Customer Name: *AMC Corporate [Sub 60 - Temp Access]*

Project Overview

Windstream will provide an SD WAN Overlay Network over temporary T-1 and 4G access for AMC Corporate locations. Site will be converted to permanent Cable and 4G access once facilities are available. All sites will receive Windstream Installation Services, per the Customer Contract, the Service Order Form, and any subsequent amendments or change orders

Overview of Site Visits	Windstream Contact Information
❖ **Site Visit 1:** ○ CPE Install & Circuit Testing ○ SD WAN Activation ○ Data Cutover ❖ **Site Visit 2:** ○ Replace T-1 with Permanent Cable Circuit ○ Confirm Connectivity ○ Box Up T-1 CPE	**Windstream Service Activation** See Remedy ETA **Project Coordinator: Lisa Harmon** (781) 362-5522 **Project Manager: Ken Wilkie** (704) 405-4857 **Customer References** Wave Group Notes **OneSource Contact Information** **Project Manager: Latasha Williams** (832) 782-6132 lwilliams@osbt.com **OSBT Command Center (C&C)** (713) 895-1799
Overview of Custom Elements	
❖ Up to 4 LAN Connection ❖ Coordinated Customer Testing (up to 20 minutes)	

Installation Standards

- **Google Chrome Browser must be installed on your laptop prior to arrival**
- All Instructions are for Installer unless otherwise specified.
- Do not unplug power from existing equipment in order to plug in router.
- The installation equipment must be arranged in such a way that allows for future accessibility.
- Cables must be neatly bundled with no loose wires left unorganized.
- See subsequent sections for router photo(s), list(s) of items included with shipment, and neatly bundled wiring example photos

VISIT 1

A Activity Upon Arrival at Site

□ Make Contact with Local Contact Person (LCON):--------	**See Work Order**
□ Check Work Order or Ticket for Site-Specific Information	
□ In case of access denial, contact:----------	**Windstream PM or PC** **OSBT C&C**
□ Call into the Windstream Conference Bridge----------	**See Remedy ETA for Bridge & PIN**

B Installation Prep

□ **Take photos of the existing installation, including port connections**	- *Upload all photos to your ticket*
□ Identify the new Windstream LEC Loop	- *See ticket for site Demarc info* - *Contact Windstream Service Activation if unable to locate Demarc*
□ Verify proper signal at Demarc	- *Use card light, voltage meter, and loopback plug*
□ Locate CPE Installation site(s)----------	**Customer Rack in MDF**
□ Evaluate Inside Wiring Requirements------	See **Section M - Exclusions**
- Inside Wiring Requirements:----------	**T-1 - 150' Demarc Extension, if necessary** Demarc extension must be non-plenum Cat5E cable, with a vertical limit of 10 feet from the MPOE inside the Customer's suite or leased space, to a reasonably accessible location near the CPE installation location, which must be within 6 feet of a grounded, 110 VAC, electrical outlet.

C Windstream Activations Checklist

WIN SA: Once all listed items for your group are verified, copy the appropriate list and paste into the order notes.

Data	Voice	PM
□ PreCog Run		□ Verification Of Site IDs
□ Main Path Up		
□ Secondary Path Up		
□ Tertiary Path Up		
□ Failover Working		

D Router Installation and Wiring

1. Install the Windstream CPE in the location designated in **Section B**.
   a. See site type below for routing/switching CPE list.
   b. When mounting, ensure 1" of space to enable cooling.
   c. Windstream recommends that the CPE be plugged into a UPS power source whenever possible.

Site Type	CPE
Temp T-1	Cisco 1921, Cisco 819G, VeloCloud Edge 520, Novatel U620L, Copper SFP Module (x2)

2. Run required Inside Wiring as described in **Section B**.

3. If running a new Demarc extension, install and test connectivity of an RJ11 or RJ45 surface-mounted wall jack (as appropriate) to the extended Demarc for the WAN circuit.

4. Make the following connections to the installed CPE, and connect or turn on power:

Site Type	CPE	Port		CPE	Port
Temp T-1	Cisco 1921	GE 0/0	➔	T1 Smart Jack	-
	Cisco 819G	-	➔	-	-

E Windstream Service Testing

1. Connect your laptop to the first available LAN/Ethernet port on the CPE, and power on the CPE.

2. Attempt to surf the Internet. If successful, navigate to http://speedtest.Windstreambusiness.com/ to begin a speed test.
   a. Refer to Customer IP Sheet to determine proper settings for speed test. Settings on your laptop must match settings on CPE to ensure accurate testing.
   b. Under TCP/IP Protocols on Installer laptop, set IP address type to DHCP or Static to match settings on CPE (refer to Customer IP Sheet to determine proper settings).
   c. Set speed on laptop NIC to 100 Mbs, Full Duplex, to match settings on CPE.

3. Test Internet connectivity by following instructions provided by the WIN SA Technician.
   a. **Success Criteria**: Successful browsing and/or ping to 4.2.2.2

4. WIN SA: Test signal strength on the Cisco 819G and note the results.
   a. Run command `<sh cellular X/X/X radio>` replacing X/X/X with appropriate interface.

4G LTE Cellular

RSRP	Signal Strength
> -90 dBm	Excellent
-90 dBm to -105 dBm	Good
-106 dBm to -120 dBm	Fair
< -120 dBm	Poor

RSRQ	Signal Quality
> -9 dB	Excellent
-9 dB to -12 dB	Good
< -13 dB	Fair to Poor

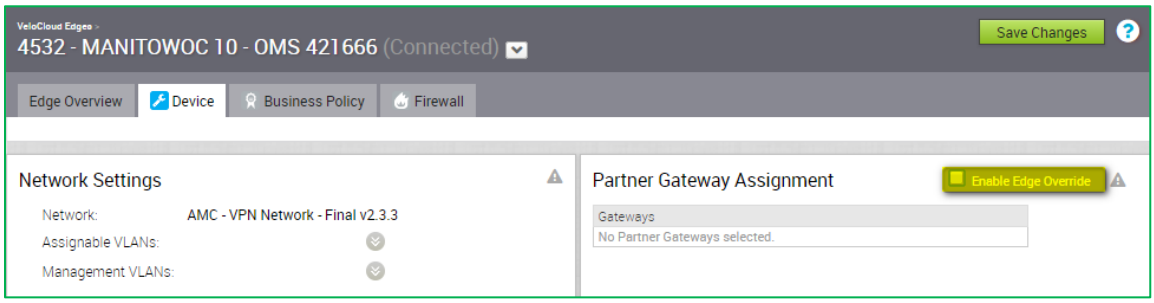
SINR Value	Throughput
> 10	Excellent
6 to 10	Good
0 to 5	Fair
< 0	Poor

F SD WAN Activation

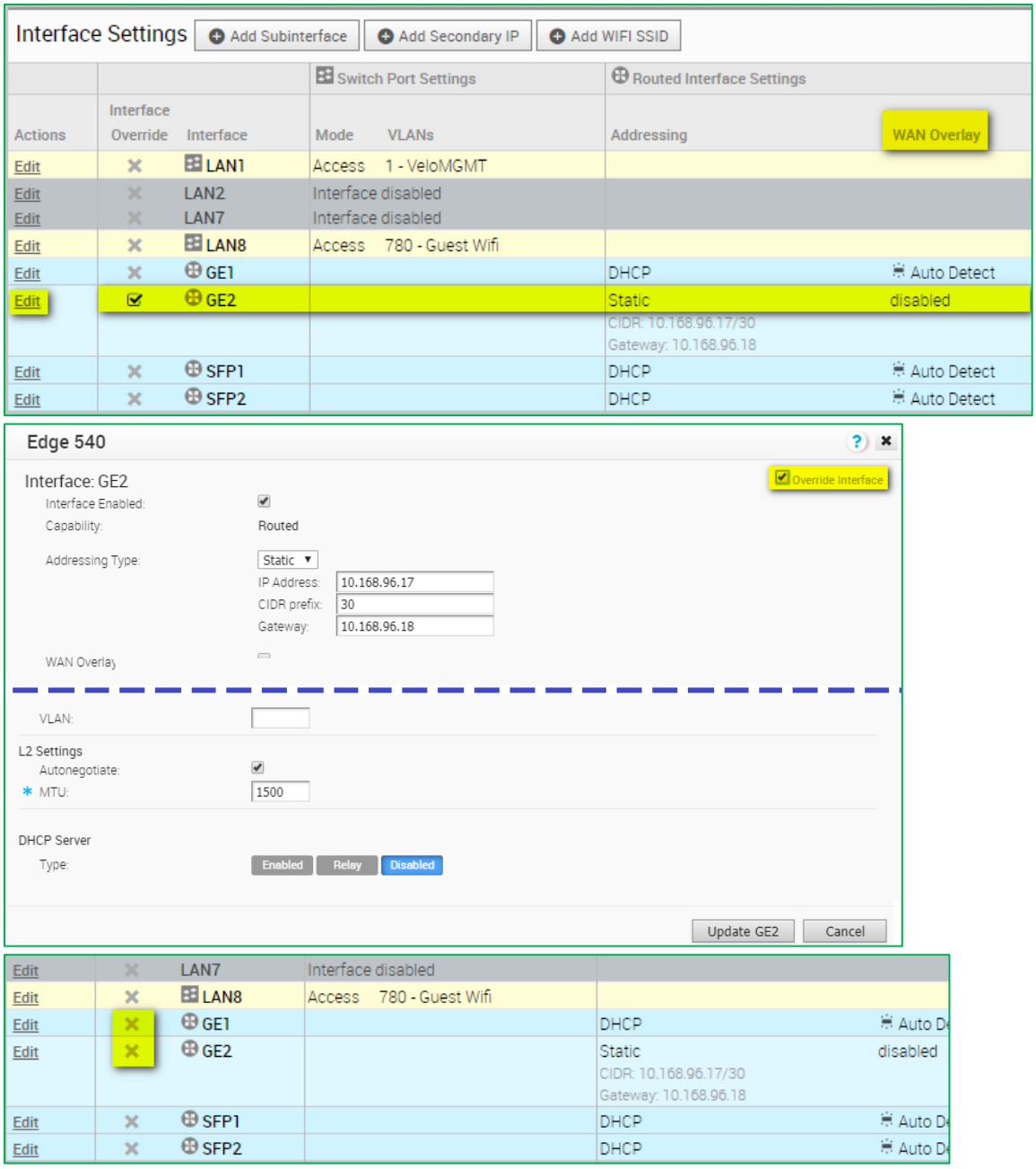
1. WIN SA: Conference in Customer NOC at (913) 213-2020, Op 2, and advise them of the unit ID of the site you are working
    a. Customer IT will not be available until 7:30, CST.
    b. If there is any issue reaching the Customer Helpdesk or completing all activity in this MOP, Contact PM, Ken Wilkie, or PC, Lisa Harmon immediately (Phone or IM).

2. With Customer IT, Win SA, and MoD, test data services.

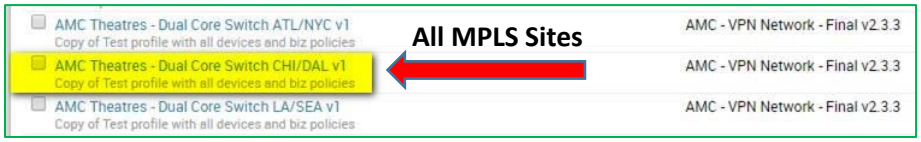
3. Win SA: Verify the Edge Override is disabled.
    a. Partner Gateways will disappear from view after disabling



4. WIN SA: Disable Edge Overrides on GE1 and GE2 if present.
    a. DO NOT disable Edge Overrides on SFP1 or SFP2 if present.



5. WIN SA: Select the profile in the Orchestrator based on the below criteria:
    a. All MPLS Sites – Select the "**Dual Core Switch CHI/DAL v1"**
    b. Non-MPLS Sites – Select the profile for your region.

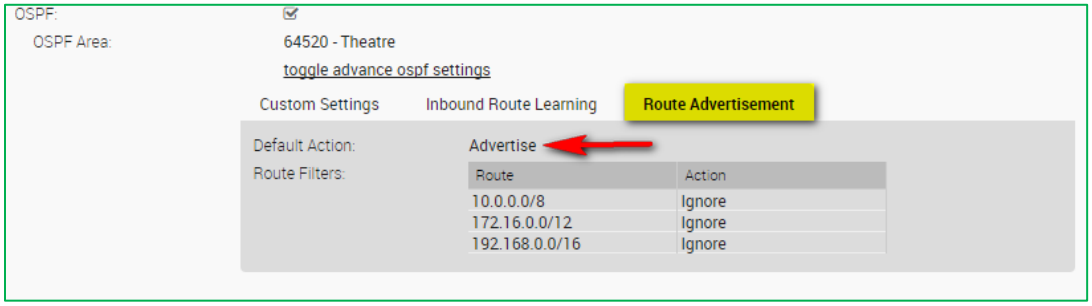


6. Verify Partner Gateway is correctly assigned for your region or for MPLS:
    a. **IF PGs DO NOT MATCH PROFILE REGION – Escalate to NIE**

7. WIN SA: Update or Verify the GE 1 and GE 2 IPs using the below template:

	GE 1 IP	GE 2 IP
VCE Gateway IP	**10.X.X.17/30**	**10.X.X.21/30**
Client-side IP	10.X.X.18/30	10.X.X.22/30

   a. Under Route Advertisement, Verify Default Action is **Advertise.**



3. Make the following connections to the installed CPE, and connect or turn on power:
   a. Insert provided SFP Modules as necessary.
   b. If T-1 has not been delivered, activate the Edge over 4G LTE using the connection listed in **Section F 13**.

Site Type	CPE	Port		CPE	Port
Temp T-1	Edge 520	SFP 1	➔	Cisco 1921	GE 0/1

4. Contact Windstream Service Activation (WIN SA) at (844) 286-2185.
   a. If any issues arise, WIN SA will escalate to NIE.

5. Connect your laptop to the **LAN 1 port** of the VeloCloud Edge 520.
   a. Ensure DHCP is enabled on your laptop.

6. Verify that Google Chrome internet browser is installed on your laptop.
   a. Download and Install Chrome if it is not already installed. (IE 11 is an alternate browser if Chrome is not available).

7. Provide your email address to WIN SA to receive the activation email.

8. WIN SA: Will generate the activation email from the SD WAN Orchestrator and send to the Installer on site.
   a. CC yourself to retain the email in case it does not get properly forwarded to the Installer

9. Activate the VeloCloud Edge by copying the URL, and pasting it into the address bar of your Google Chrome Browser.
   a. Device will download the required config and reboot.

10. Test Internet connectivity by successful browsing and ping to 4.2.2.2 or 8.8.8.8.
    a. **If unsuccessful**: Verify the Customer's LAN and Gateway IPs with the Customer NOC Technician.
       1. Escalate to NIE to have the correct IPs configured on the Edge device.

11. Connect additional WAN link(s) and CPE as follows:

Site Type	CPE	Port		CPE	Port
Temp T-1	Edge 520	SFP 2	➔	Cisco 819G	FE 0

a. Test layer 3 connectivity by following instructions provided by the WIN SA Technician.
   i. **Success Criteria**: Connectivity from WIN interface of remote CPE to WIN interface of host CPE.

12. WIN SA: Verify all paths are up in the SD WAN Orchestrator.

13. Win SA: Set any 4G LTE path to backup mode in the VCO.

14. WIN SA: Remove rate limiting statements from Cisco 819G.

15. Win SA: Run an ARP table dump from the SD WAN Orchestrator.
    b. Confirm you can see all Windstream managed devices in the ARP table.

16. Win SA: Verify MRS routes are in the VeloCloud for any connected, managed devices.
    c. Ping and ssh the MRS Loopback IPs from Bastion.
    d. Switches/Trunked Ports: Ensure the trunk port on the VeloCloud has the correct untagged VLAN set.
    e. If there are additional LAN routes, ensure the VeloCloud has them pointed to the correct L3 device.

G Migration

1. Customer IT: Will make any necessary LAN changes and give the okay to migrate the LAN connection.

2. Installer: Make the following connections:

Site Type	CPE	Port		CPE	Port
Temp T-1	Edge 520	GE 1	➔	Customer Cisco 3XXX (CSW-A)	1
	Edge 520	GE 2	➔	Customer Cisco 3XXX (CSW-B)	1
	Edge 520	LAN 8	➔	Customer Switch	As Directed

H Coordinated Customer Testing

NOTE: This section cannot be completed if services are unavailable**.**

1. Customer NOC: With Installer and WIN SA on the line, will perform the following predetermined tests. WIN SA and Installer will assist Customer IT with any necessary troubleshooting (up to 20 minutes).
    a. Internet Connectivity
    b. Validate AMC Stubs
    c. Credit Card / Gift Card Transaction
    d. Dine-In POS
    e. VoIP

2. Win SA: If the Customer switch does not come up on port LAN 8, send pings via VLAN 780 to any IP within that subnet.
    a. You will not receive a ping response, but this will initiate traffic to be sent out the interface and allow the switch to add the MAC address to its forwarding table.

3. All Parties: Test Failover to Secondary circuit by performing a simulated outage of the Primary circuit.
    a. Disconnect Primary circuit.
    b. Customer IT: Retest all items from **Section H1**.
    c. Reconnect Primary circuit and repeat testing.

4. WIN SA: Confirm that both paths are green in the SD WAN Orchestrator before proceeding.

5. All Parties: Test Failover to Primary circuit by performing a simulated outage of the Secondary circuit.
    a. Disconnect Secondary circuit.
    b. Customer IT: Retest all items from **Section H1**.
    c. Reconnect Secondary circuit and repeat testing.

6. **Success Criteria**: Completion of all tests listed in **Sections H1 – H5** in primary and backup environments.

7. WIN SA: Run PreCog testing and verify polling results. Pre-Approve for Ticketing if successful.
    a. See NMS Tool – Initial Installation User Guide.

I Backout Plan

1. In the event that success criteria are not met, the installer will restore all equipment to the former, Legacy state using “before” photos from **Section B** as a reference, and ensure that all phones and other applicable services are working as they did in the Legacy environment

VISIT 2

J Activity Upon Arrival at Site

□ Make Contact with Local Contact Person (LCON):--------	**See Work Order**
□ Check Work Order or Ticket for Site-Specific Information	
□ In case of access denial, contact:----------	**Windstream PM or PC** **OSBT C&C**
□ Call into the Windstream Conference Bridge----------	**See Remedy ETA for Bridge & PIN**

K Cable Service Testing

1. Connect your laptop to the first available LAN/Ethernet port on the CPE, and power on the CPE.

2. Attempt to surf the Internet. If successful, navigate to http://speedtest.Windstreambusiness.com/ to begin a speed test.
    a. Refer to Customer IP Sheet to determine proper settings for speed test. Settings on your laptop must match settings on CPE to ensure accurate testing.
    b. Under TCP/IP Protocols on Installer laptop, set IP address type to DHCP or Static to match settings on CPE (refer to Customer IP Sheet to determine proper settings).
    c. Set speed on laptop NIC to 100 Mbs, Full Duplex, to match settings on CPE.

3. Test Internet connectivity by following instructions provided by the WIN SA Technician.
    a. **Success Criteria**: Successful browsing and/or ping to 4.2.2.2

L Conversion & Customer Confirmation

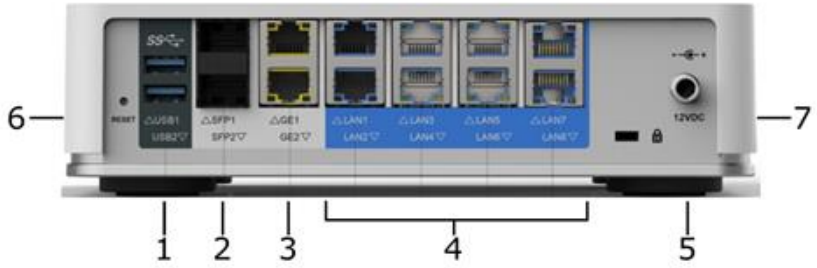
1. Disconnect the Cisco 1921 from the edge
2. Connect any port on the cable modem to the Edge 520 (Port SFP 1).
3. Win SA: Confirm that the new cable service is up in the Orchestrator.
4. WIN SA: Conference in Customer NOC at (913) 213-2020, Op 2, and advise them of the unit ID of the site you are working
5. Customer IT: Will confirm services are working from their end.
6. Once testing is successfully completed, disconnect and unmount the Cisco 1921, place in the provided box, and affix the provided RMA label.
7. Advise the MoD that they will need to schedule a FedEx pickup.

M Upon Completion

- □ Verify all services are up and running.
- □ Verify all cabling and power is secured and neatly bundled with no loose wires left unorganized.
- □ Clean up wire, plastic, paper, or any other trash left over from install. Dispose of all debris into Customer-approved debris bin.
- □ **Take "after" photos of the completed installation and attach them to your ticket.**
- □ Complete Work Order documentation.
- □ See Manager before leaving site, and obtain signature on Work Order.
- □ If MDF is NOT available, disconnect CPE, re-package, and provide to local contact for safe keeping during construction.
- □ Box up displaced CPE, affix RMA label, and provide to the Manager on duty.
- □ Customer will be responsible for scheduling a FedEx pickup for the RMA device

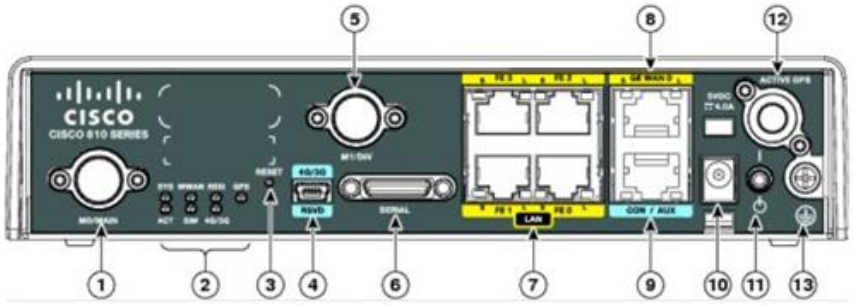
N Routers and Items Included in Shipping Box

VeloCloud Edge 520	
Included in Shipping Box	
1	Base Unit
1	12V DC Power supply
2	Ethernet Cables



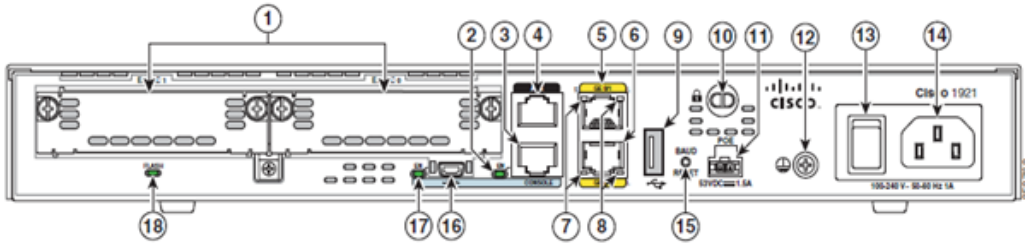
1. USB Ports 1-2
2. SPF Slots 1-2
3. WAN Ports (GE 1 - GE 2)
4. LAN Ports (LAN 1 - LAN 8)
5. 12V DC Power Port
6. USB Port 3
7. USB Port 4

CISCO 819	
Included in Shipping Box	
1	Console cable
1	RJ-45 straight thru cable
1	AC Power supply/cord
1	Configuration CD
2	Cellular Antennas
3	Wi-Fi Antennas



1. 4G Antenna Connector – MO/Main
2. LEDs
3. Reset Button
4. 4G/3G Port
5. 4G Antenna Connector – M1/DIV
6. Serial Port
7. FE Ports (FE 0 – FE 3)
8. GE WAN Port
9. Console/Aux Port
10. Power Input
11. Power Switch
12. Active GPS Antenna Connector
13. Ground

Cisco 1921	
Included in Shipping Box	
1	Base Unit
1	Power Supply
1	Console Cable
1	Mounting Brackets



1. EHWIC slots 0 - 1 (0, Far right)
2. Enable RJ-45 Console (EN)
3. RJ-45 Serial Console Port
4. AUX Port
5. GE 0/1
6. GE 0/0
7. Speed (S)
8. Link (L)
9. USB Port
10. Kensington Security Slot
11. PoE Port
12. Ground Connector
13. On/Off Switch
14. Input Power Connection
15. Baud Reset
16. USB Serial Port
17. Enable USB Console (EN)
18. Flash

SFP Copper	
Included in Shipping Box	
1	RJ45 Ethernet SFP Module

O Neatly Bundled Wiring Examples

P Scope of Work Exclusions

The Scope of Work for this MOP EXCLUDES the following:

- Installation or troubleshooting of other equipment, cables, software the AIC is not installing or which is not listed in this document
- Ongoing monitoring or support of any device, software, or equipment not expressly included in the Master Services Agreement
- Ground Wire over 100'
- Wiring over 300'
- Backboard over 4' X 8' X 3/4"
- Moving existing customer equipment to make room for backboard
- Fiber cable
- Cat3,4,6, or 7 Cable
- Conduit Installation
- Any Electrical work requiring licensed electricians
- Installation of new grounding electrode system/pipe/etc.
- Drilling through masonry, firewalls or walls leading to exterior of the customer premise
- Wiring external to the suite/premise (with the exception of the circuit extension)
- Cable runs through plenum
- Cable runs via conduit without available pull string
- Running replacement pull string
- Vertical heights in excess of 10 feet
- Installation of multi-gang wall plates(single wall plates supported)
- Cable runs between floors, buildings, crawl space or attics
- Disposal of old cable

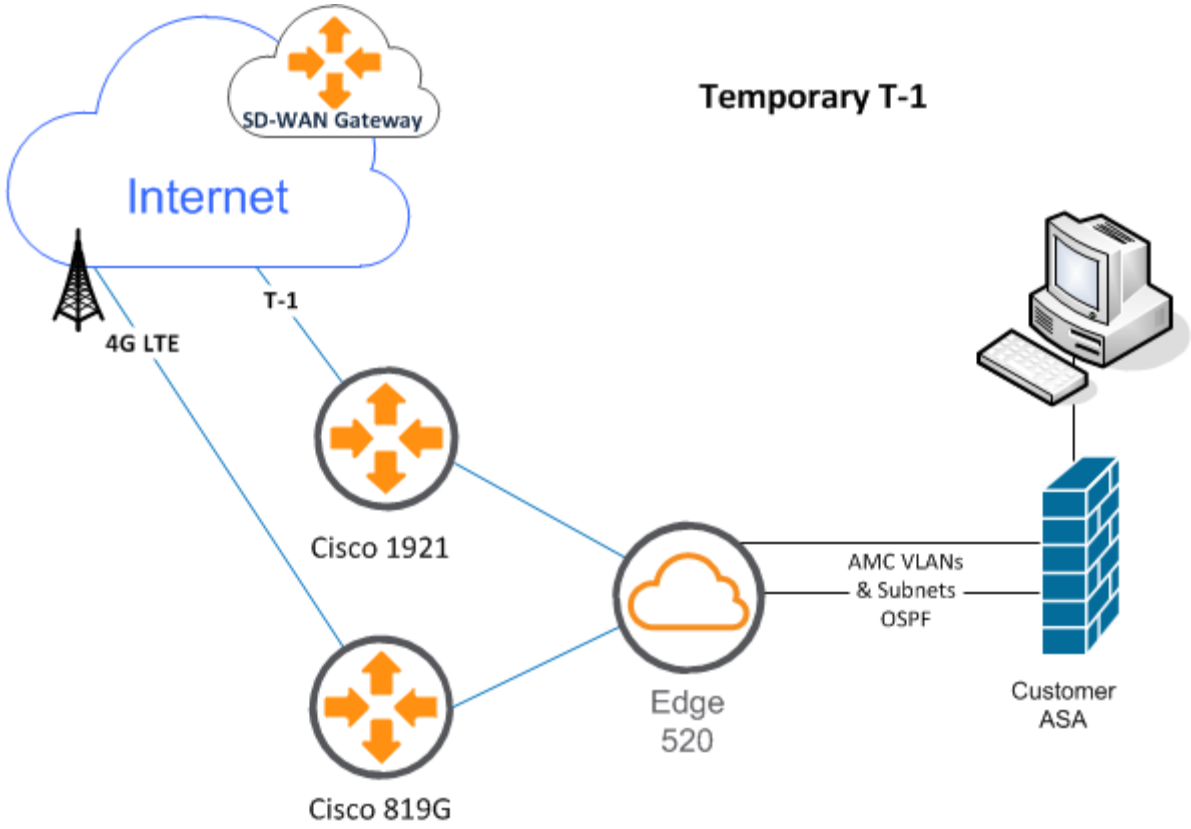
Q Parts and Materials

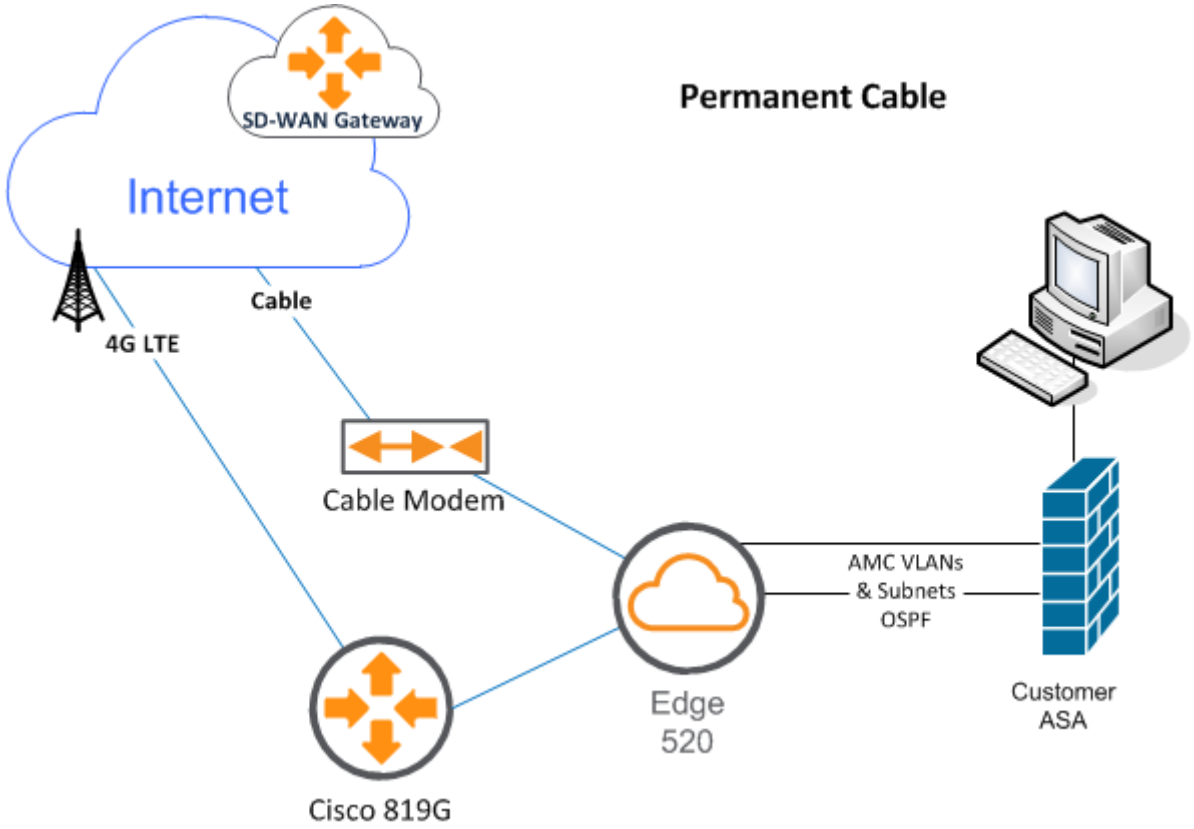
Standard Equipment:

- Laptop with network interface card (NIC), Ethernet, Wi-Fi, USB with serial port adaptor, CD/DVD-ROM, Windows 7 or newer, and Google Chrome browser.
- Wire strippers and Telco Snips
- Tone Generator and Wand
- Cat5, 4 pair cable (150 feet or more)
- Cross-Connect Wire (24 Gauge)
- 100’ Extension Cord
- Assorted Iffi through #12 concrete anchors
- Punchdown Tool with 66 and 110 bit
- RJ11/45 Crimp Tool
- Butt Set (amplified recommended)

  Cell Phone
- Serial Console Cable
- Tie Wraps
- Assorted pan-head, self-tapping screws (#8, 10, and 12), or other assorted mounting screws

R Network Diagram




Permanent Cable
SD-WAN Gateway
Internet
Cable
4G LTE
Cable Modem
AMC VLANs
& Subnets
OSPF
Edge
520
Customer
ASA
Cisco 819G

Network Services memo

to: Legacy AMC Theatres

from: Network Services

subject: Windstream Technology Refresh

Project Summary:
AMC has partnered with Windstream (formerly Earthlink) to perform a new and exciting technology refresh project! This project will increase broadband to enable your Theatre systems to run faster (credit card processing, POS transactions, back office computers, etc.) and your teams to better support guests.

The project has several outside companies and vendors supporting. Please be aware that these supporting teams may be contacting you for assistance and scheduling throughout the course of the effort. The work included in the Phases may not occur in the order shown below, and may also require multiple Technician visits to your Theatre.

Phase 1 Brief Description: Theatre Site Survey and New Circuit Installation
Players: Local cable company, Windstream, Sirius, AMC Network Services, AMC Theatre Managers
Site Survey:

1. If/When the cable company (Time Warner, Charter, Cox, Spectrum or various others) reaches out for the site survey, schedule a date/time that a Theatre or Facilities Manager can be available. **Note:** It's possible that the cable technician may arrive unannounced to complete the installation. While we hope, this is a rare occurrence, you may grant access if the technician is from your local cable provider.
2. **Arrive** at the Theatre at or before the scheduled site survey time.
3. **Accommodate** the cable company technician by allowing access to any areas they identify (building, offices, storage rooms, etc.). In keeping with our Vendor Access policy, accompany the technician if access to secured areas is needed. Note: In some cases, where cable internet access is unavailable, Ethernet Fiber Optic circuits will be installed. This site survey may be more involved than a typical cable site survey. If any planned construction or structural concerns arise during the survey, email Gary Gray.

New Circuit Installation:

1. **Store** the new cable access circuit in a safe, secured area when it is delivered to your Theatre in the coming weeks.
2. **Schedule** the installation of the cable modem when the cable company calls the Theatre.
3. **Arrive** at the Theatre at or before the scheduled installation time.
4. **Accommodate** the cable company technician by allowing access to any areas they identify (building, offices, storage rooms, etc.).

Phase 2 Brief Description: VeloCloud Installation, Mojo AP Installation, Move to New Circuit
Players: Windstream, OneSource Business Technologies (OSBT), Sirius, AMC Network Services, AMC Theatre Managers

This portion of the project will be to complete wiring, equipment setup, testing and turning on the new network. OneSource Business Technologies (OSBT)will reach out to Theatres individually for scheduling.
Note: You will be receiving shipments from Windstream/Earthlink with equipment for this work. Please be sure to store this equipment in a secure location in the Theatre and have it ready for the Technician upon arrival.

If you have any questions, please reach out to Gary Gray in Infrastructure Systems.