

# Lumen Service Guide

## Lumen Network Storage

Updated: April 28, 2022

**THIS SERVICE GUIDE ONLY APPLIES TO EXISTING CUSTOMERS WHO PURCHASED LUMEN NETWORK STORAGE SERVICES PRIOR TO APRIL 28, 2022.**

This Service Guide (“SG”) sets forth a description of the Lumen Network Services, including technical details (“Services”) offered by Lumen. “Lumen” is defined as CenturyLink Communications, LLC d/b/a Lumen Technologies Group or its affiliated entities. This SG is subject to and incorporated into the Agreement and the Hybrid Technologies Service Exhibit, formerly the CenturyLink TS Service Exhibit including the Hosting Service Schedule between the parties. The specific details of the Service ordered by Customer will be set forth on the relevant Service Order. For avoidance of doubt, any references in the Agreement, Schedule, or Service Orders to SSG, will mean SG.

### 1. Service Description.

The Service is a usage-based, pay for use multi-protocol storage delivered via certain ethernet networks that may be provided by Lumen or by a third party contracted by Customer as further described in the Connectivity section below; all under separate terms and conditions. The Service is available in the following configurations:

- a. in a Lumen controlled or managed environment (the purchase of certain additional Lumen services may be required), and/or
- b. at a Customer’s premises, and/or
- c. within a Customer’s virtual private datacenter as part of a third-party public cloud infrastructure.

Lumen and/or its designee provides the design/installation, initial testing and configuration, administration, monitoring, maintenance and support, for the components detailed in Section 2. Service Components. Differences between supported Services based on location of Storage Nodes will be noted where applicable. At the physical infrastructure layer, the Services may, based upon Customer requirements, be installed on either multi-tenant hardware in a Lumen controlled or managed environment or on dedicated instance hardware in a non-Lumen controlled environment, the latter of which may be subject to additional charges and additional terms and conditions.

### 2. Service Components.

**2.1 Storage Node.** The Storage Node is the core component of the Service, and includes volume provisioning, storage management, encryption of content stored within the Service, and server access to storage volumes. Customer is solely responsible for security of content traversing the network (i.e. in transit), including encryption. Also included is presentation of the Storage Node (a virtual device) within the Portal through a collection of physical and logical components that appear similar to traditional hardware-based storage arrays. After the initial Order, Customer may provision one or more Storage Nodes through the Portal for one or multiple physical locations, provided that only one Storage Node may be deployed at each location.

#### 2.2. Connectivity Requirements.

**2.2.1. Host access** is a connection between Customer’s compute infrastructure and the Service provided. This connectivity may be enabled either via 1) Lumen provided and managed local network services if the Service is in a Lumen controlled or managed environment, and/or 2) Customer provided and managed local networks within Customer’s premises and/or Customer’s private virtual network available within a third-party cloud provider’s infrastructure.

**2.2.2. Data replication** connectivity between Storage Nodes requires the purchase of a separate Lumen approved and provided networking product that connects between at least two physical locations at additional cost and may require additional contracts to be signed.

**2.2.3. Management Access** is a connection between Lumen’s core infrastructure and the Service. Access may be provided either via existing connections and/or new connectivity pursuant to separate terms and conditions, and charges. Customer is required to enable access and/or other needed permissions in order for Lumen to manage the Service.

**2.3. Design/Installation.** Lumen will provide the following:

**2.3.1. Service Pod.** Sizing and selection of Service Pod components, configuration, deployment and management by Lumen and/or its designee as needed to satisfy Customer’s projected capacity requirements.

**2.3.2. Capacity planning.** Lumen will assist Customer with capacity planning in order to help maintain availability of physical hardware capacity according to Customer provided requirements and planning inputs, within commercially reasonable thresholds. Customer acknowledges that capacity planning is an estimate only and not a guarantee of capacity and actual usage may require capacity adjustments. Lumen will use reasonable efforts to meet and/or adjust Customer's capacity requirements by the date requested by Customer; however this is not an installation guarantee and no credits or other remedies are available to Customer for failure to meet requested dates.

## 2.4. Storage Node Provisioning and Configuration.

**2.4.1.** Lumen automation tools, utilizing various open source software and available for self-serve within the Portal, enables Customer to provision a Storage Node according to parameters defined within the Portal. Instead, Customer may purchase a technical account manager for provisions and technical assistance subject to additional terms and conditions and charges. Certain features selected by Customer within the Portal may be subject to additional fees.

**2.4.2.** Customer must sign an Order for each physical location requested for which a Service Pod will be installed (certain exceptions apply). Each physical location requested is subject to capacity planning and location availability. Only contracted locations are available in the Portal. Continuing availability of Service at an ordered physical location is subject to ongoing capacity review.

**2.5. Storage Volume Provisioning.** The Lumen automation tools within the Portal also enable Customer to provision Storage Volume according to pre-identified configuration parameters. Configuration parameters include by way of example: 1) volume size, 2) Access Protocol (iSCSI, NFS, CIFS), and 3) snapshot policy (frequency, number of copies, etc.). As with Storage Node provisioning, Customer may utilize Lumen's technical account manager services, if purchased.

**2.6. Data Replication.** The Lumen automation tools within the Portal also enable Customer to configure and establish data replication (and associated Storage Volumes) between Storage Nodes according to pre-identified parameters. Choosing to replicate requires creation of one or more copies of the data for which additional usages charges will apply. For clarity, Customers will pay the same usage fees for each replica as they do for the source or primary Storage Volume. Storage Volumes may have multiple replicas among any of Customer's provisioned Storage Nodes.

**2.7. Snapshots.** The Lumen automation tools within the Portal also enable Customer to create local point-in-time copies of data on the same Storage Node via an automated schedule or manually through a one-time action. Configurable parameters for automated Snapshot creation include frequency and retention time. In no event will retention of Snapshots by the Service extend beyond a Customer's committed Service Term, including renewal terms. If the retention period selected extends beyond the Customer's Service Term or if Customer or Lumen terminate the Services prior to the end of the retention period selected, Customer acknowledges that Lumen has no further obligation to retain Snapshots as of the effective date of termination. Customer further acknowledges and consents that it is solely Customer's responsibility to make copies of or obtain the Snapshots prior to expiration or termination.

**2.8. Third Party Cloud Providers.** Services are available with certain third-party cloud providers. Third party Cloud providers currently supported include Amazon Web Services and Microsoft Azure. Customer is responsible for all fees associated with third-party cloud consumption. Installation of a Service Pod is not required on third party cloud infrastructure. Customer is responsible for ensuring that Lumen has all appropriate permissions to install the applicable software components (subset of the Service Pod) on the third party infrastructure. Customer is also responsible for enabling Lumen management access per the Connectivity requirements noted above.

## 3. Pricing; Billing.

**3.1.** Service pricing is based on number of Storage Nodes, volume size and other configurations set by the Customer. Lumen captures this usage information hourly based on how much is provisioned by Customer and aggregated over the month for purposes of invoicing. Specifics on billing structures are identified below.

**3.2. Storage Tiers.** Storage Volumes may be provisioned on one of two tiers, corresponding to performance capability as defined below. Storage Tiers represent a range of performance capability, expressed as IOPs per TB. The total monthly usage charge for a given Storage Volume is calculated as the sum of the Storage Volume minimum fee, based upon the Volume size in GB (Storage Volume base fee) plus any additional IOPs consumed above the minimum specified for the tier, prorated hourly. Minimum stated IOPS are included in the Storage Volume base fee. Additional IOPS are charged in 500 IOP increments.

Available Storage Tiers are:

- **Standard** = Minimum 1,000 IOPS/TB included @ single-digit latency; additional consumed IOPS billed in increments of 500 IOPS, to a maximum of 3,500 IOPS/TB
- **Premium** = Minimum 3,000 IOPS/TB included @ 1ms latency; additional consumed IOPS billed in increments of 500 IOPS, to a maximum of 30,000 IOPS/TB

#### 4. Lumen Responsibilities.

4.1. Lumen is not responsible or liable for any delays, security policies, security breaches or related security attaches attributable to the Services or connectivity between Storage Nodes. Further, Lumen is not responsible for any loss or corruption of data or information. Lumen assumes no responsibility whatsoever for any damage to, loss or destruction of, or unauthorized disclosure of any of Customer's files, data or peripherals which may result from Customer's use of Service, including transmission between nodes and/or Customer's own or contracted infrastructure, or Customer's errors or omissions in self provisioning the Service. Lumen does not warrant that others will be unable to gain access to Customer's computer(s) and data. Lumen has no responsibility and assumes no liability for such acts or occurrences.

4.2. Lumen responsibilities for the Service are restricted to those components of the Service Pod up to, and including the network switch contained within the Pod, and any Lumen provided tools or systems necessary for managing the Service. Lumen is not responsible for network connections beyond the Service Pod, except if such connections are managed by Lumen as part of a separate purchased service.

#### 5. Customer Responsibilities:

5.1. Customer acknowledges and agrees that its failure to perform its obligations set forth in the Agreement, Service Exhibit or this Service Guide, including for Customer's errors or omissions in setting up, configuring and/or modifying the environment or Service may result in Lumen's inability to perform the Services and Lumen will not be liable for any such failure to perform.

5.2. Customer will designate and maintain a Customer Contact during the service term and any applicable renewal term (including current contact information). "Customer Contact" means a technical point of contact with sufficient knowledge, authority and access to address configuration issues, event notifications, system or infrastructure modifications and authentication of applicable systems.

5.3. If any Service Pod will be located at a Customer premises, Customer agrees: (a) it has and will maintain all rights, authorizations and consents necessary to enable Lumen to operate and maintain the Services at the Customer locations; (b) it will, at its expense, provide secure, suitable space and environmental conditions, including power supply, rack space, HVAC, cabling, lighting and any other items for environment requirements, at the Customer location(s) as necessary for the installation, operation or maintenance of the Service, including cabling for connectivity between the hardware and the Lumen network; (c) it will ensure that Lumen, its agents and subcontractors have sufficient, safe and timely access to the Customer locations to enable Lumen to test, operate, maintain and disconnect the Services; (d) it will not, and will not permit others to, move, configure, tamper with, modify, restrict access to, or attempt to repair the Services, the hardware or network or interfere with the maintenance thereof; (e) it bears the entire risk of loss, theft, destruction, or damage to the hardware at Customer locations; (f) it will provide all information and cooperation reasonably required by Lumen in order for Lumen to provide the Services under this Service Guide; and (g) upon any expiration or termination of the applicable Service, Customer will, at the option of Lumen, return the Service Pod to Lumen at Customer's expense, or provide all necessary cooperation to allow Lumen to remove the hardware from any Customer location(s).

5.4. Customer will provide Lumen's approved personnel, immediate access to Customer's physical location to resolve any issues with the Service Pod that cannot be resolved remotely. Customer will ensure that all permissions of any kind needed for the installation and operation of the Service are in place at all times. If the Customer has an Access Control List (ACL) that interferes with management connections, the Customer must allow Lumen access for management and monitoring.

5.5. Customer acknowledges that all third-party components of the Service are subject to the applicable vendor's decision to (i) not continue to provide or renew the Service with Lumen and/or (ii) modify or end of life a component(s). If any of the foregoing occurs, Lumen will use commercially reasonable efforts to migrate Customer to another comparable Lumen service at any time. Such migration will occur without regard to Customer's current term.

5.6. Customer agrees to notify Lumen in writing at least sixty (60) days prior to requested relocation of the any Service Pods installed on a Customer premise. Customer agrees that a Change Order, including applicable fees, will apply for any changes to locations. Lumen reserves the right to install alternate hardware that does not materially affect the functionality of the Service. Customer agrees to cooperate with Lumen in the installation of any new hardware.

5.7. Customer is solely responsible for and Lumen will have no liability for establishing, maintaining and resolving issues with any network connectivity provided by Customer. Any issues with network connectivity provided by Lumen will be resolved in accordance with the terms and conditions associated with such connectivity and are outside the scope of these Services.

5.8. Customer will not send, receive or store content containing material which is in breach of any applicable laws, codes, conventions or regulations and agrees that it has and will maintain all necessary rights and authorizations associated with such content. Customer assumes all liability and responsibility for the content of their content or digital files.

5.9. Customer further acknowledges and agrees that Lumen's SLA only applies to currently supported configurations (including but not limited to related operating systems or software) at the time SLA support requests are triggered. If any configuration or version is

identified as “unsupported” by a vendor, the Services are subject to all of the following conditions and/or requirements: (i) a service level objective (“SLO”) referring to Lumen’s reasonable effort to provide support will apply in lieu of any other applicable SLA and will automatically apply from the time Lumen receives notice from the vendor of such unsupported service; (ii) Lumen, in its reasonable discretion may elect to charge the customer for any support or additional tasks/work incurred by Lumen resulting from Customer’s continued use of unsupported configuration until Customer purchases the required and supported upgrades or extended support at an additional cost from the vendor. The requirement to purchase upgrades or extended support from vendor will apply at any time, regardless of any contract term, term commitments, or renewal periods. Customer’s failure to do so may result in Lumen’s inability to provide the Services and Lumen will have no liability therefrom.

**5.10.** Customer acknowledges that Lumen or its subcontractor(s) may access or use Customer’s personal information (including business contact information) across its global geographic operations as necessary to provide, support or improve Services or to otherwise perform under the Agreement. Customer represents that it will ensure that all information provided to Lumen is accurate at all times and that any business contact has consented to Lumen’s processing of Customer’s personal information for such purposes.

**5.11.** Customer is solely responsible for changes it makes to the Service via the Portal, for maintaining appropriate security, routine archiving of content, and protection and backup of applicable content, which may include the use of encryption technology to protect content from unauthorized access. Lumen will not be responsible for any service interruption resulting in actions taken by the Customer affecting the Service as these are outside of Lumen’s control.

## 6. Definitions

**Access Protocol:** The access method used to establish a connection between an operating system and a Storage Volume and falls into categories of block, file and object protocols. Lumen Network Storage access protocols include NFS v3 and CIFS for File access and iSCSI for Block access. Object access is via an industry-standard S3-compatible API.

**IOP** means Input/Output operation. Within the Service IOPs are used to meter consumption of performance units measured from the software-defined storage controller and does not include endpoint (server) effective IOPs.

**Portal:** Portal means the Lumen Network Storage Portal as used within this Service Guide and associated with the Lumen Network Storage Service.

**Replication:** The Service provides asynchronous replication of data between Storage Nodes as configured on a volume basis.

**Snapshot:** A local, point-in-time copy of a Storage Volume that resides on the same Storage Node as the parent Storage Volume.

**Storage Node:** A Storage Node is a software-defined storage array that is co-located with the workloads that are consuming the Service. Each Storage Node is dedicated to a single customer.

**Service Pod:** A Service Pod is the hardware and software upon which the Service is delivered, including physical servers, storage and network devices and associated software. Service Pods are installed in all Service locations except third party cloud providers, where only software is installed on the provider’s underlying infrastructure. Hardware may be owned by Lumen, an affiliate or its vendors.

**Storage Volume:** A Storage Volume refers to the logical container that holds data being stored. Storage Volumes provide multi-protocol access to servers.