

Benefits:
- Cost Savings: $416 / terabyte, well below industry standard
- High Availability (HA) – zero points of failure
- ZFS-based storage allows adding as many files as needed without a strain on performance

Business Overview

Drillinginfo is a Big Data SaaS provider of intelligence to the oil and gas industry. What began as a simple online permit and completion-mapping database in 1999 became one of the 500 fastest growing companies in the United States by 2008, according to Inc. Magazine. Drillinginfo delivers game-changing information for Oil and Gas E&P decision-making, enabling companies to get to better insight, faster.

The Central Texas company has more than 600 people worldwide, and customers all across the globe. Prior to drilling for oil, companies must evaluate up to eight different silos of data to meet regulatory and compliance guidelines; the ultimate goal is to have the least amount of risk – and the greatest success in finding oil – once drilling begins. Seismic and geological data provide analysis on rock structure based on drilling location. Legal documents, such as county court records for leases, date back hundreds of years. The volume of data that oil companies must sift through is immense, growing each and every year, and becoming more and more complicated to access and analyze.

Drillinginfo helps their clients make better, faster decisions through Big Data analytics on their immense data volumes. The company stores and analyzes performance data that provides oil and gas companies with information to make the best determination for where to drill for oil. Some companies use costly consultants to analyze this data. Drillinginfo's centralized data repository and application, however, puts all of that data into one place at a lower cost to oil companies. Furthermore, new data is constantly being updated and refreshed – to the tune of an additional 20-25TB per month. Currently managing 900TB of data, Andy Davis, Storage Administrator and Architect, states, "We have enough growth that most storage admins would probably go crazy. Nexenta does a lot to make me feel better."

> *Because the Nexenta system is so redundant, it can be put on Supermicro, which costs us about $416 / TB. That is well below the industry average, and there is no additional licensing for replication. At that cost, the Nexenta SDS practically recovers its cost on delivery.*
>
> Mike Couvillion
> Chief Technology Officer,
> Drillinginfo

Drillinginfo didn't always have the peace of mind that it does now, thanks to Nexenta. When Davis joined the company in early 2014, he discovered a legacy storage solution environment that combined Fiber Channel storage with a Network File System (NFS) running at max capacity. Performance suffered and the slower storage system was running out of inodes, putting an additional strain on processor and memory resources. In short, "the storage system was in a challenging situation and we needed to change that," noted Mike Couvillion, Drillinginfo's Chief Technology Officer. The Drillinginfo data storage team began searching for a more scalable, flexible, and lower-cost storage solution to replace the existing solution that worked seamlessly with VMware.

Challenges

When Drillinginfo was a younger, smaller company, they combined their Fiber Channel storage, NFS and Common Internet File System (CIFS) shares on the same storage hardware. As the company has experienced massive growth, they later discovered that their system didn't scale as new information was procured. Drilllinginfo adds roughly 20-25TB of new data per month either through acquisition or by the constant updating and refreshing of existing information sources. The shared storage infrastructure put a strain on performance. Secondly, even on non-Tier 1 storage, the sheer volume of files was so massive that Drillinginfo was running out of inodes. "We couldn't add files unless we increased inodes," according to Couvillion. "And our processing and memory capabilities were taking a big hit because block storage and shares were already on that shared storage system. Every time we extended limits our performance suffered."

System Configuration

Primary Site:

- Two Supermicro SSG-6027R-NEX1
- 256GB RAM per Head Node
- Supermicro 4U SC-847E26
- 114x 4TB 7.2K RPM NL-SAS HDDs, 2x ZIL (8GB SAS ZeusRAM SSD), 2x L2Arc (400GB SAS SSD)

Disaster Recovery Site:

- Two Supermicro SSG-6027R-NEX1
- 128GB RAM per Head Node
- Supermicro 4U SC-847E26
- 42x 4TB 7.2K RPM NL-SAS HDDs, 1x ZIL (8GB SAS ZeusRAM SSD), 1x L2Arc (400GB SAS SSD)

Departmental Site:

- Two Supermicro SSG-6027R-NEX1
- 128GB RAM per Head Node
- Supermicro 4U SC-216E16
- 16x 900GB 10K RPM SAS HDDs, 1x L2Arc (400GB SAS SSD)

Solution and Benefits

Solution

Drillinginfo knew that a ZFS storage system was an ideal solution to their scalability and performance woes. Knowing that he wanted to go in the ZFS direction led him to Nexenta. "ZFS doesn't care how many files you put on there," added Couvillion. "I don't make purchases without research and due diligence. My research kept bringing me back to Nexenta."

Drillinginfo turned to NexentaStor, Nexenta's flagship Software-Defined Storage (SDS) platform, as a replacement to their legacy storage system as a primary ZFS file system. Drillinginfo purchased IBM SVC and V5000 for Fiber Channel storage and segregated the object and block storage. Davis turned to x86 industry standard hardware from Supermicro, based on a recommendation from reseller International Computer Concepts. NexentaStor is built into the Supermicro OS and its software manages all of Drillinginfo's object storage.

Drillinginfo's data team also runs a large VMware environment, with 1,000 VMs to date, and expanding quickly. "Because NexentaStor is optimized for a virtualized environment, they were obviously a good solution for us." Now, they can separate NFS mounts, user shares, and other shares from the Fiber Channel, and doesn't have a limit on the number of files.

Benefits

Couvillion and Davis wanted a "fire and forget" storage solution. And, that's exactly what he got with Nexenta. "I don't have to worry about our storage," he added. "The systems are fully High Availability (HA) – there isn't a single point of failure. I know performance will be good. But, just in case, I have alerts to inform me if there is a performance issue. I don't have to worry anymore. Nexenta gave me peace of mind."

As Couvillion analyzes the financial benefit of using Nexenta, the important metric for him is cost per terabyte."Because the Nexenta system is so redundant, it can be put on Supermicro, which costs us about $416 / TB. That is well below the industry average, and there is no additional licensing for replication. At that cost, the Nexenta SDS practically recovers its cost on delivery."

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