

# Lumen Adaptive Virtual Services Service Guide

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“Lumen” is defined for purposes of this Lumen Adaptive Virtual Services Service Guide (“Service Guide”) as CenturyLink Communications, LLC d/b/a Lumen Technologies Group and its affiliated entities providing Services subject to this Service Guide. Terms used but not defined in this Service Guide will have the meaning set forth in the Agreement. This Service Guide is subject to change. This Service Guide sets forth a description of Lumen Adaptive Virtual Services (the “Service”) offered by Lumen, including technical details and additional requirements or terms. This Service Guide is subject to and incorporated into the Lumen SD-WAN Service Schedule. The specific details of the Service ordered by Customer will be set forth on the relevant Service Order. AVS availability may depend on location and type of connectivity purchased by Customer. AVS is currently only available within the United States.

## 1. Service Description

Lumen Adaptive Virtual Services (AVS) is an orchestration platform that creates an environment where Lumen managed services and Customer managed services can be hosted concurrently on the same physical Universal Customer Premises Equipment (“UCPE”). AVS utilizes UCPE, already deployed at Customer’s premises as part of a Lumen Managed Service, to create Customer managed Virtual Network Functions (“VNF(s)”). Once the VNF(s) are created, Customer can deploy Customer provided applications into the VNF(s). AVS is comprised of the following service components: (1) UCPE (2) Network Connectivity (3) Lumen Managed Service (4) Customer Managed Virtual Network Function(s) and (5) AVS User Portal.

### 1.1 Service Components.

- 1.1.1 **UCPE.** UCPE is provided as part of Customer’s separately purchased CenturyLink SD-WAN with Versa Networks Service (“SD-WAN Service”). All terms and conditions regarding CPE in the Lumen SD-WAN Service Schedule will apply to the UCPE. UCPE is equipped with operating system software. Customer will have a right to use the software for the duration of the SD-WAN Service term. The version of software installed will be the latest Lumen approved release. All UCPE and software licenses will be owned and maintained by Lumen or its third-party provider and are not transferrable.
- 1.1.2 **Network Connectivity.** Network connectivity is required at all times and may be provided by Customer or purchased through Lumen. Customer understands that Lumen provided transport is contracted for separately. If Customer adds non-Lumen provided transport at any site, Customer must ensure that the Customer provided transport is compatible with Lumen’s existing networking infrastructure and equipment, including the UCPE.
- 1.1.3 **Lumen Managed Service.** Customer must purchase SD-WAN Service to be eligible to receive AVS service. If Customer terminates the associated SD-WAN Service, Lumen will deem the AVS Service also terminated.
- 1.1.4 **Customer Managed Virtual Network Function(s).** The AVS platform allows Lumen to build VNF(s) hosted on the UCPE so that Customer can deploy Customer provided and managed application(s) into the VNF(s). Prior to deployment, Customer will be required to provide Lumen with a link to an acceptable installation image of the application including the requisite guest operating system. Lumen will configure the VNF and establish the service chain at the time of deployment. The service chain will be dependent on the virtualized application function(s).
- 1.1.5 **AVS User Portal.** The AVS User Portal provides access to inventory and status and performance data for the UCPE and hosted applications. The AVS portal provides access to the VNFs via a secure command line interface (VNC) so that Customer can change non-platform impacting configuration parameters such as memory allocation, modifying credentials, and network configuration.

### 1.2 Maintenance and Support.

- 1.2.1 **Change Management.** All platform impacting changes are subject to Lumen’s change management process. This change management process is intended to confirm that changes are reviewed for completeness (risk assessment, completed test procedure, metrics for measuring progress, back out procedure, etc.) and accuracy prior to scheduling and implementation.
- 1.2.2 **Patch Releases.** Lumen compiles, packages, certifies, approves and delivers software patches for the AVS operating system software. If implementation of a patch is delayed by Customer, any outages directly caused by the delay will not qualify for any Service Level credits.
- 1.2.3 **Upgrades.** Lumen may periodically upgrade the hardware or the relevant operating software on UCPE to conform with the latest tested and approved versions. If Lumen determines an upgrade is necessary, Lumen will perform the upgrade during its standard maintenance window. Customer must ensure the UCPE device

has sufficient remaining memory to perform the upgrade. Customer must allow Lumen to make these changes within five business days of receipt of the request from Lumen, or Lumen's obligation to provide the UCPE in accordance with this Lumen Service Guide and Lumen SD-WAN Service Schedule will be suspended until Customer grants Lumen the access required to make such changes. If Lumen determines that an emergency upgrade is required, Lumen will make the change as quickly as possible. Lumen will use commercially reasonable attempts to contact the Customer's technical contact prior to said change. Lumen may not proactively upgrade every Customer environment. If a newer version of software has been tested and approved by Lumen, Customer may proactively request an upgrade via a support ticket.

**1.2.4 Maintenance Windows.** Lumen will use commercially reasonable efforts to perform routine maintenance only during the defined maintenance windows available at <https://www.ctl.io/legal/managed-hosting/maintenance-windows/>. Lumen has the right to perform scheduled maintenance (during the windows specified), which may limit or suspend the availability of the Services. Lumen will provide Customer with at least ten (10) days prior notice of any scheduled maintenance activities.

### 1.3 Administration.

**1.3.1** To maintain configuration consistency and accountability for changes, all system administration and device passwords for UCPE and the hosted environment operating system software will be managed by Lumen.

## 2. Customer Responsibilities

Customer acknowledges and agrees that its failure to perform its obligations may result in Lumen's inability to perform the Services and Lumen will not be liable for any failure to perform.

**2.1. Charges.** Customer must pay all applicable MRCs and NRCs set forth on a valid signed Order Form for each VNF. If Lumen cannot complete service provisioning for the VNF due to Customer delay or inaction, Lumen may begin charging Customer for the Service, and Customer will pay such charges. Lumen will provide each VNF on a month to month basis.

**2.2 Customer Provided Software/Applications.** Customer is solely responsible for licensing and support for any Customer provided software or applications deployed on VNFs. Customer must provide and maintain any required licenses and software support agreements for the guest operating system and application instances. Customer is responsible for design, monitoring, management, configuration, life-cycle maintenance, backup and restoral of the virtualized Customer-managed application instance(s). Customer is responsible for troubleshooting of any operational issues related to the VNF and the virtualized customer-managed application instance.

**2.3 Installation & Configuration.** Where applicable, Customer must provide relevant architecture, topology resource and configuration requirements to be used to select the appropriate service chain and to properly assign resource allocations. Once the VM and virtualized application instance(s) are installed on the UCPE, Customer will be responsible for completing configuration of the application. Customer is responsible for creating and managing security and credentials of the VNF and the Customer managed virtual application instance(s).

**2.4 Environmental Requirements.** In addition to the requirements in the SD-WAN Service Schedule, Customer's environment must also conform to the Environmental Requirements for UCPE, detailed in Exhibit A. The Environmental Requirements are applied to all equipment, Lumen provided or Customer provided, integrated with the UCPE. If Customer fails to adhere to the Environmental Requirements, Customer is not entitled to any SD-WAN or AVS Service Level credits.

**2.5 Customer Contact.** Customer must designate and maintain a 24/7 Customer Contact (including current contact information). "Customer Contact" means an English-speaking 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.

**2.6 Security Precautions.** Neither Customer nor its representatives will attempt in any way to circumvent or otherwise interfere with any security precautions or measures of Lumen relating to the UCPE or Web portals.

**2.7 Acknowledgments.** Customer acknowledges that AVS consists of third-party provided components. If Lumen's underlying provider decides to (i) not continue to provide or renew the Service with Lumen and/or (ii) modify or end of life a component(s), Lumen will use commercially reasonable efforts to migrate Customer to a comparable component or another Lumen service, at Lumen's discretion. Such migration will occur without regard to Customer's current term. Lumen and its affiliated companies will not be liable to Customer or indemnify Customer for any claims of infringement of patent, copyright or other intellectual property right related to third-party software components.

## Exhibit A

### **Environmental Requirements for UCPE at Customer provided locations**

Customer must maintain proper environmental conditions as required by Lumen, Lumen's supplier, or the UCPE manufacturer.

**FAILURE TO ADHERE TO THE ENVIRONMENTAL REQUIREMENTS DESCRIBED IN THIS EXHIBIT A WILL VOID ANY APPLICABLE SERVICE LEVEL AGREEMENT AND MAY RESULT IN LUMEN'S INABILITY TO PROVIDE THE SERVICE.**

#### **RACK, CABINET or SHELF**

Physical installation must provide for the security and protection from physical damage or contamination.

#### **TEMPERATURE AND HUMIDITY**

The Service must maintain temperature within the range of 50°F to 90°F and non-condensing humidity within the range of 15% relative humidity to 85% relative humidity.

#### **POWER**

Customer will (i) maintain and utilize power sources and equipment capable of operating at 100% of load, without sustaining an outage, (ii) use cabling that meets national electrical and fire standards and any specification required by Lumen, (iii) maintain connection of UCPE directly into the power source, (iv) will not permit power utilization to exceed the recommended power rating and (v) will maintain all UCPE in compliance with the electrical regulations of the region where such equipment is installed.