



GridBank for the Oil and Gas Industry

Intelligently manage, protect and access exploration and discovery data from upstream processes

Overview

Tarmin GridBank, the premier Data Defined Storage platform, enables accelerated discovery of seismic surveys and geophysical studies, streamlined production operations, reduced operating costs, enhanced data protection, collaboration, and mitigates risk by optimizing and strategically leveraging information assets for the Oil and Gas industry.



From exploration and production, to refining and marketing, the Oil and Gas sector generates massive amounts of data. Designed for high-volume, high performance data environments, Tarmin's GridBank software provides an ideal solution to retain, manage and retrieve data in a cost-effective, highly secure manner using a data centric approach with management capabilities including Media Independent Storage, Data Security and Identity Management as well as Distributed Metadata Repositories. GridBank seamlessly integrates into existing infrastructures to maximize existing storage investments while collapsing data silos to enable greater efficiencies and control.

GridBank is a comprehensive storage platform designed to deliver the performance and management features demanded by today's sophisticated, globally distributed Oil and Gas focused enterprise. GridBank helps reduce the expense and risk of managing oil and gas digital assets and provides a robust 'cloud ready' architecture that can be used to further reduce costs and deliver elastic, on-demand performance and capacity.

Key Benefits

- **Plant and facility management** — Speed engineering processes and increase both quality and safety by using an enterprise engineering information repository.
- **Transparent Data Management** — Migrate, manage, and share all upstream and downstream data files in a secure repository supporting all your business and IT processes.
- **Information storage and data operations** — Protect, manage, and control the rapidly expanding information your business relies on, from upstream exploration to downstream marketing and sales.
- **Seismic processing** — Reduce complex seismic processing cycle times and increase job throughput.

The Challenge

Oil and Gas specific visualization and modeling applications, many with unique data types, are quickly multiplying the amount of data being stored. Issues associated with data storage costs, security and accessibility continue to grow in importance as the amount of data increases. Limitations in traditional approaches to storing and managing growing volumes of data can negatively impact efficiencies and constrain continued operation.

BUSINESS BENEFITS

- **Ensure Data Accuracy & Availability**
- **Achieve Totally Transparent Application Access**
- **Replace Inefficient & Expensive Tape Archival with Disk & Cloud Storage**
- **Facilitate Compliance with Total Data Security & Policy Driven Controls**



"Tarmin's GridBank software [addresses] all of the core issues with managing unstructured data over the long term."

Steve Duplessie
Founder, ESG

GridBank Unique Advantages:

- **GridBank Oil and Gas Module** allows you to discover and search 30+ Oil and Gas / Seismic data formats
- **Intelligent caching technology** decreases latency and delivers faster reads
- **Innovative virtualization technology** for optimal resource utilization
- **Object-based, Cloud enabled architecture** delivers a 'future-ready' solution



"GridBank's... innovative design will completely alter the management paradigm for SharePoint."

— Arun Taneja
Taneja Group

Upstream Oil and Gas Industry Solutions

GridBank delivers a comprehensive set of powerful storage and storage management capabilities that enable information intensive industries to intelligently address the challenges associated with unabated information growth.

- **Archiving Solution for Oil and Gas** — Gain a safe, secure place for your valuable information assets including critical seismic data. Save on storage costs, reduce the time required for backups, and access your information archives online.
- **File System Assessment for Oil and Gas** — Organize files to improve system performance, efficiently utilize existing storage, and lower the cost of new storage.
- **High Performance Computing for Seismic Processing** — Eliminate I/O bottlenecks in GridBank clusters to provide better throughput—for processing increasingly complex jobs more quickly.
- **Plant and Facility Management for Oil and Gas** — Manage all types of engineering-related content, including computer-aided design (CAD) drawings, specifications, and inspection documents.
- **Business Continuity and Availability** — Ensure continuous availability of key information from critical oil and gas applications like Microsoft Exchange, and trading environments.
- **Information Security** — Enables identification, authentication, and access protection to safeguard sensitive information.

Upstream Oil and Gas Solution Features

- **Users Have Direct Access to Archived Files** – Authorized end users can retrieve files instantly without assistance from the IT department.
- **Access Control** – Limit retrieval to authorized users.
- **Real-Time Replication Capability** – Easily protect your archives. GridBank can be configured to replicate and maintain copies of content to a remote site.
- **Less Labor/Overhead** – Archiving to tape is an extremely time-intensive, manual process. GridBank is self-configuring, self-health and self-managing.
- **Less Data on Primary Storage** – Many companies now generate so much new information that they often find it impossible to back it all up within allotted windows.
- **Greater Data Integrity** – No unpredictable tape media issues.
- **Enhance Data Security** – Unauthorized users cannot view or retrieve files.
- **No Manual Intervention Required** – Unlike tape, no manual or robotic intervention is needed to select, load or manage the archive data. Valuable IT resources can focus on more important tasks.
- **Improve Disaster Recovery and Business Continuity** – Protect irreplaceable information from fire, floods, theft, accidental loss, sabotage and the ravages of time. If disaster strikes, archived data remains secure, allowing business to continue.
- **Facilitate Compliance and Regulatory Audits** – Snapshots produce an audit trail that management and auditors can use for regulatory and/or compliance purposes.
- **Lower TCO** – Reduce storage and related data management costs with GridBank's advanced features.
- **Reduce Backups** – Offloading data from primary storage reduces the amount of data needing backup and enables backup to be completed within required timeframes without additional bandwidth or tape infrastructure.
- **Create Trusted Archives** – Users can always retrieve their data with 100% accuracy.

SOLUTION HIGHLIGHTS

- **Accelerate time to production**
Eliminate data bottlenecks that reduce asset team productivity.
- **Increase overall performance**
Reduce the time needed to generate sophisticated volume analyses and multiple attribute cubes.
- **Enhance flexibility** Adapt to continuously changing demands for data with flexible provisioning support for multiple protocols and storage tiers in a single storage system.
- **Improve data protection**
Protect critical property information more frequently, with no disruption to geoscientists.
- **Reduce costs** Increase storage utilization as much as 2x while decreasing space, power, and cooling requirements.

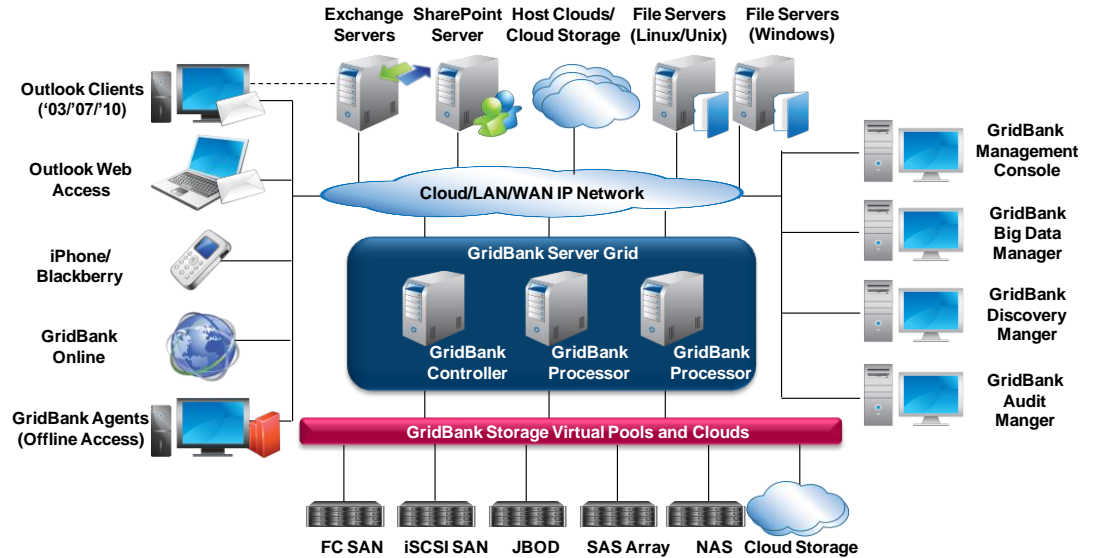


Figure 1: GridBank Architecture

Build your seismic-interpretation and reservoir-modeling data-management infrastructure with Tarmin GridBank. The GridBank storage architecture works in concert with seismic interpretation and reservoir-visualization applications including those from leading providers Schlumberger and Landmark, allowing:

- Provide high-availability access to critical data for volume analysis.
- Leverage data from legacy and parallel systems to fully characterize a property.
- Support distributed decision making and collaboration.
- Protect and manage valuable property information.
- Reduce overall storage and management costs.

"GridBank's robust, distributed architecture delivers the comprehensive functionality enterprises require."

Mesabi Group

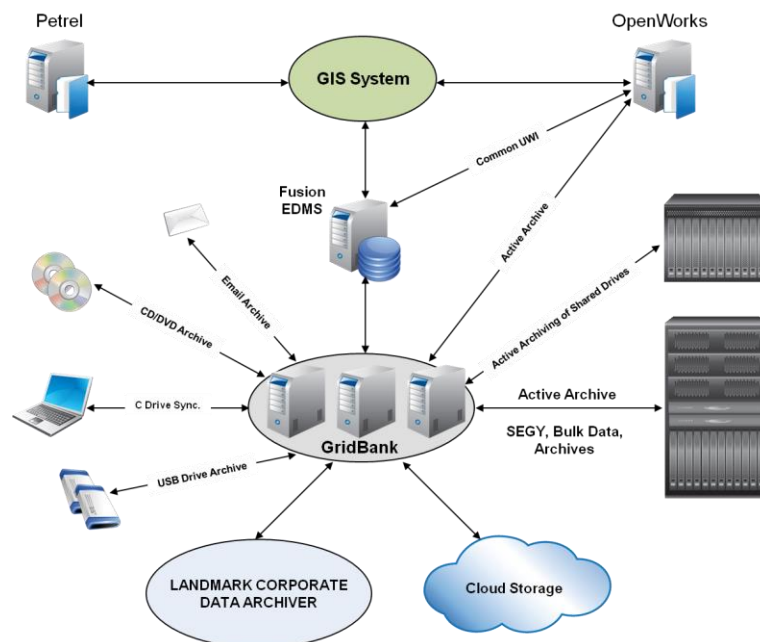


Figure 2: Tarmin GridBank within Oil and Gas IT Infrastructure

FEATURE AND BENEFITS SUMMARY

Features	Benefits
Simplified Data Migration	• Save up to 80% per TB stored by migrating data from primary to secondary storage.
Geo-Dispersed Single Global Namespace	• Unify storage resources and eliminate inefficient data silos. Search global archives from anywhere in the world.
Metadata Driven Search	• Efficient metadata driven retrieval improves speed and eliminates reluctance to archive.
Application Awareness	• Tight application integration provides seamless user experience and improved performance.
Disk Based, Hybrid Cloud Ready	• Near line disk based Performance. Eliminate cost, access and security risks associated with tape.
Hardware Agnostic	• Run on commodity hardware and manage any combination of DAS, SAN and/or NAS, preventing vendor lock-in.
WORM Data Permanence	• Facilitates compliance and security objectives by ensuring data is not altered once written.
Advanced Role Based Access	• Integration with existing corporate directory structures and identity management policies allows role based, secure access to data.
Standards Driven Security	• Data encryption via choice of standardized algorithms. (AES 256, Blowfish 448)
Open Interface	• Choice preferred access protocol to interact with data. (CIFS, NFS, WebDAV, HTTP)
SIS Data Deduplication	• Shrink Backup windows and reduce storage capacity requirements.
Policy Based Management	• Lower Storage Operational Expenses through automation.
Virtualization	• Storage virtualization layer creates virtual pools from heterogeneous storage resources and supports Cloud storage infrastructure.
Object Based Design	• Advanced design provides maximum flexibility
Policy Based Management	• Dramatically improve control over informational assets
Thin Provisioning	• Reduce provisioning resource and management overhead.
No SQL Design	• Superior scalability, security and speed. SQL interface is available.
Single Solution	• Comprehensive solution reduces cost and complexity compared to a multi-product approach
Cloud enabled architecture	• Enable storage infrastructure to leverage cloud technologies.

About Tarmin

Tarmin Inc., the leading provider of Data Defined Storage solutions, unlocks the value of data as a strategic business enabler, delivering a massively scalable, transparent and unified approach for consistent data management, storage, retention, security and search across cloud and traditional storage infrastructure. Tarmin's proprietary GridBank solution empowers organizations to store, control and understand the value of data as a competitive business asset, no matter its size, location or cost by uniting application, information and storage tiers into a single, integrated data centric management architecture.



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