

HPE GreenLake for Block Storage



Service description

HPE GreenLake for Block Storage provides cloud experience for on-premises storage with simplified ordering, setup, and management. The service provides a straightforward unit of measure (usable GB) block storage as a service through a specified subscription term. The subscription includes the hardware, software, and support necessary to provide specified availability, performance, and capacity service levels that align with customer outcomes.

Service levels definitions

As part of the HPE GreenLake for Block Storage subscription, an experience consists of multiple service levels, some with agreements and penalties in place.

Service-level activation

The service-level activation provides a service-level objective of 14-business days from the time that Hewlett Packard Enterprise receives the subscription order to the time that a device is activated so that a customer can begin to present block storage. This service-level objective is for the US and select European markets subject to customer site readiness, material availability, and other factors.

Service-level availability

The service-level **availability** provides a service-level agreement of:

- 100% data availability for Mission Critical block storage
- 99.9999% data availability for Business Critical block storage
- 99.9999% data availability for General Purpose block storage

If the customer or any end user reports experiencing less than guaranteed data availability because of an unplanned, qualified outage, HPE will work to resolve the issue and provide remediation in the form of cash repayments for service or credits applicable toward a future invoice. The responsibilities, conditions, and exclusions that are required to deliver the service-level availabilities associated with the HPE GreenLake for Block Storage subscription are covered in the following sections.

Service-level performance

The service-level **performance** provides a service-level objective of:

Availability	Performance*	IOPS—Max. read	IOPS—Max. mixed	GB/s—Max. read	GB/s—Max. write
Mission Critical	Performance	1,000,000	300,000	30	6
	Balanced	600,000	200,000	25	5
	Value	300,000	100,000	12	2
Business Critical	Performance	400,000	200,000	9	3
	Balanced	200,000	100,000	8	2
	Value	150,000	75,000	4	1
General Purpose	Performance	Up to 120K IOPS	Up to 120K IOPS	Up to 5.0 GB/s & 2.0 GB/s	
	Balanced	Up to 65K IOPS	Up to 60K IOPS	Up to 1.9 GB/s & 1.0 GB/s	
	Value	Up to 20K IOPS	Up to 15K IOPS	Up to 1.0 GB/s & 0.3 GB/s	

* Performance service-level objectives are based on the following workloads and are available at all respective capacity reservation tiers.

IOPS—Max. read	IOPS—Max. mixed	GB/s—Max. read	GB/s—Max. write
100% read; 8K block size	50/50; 8K block size	100% read; 256K block size	100% write; 256K block size

Actual workload performance may vary based on different workload characteristics and can be reviewed in HPE InfoSight on the HPE GreenLake edge-to-cloud platform.

Shared responsibility model

HPE GreenLake for Block Storage subscription includes the necessary hardware, software, and services to deliver the service level specified. The service levels offered are based on a foundational shared responsibility model (SRM) depicted in the following table.

Table 1. Roles and responsibilities

Customer	HPE
Responsible for the connectivity to HPE GLCP, the administration, and the management of data/objects	Responsible for the functionality of the infrastructure providing the service
Site readiness including data center facilities and internet connectivity	Installation and activation of device
Maintain connectivity to HPE GLCP	Customer orientation
Volume creation and administration	Access to software, firmware, and documentation updates
Data resilience and remote replication	On-site hardware support
Data backup	Proactive support and operational guidance*
Applying recommended software updates and security patches	Test volume creation
Data monitoring	Operational insights and dashboard*
Initiating the order of additional capacity beyond the total available capacity	Proactive capacity planning*
	Proactive incident alerting*
	Communicate security incident and remediation

* Proactive communication is delivered using HPE InfoSight (included as part of the subscription)



Service-level agreement for data availability

Definitions

The service-level availability provides a service-level agreement of:

- 100% data availability for Mission Critical block storage
- 99.9999% data availability for Business Critical block storage
- 99.9999% availability for General Purpose block storage

For the purposes of the service-level agreement, HPE defines a qualifying outage as when an application cannot access any single virtual volume (VV) or all of that application's data on a storage device. This could be due to failure of the storage device itself or due to a wrong action of the HPE authorized support services on the storage device.

For the purposes of this service-level agreement, the **outage duration** is defined as the amount of time that elapses between the customer or other end user reporting or confirming the outage (if identified by HPE) and the customer confirming data availability after HPE returns the service to the customer following technical resolution of the root cause for the outage, excluding any delays caused by the customer or forces beyond the reasonable control of HPE. This includes delays in remote access.

Data availability service-level agreement conditions

Customer responsibilities:

- Connectivity to Data Services Cloud Console and to HPE InfoSight; outages that happen while the device is not connected and sending data back to HPE will not qualify for this service-level agreement
- Applying all HPE critical and recommended software updates (patches) within 10 days and HPE Alletra OS releases within 30 days of notification
- Remediating any technical issues related to HPE GreenLake for Block Storage on-premises equipment or other customer equipment that HPE has proactively raised within 30 days

In the event of an unplanned qualifying outage:

- If not proactively identified by HPE, the customer or end user must open a support case with HPE within seven days.
- Customer should provide timely access necessary for HPE to resolve any issues, including remote access.
- If HPE determines, in its sole discretion, that the outage was due to the fault of HPE or the HPE GreenLake for Block Storage service, outside of stated stipulations, HPE shall issue cash repayment or credit for up to 100% of the reserved capacity for the month during which the outage was experienced.
- The cash repayment or credit amount is determined by HPE and may vary based on the service-level availability (Mission Critical or Business Critical), cumulative outage duration as measured during a 30-day customer billing period, and the reserved capacity during the billing period when the downtime occurred.
- HPE reserves the right to restrict the number of credits that are issued for a single subscription both per annum and over the lifetime of the service agreement.
- HPE reviews all reported outages for guaranteed eligibility automatically and periodically. However, all customers have 30 days from outage resolution to request review of the outage eligibility for remediation under the service-level agreement.
- In certain situations, HPE may provide service credits when service levels fall short of pre-agreed terms. These credits may be used to offset services provided by HPE. HPE reserves the right to provide service credits to be applied toward a future monthly invoice or cash repayment for services already rendered.
- In the rare event that HPE is not able to determine the root cause of an outage due to missing information (log entries) or failure to recover equipment, parts, components, or other devices that are required to establish the root cause, the associated unplanned outage may not qualify for remediation under this service-level agreement.



Data availability service-level agreement exclusions

A qualifying outage is not:

- An outage that occurs as the result of the device recovering from a failure caused by an outside event (for example, a power failure, a network failure, or any other external event that affects the array)
- Planned or unplanned customer-user-caused outage (including but not limited to planned maintenance or customer shutting down the array for any reason)
- An outage that occurs due to a customer not properly following customer self-maintenance or self-service and procedures
- An environmental outage (for example, power outages, power fluctuations, network outages, natural disasters such as hurricanes, earthquakes, and more), or an outage that results from problems outside the array
- Outages on preproduction systems or systems that have not been fully deployed into production

An outage resulting from:

- Any third-party hardware, software, or services interaction with the HPE GreenLake for Block Storage devices or software
- Misconfigured hardware or software not provided by HPE, such as customer network, servers, failover software, and more
- A defect determined to be contained in any third-party hardware or software connected to and using the array
- Installation, configuration, operation, or use of HPE GreenLake for Block Storage devices or software with any unsupported host configuration. Host configurations are considered to be supported if they are published in SPOCK or if private support has been granted to a specific customer
- Modification, alteration, or repair of on-premises HPE equipment or software by anyone other than HPE or its authorized representatives
- Any known defect, where a fix has been released and recommended by HPE, but not deployed within the time frame identified by HPE
- Misconfigured or misbehaving hardware or software external to the storage
- A workload imparted on the array that exceeds the limitation the array was designed and configured to serve. This includes overloading any single component of the array due to an improper load balancing, not in compliance with HPE best practices
- A recurring outage of the same root cause, defined as any outage that has the same root cause as a previously identified qualified outage when it occurs less than 30 days following that prior outage



Data availability service-level agreement remuneration

Unless stated otherwise, credits or cash vouchers are redeemable immediately and within 60 days following issuance.

Credits or amount of cash vouchers are calculated based on cumulative downtime because of qualified, unplanned outages as described in this document, as calculated during a single 30-day billing period, and according to the following schedule that is based on the reserved capacity for the billing period during which the downtime occurred.

Table 2. Applicable remuneration

Availability	Uptime commitment	Cumulative downtime*	Invoice %
Mission Critical	100%	Up to 43 mins	50%
		> 43 mins	100%
Business Critical + General Purpose	99.9999%	3–43 mins	50%
		> 43 mins	100%

* During a single 30-day billing period

Unless otherwise specified, credits are not redeemable for purchases or extension of array support or services outside of the HPE GreenLake for Block Storage subscription.

Learn more at

hpe.com/us/en/greenlake/block-storage-service.html

Make the right purchase decision.
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