Case Study

Binary Global Teams-up with Western Digital & Cloudian to solve its Client's Unstructured Data Storage Challenges

Challenges

The client, a research department in the government of India was grappling with a surge in storage demand for unstructured data such as documents, images, videos, scientific data, emails, and logs. Traditional solutions like Network Attached Storage (NAS) and Storage Area Network (SAN) were proving to be increasingly costly and complex to manage and operate. Moreover, due to data control and cost issues, the client could not transition their data to a hosted cloud environment. They were in search of a unified, software-defined, scalable, and economically viable storage platform that could deliver various storage services and support multiple tenants on a single platform. They also wanted to avoid vendor lock-in and desired a solution that could scale up and out using commodity hardware while maintaining consistent performance. The storage solution needed to support configurable data protection techniques and withstand hardware failure without data loss or corruption.

"The level of professionalism and expertise displayed by your [Western Digital] team is truly exemplary".

Navdev Chhabra
Project Manager at Binary Global

Binary Global

Binary Global is an Information and Communications Technology (ICT) infrastructure & managed services provider company headquartered in New Delhi, India. As a system integrator, Binary Global provides a full suite of IT consulting services, including solutions in networking, data management, cyber security, and cloud computing, complemented by managed services. Their expertise lies in cross-platform integration, enabling businesses to enhance their operational excellence and become technology-driven enterprises.

The company's range of services goes beyond mere IT assistance and infrastructure management. They provide multi-cloud managed services, NOC & SOC services, and other solutions to facilitate genuine digital transformation. Binary Global is committed to quality and are certified with ISO 9001, ISO 27001, and ISO 20000 standards.

Solution

Binary Global, as system integrator, proposed a highly scalable and reliable Scale-Out storage solution with the Western Digital Ultrastar® Data60 and Cloudian HyperStore object storage software. This solution includes six x86 servers and three Ultrastar Data60 Hybrid Storage Platforms, each connected to two x86 servers. Each server has two 10Gbe ports for application and intra-node cluster communication. The proposed Cloudian HyperStore design offers exceptional data durability, and can tolerate the failure of up to two servers and one storage platform (or 60 drives). The solution provides native S3 API compatibility across all of the nodes. S3FS is supported, which provides NFS/SMB-like file share over S3. NFS and SMB are also supported using Cloudian's file gateway called Hyperfile.

Key Results

The client is satisfied that the solution meets all of their requirements. The solution meets all of the client's requirements, by economically handling their growing data storage needs using commodity hardware while maintaining consistent performance. It provides multiple storage services including S3, NFS V3/NFS V4, CIFS/SMB. The solution also offers configurable data protection techniques to safeguard against hardware failures and prevent data loss or corruption.

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Solution Highlights and Benefits

The proposed solution offers several key benefits:

- **Scalability**

The solution allows for scaling-up and out to meet the client's growing data storage needs.

- **Unified Platform**

The solution provides a single platform that could deliver multiple storage services, including S3, NFS V3/NFS V4, and CIFS/SMB.

- **Hardware-Agnostic**

The solution is hardware-agnostic, allowing the client to avoid vendor lock-in and expand using commodity hardware.

- **Data Protection**

The solution supportes configurable data protection techniques, safeguarding against hardware failures, and preventing data loss or corruption.

- **Cost-Effective**

The solution is economically viable, helping the client keep their storage costs reasonable.

- **Resilience**

The design tolerates up to two servers and one storage platform or 60 drive failure, ensuring data availability and business continuity.

- **Versatility**

The solution provides native S3 API compatibility across all the nodes and supported NFS/SMB-like file share over S3. NFS and SMB are also supported using a file gateway called HyperStore File Service.

- **Efficiency**

The solution is configured in EC 4+2 with approximately 1.7PB usable capacity, providing ample storage for the client's needs.

- **Secure**

The solution provides extensive security features that make it possible to deploy and operate cost-effective unified data storage environment that keeps customers data extremely secure. These features include, Data encryption in transit and at rest, Role-based access controls, Audit trail logging and WORM (Write Once Read Multiple) for storage of immutable data and more.

- **Multi-Tenancy**

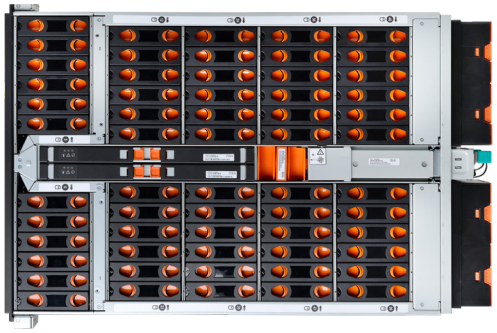
The solution allows multiple users and/or teams to analyse data sitting on a single, shared data infrastructure without compromising security. With role-based access controls storage services can be controlled and provisioned on-demand from a service catalogue. Billing, Metering and QOS are built into the HyperStore platform to enable a fully multi-tenant deployment.

- **Compliance and Data Residency**

Cloudian solutions provide a private cloud storage system that allows the customers data to stay on-prem, behind their firewall. This is especially ideal for government data and records that may be regulated and have strict data residency, privacy and security requirements. Cloudian lets the customer meet their data sovereignty/residency needs.

Western Digital Ultrastar Data60 Storage Platform

- Up to 60 Ultrastar HDDs (SAS or SATA)
- Up to 1.56PB[1] of raw storage in 4U
- Up to 4 units may be daisy-chained for a total raw capacity of 6.24PB[1]
- Patented IsoVibe™ technology ensures maximum performance even in heavy workloads
- Improved cooling from innovative ArcticFlow™ technology
- Choose dual-port SAS for high availability or single-port SATA for low cost
- Up to 12 x 12Gb/s SAS-3 host connections
- Enterprise-grade redundant and hot swappable PSUs, IO Modules, and fans



[1] One petabyte (PB) is equal to one quadrillion bytes. Actual user capacity may be less due to operating environment.

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