China National Offshore Oil Corporation
Case Study

NexentaStor Delivers Local Backup and Remote Disaster Recovery Solutions

Beijing, Tianjing, Shanghai, Zhanjiang, and Guangzhou
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Energy / Oil / Gas

Summary

Challenge: Provide multi-tier backup and disaster recovery capabilities for large mission-critical data stores

Solution: NexentaStor

Platform: Dell

Use Case: Disaster recovery

Benefits:
• High-performance data migration
• Superior scalability
• A simple and efficient framework
• Efficient use of storage space

Business Overview

China National Offshore Oil Corporation (CNOOC) is one of China's top three oil companies and a large state-owned enterprise ranked 72 in Fortune Global Top 500 companies list in July 2015. Its in-house scientific research institute provides technical support for the sustainable development of CNOOC.

Over the years , the research institute has gathered substantial volumes of data on offshore oil and gas exploration, design exploration, and design processes. It maintains this data at multiple branches across China.

Challenges

When the CNOOC research institute decided to implement a backup and recovery system, it had stringent requirements. The backup and disaster recovery solution would need to provide transparent multi-tier local data backup and remote data recovery across a heterogeneous environment with multiple platforms and multi-vendor storage systems. With an enormous amount of data spread across multiple sites and the need to integrate heterogeneous tier-one near-line systems, CNOOC needed a highly scalable, cost-effective storage system, one with multi-tier backup and disaster recovery tools.

CNOOC wanted a solution that could cost-effectively scale up to a few petabytes of capacity, with disaster recovery capabilities for all three tiers of data storage. It also specified data loss RPO of several hours to four days and RTO of one to five days. Given the size of the data stores, efficient data migration capabilities and minimum bandwidth requirements were also important.

Solution

After several rounds of PoC tests, CNOOC research institute chose Nexenta partner Dell to provide a solution that uses a local two-tier backup system and a multi-level data security solution for long-distance remote disaster recovery. The local backup system uses a unified SAN + NAS storage framework, backing up tier-one near-line data using NAS protocols, and organizing the data through the SAN backup and production system. Two disaster recovery centers in China provide remote disaster recovery for backup data from all branches of the institute, as well as application-level remote data access capabilities.
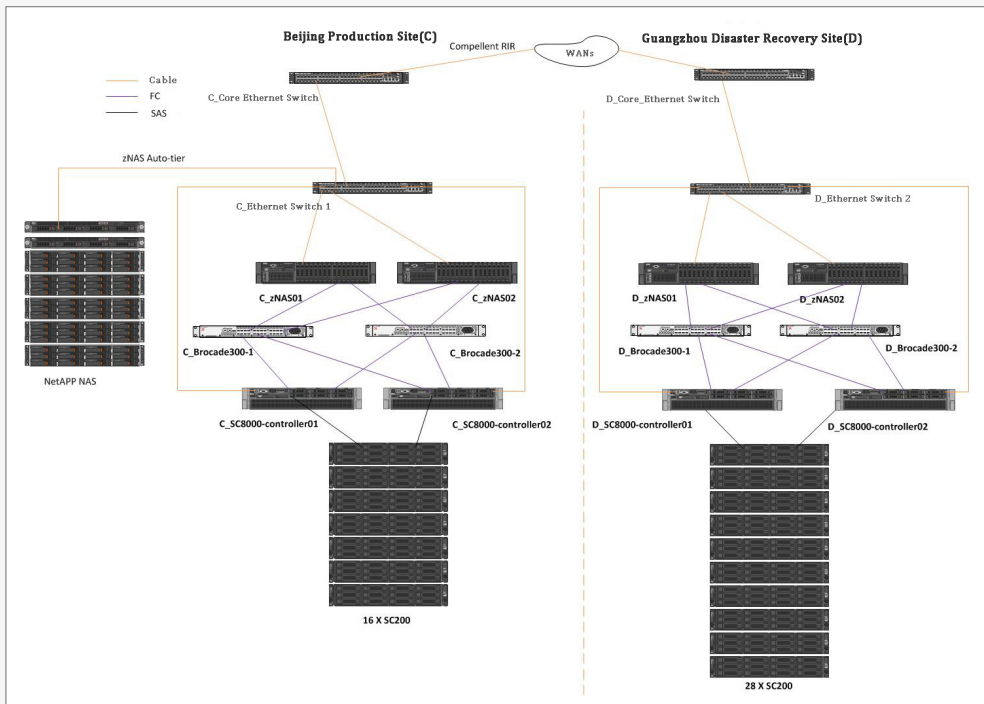
The disaster recovery centers can check and verify the integrity and availability of disaster recovery data at any time, provide real-time query and reuse of historical data, and offer data support for the research institute's production systems nationwide in an emergency.

Benefits

NexentaStor AutoTier meets the institute's backup requirements, efficiently transferring data from traditional storage to the local backup system within the backup time windows. Its flexible backup replication solution settings enable the institute to reconfigure backups according to business needs.

High-performance data migration was important for the institute because of its large data volumes, and NexentaStor met this requirement with a unique feature supporting incremental streamlined data transfer. When online data deduplication and online data compression are both enabled, this greatly reduces the amount of data transferred and minimizes bandwidth requirements. NexentaStor also provides a data self-healing capability, further enhancing the security of the data.

NexentaStor supports unlimited storage capacity, an unlimited number of file systems, and an unlimited number of snapshots, which eliminates the research institute's concerns about the system's capacity and scalability. With NexentaStor providing online data deduplication and online data compression capabilities, the institute can effectively use its full storage capacity.