MANAGED LAN SERVICE

1. **GENERAL**

1.1   **Service Definition.** Managed LAN Service provides a range of capabilities for managing Customer's local area network up to the access ports on the LAN Switches, including design, planning, implementation, and network management (subject to availability).

   - **Platforms**. Except where explicitly stated otherwise, these terms apply to Optimized Service (denoted with a "+" and sometimes referred to as Rapid Delivery) and non-Optimized Service.

1.2   **Standard Service Features.** Managed LAN is offered at three service levels.

   The service features and responsibilities are summarized in the table below.

Division of Responsibilities			
	Monitor and Notify	**Physical Management**	**Full Management**
Customer	**Customer Manages:**	**Customer Manages:**	**Customer Manages:**
	• Strategic Direction • Fault Isolation • Fault Restoration-Logical • Fault Restoration-Physical • Maintenance-Break/Fix • Change Management-Logical • Change Management-Physical • Configuration Back-Up • Security Policy and Patching	• Strategic Direction • Fault Restoration-Logical • Change Management-Logical • Security Policy and Patching	• Strategic Direction • Security Policy
Verizon	**Verizon Manages:**	**Verizon Manages:**	**Verizon Manages:**
	• Monitoring • Fault Notification • Performance Reporting	• Monitoring • Fault Isolation • Fault Notification	• Monitoring • Fault Isolation • Fault Notification • Fault Restoration-Logical

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Division of Responsibilities		
Monitor and Notify	**Physical Management**	**Full Management**
	• Fault Restoration-Physical • Maintenance-Break/Fix • Configuration Back-Up • Performance Reporting • Change Management-Physical	• Fault Restoration-Physical • Maintenance-Break/Fix • Change Management-Logical • Change Management-Physical • Configuration Back-Up • Performance Reporting • Security Patching

1.2.1 **Monitor and Notify Management.** The most basic level of Managed LAN is Monitor and Notify, under which Verizon provides the following capabilities.

- **Monitoring.** Verizon proactively monitors all designated LAN switches 24 hours a day, 7 days a week. Verizon will manage only devices that are certified by Verizon.
- **Notification.** Verizon will create a trouble ticket and send a notification to Customer's designated point of contact within 15 minutes of Verizon's determination of a managed LAN switch failure. Upon the creation of a trouble ticket, Verizon will i) troubleshoot the transport service until the problem has been verified as fixed and the ticket will then be closed, if the trouble is due to a Verizon transport service; or ii) inform Customer of the fault and monitor the ticket if the trouble is due to causes other than a Verizon transport service.
- **Managed Services Customer Portal.** Verizon will provide a managed services portal on the Verizon Enterprise Center or other website provided by Verizon from time to time (VEC). The VEC provides a consolidated view of Customer Network information 24 hours a day, 7 days a week and real time access to project status, contact information, and information about Customer's managed LAN switches. The Cloud-Controlled Routing portal (Web Portal) is separate from the VEC but can be accessed via the VEC.
- **Web Portal Administrative Access.** Monitor and Notify Cloud-Controlled Routing (CCR) Customers have write administrative access to logically manage their Managed Devices. Customer shall not add, move or remove devices or licenses to the dashboard, add or remote administrators in the dashboard to ensure that devices, licenses and administrators are provisioned on Verizon systems.

1.2.2 **Physical Management.** Customer can choose Physical Management which contains the capabilities of Monitor and Notify plus additional capabilities described below.

- **Design Services.** Verizon will create a Customer design document (CDD) based on a written statement of requirements (SOR) agreed to by Customer. Verizon will activate, monitor, and manage the Customer Network as designed in the CDD.
- **Monitoring and Management.** Verizon provides physical fault detection, isolation, and monitoring services for LAN Switches, 24 hours per day, 7 days per week. Verizon will resolve physical faults whether caused by Verizon, Customer or third party issues. LAN Switch logical faults are Customer's responsibility. Customer will inform Verizon of physical faults once it has completed its logical troubleshooting if Verizon is maintenance provider for Customer's CPE.
- **CCR Network Image.** For CCR, a current image of Customer's network is stored on the Cloud Infrastructure, but a roll-back to previous configurations is not supported.
- **Change Management Activities.** Verizon will perform the change management activities shown on the VEC as Standard Change Management at no charge. Optional Change Management activities will be performed at the rates shown.

1.2.3 **Full Management.** The Customer can choose Full Management, which contains the capabilities of Monitor and Notify and Physical plus additional capabilities described below.

- **Monitoring and Management**. Verizon will resolve both logical and physical issues, with Customer's cooperation, either remotely or by dispatching a technician, whether caused by Verizon, Customer or a third party.
- **Web Portal Administrative Access.** Full CCR Customers have read-only administrative access in the portal.

1.2.4 **Implementation Options.** Managed LAN has two implementation options to bring devices under Verizon management. Managed Implementation, which is designed to bring a new customer Managed LAN network online and Managed Take Over, which applies to existing, operating networks with Customer-provided devices. Both are subject to an SOR to be agreed upon by the Parties. Managed Take Over may include Network Discovery, as defined below

1.2.5 **Managed Device Software Release Management**

1.2.5.1 **Installation.** Verizon will provide relevant software patches and updates as provided by the Managed Device manufacturer from time to time for installation during a fixed update time period, mutually scheduled by the parties. Warranties on software updates, if available, will be provided directly by the Managed Device manufacturer.

1.2.5.2 **Testing.** At Customer's request, Verizon will make commercially reasonable efforts to make available the resources of Verizon's Customer Test Center (CTC) for the purpose of testing Managed Device manufacturer software prior to the implementation of such software. Verizon's ability to control the implementation of any new Managed Device manufacturer software release may be limited by rules established by the Managed Device manufacturer software. CTC testing may be subject to additional fees and result in delay of the software deployment.

1.3 **Optional Service Features**

1.3.1 **Network Discovery**. Network Discovery is provided to Mananged Takeover Customers for certain management features as part of the implementation. Otherwise, Customers may order Network Discovery subject to an additional cost. If Customer orders Network Discovery, Verizon will electronically collect information on CPE connected to Customer's managed network.

1.3.2 **WAN Analysis** (non-Optimized Service only). For customers receiving non-Optimized Managed LAN services, the terms and conditions for WAN Analysis are located at the following URLs:

For U.S. Services:
www.verizonenterprise.com/external/service_guide/reg/cp_war_plus_wan_analysis_reporting.pdf

For non-U.S. Services:
www.verizonenterprise.com/external/service_guide/reg/cp_war_plus_wan_analysis_reporting_2017DEC01.pdf

1.3.3 **Device Management.** For device management, Customer may select either "Switch Management" or "Cloud-Controlled Switching". To effectively manage the network, all Customer sites with Cloud-Controlled management (e.g., CCAP, Cloud-Controlled Routing for Managed WAN, and Cloud-Controlled Access Point for Managed WLAN) must be at the same service level.

1.3.4 **Wireless LAN Controller Management Feature.** With Wireless LAN Controller Management (available at Full Management level and supported on specific models of LAN Switches), Verizon manages compatible Wi-Fi access points in the Customer Network using the Wireless LAN Controller capability on the LAN switch.

1.3.5 **Port Monitoring.** With Port Monitoring, (available at Full Management level), Verizon will monitor up to the maximum number of ports shown below per LAN Switch size. For Verizon to monitor them, ports must interface directly to another Customer internal network device which is available to Verizon on a continuous basis. Verizon will not monitor ports connected to end user devices (which may be off for a wide range of reasons unrelated to their performance).

Port Monitoring			
Switch Size	Small	Medium	Large
Maximum Number of Ports Monitored	2	6	12

1.3.6 **Routing Support**. With Routing Support (available at Full Management level), Verizon will manage the configuration of intra-LAN (Layer 3) routing protocols for those LAN Switches that support it.

1.3.7 **Network Analysis Service.** (For Networks with 20 or more LAN Switches with a United States law contract). With Network Analysis, Verizon will provide monthly network analysis reporting, including interactive monthly calls to review that reporting, starting 60-90 days after installation.

1.3.8 **Network Engineering Service.** (For larger Networks, i.e., those with 20 or more Managed Devices under Full Management). With Network Engineering, Verizon provides engineering planning, design and change-management support services.

1.3.9 **Cloud-Controlled Switching Reporting.** This feature enables Customer to access comprehensive daily and ad hoc reporting – which may aid Customer in accessing the health and performance of Managed Devices under Cloud-Controlled Switching –via the CCR Portal, which is available on the VEC.

1.4 **Customer Responsibilities**

1.4.1 **Out of Band Access.** Unless otherwise agreed, Customer will provide out of band access to each Managed Device over a separate PSTN line or wireless connection (which may include backup wireless), where required and consistent with Verizon specifications for troubleshooting purposes. For Managed LAN Physical, Customer also will provide Verizon read access to the Managed Device configuration, and will maintain any software licenses associated with Managed Devices. Customer will provide Verizon the Simple Network Management Protocol or SNMP read / write community string to any Managed Device whose configuration it wants Verizon to automatically backup. Managed Devices under Cloud-Controlled Switching do not require out of band access.

1.4.2 **LAN Switch Removal, Repair, and Access.** Customer will notify Verizon before removing or repairing the LAN Switch. For LAN Switches under Full Management, Customer will notify Verizon before physically accessing, configuring, amending, or modifying a LAN Switch. Customer will provide Verizon with full access to the LAN Switches as needed to provide the Managed LAN Service.

1.4.3 **Customer Provided Facilities**. Customer is responsible for all equipment, software, wiring, power sources, telephone connections and/or communications services necessary to use Managed LAN Service (Customer Facilities), which Customer will ensure is compatible at all times. Customer may meet this responsibility by contracting separately with Verizon to perform these tasks.

1.4.4 **Customer Owned CPE.** Managed Take Over or Managed Implementation may show Customer's CPE needs upgrading before it can be managed. Verizon will manage such CPE after the upgrade is complete. Customer is responsible to refresh the CPE as required, including upgrades for LAN Switch features, end-of-life conditions, and the like.

2. **SUPPLEMENTAL TERMS**

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2.1 **Restriction on Encryption Functionality in India.** Customer will not employ bulk encryption equipment in connection with Verizon Facilities in India. Customer may use encryption up to 40 bit key length in RSA algorithm. If Customer requires encryption higher than this limit, then Customer will obtain approval from relevant telecom authority.

2.2 **Network Discovery.** Customer will provide Verizon with accurate information about the proper scope of the Network Discovery, represents that it has all necessary authority to have Verizon undertake the Network Discovery requested under these terms, and will indemnify Verizon and its employees, affiliates and agents against any liability if it does not. Verizon reserves the right to stop or withhold from performing Network Discovery, at its sole discretion.

2.3 **NE and NA Services Disclaimer.** Customer will make its own independent decision whether to consider or implement any Verizon recommendation, referral or introduction in connection with NE and/or NA (collectively Recommendations), for which Verizon has no liability.

2.4 **Portal User Names and Passwords.** Customer must immediately notify Verizon upon learning of any unauthorized use of Customer's login credentials. Customer is responsible for all activities and charges incurred through the use of the compromised login credentials.

3. **SERVICE LEVEL AGREEMENT.** The service level agreement (SLA) for Managed LAN may be found at the following URL: www.verizonenterprise.com/external/service_guide/reg/cp_mlan_sla.pdf

4. **FINANCIAL TERMS**

4.1 **Optimized Service.** Customer will pay the charges for Optimized Access + specified in the Agreement, including those below and at the following URL: www.verizonenterprise.com/external/service_guide/reg/applicable_charges_toc.htm. Charges below are in U.S. dollars and will be billed in the invoice currency for the associated service.

4.1.1 **General Financial Terms (Applies to all management levels of service).** Monthly recurring charges (MRCs) and non-recurring charges (NRCs) for Managed LAN + (Managed LAN) are specified below and in the applicable Contract. Additional MRCs and NRCs for any equipment management required or for optional services or features are shown below. Managed LAN MRCs are fixed for the Service Commitment.

4.1.2 **Administrative Charges**

Administrative Charge	Charge Instance	NRC
Dispatch Charge	Dispatch/Re-Dispatch	$300.00
Expedite Fee	Upon Customer Request	$1,100.00
After Hours: Installation	Per site	$600.00

4.1.3 **Managed LAN Switches.** The LAN Switch sizes apply to the rates shown in the Contract.

4.1.4 **One-Time Management Charges.** Optional Change Management (OCM) provides additional remote change management support for Managed LAN Service for the NRC shown below. Customer can order specific OCM activities through the VEC.

Managed LAN Optional Change Management Charges		
Change	Change Instance (Charged per device unless noted)	NRC
After Hours: Changes	Per request per site	$600.00

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Managed LAN Optional Change Management Charges		
Change	**Change Instance** **(Charged per device unless noted)**	**NRC**
Implementation (Modify Existing)[1,3]	Change per device	$50.00
Design (Single Feature/Protocol)[2]	Change per device	$250.00
Design Plus (Multiple Feature/Protocol)[2]	Change per device	$400.00
Engineering – 1 Hour[4]	Per request and block of hours, 1 hour block	$300.00
Engineering – 5 Hours[4]	Per request and block of hours, 5 hour block	$1,375.00
Engineering – 10 Hours[4]	Per request and block of hours, 10 hour block	$2,500.00
Engineering – 20 Hours[4]	Per request and block of hours, 20 hour block	$4,500.00
Engineering – 40 Hours[4]	Per request and block of hours, 40 hour block	$8,000.00

1. Implementation is used to modify existing features or protocols including the following: dynamic host configuration protocol (DHCP), IP network address translation, network routed protocol, MNSO IP address/subnet mask change, routing protocol changes and switch VLAN.
2. Design and Design Plus is used for requests to evaluate or add single (Design) or multiple (Design Plus) new or changed features, protocols or applications/policies in the Customer Network, including the following: add DHCP, class of service (CoS), quality of service (QoS), NAT router configuration, traffic filter design and traffic queuing.
3. Customer may create a new design at one site by selecting Design/Design Plus to add the new feature(s) or protocol(s) and then replicate the design across other sites by selecting Implementation for the remaining sites.
4. Customer may select Engineering Hours and request additional Engineering OCM hours from time to time as needed. Verizon will track the number of hours spent per OCM request against the hours selected and will report remaining hours to Customer upon request.

4.1.5 **Managed Implementation or Take-Over Charges.** Depending upon network readiness, additional equipment or equipment upgrade may be required. Equipment costs are not included in the NRC shown in a Contract. CPE may be provided under a separate Service Attachment. The NRC shown in the Contract applies per LAN Switch.

4.1.6 **Port Monitoring.** No additional charge applies to Port Monitoring (up to the maximum number of switches indicated in the feature description above), which is available to Customers with Managed LAN Service at the Full Management level.

4.1.7 **IP Addresses.** Verizon may use secondary IP addressing if Customer is using unregistered IP address space. If secondary IP addressing is not available, Customer will pay reasonable costs for a dedicated management domain or an IP proxy hardware solution, which will be agreed-upon by the Parties before being implemented. Additionally, Company reserves the right to use border gateway protocol (BGP) routing for the management of PVCs used to access and monitor Customer's Network.

4.2 **Non-Optimized Service.** Customer will pay the charges for non-Optimized Managed LAN specified in the Agreement. Online pricing for Managed LAN provided by a United States Verizon entity is at: www.verizonenterprise.com/external/service_guide/reg/cp_managed_lan_services.htm.

5. **DEFINITIONS.** The following definitions apply to Managed LAN, in addition to those identified in the Master Terms and the administrative charge definitions at the following URL www.verizonenterprise.com/external/service_guide/reg/definitions_toc_2017DEC01.htm

Term	**Definitions**
Cloud-Controlled Switching (CCS)	Cloud Infrastructure-controlled switches at a Customer Site.
Cloud Infrastructure	The Cloud Infrastructure consists of all cloud-hosted elements that are used to provision and manage the architectural aspects of the system comprised of the CCS and related equipment; such aspects to include security policies, intrusion

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	prevention signatures, and quality of service. Internet access services, non-CCS equipment at the Customer Site, including the Managed CPEs, are not part of the Cloud Infrastructure.
Customer Network	A collection of LAN Switches and the network they are connected to.
In-Band Access	In-Band access provided through a Verizon Managed WAN site connected to Customer's LAN network.
LAN Switch	Means the LAN switches and associated OOB modems or terminal servers, as specified by reference to these terms, which will be managed at Customer Site by Verizon for this MLAN Service.

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