Object Storage At Scale Without Compromise

SCALABLE OBJECT STORAGE REVOLUTION

DATA DELUGE DEMANDS

>_ The explosive growth of data – specifically unstructured data – along with the need for flexible management across cloud, data center and edge computing environments, has created new enterprise challenges. Organizations are feverishly looking for a scalable, reliable and cost-effective means of managing and extracting value from this data, regardless of where it resides.

INTELLIGENT OBJECT STORAGEBETTER SOLUTIONS

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UNSTRUCTURED DATA GROWTH PROPELS OBJECT STORAGE FORWARD

Up to 90% of new data created by enterprises today is unstructured, and it's growing about 3 times as quickly as structured data. This rapid growth should come as no surprise. Just about any data that doesn't fit neatly in a database is unstructured.

This includes your company's emails, texts, video and audio files, web pages, social media postings and even surveillance footage. Managing this deluge of highly diverse and unorganized data can quickly become unwieldy. In fact, 95% of enterprises say that managing unstructured data is a problem they need to address. Perhaps this describes your organization as well.

DDN Infinia is a multi-protocol solution designed to address key challenges associated with unstructured data.

With its software-defined approach, the Infinia storage platform offers the simplest, most intelligent solution for managing distributed unstructured data at multi-petabyte scale. It delivers breakthrough performance, guaranteed multi-tenant QoS and the industry's strongest security for object storage workloads.

DELIVERING MULTI-TENANT PERFORMANCE THAT SCALES OBJECT STORAGE WITHOUT COMPROMISE

The scalability, cost-efficiency and flexibility of object storage has made it a strategic architectural investment for many IT organizations trying to tame the relentless growth of unstructured data. Mainstream enterprise use cases for object storage also now go well beyond backup and archive to include rich media content delivery, CCTV, life sciences and financial service analytics. Improved performance has even enabled object storage to make inroads into big data and AI environments. (IDC. see footnote).

However, the expansion of object storage beyond traditional data protection use cases has not come without its challenges. These issues are particularly problematic when attempting to maintain consistent performance at scale and across multiple consolidated workloads:

DRAWBACKS OF CURRENT OBJECT STORAGE SOLUTIONS

- Communication across scale-out clusters with tens or hundreds of nodes can increase latency considerably.
- Large-scale management of the rich metadata that accompanies stored objects across multiple nodes can create performance bottlenecks
- Object storage vendors have introduced multi-tenancy as a means of improving hardware and management efficiencies by consolidating storage resources and application data. However these efforts have not delivered true multi-tenancy that provides both secure isolation as well as guaranteed performance (SLAs) for each tenant.

INNOVATIONS THAT REMOVE OBSTACLES TO EFFICIENCY, PERFORMANCE AND SECURITY

DDN Infinia delivers the performance you need – scalable IO and throughput for all your enterprise use cases and unstructured data application requirements. Its built-in multi-tenancy also reduces your storage costs and management efforts without compromising performance or security. Infinia's native multi-tenancy delivers unique advantages for object storage and associated applications.

- **Guaranteed Quality of Service (QoS):** At the heart of the Infinia system is the Adaptive IO Engine that can deliver guaranteed performance for all your object storage data, at the tenant level.
  If your environment requires more granular service management, you can allocate a tenant's resources to one or more subtenants. You can map your SLAs and KPIs directly to Infinia QoS policies and choose to either adjust QoS levels manually or allow them to be automatically assigned by the Infinia QoS engine based on preset parameters. Infinia QoS allocates resources in real time for incoming IO using a fair share policy to deliver the maximum performance available for each tenant according to policy. You can thereby ensure service levels are met at the tenant and subtenant level regardless of how much capacity has been allocated to each. You will also avoid the shortcomings of other QoS implementations that cause multiple users and applications to compete for "unassigned" resources, leading to unpredictable service levels and user dissatisfaction.

- **Simplified Service Provisioning:** All tenants and subtenants are assigned a share of the resource performance as well as thinly provisioned capacity upon creation. Once deployed, this setup enables dynamic, automatic performance and capacity management. However, you can choose to manually dial-in performance shares and capacity boundaries at deployment time or in real-time. Furthermore, Infinia's software-based logical partitioning and provisioning at subtenant levels enables specific internal departments or external organizations to manage their own allocation of resources. This unique, multi-level approach to tenant resource management is more flexible and efficient than hardware-based data isolation and object storage provisioning, which doesn't include the concept of subtenants.

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- **Optimized Performance for Various Tenant Workloads:** Infinia supports divergent capacity and performance requirements. Some of your tenants, for example, may require high capacity and moderate performance while others require the opposite. Still others may simultaneously require low latency and high throughput. Infinia's software-based multi-tenancy leverages an Adaptive IO Engine that automatically optimizes object data placement and manages erasure coding algorithms based on both incoming IO pattern and size. This dynamic intelligent process minimizes your administrative burden by ensuring predictable performance for all tenants and users, across various unstructured and structured data types in real-time – without requiring specialized hardware or tedious tuning.

- **The Strongest Security Foundation:** As enterprise data becomes increasingly distributed – across different storage systems and across partitions or tenants within a given system – your risk of security and data breaches also increases. Infinia provides a full set of military-grade security features that are specifically designed to support multi-tenancy by protecting your data and isolating services at multiple levels of granularity. To protect against unauthorized access, each tenant and subtenant has its own secured view of its data and subsystem. Security administration privileges can also be delegated for individual tenant and subtenant roles. To protect against unplanned outages, your administrators can choose to apply fault domains to insulate tenants from hardware failures. Unlike other object storage solutions, Infinia's advanced security measures won't force you to compromise on infrastructure efficiency. Each tenant and subtenant benefits from software-based logical capacity allocation that dynamically leverages all infrastructure, not just a portion of it.

REDUCING CLOUD COSTS WITHOUT SACRIFICING FLEXIBILITY

The standardization of Amazon's S3 protocol has enhanced the popularity of cloud object storage. The trend towards cloud object storage accelerated in recent years as enterprises sought ways to build more flexible operations, including work-from-home and remote data management strategies. However, many organizations that aggressively embraced cloud storage are now looking beyond cloud-first or cloud-only options to store their unstructured data. There are multiple reasons for this:

PUBLIC CLOUD CHALLENGES

- **Cloud Costs** – though public cloud object storage has certainly helped countless enterprises protect their data effectively, it came at a cost. These same organizations are now realizing the full impact of their monthly cloud object storage subscription costs and data egress charges.
  As a result, many are considering, or have already begun, repatriating their workloads, moving some or all of their data back in-house from public cloud storage.

- **Data Gravity** – specifically the latency incurred when moving data from cloud storage to on-premises applications

- **Data Sovereignty & Data Protection Policies** – which require data to remain on-premises and/or within a geographical region or when certain business critical apps require in-house management

Infinia addresses all of the above cloud-related challenges. It can be deployed on-premises in your core data center, with a flexible pay-as-you-grow financial model that eliminates costly overprovisioning. This lets you repatriate cloud workloads and eliminate costly data egress charges associated with public cloud object storage.

Infinia is also designed for deployment flexibility. You still have the freedom to deploy the solution in the public cloud if you wish to include cloud storage as part of your overall data management strategy. It can also be deployed on the edge, for example in a smaller or subsidiary data center.

DDN understands that many organizations have standardized on the S3 protocol and may have concerns about moving their data to a new system. DDN Infinia has therefore been designed to offer a direct, simplified migration path for enterprises that have made significant investments in customized Amazon S3 environments.

EMBRACING OPEN SOURCE

Can an object storage solution effectively support today's active open source container and block storage workloads? DDN's answer is a resounding "Yes!"

Infinia supports Kubernetes and Openstack environments using either the CSI (Container Storage Interface) or Cinder (Openstack Block Storage) frameworks to support Docker containers and Openstack virtual machines respectively. You get a massively scalable and simplified storage solution for modern data pipelines that bridges the gaps between application development and data science.

SHARPEN YOUR COMPETITIVE EDGE WITHOUT COMPROMISE

With DDN Infinia, you no longer need to delay or restrict your object storage deployments due to concerns about performance and security for your fast growing unstructured data workloads. Infinia's native software-based multi-tenancy provides cost-effective infrastructure sharing (hardware consolidation), secure data isolation and optimized performance at any scale – for all tenants and users in real-time. You can reduce administrative effort and cost with intelligent policy-driven data management, automated QoS management and elastic scalability for multiple workloads and modern use cases.

Best of all, you stay ahead of the competition with a highly resilient object storage solution that's simple to deploy and manage and automatically meets all your tenant and workload-specific SLAs – without trade-offs, without compromises.

To learn more about DDN's groundbreaking software-defined solution for intelligent data management visit

ddn.com/infinia.

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