

NetApp

Keystone® Storage-as-a-Service

Service Description

Capitalized terms used but not defined in Section 1.1 of this Service Description have the meanings ascribed to them in the Keystone Flex Subscription Addendum or Keystone Flex Subscription Agreement, as applicable ("Agreement").

1. General

This Service Description describes the Keystone Storage-as-a-Service ("STaaS") consumption-based Subscription Service that is available to Customer pursuant to the Agreement. Upon delivery by Customer and acceptance by NetApp® of a Keystone Order for Subscription Services, the terms of the Keystone Order will incorporate by reference the Agreement and this Service Description for Keystone STaaS.

This Service Description, taken together with the Agreement, Keystone Order, and any exhibits and supplemental terms referenced therein, represent the entire agreement and understanding between the Parties with respect to the Subscription Products and Subscription Services made subject to a validly executed Keystone Order. Except as otherwise provided for in the Agreement, to the extent there is a conflict between this Service Description and the Agreement, this Service Description will control. Keystone Order(s) will be deemed to incorporate and be subject to this Service Description and the Agreement, except where the Parties expressly agree in writing to variations thereto.

1.1 Definitions.

The following additional defined terms apply to this Service Description.

- **"Additional STaaS Service(s)"** means the optional STaaS features and services that are available as part of the Subscription Services, subject to additional Fee amounts, conditions, and availability, with further details provided in Section 9.
- **"Burst Capacity"** means the amount of Consumed Capacity (in TiB) that exceeds the Committed Capacity during a billing period, per Performance Level, per Keystone Order, with further details provided in Section 7.3.
- **"Burst Capacity Limit"** means the maximum amount of Usable Capacity (in TiB), per Performance Level, per Keystone Order, for which NetApp provides Service Levels, with further details provided in Section 7.3.
- **"Burst Waiver Period"** means the number of calendar-days, from the Start Date, for which Burst Capacity usage will be metered and reported, but not charged, with further details provided in Section 7.3.
- **"Capacity Report"** means the report generated by NetApp summarizing the Consumed Capacity for the prior billing period, with further details provided in Section 8.3.
- **"CVO"** means NetApp's Cloud Volumes ONTAP® software, as described in <https://docs.netapp.com/us-en/cloud-manager-cloud-volumes-ontap/index.html>.
- **"Commingling"** means the physical or logical incorporation of Subscription Products and non-Subscription Products in the same ONTAP cluster or in the same StorageGRID® grid.
- **"Committed Capacity"** means the amount of capacity (in TiB), per Performance Level, per Keystone Order that Customer is minimally invoiced for during each billing period, with further details provided in Section 7.1.
- **"Consumed Capacity"** means the amount of capacity (in TiB) used and metered to store Customer data, per Performance Level, per Keystone Order, with further details provided in Section 7.2.
- **"Effective Capacity"** means the amount of capacity (in TiB) equal to the Physical Capacity multiplied by a data efficiency factor ($> \text{ or } = 1$).
- **"Hybrid Cloud Service"** means On-Premises Service and, optionally, CVO ordered on a single, co-terminated Keystone Order and charged on single invoice, with ability to reallocate spend from On-Premises Service to CVO.
- **"Logical Capacity"** means the capacity (in TiB) required to store Customer data on Subscription Products without any Storage Array data efficiencies applied to those data.
- **"Monitoring Tool"** means one or more of the required NetApp proprietary tools that monitors and transmits Subscription Service consumption data to enable reporting, invoicing, and Subscription Products' capacity, health, performance, and support metrics to enable management and support of Subscription Products, with further details provided in Section 10.
- **"Minimum Payment"** means amount payable during the applicable billing period for Committed Capacities for each Performance Level, Additional STaaS Services (if applicable), and CVO (if applicable), identified in the Keystone Order.
- **"Non-compliant Volume(s)"** means an ONTAP volume that does not have a required AQoS policy applied.
- **"On-Premises Service"** means Keystone STaaS delivered through Subscription Products deployed at Site.
- **"Performance Level(s)"** means one of the pre-defined storage Performance Levels, based on IOPs, MBps, and/or latency, with further details provided in Section 6.
- **"Physical Capacity"** means the physical storage media capacity (in TiB) required to store Customer data and metadata.

- **“Provisioned Capacity”** means allocated size of one or more ONTAP® volumes or CVO volumes.
- **“Service Level(s)”** means any of the service levels described in Section 8.1.
- **“Start Date”** has the meaning ascribed to it in Section 2.4.
- **“Storage Array(s)”** means a data storage enclosure consisting of one or more storage controllers and internal and/or externally attached storage media.
- **“Target Site Readiness Date”** means date by which Customer is targeting completion of site preparation.
- **“Usable Capacity”** means the amount of Physical or Logical capacity (in TiB) available to store Customer data.

1.2 Summary.

NetApp Keystone® STaaS is a unified, on-premises and cloud storage Subscription Service, offering:

- On-premises block, file, and object storage types and, optionally, cloud-based CVO.
- Capacity, health, performance, and power consumption service levels.
- Capacity, health, and performance dashboard and reporting.
- Low minimum capacity and term commitments.
- Additional 20% pay-per-use Burst Capacity.
- NetApp ONTAP or StorageGRID® data protection and management features.
- NetApp owned Subscription Products deployed at Site.
- Installation, monitoring, management, support, updates, deinstallation, and shipping.
- Customer controlled access, security, and administration of Subscription Products.
- Keystone Success Manager.
- Additional STaaS Services.

2. **Keystone Order**

2.1 Order type.

Keystone STaaS provides two, non-convertible order types:

- **On-Premises Service.**
- **Hybrid Cloud Service** providing On-Premises Service and, optionally, CVO that can be added to the Keystone Order at any time up to 90-days before end of Subscription Term.

2.2 Subscription Term.

- On-Premises Service offers up to 5 years Subscription Term.
- Hybrid Cloud Service offers up to 3 years Subscription Term with co-termination of On-Premises Service and CVO.

2.3 Renewal.

Subscription Term will, by default, automatically renew for twelve (12) month extensions.

2.4 Start Date.

Subscription Term starts and Fees begin to accrue on the Start Date that is the earlier of, either:

- The date on which NetApp notifies Customer that NetApp has activated Subscription Services and has made Subscription Services available for Customer use.
- The date on which Customer has commenced use of the Subscription Services.

3. **Fees**

3.1 Minimum Payment.

Each Keystone Order is subject to a Minimum Payment amount that is payable during the applicable billing period identified in the Keystone Order.

3.2 Non-Compliant volume charge.

Capacity usage within Non-compliant Volumes will be billed at rate of highest Performance Level purchased under Keystone Order associated with Storage Array and media type on which volume resides.

3.3 Hybrid Cloud Service.

- Minimum Payment for Hybrid Cloud Service may include an amount for CVO based on metered Provisioned Capacity of all CVO volumes.
- Fees payable by Customer for Hybrid Cloud Service do not include AWS, Azure, or other cloud service provider charges, which must be paid by Customer and cloud services connectivity maintained for so long as CVO is being used.

3.4 Total Fees.

The total Fees payable for a billing period are determined for each billing period and will include Minimum Payments, additional usage-based consumption charges and/or fixed rate charges for any Burst Capacity as described in Section 7.3, and Non-Compliant Volume amount (if applicable).

4. Invoicing

Fees payable for a billing period will be included in a single invoice and will identify the components of such Fees. Customer will be invoiced in accordance with the invoice period selected in the Keystone® Order.

- **Monthly, in arrears** (applicable to On-Premises Service or Hybrid Cloud Service).
- **Annual, in advance** (applicable to On-Premises Service, only).

5. Storage types

- **File and Block** storage type is delivered on NetApp ONTAP® AFF, ASA and/or FAS platforms.
- **Object** storage type is delivered on NetApp StorageGRID® platform.

6. Performance Levels

File and Block storage type Performance Levels are defined in terms of maximum user input/output operations per second ("IOPS") per Logical tebibyte ("TiB") stored per volume, target user input/output operations per second ("IOPS") per Logical tebibyte ("TiB") allocated per volume, and 90th percentile latency. One or more Performance Levels can be selected per Keystone Order.

6.1 On-Premises Service.

Storage Type	File and Block					Object
Supported protocols	NFS, SMB, CIFS, iSCSI, FC, S3* [* for FabricPool use only]					S3
Performance Level	Extreme	Premium	Performance	Standard	Value	N/A
Max IOPs/Logical TiB stored per volume @ 32K block size	12,288	4,096	2,048	512	128	N/A
Target IOPs/Logical TiB allocated per volume @ 32K block size	6,144	2,048	1,024	256	64	N/A
Max MBps/ Logical TiB stored per volume @ 32K block size	384	128	64	16	4	N/A
Target 90 th percentile Latency	<1ms	<2ms	<4ms	<4ms	<17ms	N/A
Platform	ONTAP	ONTAP	ONTAP	ONTAP	ONTAP	StorageGRID
Min Committed Capacity per Keystone Order	25 TiB			100 TiB		500 TiB
Committed Capacity increase increment	1 TiB					1 TiB
Committed and Metered Capacity type	Logical					Physical

6.2 Cloud Volumes ONTAP.

Storage Type	Cloud Volumes ONTAP®
Supported Protocols	NFS, CIFS, iSCSI, S3* (*AWS & Azure only)
Platform	CVO
Min Committed Capacity per Keystone Order	4 TiB
Capacity Increase Increment	1 TiB
Committed and Metered Capacity type	Logical

7. Capacity

7.1 Committed Capacity. Use of the Subscription Services requires Customer to subscribe to a certain amount of Committed Capacity for each Performance Level selected in a Keystone Order. Minimum Committed Capacity thresholds and capacity increase increments for each Performance Level are set forth in Sections 6.1 and 6.2 of this Service Description.

7.2 Consumed Capacity

- **ONTAP File and Block.** Consumed Capacity is the amount of metered Logical Capacity in use to store all instances (primary and mirrors) of Customer data plus Physical Capacity in use to store differential data of Snapshot™ copies and clones.
- **StorageGRID Object.** Consumed Capacity is the amount of metered Physical Capacity in use to store all instances of Customer data on all nodes based on ILM policy(ies) configured.
- **Cloud Volumes ONTAP.** Consumed Capacity is the amount of metered Provisioned Capacity of all CVO volumes.

7.3 Burst Capacity

- **Burst Capacity Limit.** The Burst Capacity Limit is equal to 120% of the then current Committed Capacity, per Performance Level, per Keystone Order. Subscription Service allows Customer's Consumed Capacity to exceed the Committed Capacity up to the Burst Capacity Limit.
- **Burst Rate.** All Burst Capacity consumption will be invoiced at the specified Rate corresponding to the applicable Performance Level.
- **Burst Waiver Period.** Subscription Service provides a Burst Waiver Period of sixty (60) days, from Start Date.

8. **Included STaaS Features and Services**

8.1 Service Levels.

- **Capacity Service Level.** NetApp® will use commercially reasonable efforts, including deploying additional applicable Subscription Products, to make available Usable Capacity of 120% of Committed Capacity during subscription term.
- **Performance Service Level.** NetApp will use commercially reasonable efforts, including deploying additional applicable Subscription Products, to provide the target IOPs/Logical TiB allocated per volume, per the Performance Levels set forth in the Keystone Order, for Consumed Capacity up to the Burst Capacity Limit.
- **Availability Service Level.** NetApp will use commercially reasonable efforts to provide access to Usable Capacity with average monthly uptime of all deployed AFF and FAS storage arrays, per Keystone Order, of at least 99.999% during each monthly billing period.
- **Technical Support.** NetApp will use commercially reasonable efforts to provide following Time to Respond (TTR) targets, after receipt of incident ticket by Keystone support, based on incident priority level assigned by Keystone support based on business impact of incident:

Priority	Time to Respond Target	Service Window
P1 Business operations severely impacted.	30 minutes	24x7x365
P2 Business operations degraded.	2 hours	24x7x365
P3 Little or no business impact.	8 hours	8x5 local business hours
P4 Informational or administrative inquiries.	24 hours	8x5 Local business hours

- **Service Parts Delivery and Replacement Service Level.** NetApp will deliver service replacement parts and send authorized engineers to Site with target time of four (4) hours from time need is determined by Keystone Support, where geographically available.
- **Sustainability Service Level.** Keystone will provide target maximum watts consumption, per TiB, per Performance Level, for Subscription Services delivered on NetApp ONTAP® Flash storage arrays.

8.2 Features.

- File and Block Performance Levels include use of the following ONTAP software features, subject to change, depending on ONTAP version deployed and services subscribed to.
 - **Protocols:** NAS Protocols (NFS, CIFS), SAN Protocols (FCP, iSCSI, NVMe), S3 (for FabricPool tiering use only).
 - **Data Management:** FlexVol® volumes, FabricPool (to supported NetApp data storage targets), FlexGroups, Snapshot™ copies, FlexClone® volumes, SnapRestore® software.
 - **Data Protection:** SnapCenter® software, SnapManager® software, SnapMirror® Asynchronous replication, SnapVault® software.
 - **Encryption:** Volume encryption, Trusted Platform Module (TPM), data-at-rest encryption.
 - **Security and Compliance:** Fpolicy, multi-tenant key management, SnapLock® Enterprise software, Autonomous Ransomware Protection.
- Object Performance Level includes use of all StorageGRID® features.

8.3 Services.

- **Design.** NetApp will design Keystone STaaS architecture and determine Subscription Products required to deliver Subscription Services.
- **Subscription Products.** NetApp will provide the required Subscription Products, including power cords, network, and interconnect cables between Subscription Products, and SFPs for Subscription Products.
- **Site Requirements.** NetApp will provide rack, space, power, cooling, networking, Monitoring Tool, and other Site preparation requirements and specifications required to deploy Subscription Products.
- **Shipping.** NetApp will provide shipping of Subscription Products to Site and provide return shipping at the end of term.
- **Installation.** NetApp will provide installation services for initial, add-on, and updates of Subscription Products.
- **Activation.** NetApp will enable monitoring, metering, invoicing, and support and make Subscription Services available for use.

- **Monitoring.** NetApp® will monitor capacity, consumption, health, and performance of Subscription Products and Subscription Services using the Monitoring Tool.
- **Dark Site.** NetApp may provide alternate Monitoring Tool solution for Customers that restrict outbound transmission of Monitoring Tool data or inbound access to Subscription Products for troubleshooting or management.
- **Reporting.** NetApp will generate, for each billing period, a Capacity Report and NetApp will either provide Customer with such Capacity Report through the Monitoring Tool or with each invoice.
- **Notification.** NetApp will notify Customer of incidents that may affect delivery or use of Subscription Services.
- **Technical Support.** Keystone® will provide technical support, available 24x7x365, by email or telephone.
- **Parts Delivery and Replacement.** NetApp will coordinate with Customer to deliver replacement parts and to send authorized engineers to Site upon Keystone support determining need for parts replacement.
- **On-site Support and Troubleshooting.** NetApp will coordinate with Customer to send authorized engineers to Site upon NetApp Support determining need for on-site support or troubleshooting.
- **Capacity, Health, and Performance management.** NetApp will monitor deployed Subscription Products for ability to deliver Subscription Services and Service Levels and determine, communicate, and coordinate any remediation required.
- **Software Updates.** NetApp will identify, plan, and install, in coordination with Customer, Keystone required Subscription Software updates, and patches.
- **Hardware Updates.** NetApp will identify, plan, and install, in coordination with Customer, Keystone required Subscription Hardware updates.
- **Return.** At Subscription Term expiration, NetApp will deinstall and arrange for return to NetApp.

8.4 Keystone Success Manager.

Subscription Services include a remote Keystone Success Manager (“KSM”), available during local business hours, that serves as the Customer’s primary Keystone STaaS contact, providing the following services specific to Keystone STaaS:

- Conduct periodic Subscription Services review calls that may include:
 - Capacity requirements and planning.
 - Performance Level requirements and planning.
 - Maintenance and update planning.
 - Consumption and invoice review.
 - Incident review.
 - Subscription Services modifications and renewals.
- Escalation management.

9. **Additional STaaS Services**

The following optional features and services (each, an “**Additional STaaS Service**”) are available, for additional Fees, as part of the Subscription Services:

9.1 Advanced data protection feature.

- Provides symmetric MetroCluster™ IP synchronous mirroring feature.
- Supported on ONTAP based File and Block Performance Levels.
- Consumed Capacity for MetroCluster IP is measured as the amount of Logical Capacity in use to store primary mirrored, primary unmirrored, and all mirrored copies of Customer data.

9.2 Data tiering to non-NetApp targets feature.

- Provides FabricPool data tiering feature to supported non-NetApp data storage targets.
- Supported on ONTAP based File and Block Performance Levels.

9.3 Non-returnable non-volatile components (“NR-NVC”) feature.

- Provides option for Customer to retain defective non-volatile memory components during Subscription Term.
- Provides option for Customer to retain functional non-volatile memory components at expiration of the Subscription Term.
- Non-volatile components include storage media (hard drives and SSDs) and non-volatile memory components that contain Customer data and whose contents cannot be erased or sanitized by removing power or discharging battery or executing firmware or software commands.

9.4 US citizen support (USCS) service.

- Provides installation, parts replacement, support, and KSM services from U.S. citizens on U.S. soil, where geographically available.

10. Monitoring Tool

Keystone requires full installation and continuous enablement of Monitoring Tool at Customer Site(s) on Customer provided VMs. The Monitoring Tool connects to and communicates only with the management plane of the Subscription Products. Monitoring Tool does not connect to or communicate with the Customer data plane, nor have access to, operate on, nor process Customer data that are transferred to or stored on Keystone STaaS.

11. Subscription Modifications

11.1 Increase Committed Capacity.

Customer may increase Committed Capacity to an existing Performance Level or add a new Performance Level at any time during the Subscription Term, up to 90 days prior to the scheduled expiration of the Subscription Term. NetApp® will provide Customer with confirmation of such increase; provided that NetApp will have no obligation to confirm such increase if such increase would require the addition of Subscription Products within 90 days of the expiration of the Subscription Term, unless the Parties have agreed in writing to renew or otherwise extend the Subscription Term prior to or during such final 90-day period. Once effective, any increases will remain in effect for the remainder of the Subscription Term, and the corresponding Minimum Payment applicable to the new Committed Capacity will be adjusted in accordance with the newly agreed upon Committed Capacity. Where Customer has selected annual billing and increases Committed Capacity during the Subscription Term in accordance with this Section, NetApp will promptly invoice Customer for any pro-rated increases in Minimum Payments owed for the remainder of the Subscription Term.

11.2 Decrease Committed Capacity.

If Customer has selected annual billing (applicable to Keystone STaaS On-Premises Service only) and a Subscription Term of at least 24 months, Customer may decrease the Committed Capacity for each 12-month period following the initial 12 months of the Subscription Term, subject to the following: (i) Customer requests for decreases must be in writing and received by NetApp not less than 60 days prior to the start of the 12-month period for which the adjustment will apply; (ii) no such decrease may reduce the Committed Capacity by an amount greater than 25% of the then-current Committed Capacity, and such decrease will be effective only on the commencement of the subsequent 12-month period; (iii) the 90 day restriction relating to the addition of Subscription Products described in Section 11.1 applies; (iv) post-reduction, On-Premises Service monthly Minimum Payment per Keystone Order must be greater than \$16,666 (or US currency equivalent); and (v) any reduction under this Section 11.2 is subject to written NetApp approval.

11.3 Reallocation.

- Applies to Hybrid Cloud Service only.
- Provides Customer ability to reallocate On-Premises Service spend to CVO spend quarterly (up to 25% of then current ACV).
- Customer cannot request reallocation again until after 90 days activation of previous reallocation request.
- Customer cannot re-allocate during the last 90 days of the term unless subscription is to be renewed.
- Customer's request to reallocate must be submitted at least 5 business days before the next billing cycle and will be activated on the first day of next billing cycle.
- Post reallocation, On-Premises Service monthly Minimum Payment per Keystone Order must be greater than \$16,666 (or US currency equivalent).

11.4 Additional STaaS services.

- Adding Additional STaaS Service(s) is permitted for Subscriptions with greater than 12 months remaining.

12. Customer Responsibilities

12.1 Requirements.

Customer will provide to NetApp relevant Customer Site, technical, workload, operations, and other relevant requirements to help determine proper Keystone STaaS architecture design and Subscription Products prior to shipment.

12.2 Site preparation.

- Facilities
 - Racks and space, per specifications.
 - Redundant, protected power, PDUs, receptacle types and quantities, per specifications.
 - Cooling, per specifications.
 - Moving Subscription Products between shipping/loading area and installation location of facility.
- Network
 - Network cables and cabling required to connect Customer data switches and hosts to Subscription Products.
 - Network cables and cabling required to connect Customer management switches and hosts to Subscription Products.

- Fibre channel switches, cables, and cabling required to connect Customer fibre channel SAN switches and hosts to Subscription Products.
- Network services configuration.
- SFPs required for Customer equipment.
- Monitoring & management
 - Continuous enablement of full version of NetApp AutoSupport® Monitoring Tool.
 - VMware VMs, on Customer provided management server, for the installation of Keystone® Monitoring Tool.
 - Management network connectivity between management server and management ports of Subscription Products.
 - Internet connectivity for Monitoring Tool to transmit consumption and health data from Monitoring Tool and storage arrays.
 - Remote support and management access to management ports of Subscription Products, via mutually agreed to tool(s), method(s), and times.

12.3 Delayed site readiness charge.

Customer represents and warrants to NetApp® that, on or prior to Target Site Readiness Date, the Site will be prepared and ready for the prompt installation of the Subscription Products. Chronic failure by Customer or any authorized agent, not attributable to NetApp, to ensure and facilitate the prompt installation of any Subscription Products and activation of Subscription Services constitutes a material breach under the Agreement and may incur a charge for such delay.

12.4 Customer owned products.

Customer is responsible for all aspects of Customer owned equipment (NetApp or Non-NetApp), including applicability, compatibility, co- and pre-requisites, design, architecture, additional hardware, and software required, installation, integration, administration, management, support, testing, and documentation.

12.5 Customer specific solutions.

Customer is responsible for all aspects of the solution within which Keystone STaaS will be deployed (e.g., data management, data protection, encryption, monitoring, reporting, security & compliance, ticketing), including applicability, compatibility, co- and pre-requisites, design, architecture, additional hardware, and software required, installation, integration, administration, management, support, testing, and documentation.

12.6 Site access.

Customer is responsible for providing NetApp personnel access to Site, in timely manner, for purposes including, but not limited to the following.

- Site validation.
- Subscription Product inventory, installation, and configuration.
- Subscription Product maintenance, support, including troubleshooting, remediation, and parts replacement.
- Subscription Product deinstallation and removal.

12.7 Use of features and services.

Keystone STaaS provides Customer the right to use certain features and services listed in Sections 8.2 and Section 9. In using these features and services, Customer is responsible for:

- Feature or service applicability, compatibility, co- and pre-requisites, design, architecture, additional hardware and software required, installation, integration, administration, management, support, testing, and documentation.
- Consumption of Committed Capacity and Subscription Product resources resulting from use of the features and services, which may affect capacity and resources available to deliver Subscription Services.

12.8 Administration and operation.

Customer is responsible for the administration and operation of the Subscription Products, including, but not limited to the following.

- Applying required AQoS policy to each ONTAP® volume.
- Customer specific patch identification and installation and coordination with NetApp KSM.
- ONTAP data SVM configuration.
- Encryption enablement and configuration.
- Security enablement and configuration.
- Storage Provisioning.
- Storage Administration.
- Equipment moves during subscription term.
- Monitoring and reporting of Subscription Products per Customer specific requirements.

12.9 Data protection, security, and management.

Customer is responsible for:

- Physical, network, and access security.
- Data-at-rest and data-in-flight encryption.
- Backup and recovery schedule, process and testing, business continuity and disaster recovery process and testing of its data and applications.
- Conversion and migration of data to Subscription Products.
- Integration and/or automation of the Subscription Services with Customer environment or applications.
- Backup, migration, deletion and sanitizing of data from the Subscription Products upon the expiration or termination of the Subscription Term and prior to return of Subscription Products to NetApp®.
- Adhering to customer applicable industry or government compliance guidelines or requirements.

12.10 Modifications and disablement.

Customer may not:

- Modify ONTAP® software version.
- Disable or turn OFF Monitoring Tool or remove NetApp's ability to monitor consumption or health.
- Remove NetApp's access to controller's management ports.
- Disable data efficiencies, including compression, compaction, deduplication, thin provisioning.
- Add, remove, or modify Subscription Hardware.

12.11 Subscription expiration, cancellation, termination.

At end of subscription term, Customer must:

- Discontinue use of Subscription Services.
- Backup, migrate, delete, and/or sanitize media, if and as required by Customer (without rendering media unusable).
- Notify NetApp that Subscription Products and Services are ready to be decommissioned and returned.
- Transport packaged items to Customer shipping area for return pickup.

13. Additional Information

13.1 Renewal.

- Renewals are subject to the terms in effect immediately prior to expiration until (i) the Subscription Services are terminated by either party upon the delivery of at least ninety (90) days' prior written notice to the other; or (ii) the Subscription Services are renewed or extended on mutually agreeable terms.
- If new major version of Keystone® STaaS is released during current Subscription Term, then current Keystone Order can be renewed only once and for only one additional year. Thereafter, Keystone Order will be renewed under the terms of then current version.

13.2 Fees.

NetApp will use the Capacity Reports to calculate the Fees due under each invoice for Subscription Services and such Capacity Reports will be deemed to contain the final and conclusive summary of the Consumed Capacity used by Customer during the applicable billing period, unless Customer can establish that such Capacity Report contains an error.

13.3 Performance levels – On-Premises Service.

The performance characteristics specified in the table in Section 6.1 are subject to the following terms and conditions:

- Supported Protocols
 - ONTAP S3 protocol on File and Block Storage Type is supported only for: 1) FabricPool tiering from ONTAP source to ONTAP target, 2) Keystone approved non-tiering purposes.
- IOPs/TiB
 - File and Block Performance Levels are defined and enabled by AQoS and configuring all Customer volumes with a valid AQoS policy is mandatory.
 - File and Block Performance Levels are based on ONTAP software 9.10+.
 - Each volume is assigned minimum IOPs, per Performance Level, that the storage array will strive to provide to the volume, through AQoS, regardless of size of volume or the amount of data stored in the volume. Minimum IOPs values are determined by NetApp.
 - Target IOPs/Logical TiB allocated per volume, per Performance Level, means the minimum IOPs that the storage array will strive to provide to the volume, through AQoS, assuming 32K block size, Random 70% Read/30% Write IO mix, and IOPs availability.

- Max IOPs/Logical TiB stored per volume, per Performance Level, means the maximum IOPs that the storage array will permit the volume to deliver, through ONTAP Adaptive QoS, assuming 32K block size, Random 70%/30% read/write IO mix, and IOPs availability.
- IOPs deployed at Site per Performance Level per Keystone Order equals (Expected IOPs/TiB * 120% Committed Capacity [TiB] * Oversubscription Factor), where Oversubscription Factor is less than or equal to 1 (one) and determined by NetApp® based on NetApp customer base actual utilization by NetApp customers.
- Actual IOPs/TiB/volume or MBps/TiB/volume may vary and both metrics may not be met simultaneously based on system workload concurrency, block size, IO mix, and features and services in use at the time.
- Non-compliant Volumes: If one or more volumes on a storage array do not have a valid AQoS policy applied, then amount of IOPs available to other volumes may be affected and NetApp will not be responsible for targeting or meeting Performance Levels on that storage array.
- In FabricPool configurations, Performance Levels apply only if all requested data blocks are residing on FabricPool source (hot) storage and the source storage is not in a SnapMirror® Synchronous relationship.
- Target Latency is measured per volume per Performance Level, for all volumes within a Keystone® Order. Latency is sampled every 5 minutes and the 90th percentile value over a 24-hour period is used as the daily measure, considering the following.
 - Measurements of volumes that are not using at least 5 IOPs at the time of measure will be excluded from sample set.
 - Volumes with greater than 30% writes at the time of measure will be excluded from sample set.
 - Latency injected by AQoS (for requested IOPs/TiB that is greater than target IOPs/TiB) will be excluded from sample set.
 - Latency injected by AQoS to maintain minimum IOPs per volume will be excluded from sample set.
 - For volumes with FabricPool enabled, latency incurred due to data transfer to/from target (cold) storage will be excluded from sample set.
 - Latency caused by the application, host, or Customer network outside of the ONTAP® cluster will be excluded from sample set.
 - When using the Advanced Data Protection Additional STaaS Service, target latency includes only IO to/from local storage array.
- All per instance of hardware and software min/max and other limits apply.
- Workload IOPs need to be balanced across all deployed controllers, per Keystone Order.

13.4 Burst Capacity.

Customer may, in its discretion, use the Subscription Services to exceed the Burst Capacity Limit, provided that: (1) NetApp makes no commitment to Customer that there will be capacity available in excess of the Burst Capacity Limit, and (2) NetApp is not responsible for targeting or meeting, and will have no liability with respect to, the Service Levels described during any such time that Customer's use of the Subscription Services exceeds the Burst Capacity Limit. Exceeding the Burst Capacity Limit within any one Performance Level may adversely impact Usable Capacity and available performance of other Performance Levels.

13.5 Availability Service Level.

Keystone availability service level is subject to the following terms and conditions:

- **Monthly Uptime Percentage** means [(maximum available minutes in month) – (average of downtimes of all deployed AFF and FAS storage arrays, per Keystone Order, in month) / maximum available minutes in month] x 100%.
- **Maximum Available Minutes** means the total number of minutes in a billing period.
- **Downtime** means the inability of a storage array's controller to service Customer I/O requests, as determined by NetApp, excluding a period when the Subscription Services are not available due to scheduled or mutually agreed upon time for NetApp to perform maintenance, upgrades, or support activities, or due to situations outside of NetApp or Keystone Service control or responsibilities.

13.6 Sustainability Service Level.

Keystone's sustainability Service Level Agreement (SLA) is subject to the following terms and conditions:

- Watts is the power consumed by the ONTAP AFF storage arrays and media shelves and as reported by NetApp AutoSupport® Monitoring Tool.
- Keystone Order requires eligibility approval.
- Capacity (in TiB) is the greater of (1) 120% of Committed Capacity per Performance Level, or (2) the Effective deployed capacity, assuming a data efficiency factor of 2 (two).
- Applicable to standard, non-customized Keystone STaaS, single Performance Level orders, invoiced monthly in arrears.
- Applicable to non-customized, reference Keystone sustainable hardware configurations, consisting of:
 - ONTAP AFF A-Series storage arrays.
 - Two-node switchless cluster.
 - Non-commingled configurations.
 - Non-MetroCluster™ configurations.
- Full version of AutoSupport Monitoring Tool installed and continuously operational on all applicable ONTAP AFF storage arrays.

- Customer data stored must achieve a minimum average data efficiency factor of 2 (two).
- The ambient operating environment temperature must be between 25°C and 27°C.
- Customer must submit a P1 ticket with Keystone support within 7 days from the service month end.
- NetApp® will make determination of service level breach.
- Customer must provide additional information as requested by NetApp, including Customer's wattage consumption data and method.
- Minimum Committed Capacity per Performance Level must be met.
- Credits will be calculated based on Committed Capacity only.
- Credits can be applied to next month's invoice only.
- Sustainability Service Level

Performance Level	SLA Metric	Min Committed TiB	Eligible Platform
Extreme	< or = 8W/TiB	200 TiB	A800, A900
Premium/Performance	< or = 4W/TiB	300 TiB	A800, A900

- Service Credits

Days SLA Missed in Billing Period	% Monthly Invoice Credit
1 to 2 days	3%
3 to 7 days	15%
14 days	50%

13.7 ONTAP® features

Keystone STaaS provides Customer the right to use certain features and services listed in Sections 8.2 and Section 9. Use of these features and services is subject to the following terms and conditions:

- All capacity consumption attributable to use of these features counts towards Consumed Capacity.
- Hardware and software resources consumed through use of these features may affect available capacity and performance.
- Usage of features are subject to feature specifications and limits.
- Data Tiering to ONTAP targets:
 - Data that are tiered to a NetApp target do not count towards source's Consumed Capacity.
 - "NetApp targets" include NetApp's ONTAP or StorageGRID® solutions platforms.
 - Tiering to targets other than NetApp targets requires the "Data Tiering to Non-NetApp Targets" Additional STaaS Service described in Section 9.2.

13.8 Design.

Keystone design of Subscription Service architecture excludes Customer specific solution design, application development or integration, process development, third-party software or hardware compatibility checks or integration.

13.9 Subscription Products.

Subscription Products are subject to the following terms and conditions:

- Subscription products cannot be purchased by Customer at end of Subscription Term.
- Cluster switches are included only for initial configuration consisting of more than two controllers.
- Cluster switches are not included for exclusive use during commingling or non-Keystone requirements.
- Racks are not included.
- Network cables and cabling between Subscription Products and Customer's products are not included.
- SFPs are not provided for use in Customer products.

13.10 Installation.

Keystone installation includes the following, if/as applicable:

- Keystone deployment project management.
- Creating configuration workbook per subscription.
- Confirming site preparation.
- Confirming inventory of delivered Subscription Products.
- Installation of Subscription Products into Customer provided racks.
- Inter-Subscription Product cables and cabling.
- Updating Subscription Hardware firmware.
- Updating Subscription Software.
- Installing Subscription Software licenses.

- Configuring disks, spares, RAID.
- Configuring aggregates.
- Configuring switched or switchless cluster.
- Configuring cluster interconnect switches.
- Configuring Subscription Product networking.
- Configuring, enabling, and testing AutoSupport (ASUP).
- Installing and configuring Monitoring Tools on Customer provided VMware VMs.
- Creating applicable AQS policies in Active IQ Unified Manager.
- Creating minimal test configuration for AQS policy and host connectivity demo/test (to be deleted after testing).
- Testing and documenting Customer host connectivity (contingent on Customer readiness).
- Testing and documenting controller failover and take-back (contingent on Customer readiness).
- Configuring and testing StorageGRID® systems (if applicable).
- Configuring and testing ASA systems (if applicable).
- Exclusions:
 - Installing, configuring, or testing of Customer equipment, servers, clients, VMs, or networks.
 - Customer specific solutioning, installation, configuration, or integrating of Customer specific solutions, or applications including, backup/recovery, disaster recovery, data migration, performance assessments, or commingling.
 - CVO deployment.

13.11 Monitoring.

Monitoring is limited to NetApp's requirements to deliver Keystone Subscription Services.

13.12 Dark site.

Dark site service limits NetApp's installation of Monitoring Tool and ability to monitor capacity, consumption, health, performance and other system and service metrics as well as ability to remotely access the Subscription Products for troubleshooting and support purposes. Therefore, NetApp's ability to offer and deliver Subscription Services may be limited.

13.13 Reporting.

Keystone service reporting is limited to NetApp's requirements to deliver Subscription Services.

13.14 Technical support.

Keystone technical support is subject to the following exclusions:

- Backup and recovery of the Customer's operating systems, applications, or user data.
- Customer application troubleshooting or performance tuning.
- Identification or removal of viruses or any type of malware.
- Operational testing of Customer specific application, compute, networking, storage, or processes.
- Services required due to Customer's failure to incorporate any system fix, repair, patch, or modification provided by NetApp.
- Services required due to Customer's failure to take avoidance action previously advised by NetApp.
- Services that, in NetApp's opinion, are required due to unauthorized attempts by non-NetApp personnel to install, repair, maintain, or modify hardware, firmware, or software.
- System administration tasks.
- Training.
- Troubleshooting for interconnectivity or compatibility incidents.

13.15 Software updates.

Keystone® software update service is subject to the following exclusions:

- Identification and installation of patches and hotfixes that are uniquely required by the Customer, but not required for operation and delivery of Subscription Services.
- Software updates required to enable and revert from commingling.

13.16 Hardware updates.

Keystone STaaS updates hardware based on Subscription Product end-of-support schedule, amongst other criteria; but does not provide pre-defined hardware "refresh" schedules or commitment.

13.17 Return.

- NetApp is not responsible for Customer's access to, or availability or loss of customer data on Subscription Products at any time after end of subscription term, due to subscription expiration, cancellation, or termination.
- Customer is responsible for:
 - Backing up, migrating, and/or sanitizing data from Subscription Products.
 - Confirming that Subscription Services are no longer in use and Subscription Products can be decommissioned.
- NetApp® will:
 - Provide packaging.
 - Uninstall Subscription Products.
 - Package and schedule return shipment to NetApp.
 - Sanitize media and reset Subscription Products to factory settings upon return to NetApp facility.

13.18 Keystone Success Manager.

Keystone Success Manager (KSM) service is subject to the following exclusions:

- KSM scope does not include Customer owned equipment.
- KSM does not replace or duplicate scope of services provided by NetApp's Support Account Manager ("SAM"; <https://www.netapp.com/services/support/account-manager/>).
- If desired, Customer may separately purchase SAM services for Keystone Subscription Products.

13.19 Advanced Data Protection.

Advanced Data Protection is subject to the following terms and conditions:

- Advanced Data Protection is based on NetApp MetroCluster™.
- Only symmetric MetroCluster configurations are supported.
- Included deployment service.
 - Basic MetroCluster requirements gathering, configuring, and functionality testing.
 - ISL testing and documenting.
 - Creating test aggregate Snap Mirror relationship across sites (to be deleted after testing).
 - Testing and documenting node failover and takeback.
- Exclusions
 - Customer specific MetroCluster design.
 - MetroCluster ISL connectivity.
 - MetroCluster peering network switches and connectivity.

13.20 Data tiering to non-NetApp targets.

Data Tiering to Non-NetApp Targets is an Additional STaaS Service that provides S3 based FabricPool data tiering from Keystone ONTAP systems to NetApp supported non-NetApp S3 data storage targets.

- Consumed Capacity for FabricPool data tiered to supported non-NetApp targets is measured as the amount of Physical Capacity in use to store Customer data on a Keystone File and Block Performance Level that is tiered to a non-NetApp data storage target.

13.21 NR-NVC.

NR-NVC is an Additional STaaS Service that allows Customer to retain non-volatile memory components. Following terms and conditions apply:

- Retained components cannot be re-used by Customer.
- NR-NVC is available only at start of a Subscription Term.
- NR-NVC Additional STaaS Service is required to use ONTAP SnapLock® Compliance feature on File and Block Performance Levels.

13.22 Monitoring Tool.

- ONTAP File and Block and StorageGRID Object Performance Levels are monitored and Consumed Capacity is recorded not less than daily by the Metering Tool.
- Cloud Volumes ONTAP is monitored and Consumed Capacity is recorded every fifteen minutes through Cloud Manager.

13.23 Security.

- NetApp does not have physical or logical access to Customer Data on the Subscription Products used to deliver Keystone® STaaS.
- No Customer data is transmitted by Monitoring Tool.
- During remote troubleshooting, support, or maintenance activities, Customer controls providing permissions, viewing, and logging of remote NetApp access to required Subscription Products.

13.24 Subscription modifications.

- Potential future modifications to Subscription Services need to be communicated to NetApp in timely manner to enable planning, delivery, and deployment of additional Subscription Products, if needed.
- Changes to the Committed Capacities are subject to the increase or decrease increments and minimum Committed Capacity requirements for each applicable Performance Level, as specified in Sections 6.1 and 6.2.

13.25 Equipment move.

Keystone STaaS provides Customer to move or relocate Subscription Products from initial installation Site to another Customer Site, contingent on NetApp approval. Following terms and conditions apply:

- Customer needs to provide written request to NetApp at least 60 days prior to intended move date.
- NetApp will investigate and may provide approval and potential additional terms and conditions, based on business, legal, financial, compliance, support, and other considerations.
- All Subscription Products that were provided per related Keystone Order(s) are required to be moved together.
- All effort, services, or additional hardware required to enable move are not included in Keystone service pricing.
- NetApp® is not responsible for any service interruption, loss of customer data, providing reporting or providing Service Levels during move.
- Customer is responsible for backup, migration, encryption, compliance, securing of Customer data during move.
- Customer is responsible for continuing Minimum Payment and any other payments due, per related Keystone® Order(s), during and after move.
- It is recommended that Customer contract NetApp or Partner, if available, to project manage, deinstall, obtain packaging, and package Subscription Products at Site-A.
- Customer is responsible for shipping, with appropriate replacement value insurance.
- Customer is responsible for loss of or damage to Subscription Products during equipment move and is not covered by NetApp support or warranty.
- Customer is responsible for site preparation at destination Site.
- Customer is required to contract NetApp PS or Partner, with Keystone KSM and installation team oversight, to deploy service at destination Site, with roles and responsibilities of NetApp, Customer, and Partner being same as during initial installation.

13.26 Commingling.

Keystone STaaS provides Customer to include Subscription Products and non-Keystone ONTAP® systems within same ONTAP cluster contingent on NetApp approval. Following terms and conditions apply:

- Customer needs request NetApp approval to commingle prior to submission of Keystone Order.
- Allowance is made for the limited purpose of initial data migration only.
- Allowance is for up to a maximum of 90 days following the Start Date.
- The non-Keystone NetApp ONTAP Storage Arrays within the same ONTAP cluster must be covered at the same NetApp support level as Keystone Subscription Products for duration of commingling term.
- All effort, hardware, software, or services related to or required for Commingling (including, but not limited to: feasibility, supportability, designing, planning, managing, additional required hardware or software, cluster switches, SFPs, cabling, hardware or software installation, configuration, software upgrades or downgrades, testing, documenting, return to NetApp supported configuration, etc.) are not included as part of Keystone services or fees.

13.27 Term extension.

Customer may receive an extension of Subscription Services beyond the Subscription Term contingent on NetApp approval. Following terms and conditions apply:

- Customer needs to provide written request to NetApp at least 90 days prior to expiration of the current Subscription Term.
- Allowance is made for a period of one calendar month.
- Allowance is made to facilitate for express purpose of an orderly transfer of Customer data out of Subscription Services.
- All effort, hardware, software, or services related to transferring Customer data out of Subscription Services are not included as part of Keystone services or fees.