NetApp and Interica Project Archive Solution

Streamline oil & gas rich content management with object storage software

The Challenge

Oil and gas exploration companies are under pressures of both time and cost. On the one hand, the volume of project data generated by an increasingly diverse set of applications continues to grow while IT budgets continue to shrink. On the other hand, the desire to access even older projects nearly instantly is becoming a critical business concern, because reworking older data is more cost-effective than acquiring new data.

Multiple applications and client devices are proliferating petabytes of data across the globe. Geoscientists at each location increasingly demand 24/7 access from every device, and still IT must ensure the integrity and security of data.

As projects age, become inactive, or are put on hold, organizations need to move data to lower-cost storage while protecting the results. And it is not just data that needs to be archived but the metadata and even associated application versions related to the project. Second-tier storage for project archives must be more cost-effective than the production storage tier. It also requires metadata management, data searchability, retrievability, integrity, security, data movement, replication, and data migration over long periods. Compliance requirements mandate that the data be stored for years beyond the lifetime of the current physical storage media. To keep storage management operating costs down, data migration must become automatic and policy driven.

Most energy companies have used tape solutions for storing this dormant data, but retrieval of a sudden "hot again" project can be troublesome and lengthy and can often rely on "tribal" knowledge. And although tape storage is cost-effective, managing a tape infrastructure is not.

Organizations are trying to use cloud service providers to meet this archival storage need. They hope to leverage the cloud's promise of durability, availability, performance, and cost-effectiveness, but questions concerning access costs, data governance, and vendor lock-in are emerging as use of the cloud evolves.

Is there the flexibility to develop a hybrid solution employing both on-premises and cloud storage while keeping control of your data? What happens when the IT department refreshes technology? Will your data remain available during an upgrade? Are you locked in to the first cloud storage vendor you chose? What's the cost of accessing old projects? And how long does it take to restore the project data and reestablish the original application environment?

Key Benefits

- Discover project data, analyze it, and act.
- Gain operational insight into geotechnical project data.
- Leverage web-based views of your company's data assets, including project statistics.
- Analyze your project data for value, and archive appropriately.
- Optimize data availability, performance, geo-distribution, retention, protection, and storage cost with intelligent policies based on active metadata.

The Solution

Now there is an object storage archive and protection solution that addresses all these issues in a modern way. Interica, a leading oil and gas project-archiving solution provider, has integrated its Project Resource Manager/PARS system with NetApp® StorageGRID® Webscale object storage. The solution combines the economics of cloud storage with the power and control of a truly global, enterprise-wide data repository for sophisticated project discovery, analysis, archiving, and retrieval.

NetApp StorageGRID Webscale deployed with NetApp E-Series storage or third-party arrays provides the flexibility to deploy object storage nodes in any combination of virtual machines or as physical appliances for cost-effective file-based data storage.

This combination provides significantly more benefit than either backing up or archiving the projects without metadata.

Definitions

- **File data:** Discrete files that reside on any file or object storage system.
- **File system domain:** File data related only by location such as file system and path.
- **Project data:** File and database data related to a business purpose or to a complex application; may be related in time.
- **Project domain:** Related data and metadata to be kept together for data-protection purposes such as archiving and disaster recovery.

PRM: identifying data to be archived

Although Interica is best known for its PARS archiving solution, its technology engagement starts with automated scoping. Designed for use in an environment where projects have been generated by multiple applications, Project Resource Manager (PRM) is the only tool available to provide a complete picture of the project data landscape.

Reporting on project sizes, project ages, interpreter/user access, and disk space utilization, PRM enables data managers and IT to make informed data management decisions. Determining which projects should be kept live, updated, archived, or deleted avoids duplication of work by asset teams and frees up disk space.

PARS as an archiving solution

Decisions are based on information that originates from multiple disciplines and applications. This information resides in diverse systems. PARS captures all of this project domain information in one consistent archive object and can instantly find and retrieve it. By leveraging NetApp StorageGRID Webscale object storage, you can retain, migrate, manage, and geo-spread archived projects across cities and clouds according to enterprise policies. This approach provides flexible and efficient project management and addresses the "on-demand" requirements of business today.

PARS as a backup solution
PARS is also widely deployed for project domain backups because of its intelligent scheduling of full and incremental backups. This feature gives data managers the ability to bring whole projects back online quickly after system failures. It has built-in rollback features so that live projects can be "rewound" to a point in time allowing data corruption to be repaired. This capability can improve project processing and interpretaton, which in turn can deliver significant value to a project. In contrast to traditional backup methods, project data across file systems and time can be restored as a whole, maintaining project integrity.

Interica data management integration
Throughout a field or reservoir's lifecycle, exploration and production (E&P) generate masses of digital data that must be incorporated into existing reservoir models. Data that is no longer needed for daily operations can be archived. The power of Interica's solution is its ability to connect to all the leading E&P applications. By using rich metadata from all software vendors, PRM/PARS enables data managers to discover, analyze, and archive complete projects, and provides a central management point. With consistent, common metadata for the project, quick searching and restoring can continue years into the future.

NetApp StorageGRID Webscale
NetApp StorageGRID Webscale enables customers to:

- Use site-specific erasure coding, multisite erasure coding, and even multisite replication on a policy-driven basis to balance the resilience of rich content repositories with infrastructure cost.
- Manage archive data in a single, flat namespace across as many as 16 data centers.
- Automatically migrate content to a cloud or between clouds when access rates determine that the cloud is a cost-effective alternative.
- Protect against accidental deletion of objects by using S3 object versioning, which enables multiple versions of an object.

Policy-driven data protection
StorageGRID Webscale's hierarchical erasure coding protects customers' data at the storage node level as well as through geographical distribution. This policy-driven data protection occurs at multiple levels. Customers can choose a combination of full copies and geo-distributed coded copies to balance performance needs and costs during a project's lifecycle.

The policy-driven data placement makes StorageGRID Webscale suitable for single data centers as well as global site deployments. Installation is managed centrally to maintain configuration control and speed deployments. The modular architecture gives you the power to design grids that balance data resiliency and capacity. You can add entire sites or nodes and expand or decommission storage without disruption.

Data integrity
StorageGRID Webscale creates a digital fingerprint as data is ingested, supporting tamper detection. Responsive layers of integrity protection, including hashes, checksums, and authentications, help protect the system's data. During critical operations or when the software detects inconsistencies, it performs verification and automatically regenerates the suspect objects.

Data availability
With StorageGRID Webscale, geoscientists' data is available anytime, anywhere. The solution is designed for resilience against multiple simultaneous failures, including entire site losses and regional disasters. StorageGRID Webscale delivers nondisruptive operations, upgrades, and infrastructure refreshes along with load balancing during both normal and degraded conditions.

Security and public cloud tiering
Using the policy-driven data management of StorageGRID Webscale, you can leverage the public cloud as a storage tier. You can base data-tiering decisions on metadata or access patterns. Data is encrypted in flight and at rest, and access control is maintained by StorageGRID Webscale.

About Interica

Interica provides sophisticated information-management software and consultancy services to blue-chip companies, especially in the oil and gas industry. Providing technology to enable discovery, analysis, and action, it is best known for PARS® for long-term project archiving, SmartMove® for tiered storage management, and Project Resource Manager™ for discovery, analysis, and reporting.
www.interica.com

About NetApp

Leading organizations worldwide count on NetApp for software, systems and services to manage and store their data. Customers value our teamwork, expertise and passion for helping them succeed now and into the future.
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