The Hammerspace Data Platform on Oracle Cloud Infrastructure (OCI)

SOLUTION GUIDE

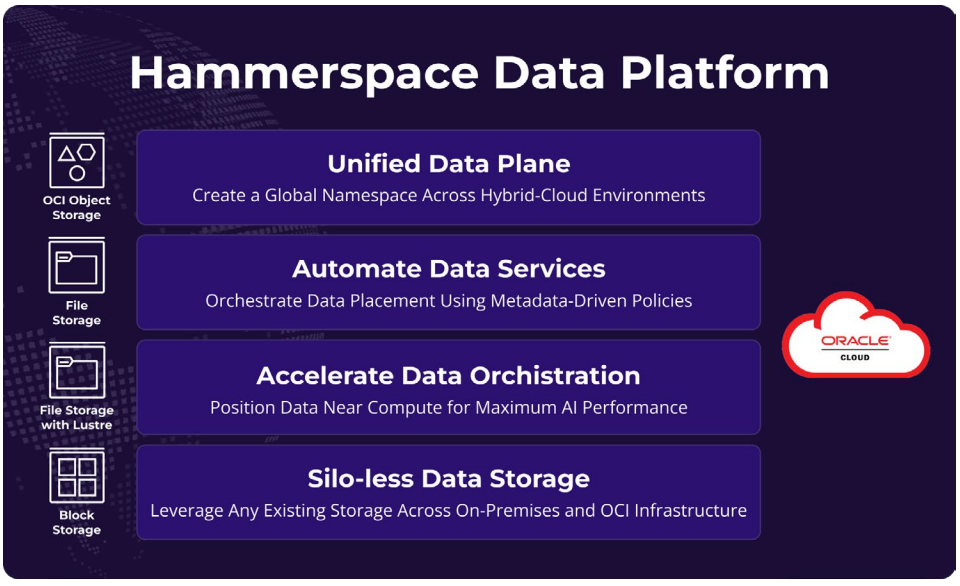
Introduction

AI initiatives increasingly depend on data distributed across data centers, storage platforms, and cloud environments. Preparing that data for AI training and inference often requires complex migration projects, duplicate data copies, and manual data movement that delay outcomes and increase costs.

Together, Hammerspace and OCI simplify hybrid-cloud environments with a high-performance data platform that spans on-premises and OCI cloud regions in a single global namespace.

With Hammerspace on OCI, organizations can easily orchestrate and automate the movement of data from any storage source to OCI file, object, block, or high-performance local NVMe storage in GPU clusters. Data can be positioned where it is needed for AI, HPC, analytics, and other demanding workloads without complex migration projects or operational overhead.

The Hammerspace Data Platform eliminates the gap between your existing storage infrastructure and OCI compute resources. Organizations can make file and object data accessible across multiple OCI regions and on-premises environments, while simplifying data access, accelerating AI workloads, and improving utilization of OCI infrastructure Deploying Hammerspace on OCI.



Benefits

- Make all file & object data immediately accessible across hybrid-cloud environments
- Eliminate disruptive data migration projects
- Automate data placement to optimize performance and control costs
- Accelerate AI and HPC workloads with optimized data placement
- Deploy across public or private clouds, including OCI Dedicated Region Cloud at Customer

HAMMERSPACE

Deploying Hammerspace on OCI

Hammerspace is deployed as a software platform on standard OCI infrastructure. A single Hammerspace deployment provides the global namespace, metadata services, data orchestration, and scalable data services required to unify data across OCI and existing environments.

The platform scales by adding OCI resources as performance and capacity requirements grow. Within a Hammerspace deployment are two key components:

- **Metadata Services Nodes (Anvil)**
  - Anvil nodes host the Hammerspace metadata database and serve as the authoritative source of truth for the global namespace. They coordinate policy execution, data placement decisions, and other platform services. Anvil metadata servers are deployed redundantly for high-availability. To maximize performance and reduce latency, Anvils benefit from OCI's DenseIO Bare Metal and DenseIO VM shapes.

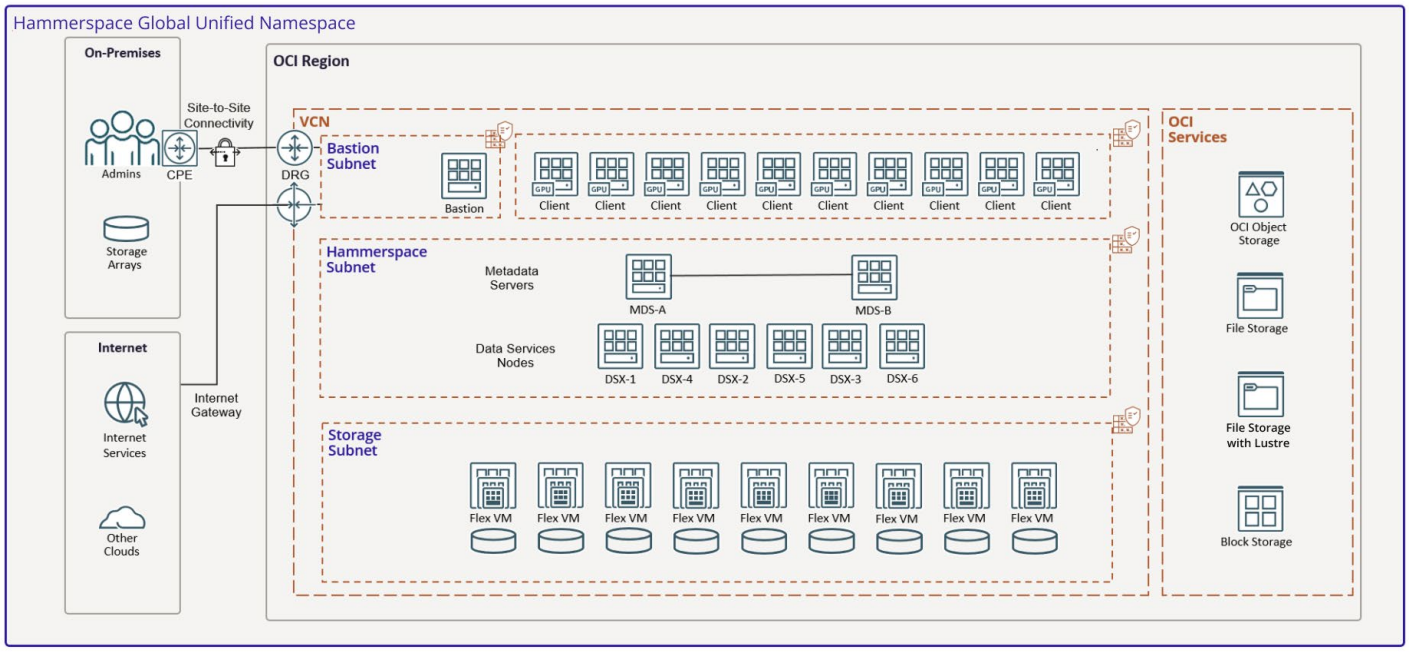
- **Data Services Nodes (DSX)**
  - DSX nodes provide scalable NFS, SMB, and S3 access. They can also act as data stores in the cloud and on-premises, and execute data movement, replication, and tiering across OCI and existing storage environments.
  - Deployments scale from two to sixty DSX nodes per cluster depending on performance and scale requirements.

Hammerspace enables NVMe storage local to OCI GPU shapes to be aggregated into a shared Tier 0 performance layer. By positioning data adjacent to GPU resources, Tier 0 minimizes latency and maximizes throughput for AI and HPC workloads while remaining fully integrated into the Hammerspace global namespace.

Data stored in Tier 0 can be protected through mirroring across nodes and automatically tiered to OCI Object Storage for long-term retention.

Hammerspace can also incorporate storage volumes from any Linux storage server and other storage platforms from any vendor, allowing additional OCI and on-premises storage resources to become part of a single unified data environment.

Regardless of where data resides, files and objects remain visible and accessible through standard NFS, SMB, and S3 protocols within the Hammerspace global namespace. No proprietary client software is required.



Example Hammerspace Architecture for AI in OCI, creating a unified data environment across OCI storage, other clouds, and on-premises infrastructure while positioning data where it is needed for AI and HPC workloads.

Learn More:

- **Hammerspace OCI page**
- **OCI Blog Post - Accelerating AI/ML Workloads on OCI: Integrating Hammerspace with the OCI HPC/GPU Stack**
- **OCI Blog Post - Sovereign Data, Unified Access: Hammerspace on OCI Dedicated Region**
- **OCI Blog Post - FIO Benchmarks Highlight Performance Gains with Hammerspace Tier 0 Architecture on OCI**
- **Press Release - Hammerspace Now Available on Oracle Cloud Marketplace**
- **Hammerspace and OCI YouTube channel**