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Keystone® Storage-as-a-Service Service Description

Supplement

1. General

This supplement provides additional features, terms and conditions that apply to the Keystone Storage-as-a-Service Service Description and shall be considered part of such STaaS Service Description.

2. End User Responsibilities

2.1 Requirements disclosure.

End User will provide to NetApp relevant End User Site, technical, workload, operations, and other relevant requirements to determine proper Keystone STaaS Order configuration and STaaS Products selection prior to Subscription Product shipment. Changes to any requirements after Order placement may impact rates or incur additional Fees.

2.2 Site preparation.

End User will prepare site for deployment of Subscription Products, per provided site specifications, and provide confirmation to NetApp of site preparation completion; only after receipt of such confirmation will NetApp ship Subscription Products.

- a) Facilities
    - i. Racks and space, per specifications.
    - ii. Redundant, protected power, PDUs, receptacle types and quantities, per specifications.
    - iii. Cooling, per specifications.
    - iv. Moving STaaS Products between shipping/loading area and installation location of facility.
- b) Network
    - i. Network cables and cabling required to connect End User data switches and/or fibre channel switches and hosts to STaaS Products.
    - ii. Network cables and cabling required to connect End User management switches and hosts to STaaS Products.
    - iii. Network services configuration.
    - iv. SFPs required for End User equipment.
- c) Monitoring & management
    - i. End User provided and managed VMs on for hosting of Monitoring Tool.
    - ii. Management network connectivity between management server and management ports of STaaS Products.
    - iii. Internet connectivity for Monitoring Tool to transmit consumption and health data from Monitoring Tool and storage arrays.
    - iv. Remote support and management access to management ports of STaaS Products, via mutually agreed to tool(s), method(s), and times.

2.3 End User-owned products.

End User is responsible for all aspects of End User-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.

2.4 End User-specific solutions.

End User is responsible for all aspects of the solution within which STaaS Services 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.

2.5 Site access.

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

- a) Site validation.
- b) STaaS Product inventory, installation, and configuration.
- c) STaaS Product maintenance, support, including troubleshooting, remediation, and parts replacement.
- d) STaaS Product deinstallation and removal.

2.6 Use of features and services.

STaaS Services provide End User the right to use certain features and services listed in the Keystone STaaS Service Description. In using these features and services, End User is responsible for:

- a) Feature or service applicability, compatibility, co- and pre-requisites, design, architecture, additional hardware and software required, installation, integration, administration, management, support, testing, and documentation.

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b) Consumption of Committed Capacity and STaaS Product resources resulting from use of the features and services, which may affect capacity and resources available to deliver STaaS Services.

2.7 Modifications and disablement.

Without prior NetApp approval, End User may not:

a) Modify ONTAP software version.

b) Disable or turn OFF Monitoring Tool or remove NetApp's ability to monitor consumption or health.

c) Remove NetApp's access to controller's management ports.

d) Disable data efficiencies, including compression, compaction, deduplication, thin provisioning.

e) Add, remove, or modify Subscription Hardware.

3. Performance Service Level Objectives (On-Premises Service)

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

a) Degraded performance means the amount of time, in minutes, per incident that 90th percentile latency target is not met.

b) 90th percentile 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:

   i.   Measurements of volumes that are not using at least 5 IOPs at the time of measure will be excluded from sample set.

   ii.   Volumes with greater than 30% writes at the time of measure will be excluded from sample set.

   iii. Latency injected by customer's use of AQoS will be excluded from sample set.

   iv.   Latency injected by customer's use of AQoS to maintain absolute minimum IOPs per volume will be excluded from sample set.

   v.   For volumes with FabricPool enabled, latency incurred due to data transfer to/from target (cold) storage will be excluded from sample set.

   vi.   Latency caused by the application, host, or End User network outside of the ONTAP® cluster will be excluded from sample set.

   vii. When using the Advanced Data Protection Additional STaaS Service, target latency includes only IO to/from local storage array.

   viii. If there are less than 10 valid measurements during the 24-hour period, then results for this day will be discarded.

c) 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.

d) Applicable to NetApp AFF platform only.

e) All per PSLI min/max and other limits apply.

   All PSLIs must have full and continuous enablement of Monitoring Tool and ASUP.

4. Availability Service Level Objective (On-Premises Service)

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

a) **Service Unavailability** means the time period during which data read or write operations are not serviced by a PSLI, as reported by the Monitoring Tool, excluding the time period during which the STaaS 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 control or responsibilities.

b) **Service Availability Percent** means: {[(# seconds in month) – (# seconds of a given PSLI's Service Unavailability in month)] / [# seconds in month]} x 100%.

5. Sustainability Service Level Agreement (On-Premises Service)

Keystone sustainability Service Level Agreement is subject to the following terms and conditions:

a) Watts is the power consumed by the Storage Arrays and as reported by Monitoring Tool.

b) NetApp Hardware Universe (https://hwu.netapp.com) provides the reference maximum power consumption limits.

c) Applicable to standard, Keystone STaaS Orders consisting of:

   i.   ONTAP AFF A-Series storage arrays only.

   ii.   Two-node switchless cluster.

   iii. Non-commingled configurations.

   iv.   Non-MetroCluster™ configurations.

d) Full and continuous enablement of Monitoring Tool, including ASUP on all Storage Arrays.

e) The ambient operating environment temperature, during power consumption measurement, must be between 25°C and 27°C.

f) End User must submit a P3 ticket with Keystone support within 7 days from the service month end.

g) NetApp will make determination of service level breach.

h) End User must provide additional information as requested by NetApp, including End User's wattage consumption data and method.

i) Credits will be calculated based on Committed Capacity only.

j) Credits can be applied to next month's invoice only.

k) Sustainability SLA Service Credits

Days (24 continuous hours) PSLI power consumption exceeded PSLI's maximum power rating per https://hwu.netapp.com	Sustainability SLA % Monthly Invoice Credit
1 to 2 days	3%
3 to 7 days	15%
14 days	50%

6. Technical Support Service Level Objective

STaaS Services provides the folllowing Time-to-Respond (TTR) targets, after receipt of incident ticket by Keystone support, based on incident priority level assigned by Keystone support:

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

7. ONTAP features

Keystone STaaS provides End User the right to use certain features and services listed in the Keystone STaaS Service Description. Use of these features and services is subject to the following terms and conditions:
a) All capacity consumption attributable to use of these features counts towards Consumed Capacity.
b) Hardware and software resources consumed through use of these features may affect available capacity and performance.
c) Usage of features are subject to feature specifications and limits.
d) Data Tiering to ONTAP targets:
    i. Data that are tiered to a NetApp target do not count towards source's Consumed Capacity.
    ii. "NetApp targets" include NetApp's ONTAP or StorageGRID® solutions platforms.
    iii. Tiering non-NetApp targets requires the "Data Tiering to Non-NetApp Targets" Additional STaaS Service described in the Keystone STaaS Service Description.

8. STaaS Products

STaaS Products do not include the following items. Additional fees may apply if required to be added.
a) Cluster switches for exclusive use during commingling or non-Keystone requirements. Cluster switches are included only for initial configuration consisting of more than two Keystone controllers.
b) Racks or PDUs.
c) Network cables and cabling between STaaS Products and End User's products.
d) SFPs for exclusive use during commingling or for use in End User products.
e) Long distance SFPs.
f) STaaS Product modifications, during term, due to change in End User's technical requirements (e.g. protocol, connectivity).

9. Installation

STaaS Services installation includes the following, if/as applicable:
a) Deployment project management.
b) Creating deployment configuration workbook(s).
c) Installation and cabling of STaaS Products.
d) Updating STaaS Product firmware.
e) Installing and updating STaaS Software and licenses.
f) Configuring ONTAP disk spares, RAID, and aggregates.
g) Configuring cluster interconnect switches.
h) Configuring ONTAP switched or switchless cluster.
i) Configuring and testing ONTAP AutoSupport (ASUP).
j) Installing, configuring, and testing Monitoring Tools on End User provided VMs.

k) Creating minimum test configuration (to be deleted after testing) and testing STaaS Service operation.
l) Document validated deployment.
m) Exclusions:
 i. Installing, configuring, or testing of End User equipment, servers, clients, VMs, or networks.
 ii. End User specific solutioning, installation, configuration, or integrating of End User specific solutions, or applications including, backup/recovery, disaster recovery, data migration, performance assessments, or commingling.
 iii. CVO deployment.
 iv. Installing and configuring DII.

10. Monitoring Tool
a) Monitoring Tool connects to and communicates only with the management plane of the STaaS Products.
b) Neither NetApp nor Monitoring Tool has physical or logical access to, operates on, processes, or transmits End User data.
c) During remote troubleshooting, support, or maintenance activities, End User controls providing permission, monitoring, and logging of remote NetApp access to required STaaS Products.

11. Monitoring and Alerting
STaaS Services monitoring and alerting is limited to NetApp's requirements to deliver STaaS Services and does not provide for customer specific monitoring and alerting requirements..

12. Reporting
STaaS Services reporting is limited to NetApp's requirements to deliver STaaS Services and does not provide for customer specific reporting requirements.

13. Technical support
Keystone technical support is subject to the following exclusions:
a) Backup and recovery of the End User's operating systems, applications, or user data.
b) End User application troubleshooting or performance tuning.
c) Identification or removal of viruses or malware.
d) Operational testing of End User specific application, compute, networking, storage, or processes.
e) Services required due to End User's failure to incorporate any system fix, repair, patch, or modification provided by NetApp.
f) Services required due to End User's failure to take avoidance action previously advised by NetApp.
g) 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.
h) System administration tasks.
i) Training.
j) Troubleshooting for interconnectivity or compatibility incidents.

14. Software updates
Subscription Software updates are subject to the following exclusions:
a) Identification and installation of patches and hotfixes that are specifically required by the End User but not required for operation and delivery of STaaS Services.
b) Software updates required to enable and revert from commingling.

15. Hardware updates
Subscription Hardware updates are based on STaaS Hardware end-of-support schedules, amongst other criteria.

16. Keystone Success Management
Following terms and conditions apply:
a) KSM scope does not include End User owned equipment.
b) KSM does not replace nor duplicate scope of services provided by NetApp's Support Account Manager (SAM).
c) If desired, End User may separately purchase SAM services for STaaS Products.

17.   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.

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

18.   Data Infrastructure Insights (DII) for Keystone

DII for Keystone is an Additional STaaS Service that provides infrastructure monitoring, analysis, insights, and optimization for Keystone environment. Following terms and conditions apply:

    a)   Orderable with new STaaS subscription or separately, for existing STaaS subscription, up to 90 days prior to end of subscription term.
    b)   Invoiced based on STaaS committed and consumed burst capacities, per performance level, per Order.
    c)   DII for Keystone subscriptions can be part of a new or existing DII tenant.
    d)   End User is responsible for installing and configuring DII for Keystone.

19.   Renewal

    a)   Customer may renew on STaaS version noted on Order for as long as that STaaS version is offered.

20.   Subscription modifications

    a)   Potential future modifications to STaaS Services need to be communicated to NetApp in timely manner to enable planning, delivery, and deployment of additional STaaS Products, if needed.
    b)   Changes to the Committed Capacities are subject to the increase or decrease increments and minimum Committed Capacity requirements for each applicable Performance Service Level, as specified in the Keystone STaaS Service Description.
    c)   <u>Committed Capacity Increase</u>: NetApp will provide End User with confirmation of such increase provided that NetApp will have no obligation to confirm such increase if such increase would require the addition of STaaS 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.
    d)   <u>Committed Capacity Decrease</u>: (i) End User requests for decreases must be in writing and received by NetApp not less than 60 days prior to the start of the next 12-month subscription anniversary period for which the adjustment will apply; (ii) End User requests for decreases is limited to once for two or three year initial Subscription Term, or twice for four or five year initial Subscription Term; (iii) no such decrease may reduce the Committed Capacity by an amount greater than 25% of the then-current Committed Capacity, and in no event may the decrease cause the Committed Capacity to drop below the minimum Committed Capacity requirement for the applicable Performance Level; (iv) any decrease will be effective only on the commencement of the next 12-month subscription anniversary period; and (v) any reduction as described in the Keystone STaaS Service Description is subject to prior written NetApp consent, such consent not to be unreasonably withheld.
    e)   <u>Additional STaaS Services</u>: Additional STaaS Services can be be added to Subscriptions with greater than 12 months remaining.
    f)   <u>Reallocation</u>: (i) End User cannot request reallocation again until after 90 days activation of previous reallocation request; (ii) End User cannot re-allocate during the last 90 days of the term unless subscription is to be renewed; (iii) End User'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.

21.   Equipment move

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

    a)   End User needs to provide written request to NetApp at least 60 days prior to intended move date.
    b)   NetApp will investigate and may provide approval and potential additional terms and conditions, based on business, legal, financial, compliance, support, and other considerations.
    c)   All STaaS Products that were provided per related Order(s) are required to be moved together.
    d)   All effort, services, or additional hardware required to enable move are not included in Keystone service pricing.
    e)   NetApp is not responsible for any service interruption, loss of End User data, providing reporting or Service Levels during move.
    f)   End User is responsible for backup, migration, encryption, compliance, and securing of End User data during move.
    g)   End User is responsible for continuing Minimum Payment and any other payments due, per related Order(s), during and after move.
    h)   It is recommended that End User contract NetApp or Partner, if available, to project manage, deinstall, obtain packaging, and package STaaS Products.
    i)   End User is responsible for shipping, with appropriate replacement value insurance.
    j)   End User is responsible for loss of or damage to STaaS Products during move and is not covered by NetApp support or warranty.
    k)   End User is responsible for site preparation at destination Site.

l) End User is required to contract NetApp PS or Partner, to deploy service at destination Site, with roles and responsibilities of NetApp, End User, and Partner being same as during initial installation.

22. Commingling

STaaS Services provides Commingling, subject to NetApp approval. Following terms and conditions apply:

a) NetApp approval needs to be obtained prior to submission of Order.

b) The non-Keystone NetApp ONTAP Storage Arrays within the same ONTAP cluster must be covered at the same NetApp support level as Keystone STaaS Products for duration of commingling term.

c) 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.

d) STaaS v3.0 physical metering option requires ONTAP version 9.14.1 or higher. This may impact ability to commingle.