HYBRID CLOUD DATA MANAGEMENT

Data On-Prem | Workloads Anywhere | Easy Migration

primary io

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EXECUTIVE SUMMARY

Enterprises aspire to adopt public clouds for agility and cost efficiencies, but cloud lock-in, security, and compliance remain barriers to cloud adoption. Furthermore, data gravity and cloud storage cost limits enterprise ability to migrate applications with large datasets to cloud. In fact, for these reasons, many enterprises prefer hybrid cloud as a preferred strategy to leverage the best of both worlds. PrimaryIO helps enterprises quickly embark on hybrid cloud journey while preserving existing on-premises storage investments. In this whitepaper, we will discuss an innovative technology that enables applications to run anywhere, yet gain the freedom to retain data on-premises under enterprise control. The key benefits of this approach are seamless workload mobility, data control, compliance and lower costs.

CLOUD CHALLENGES

IT leaders are quickly adopting a combination of private and public cloud technologies to run diverse application workloads. But, transforming enterprise applications to the cloud is a journey. Initially, starting with non-production workloads to understand the cloud capabilities and to test before commit. Next, to create a portfolio of applications that

are suitable for cloud migration and lift and shift simple monolithic applications. Eventually, to optimize and expand the footprint to leverage the cloud for critical enterprise applications. However, extending the enterprise trust boundary to the cloud requires a rethink. The size of the data for the many critical enterprise applications is enormous and immovable to the cloud and creates data gravity.

DATA GRAVITY IS THE BARRIER

Applications with large dataset attract applications and services to closer proximity to create data gravity. Data gravity issues along with intertwined application dependencies will restrict workload migration across multiple cloud environments. Data gravity is influenced by many characteristics that include data transfer costs and response times (network bandwidth and latency), security and compliance with existing governance procedures, and data controls required for established data lifecycle practices.

The maturity of cloud technologies and software-defined infrastructure makes it feasible now to develop innovative technologies to defy data gravity and leverage cloud.

EXPLORE	ADOPT	EXTEND
CLOUD TESTING • Non Production • "Test Before Commit"	**CLOUD MIGRATION** • Web Apps • "Lift and Shift"	**HYBRID CLOUD INTEGRATION** • Apps w/Large Datasets • "Optimize and Expand"

Following are some of the crucial data gravity issues for considerations:

STORAGE COSTS

The total costs in the cloud depend on the type of use cases and workloads. For critical applications, on-prem infrastructure costs typically stem from three areas hardware, software, and operations. To account for future demand enterprises over-provision hardware for peak spikes, which will result in underutilization of assets in normal conditions.

Hybrid cloud environments help streamline operations with pay-as-you-go and on-demand provisioning to eliminate dead time costs by reducing on-prem hardware footprint. However, for applications with large dataset cloud storage costs can be more expensive and there can be additional costs for data transfer. Cloud migrations require careful planning and evaluation of all fees to avoid sticker shock and require solutions to optimize cloud storage costs.

CLOUD LOCK-IN

Every cloud provider has platform nuances that will require retrofitting of existing applications. Rewriting applications to the cloud will create challenges to transition workloads back to on-prem in the future. Notably, the loss of data control causes workload portability issues in the future. Also, additional data transfer charges will be Incurred to bring back data. Data lock-in creates uncertainty and requires tools to rollback on-prem for any unforeseen reasons.

DATA LIFECYCLE

Migrating existing applications to the cloud is a complex project. The applications might have dependencies with multiple databases that need to be mapped appropriately to established data lifecycle practices. Any hidden dependencies impacting application performance that require data forklifts will create weeks to months of migration process delays.

Furthermore, with container technology, the modern applications are more portable and need to test workloads in an interactive and agile fashion instantly. IT admins and developers need data control tools for faster migrations with minimal data transfer to test rapidly, fail-fast and fail-safe.

SECURITY & COMPLIANCE

Security, governance, and data breach risks prohibit enterprises from using public clouds. Many regulations like GDPR requires regulatory control of sensitive data. Enterprises are mandated to control where the data is, who has access to the data and what restrictions are designed to protect privacy. Some countries also require the data related to people remain local in the country making it difficult for the policy enforcement in the cloud. New technological methods are necessary to prevent data leakage as a fail safe to complement traditional processes.
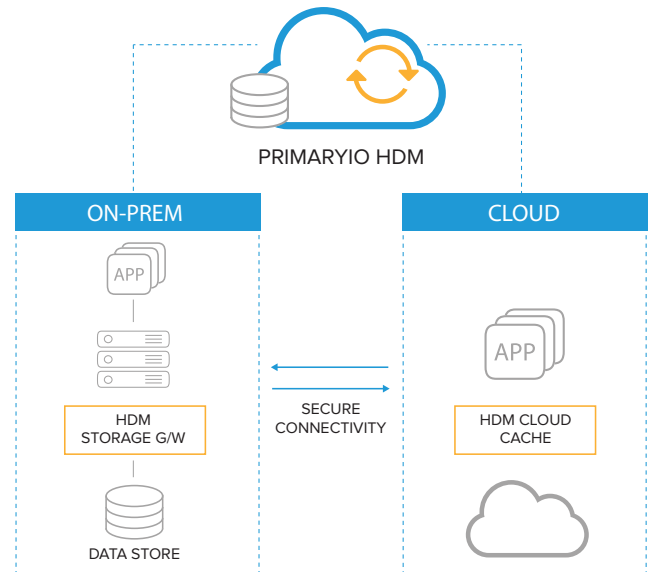
PRIMARYIO'S APPROACH

PrimaryIO specializes in developing data management solutions for seamless workload mobility and significantly improve application performance. Our solution Hybrid Cloud Data Management (HDM) enables a hybrid cloud environment for Enterprises to run applications anywhere, yet gain the freedom to retain data on-prem or move to the cloud where it makes the most sense for their enterprise.

PrimaryIO's approach helps enterprises quickly embark on hybrid cloud journey and scale capacity in the cloud while preserving existing on-prem storage investments. Applications with large datasets (such as SAP, Oracle, Microsoft, Hadoop etc.) that were previously deemed cost prohibitive for cloud migration can now scale capacity in the cloud.

- Figure 1: HDM: Hybrid Cloud Data Management Platform

HDM SOLUTION

HDM's innovative technology decouples compute and storage to defy data gravity and extends the trust boundary to cloud. HDM helps enterprises to migrate applications to the cloud or rollback to on-prem without requiring to replicate the entire dataset in the cloud. In a hybrid cloud environment, the WAN or cloud interconnect latency impacts application performance and compromise security. HDM platform (figure 1) uses a combination of patented technologies in the area of intelligent cloud caching, WAN optimization, and security technologies to significantly reduce latency, improve application performance and enhance overall security posture. HDM address not just one-way cloud migration, but helps with entire cloud migration life-cycle that include:

- Cloud migration analysis and recommendations for upfront planning.

- Rapid test before fully embarking cloud journey improves agility and reduces complexity.
- Seamless workload migration and rollback at will eliminate cloud lock-in.
- Leverage cloud capacity on-demand for seasonal spikes or optimizes costs.
- Data control and technology to prevent data leakage for security and compliance.

HDM USE CASES

HDM enables many use cases:

TRY BEFORE COMMITTING	• Faster workload migration to the cloud or rollback to on-prem at enterprise's own pace. • Quicky test previously untested workloads with large datasets (such as SAP, Oracle, Microsoft, Hadoop) in the cloud with on-prem production data.
AGILE REVERSIBLE LIFT & SHIFT	• Migrate workloads to the public cloud in minutes without waiting for full data migration. • Agility to reverse and rollback to on-premise datacenter at any time during or after migration.
CLOUD EXTENSION	• Extend current enterprise applications into the cloud for scale out, temporary maintenance or reassign on-prem resources. • Access the wide range of services available in public clouds.
CLOUD BURSTING	• Right-size on-prem investments for steady state use and leverage cloud on-demand for temporary seasonal spikes. • Dynamically add compute capacity on-demand.
GDPR COMPLIANCE	• Places businesses in control to retain sensitive enterprise data on-prem. • Prevent data leakage and enforce data sanitization with data on-prem. Subset of data in cloud is erased after use. • Data encryption for both data in-flight and in-cloud.
VISIBILITY & CONTROL	• Tools to analyze Data/IO and recommendations to plan workloads suitable for cloud migration. • Resource metrics and cloud cost estimates.

HDM BENEFITS

IMPROVE AGILITY
- Faster migration to clouds with reduced upfront cloud storage costs.
- Rapid workload testing without moving entire dataset reduces migration complexity and enables to fail-fast, fail-safe.

ELIMINATE LOCK-IN
- Option to rollback workloads on-prem anytime without additional data transfer costs.
- Extend current enterprise applications into the cloud for scale out or maintenance purposes.

OPTIMIZE COSTS
- Provision resources for average usage on-prem and leverage cloud forpeak usage.
- Leverage cloud resources on-demand to reduce maintenance costs.

DATA CONTROL
- Mitigate security and compliance risks with on-prem data control and prevent data leakage.
- Data control and encryption to extend trust boundary to the cloud and complement governance processes.

SUMMARY

PrimaryIO's HDM solution enables hybrid cloud environment to migrate applications anywhere, but sensitive data remains on-prem in enterprise control. HDM's innovative technology decouples compute and storage to defy data gravity and extends the trust boundary to cloud. The key benefits are seamless workload mobility, gain data control, eliminate lock-in and optimize costs.

HDM helps with the entire cloud migration life-cycle and unlock many use cases that were previously cost prohibitive. Enterprises can now have the freedom to quickly try before commit, rapidly lift and shift workloads or rollback at will, extend the critical application with large datasets to cloud or leverage cloud for seasonal spike; and also mitigate security and compliance risks.

LEARN MORE
ABOUT PRIMARYIO

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