

NetApp Keystone

Overview

NetApp's Keystone storage-as-a-service includes NetApp file, block and object storage on a subscription basis. The assets are owned by NetApp, and managed either by the customer or a NetApp partner. Data protection storage services are included in the Keystone base service. Keystone also includes an ability to integrate public cloud storage resources (AWS, Azure, GCP) to off-load infrequently accessed data, permanently move workloads, or use the cloud for burst, DR or backup.

Keystone offers storage services across performance tiers of NetApp's portfolio of products. Because NetApp delivers performance service level objectives (SLOs) established within the Keystone contract, NetApp reserves the right to supply the storage platform to best deliver the required performance outcomes. That means customers do not select a specific NetApp storage system.

Usage

Keystone performance tiers offer capacity at predefined service levels. Each service level is defined by IOPS per storage capacity (TiB) used. Customers can choose from five performance tiers for file and block storage, and an object storage tier.

Performance Tiers

Available performance tiers for file (NFS, SMB), block (iSCSI, FC) storage and object (S3) based on NetApp ONTAP software are:

- Extreme – up to 12.2K IOPS per TiB – 384MB/s throughput per TiB
- Premium – up to 4K IOPS per TiB – 128MB/s throughput per TiB
- Performance – up to 2K IOPS per TiB/ 64MB/s throughput per TiB
- Standard – 512 IOPS per TiB – 16MB/s throughput per TiB
- Value – 128 IOPS per TiB – 4MB/s throughput per TiB

Extreme is targeted at analytics and databases; Premium and Performance are for VDI, virtualization apps and software development; Standard for file shares and web servers; and Value for backup. There

Keystone Highlights

- NetApp storage offered as a service
- OPEX-qualified – billing based on subscription plus capacity consumption
- Block, file and object
- Five performance tiers; also, Object storage and cloud service levels
- Additional services include tiering to public cloud with NetApp Cloud Volumes ONTAP
- Managed by customer or NetApp partner

is a minimum one-year term and 25 TiB capacity for any combination of file shares and block service levels for Extreme, Premium and Performance tiers and 100 TiB minimum for Standard and Value.

NetApp ONTAP features available for the Extreme, Premium, Performance, Standard and Value performance tiers include:

- Snapshot – Default: 4 hours, 7 days retention, replicated every 24 hours (additional storage tier subscription is required to store the replicated data at the target, while the source can be non-Keystone tier)
- SnapMirror and SnapVault
- FlexClones and FlexGroups
- Data tiering to NetApp storage

Keystone's Object storage service (S3) based on StorageGrid software has a minimum of one-year term and 500 TiB of capacity.

For pricing, see the [Keystone cost calculator](#) on the NetApp website.

Additional Services

Additional data management services over and above the standard data services include:

Hybrid Cloud – Tiering / FabricPool - Tiering to cold storage in the public cloud (AWS S3, Azure Blob, GCP). This single subscription service NetApp Cloud Volumes ONTAP (CVO) to deploy storage in the public cloud and leverage native cloud infrastructure.

Data Protection Advanced Services

Data Protection Advanced Services is another optional subscription, which uses NetApp MetroCluster for automated failover in case of a disaster.

Platform Equinix

Customers can choose to instantiate NetApp Keystone storage within an Equinix colocation facility on a stand-alone basis or create a hybrid, multi-cloud storage architecture using direct network connections between the locations. Instantiating on an Equinix platform offers the advantage of placing the service “next to” the leading public cloud service providers (AWS, Azure, Google Cloud) as opposed to using cloud-native storage and its associated costs. Data is close enough to cloud services such as compute, database, and analytics to result in low latency when using this architecture. Customers also get the control and governance inherent in NetApp storage operations. The option to have NetApp or a NetApp partner fully manage and operate the service is also available.

NetApp Storage on Equinix Metal is storage-as-a-service fully hosted and operated by Equinix. NetApp Storage on Equinix Metal provides a full stack of compute, networking and block and file storage infrastructure with low-latency interconnection to all major public clouds. This environment can be either single tenant or dedicated. Customers pay for usage per month, with minimum commits for capacity and 1-year term. NetApp Storage on Equinix Metal offers Standard, Performance, Premium, and Extreme tier. You can see [pricing details](#) here.

Management Models

Keystone can be managed by customers or NetApp partners.

Under the customer-managed model, NetApp is only responsible for:

- Hardware and software installation and support plus ownership of the storage infrastructure
- Customers perform all other storage and data management operations, such as monitoring, administering, operating and optimizing hardware and software.

Under the partner-managed model, additional NetApp or Partner management services can be applied to the customer management model at additional cost. These include:

- Ongoing services to optimize and manage any applicable service level agreements (SLAs)
- Workload mapping to tiers
- Data Management
- Performance/capacity management
- Hardware incident, problem and change management
- Proactive management of Service requests
- Upgrades, patching
- Performance/capacity management
- Release management
- Asset and configuration management
- Documentation
- Access management
- Monthly Service Reporting

Management Portal

Keystone customers have the use of NetApp's BlueXP, which allows customer to do the following:

- Provision storage and data protection workflows
- View subscribed capacity and usage

- View reports on daily burst capacity usage and performance
- Measure usage and view the reports that are used to generate invoices
- Order additional capacity or new storage services
- Integrate orchestration tools with NetApp Keystone APIs

Pricing and Contract Terms

With Keystone, customers pay a fixed amount for a subscribed capacity and all selected services at the performance tier chosen. Payment can be made on a monthly or annual upfront basis.

Customers also pay for any use of an overage consumed (burst capacity) during a given month above the subscribed capacity. The total payment covers hardware, core OS software and support, and additional amounts for NetApp and partner fully operated contracts when selected.

NetApp installs an amount of “committed” storage capacity (minimum 25 TiB) that is paid for as a subscription plus a 20% buffer referred to as “burst” capacity that is paid for based on capacity consumed. Customers use the subscribed capacity plus any capacity consumed above the subscription that is needed in each month. Customers are charged for subscribed capacity installed regardless of whether it is used during the life of the contract. Additional capacity is ordered and allocated by the customer through a GUI and/or an API.

Customers can increase and decrease usage up to 20% above the committed capacity. The burst capacity usage is measured daily and billed only when used. For example, a customer with a committed capacity of 100TiB can burst up to 120TiB. The burst capacity usage up to 20% of committed capacity and any usage above 20% of committed capacity are billed at the same rate as committed capacity. Payment for burst capacity can be made monthly (or quarterly under an annual payment model.)

Charges are based on a flat rate for what NetApp refers to as Logical Effective Capacity, which is defined as the amount of data written by a host or application to the storage service before the application of any storage efficiency processes (compression, deduplication, etc.). Each year, a customer can “true up” capacity usage where the subscribed capacity needed for the following year is increased if necessary. Customers who pay annually can optionally decrease their subscribed capacity before beginning their next annual payment.

NetApp allows customers using Keystone for hybrid clouds to reallocate spending from on-premises to the cloud. For instance, a customer paying \$1,000 per month for on-prem services can move a workload to a public cloud, reduce the spend for on-prem, and use the remainder of the monthly payment to buy cloud services under the same subscription.

Initial Keystone services have a minimum term of 12 months. Cancellation prior to normal termination is subject to an early cancellation fee equal to the remainder of the unpaid total contract value. Contracts renew automatically at the end of term. At that point, customers can add another 12-month contract or

terminate the agreement in which case NetApp will allow the customer to go month to month until data is migrated off the NetApp storage devices. Discounts may be offered for longer-term contracts. NetApp retains ownership to the infrastructure at all times during the life of the contract.

Significant Announcements

October 2023 – NetApp unveils **Bare-Metal-as-a-service**, NetApp Storage on Equinix Metal. The Keystone service is integrated with Equinix Metal’s infrastructure, providing a full stack of storage, compute and networking-as-a-service subscription.

Evaluator Group *EvaluScale*™: NetApp Keystone

	Criteria	Description	EG	Explanation for NetApp OCCS
1	Services Offered	Breadth of storage management and support services offered by vendor	Exceeds Requirements	Base services for file, block and object storage plus add-ons for disaster recovery. Based on NetApp ONTAP, StorageGrid and cloud services
2	Block, File and Object Support	Ability to deliver and manage a combination of block, file and object-based storage	Exceeds	Block, File and Object support including archival storage and hybrid cloud connectivity through Cloud Volumes ONTAP
3	Storage Platform Choice	Customers can source from multiple vendors and conform to existing environment	Area for Development	NetApp decides the right hardware platform from its portfolio to deliver the promised service
4	Hybrid Cloud Storage Support	Ability to integrate public cloud storage with managed storage service	Area for Development	Cloud Volumes ONTAP and tiering to cloud offered today; other cloud services on roadmap
5	Object Storage Support	Services include object storage in addition to block and file for compliance and archive	Meets Requirements	One performance tier, although S3 can be used for higher performance in some use cases.
6	Contract Flexibility and Minimum Requirements	Minimum capacity levels, dollar volume commitments, contract terms required	Meets Requirements	12-month minimum contract term, minimum capacity based on service level
7	Storage Networking	Storage network attachment and management offered in base services or as an option	Area for Development	Not included from NetApp, but partners may deliver networking – for example, FlexPod with Cisco
8	Geographic Availability	Ability to meet customer needs outside of the US	Area for Development	Available in 16 countries across America, EMEA and APAC
9	Optional, Add-on Services	Optional DR, data protection, data migration and other services availability	Meets Requirements	Extensive add-on services available, including DR, data migration,

				managed services, Equinix colocation support
10	Data Migration Services	Data migrations offered as a base service or as an optional service	Area for Development	Offered as separate add-on with monthly billing
11	Ability to Execute	Vendor’s ability to deliver against contractual SLAs and other commitments	Exceeds Requirements	NetApp is a large multinational vendor of storage and storage technology-related services

Evaluator Group Opinion and Outlook for NetApp Keystone:

NetApp Keystone offers NetApp storage on a subscription plus consumption basis. Customers pay a fixed rate for committed capacity plus overage for capacity consumed in any given month above the committed amount. In this way, this service conforms to the billing model of other services in this category. NetApp also offers service tiers based on performance and the availability of block, file and object storage. As such it offers a different way to acquire NetApp storage and services vs. lease or purchase.

If a Keystone customer chooses the customer-managed option, NetApp provides the hardware and software with installation, hardware upgrades and software support. The customer takes on all other management responsibilities. The second option (NetApp Partner Managed) includes a robust list of management responsibilities. However, the price for these services may be significantly higher vs. the customer-managed option. This “all or nothing” approach is atypical regarding competing offerings in this category. Most competitors offer several hardware/software management and support services as part of their standard offering.

We caution prospective users to understand their capacity requirements over at least the first year of using Keystone. Customers who are not able to predict are at risk of incurring significant premiums in their monthly or quarterly bills. However, this risk is somewhat mitigated by free services provided by NetApp to monitor a customer’s workload and map it to different Keystone service levels.