USDC Technology Object Storage by

NetApp StorageGRID Webscale
Object Storage Software

Software-defined object storage for web applications, rich content, and backup and archival workloads.

Key Benefits

- **Is Built for Web-Scale Data Repositories**

  Build massively scalable, globally distributed object stores that support industry-standard object APIs such as Amazon S3 and Swift.

- **Optimize Performance, Durability, and Cost**

  Protect data with layered erasure coding, which combines node-level and geo-distributed erasure coding to efficiently prevent data loss from disk, node, rack, or site outages.

- **Enables a Hybrid Cloud with Best-in-Class Flexibility**

  Seamlessly tier and replicate to public cloud storage while taking advantage of public cloud compute.

- **Uses a Metadata-Driven Policy Engine**

  Optimize data availability, performance, geo-distribution, retention, protection, and storage cost with metadata-driven policies and adjust them dynamically as the business value of data evolves.

The Solution

NetApp StorageGRID Webscale is a software-defined object-based storage solution that provides intelligent policy-driven data management. The ability to manage data while optimizing durability, protection, performance, and even physical placement across multiple geographies is key to meeting business requirements while reducing costs.

Deploying NetApp StorageGRID Webscale with a NetApp engineered appliance creates an enterprise-grade turnkey object storage appliance that is easy to implement. StorageGRID Webscale deploys nodes via Docker containers across bare metal, virtual machines, or an enterprise engineered hardware appliance. Customers can use any combination of node types and rapidly deploy PBs of storage.

StorageGRID Webscale provides industry-leading Amazon S3 API compatibility with advanced Amazon S3 features, including object versioning, multipart upload, and AWS Identity and Access Management—styled access policies. With Active Directory and LDAP identity federation for Amazon S3 and Swift users, and for administrative users, StorageGRID Webscale helps you bridge the gap between enterprise IT and cloud semantics.

Many critical workloads require NAS protocols. The StorageGRID NAS protocol bridge supports SMB and NFS access and at the same time enables object access to these files by using the Amazon Simple Storage Service (Amazon S3) protocol. You can support your current workload while proactively supporting next-generation applications that natively support object protocols.
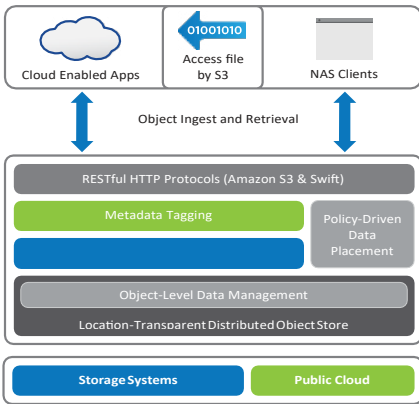
(Hình 1) Giải pháp lưu trữ theo đối tượng của NetApp StorageGRID Webscale

Designed for Always-On Operations

Reduce costs without sacrificing durability with NetApp StorageGRID Webscale layered erasure coding. By protecting at the node level and with geo-distributed coding, you can create policy-driven data protection with multiple levels of granularity. You can choose a combination of full copies and geo-distributed erasure-coded copies to balance performance needs and cost savings between different sets of data or during the object's lifecycle.

Reduce Complexity

Software-defined storage gives you the choice of deploying StorageGRID Webscale nodes as virtual machines, as optimized hard- ware-based appliances, as bare-metal servers with Docker containers, or as a combination. In all cases, designing, deploying, and managing StorageGRID Webscale is a centrally managed and streamlined process.

Enable the Hybrid Cloud

Achieve new levels of cost savings by enabling cloud-to-cloud data management. StorageGRID Webscale can manage and store objects not only within its own globally distributed infra- structure, but also in Amazon Web Services (AWS). You can add Amazon S3 storage as a storage tier, increasing data protection with an external cloud while reducing costs by performing more expensive operations against locally managed copies.

StorageGRID Webscale 11.0 introduces new Platform Services. Storage tenants can configure replication of buckets to S3 public cloud. Take advantage of public cloud compute and resource via notifications. Drive more value from your data with metadata search. Tenants can configure granular policies to index metadata via on-prem or AWS Elasticsearch.

Designed for Always-On Operations

NetApp StorageGRID Webscale provides the foundation for global data availability anytime, anywhere, to facilitate nonstop operations. Configurations can be designed for resilience to one or multiple simultaneous failures, and even for resilience to entire site losses and regional disasters. StorageGRI Webscale is suitable for single data centers or multi—data center deployments with many sites across the globe.

SStorageGRID Webscale is built upon a modular architecture, so you can design grids to maximize throughput and capacity. A centralized process that manages installation maintains configuration control and speeds deployments. Storage nodes can be added and removed from the grid

Rely on Proven Software

Object stores must provide a solution for massive scale and long- term retention. With the proven track record of StorageGRID Webscale software and NetApp storage, you can be confident that you are building on a rock-solid foundation for your web data repositories, data archives, and media repositories.

StorageGRID is a 11th-generation object store with 15 years of production deployments in the most demanding industries. NetApp dependability has been demonstrated with over 1 million systems shipped and 20 years of product hardening. With advanced features such as the NetApp AutoSupport® tool for proactive, immediate response and with backing by NetApp's world-class support organization, StorageGRID Webscale is a solution that you can trust with your critical data assets.

KEY FEATURES FOR OBJECT STORAGE	NETAPP STORAGEGRID WEBSCALE PROVIDES
Massive scalability and flexible	• Massive elastic content store • Multiple geo-distributed sites • Support for multiple storage tiers: — SSD, SAS, SATA, tape — Amazon S3 • Geo—erasure coding and geo-replication • Deployment on VMs, hardware appliances, or bare-metal servers with Docker containers
Application interfaces	**Massively parallel transaction engine with:** • Integrated load balancing • Transaction multithread pipelining **Object access:** • Protocols: Amazon S3 and Swift **NAS access:** • CIFS and NFS • File object duality **Grid/system management:** • Management API: administration of tenants, system tasks, and monitoring including Prometheus • Tenant API: management of users, credentials, usage, and quotas
Compression and encryption	**Platform Services — Tenant configurable hybrid cloud** • Simple Notification Services • Elasticsearch • Cloud Mirror bucket replication **Advanced security and encryption capabilities:** • Store objects with lossless compression • Get support for AES-256 and SHA-256 encryption • Get mixed-mode AES-256 and SHA-256 support for strong encryption and CPU-efficient integrity protection
Metadata and content awareness	**Metadata-based data management:** • Content-aware self-healing maintains data protection even during network disruptions • Policies can be modified and applied retroactively to existing objects
Deployment options	• Bare metal/Software only servers via Docker containers • VMs: — VMware ESXi and vCenter — Other hypervisor supported via SW only VMs
Service-level objective and performance monitoring	• Get comprehensive performance feeds: — Access throughput — Replication throughput — Time to first byte — Time to policies achieved • Get support for synthetic transactions • Demonstrate SLAs • Measure transaction round-trip time • Separate WAN, storage, gateway times
Management and monitoring	• Centralized and automatable installation and expansions • Automated monitoring and tenant management through an API • Rolling upgrades without downtime • Comprehensive ad-hoc real-time, rolling-period, and historical-usage query capability • 200+ predefined monitoring, usage, and performance reports • Event-based audit messages for performance tracing, usage monitoring, enabling billing, or chargeback