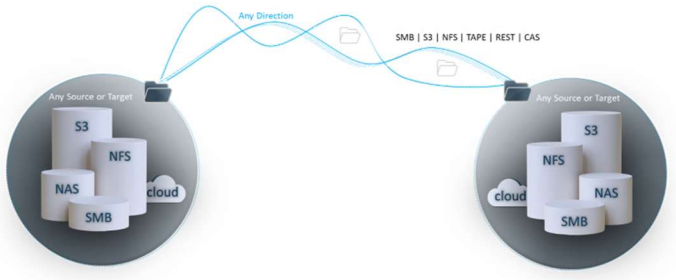
A^3 – Paving the Path to Data Mobility

Interlock delivered compliance data migration and data extraction and transformation for over a decade. In this time, Interlock has expanded its capabilities and services around data mobility, offering customers the ability to move data across storage protocols, across on-prem and cloud services, off LTO tape, and to extract data from out-of-service applications.

Today's exponential data growth is not constrained to a single location but is dispersed across the edge, the cloud, and on-prem facilities. Maintaining access, security, and management of data over its lifecycle often requires data to be moved across storage systems and protocols and locations. Additionally, organizations are seeking to monetize their data assets, seeking for greater data mobility without complexity and time as penalties. The diversity of data formats, lack of compatibility across standard protocols, and the need for security and data integrity makes ubiquitous data mobility a challenge; a challenge Interlock Technology is on a path to resolving.



Challenges

Migrating data between like storage systems and protocols is not overly complex; migrating data between dissimilar storage systems and protocols raises several challenges that, if not planned for, may cause delays in completing migrations, data loss, breach of regulatory guidelines, and consonance with the applications. The hidden complexities and costs of data migration are often overlooked and seen as a nuisance.

Hidden Complexities	Hidden Costs
Systems presenting the same storage protocol (NFS-NFS; S3-S3) may have differences in file extensions, data structures, permissions, and retentions.	Liabilities (fees) due to risk of data loss, compromised data, lack of data access
Availability of replicas, the performance rate (IOPS, CPU, bandwidth) of the production source system, and size of files/objects will dictate the speed with which data may be migrated.	Lack of data access to new applications generating new products/services
The more active (frequent changes) a file/share/bucket is, the more complex to setup the cutover.	Double datacenter footprint, power consumption, system support
Compliant migrations require verification of data at the end; failure to meet regulatory compliance may result in significant fines, loss of credentials…	Amortization of new hardware drives up cost per resource over the life of the system
A large (billions) number of files makes migrations slower. The smaller the file, the longer it takes to migrate.	Loss of revenue/margin opportunity when first to market

Data migrations are complicated by the applications involved, number of objects/files to be migrated and their size, available bandwidth and source system resources, and time available for the migration and cutover.

Migrations are inevitable; the introduction of new applications and services that require specific storage protocols, performance characteristics, and scale are driving organizations to move data to disparate storage systems, and thus begins the challenge of data continuity and accessibility.

Use Cases

Datacenter consolidation and adoption of cloud infrastructure requires data and applications to be migrated. Delays in migration may incur operational disruptions, added costs of maintaining old facilities including network services, and exposure to regulatory liabilities.

Migration to a different storage system is necessary to provide required storage services with room for growth. Storage system resources, such as capacity and performance, in use are maxed out. When a decision was made to change storage system providers, maintenance and support costs must be taken into consideration when determining the time to migration.

The system where compliance data resides is no longer under warranty or maintenance or requires 3rd party support. Migration is necessary but only for data requiring retention or representing value to the organization.

New applications and legacy application versions adapted to new storage paradigms have performance, capacity, security, protocol requirements that are not supported by current storage systems. Data must be migrated to a different storage system/service on-premises or in the cloud.

There was a merger or divestiture, and two environments must be integrated or separated. Currently, the storage systems are not compatible; merging multiple systems into a single repository will deliver efficiencies and greater control over data.

Interlock A³ 4-step Methodology

Interlock has developed a 4-step approach to successful data migrations and data extractions at scale. Its A³ solution delivers any data to any storage protocol – anywhere.

Discover

Prior to initiating any data migration, Interlock takes inventory of all data residing on the source system. This assessment is intended to identify types of data being stored, volume of data, data ownership, retention requirements, application dependencies, and level of activity. Organizations may establish guidelines for what data represents value or is associated with regulation and whether it must be migrated or may be discarded. Keeping data beyond the retention period dictated by regulations may present a liability.

Assess

Once it has been determined which data will be migrated, it is necessary to evaluate both source and target systems. To determine how much time it will take to perform the migration, it is important to know how much bandwidth will be dedicated, will the source system be a replica or production system, what is the rate of utilization on the source system and what system resources will be available for the migration, does the target system support real-time hash

verification, will the migration be local or remote or to the cloud, and what are the cut-over windows for each data set being migrated. Migrating a large number of small files will take longer than migrating large number of large files; if there is limited bandwidth or source resources available, migrations will take longer. At this step of the migration process, it can be estimated how much time will be needed to complete the migration. The sooner the estimate is calculated, the greater the chance of getting the migration done on time.

Extract, Transform, Migrate, and Verify

The next step is to migrate and verify data without affecting operations. In the "always on" world, applications may not have degradation or service or significant down time. Migrating data using the application affects application performance and exponentially prolongs the migration process. Interlock migrates data from storage system to storage system, bypassing the application for faster completion of migration. Wherever possible, Interlock leverages system APIs to expedite migration and verification of data. If data can be verified during the actual migration, the total time to migrate may be cut by as much as 50%. At the end of the migration, Interlock can provide data verification and an audit report that can withstand regulatory scrutiny.

Cutover

Once data has been migrated, applications and users must be moved to the new environment. This causes a disruption in operations and must be orchestrated to minimize impact. Interlock has developed a tool to track file access trends to determine which files are static and which are accessed/modified frequently. This heat map of activity enables Interlock to manage cutover with great precision without data loss. Once the new system is in production mode, an organization may choose to dispose of the source system in accordance with their best practices.

Summary

Ubiquitous data mobility is a desired goal; Interlock Technology A³ service is one step closer to data movement across locations, systems, and protocols. A³ is a service that migrates and transforms data and enables data extraction to ensure data is discoverable, searchable, and accessible. Interlock Technology has invested in eliminating the hidden complexities and costs associated with moving data. With over 1,000 successful data migrations and data extractions at scale completed, Interlock has consolidated all the knowledge gained into a 4-step methodology that delivers a transparent, consistent, and application compliant experience.