MiCloud Edge Customer Deployment

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CONTENTS

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1. ROLE	2. NAME	3. POSITION
Author	Carl Winser	Cloud Solution Architect
Owner	Kris Baity	Product Portfolio Manager
Contributor	Phillip Green	Consulting Solutions Architect
Contributor		

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TABLE 5-EXTERNAL REFERENCES

APPROVERS

16. NAME	17. ROLE	18. COMPANY

TABLE 6-DOCUMENT APPROVERS

MICLOUD EDGE OVERVIEW

MiCloud Edge is a cloud managed network service solution that enables sites to quickly deploy Enterprise grade access to MiCloud Flex applications over Internet broadband. Whilst the MiCloud Edge is a feature rich SD-WAN solution, when deployed with Mitel's MiCloud Flex the features and deployment options are deliberately restricted, to provide a consistent supportable model, as presented in this document. This includes, for example, deployment connectivity being limited to behind the customer's firewall and not in front of it - meaning that redundant WAN connectivity is not a feature of the MiCloud Edge device itself, but of the customer's firewall.

The Figure 1 shows an example of the MiCloud Edge Software-defined WAN solution components. The components are described in more detail in the following sections.

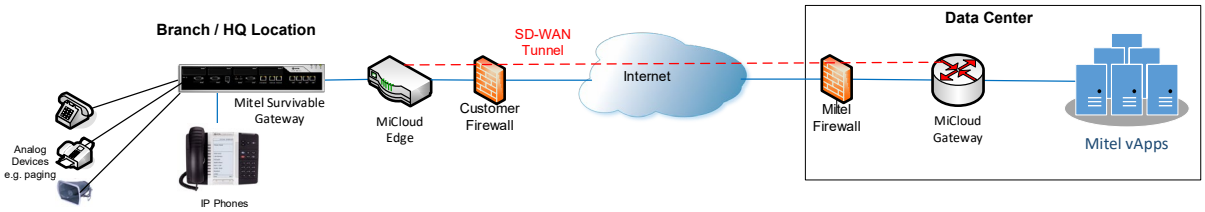


Figure 1

MICLOUD EDGE SOLUTION COMPONENTS

The Cloud Network Service – MiCloud Edge SD-WAN – includes the service components in the following sections.

MICLOUD EDGE

At the edge of the network is a physical appliance (the MiCloud Edge router) that is provisioned from the cloud for secured, optimized connectivity to the Mitel applications and virtualized services hosted in the MiCloud Flex data centre. MiCloud Edges are zero-touch, enterprise-class devices that provide secure and optimized VPN connectivity to the MiCloud Flex private cloud applications and virtualized services. MiCloud Edge devices perform deep application recognition and Virtual Private Network (VPN) services. A MiCloud Edge pair can, optionally, be deployed to provide High Availability (HA). MiCloud Edge devices are deployed in branches, HQ sites and data centres. While VMware variants of MiCloud Edge are hosted in the data centre only physical appliances are supported by Mitel when deployed on site.

MICLOUD EDGE ORCHESTRATOR

The MiCloud Edge Orchestrator provides centralized enterprise-wide configuration and real-time monitoring of the MiCloud Edge solution, as well as orchestrating the data flow into and through the SD-WAN Virtual Private Network overlay. Additionally, it provides the one-click provisioning of services for MiCloud Edge.

CLOUD VPN

Cloud VPN is the creation of a secure VPN for Mitel traffic from the customer location (branch or HQ) to the MiCloud Flex data centre and is the primary use case for MiCloud Edge with the MiCloud Flex Unified Communications solution. It is a 1-click IPsec VPN to connect customer locations to the MiCloud Flex data centre while delivering real-time status and the health of the sites. The Cloud VPN establishes dynamic customer edge-to-data centre communication for all locations with a MiCloud Edge device. New branches join the VPN network automatically and provides access to all Mitel endpoints in other the customer's branches and their Mitel data centre applications.

MiCloud Edge classifies Mitel applications enabling smart control. Mitel specific profiles identify MiCloud Flex destined traffic with knowledge of network requirements for different application types, automatic link capacity measurements and dynamic flow monitoring enables automation of QoS configurations and bandwidth allocations.

ACTIVATION

MiCloud Edge appliances automatically securely authenticate, connect, and receive configuration instructions once they are connected to the Internet in a zero-touch deployment. They optionally deliver a highly available deployment with MiCloud Edge redundancy protocol and integrate with the existing network with support for OSPF routing protocol and benefit from dynamic learning and automation.

MICLOUD EDGE HIGH AVAILABILITY PAIR

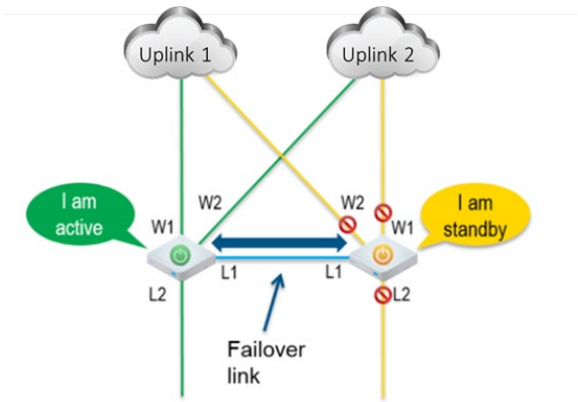


Figure 2

MICLOUD EDGE 610 PORTS

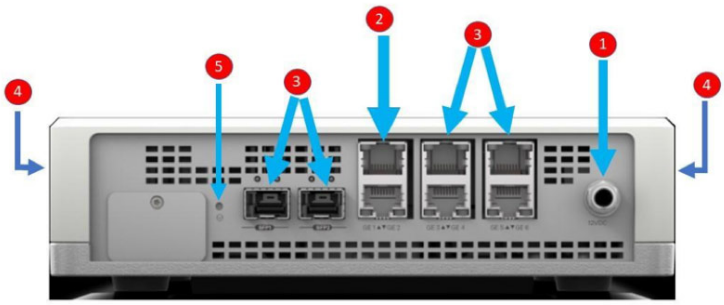


Figure 3

List of Back Panel and Side Connections

1. Power Connections - The power connection is threaded, so the power cord can be secured to the box. The power specifications for the AC/DC power adapter are:
    a. AC Input: 100 - 240V, 50-60Hz
    b. DC Output: 12V
2. Default LAN Connections - The ports marked LAN 1-6 are default LAN connections.
3. Default WAN Connections - The ports marked GE1-2 or SFP1-2 are default WAN connections.
    a. Requires SPF Module
4. SFP Modules not included. Wireless WAN Connections - The USB parts can be used for external USB Cellular modems
    a. USB Cellular Modems not included
    b. Inseego Skysus DS and Inseego Skysus DS2 supported globaly
5. Reset Button - Resets the Edge to factory settings.

NETWORK TOPOLOGIES

This section describes network topologies for both branches and data centres.

ONSITE MICLOUD EDGE DEPLOYMENT

Whilst MiCloud Edge can be deployed in several ways, the recommend and supported deployment options when deployed with MiCloud Flex are to deploy the MiCloud Edge device:

- Behind the customer firewall with a single Network Interface Connection on the customers' network
- Behind the customer firewall with a dual Network Interface Connection on the customers' network
- Inside the customers' DMZ

Customer must allow the follow through their firewall:

UDP2426 used for communication between gateway/Edge components

TCP443 used for communication to the Orchestrator to download configuration profile and poll for changes

BEHIND THE FIREWALL NETWORK CONFIGURATION - OPTION 1 SINGLE NIC

In this configuration the MiCloud Edge sits on the customers network using a single interface. This configuration is mostly used when using cloud VPN connections from an enterprise site to the MiCloud Flex DC.

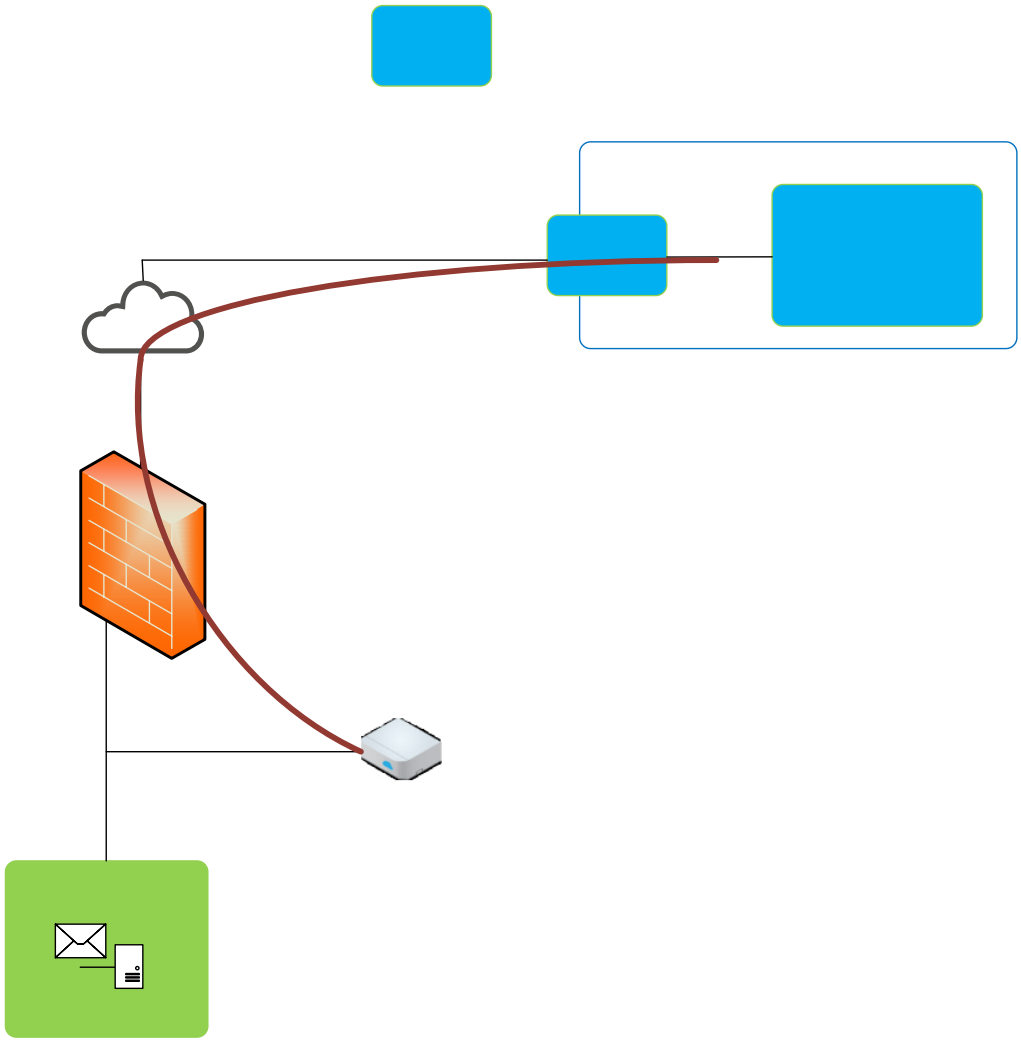


Figure 4

Required Information

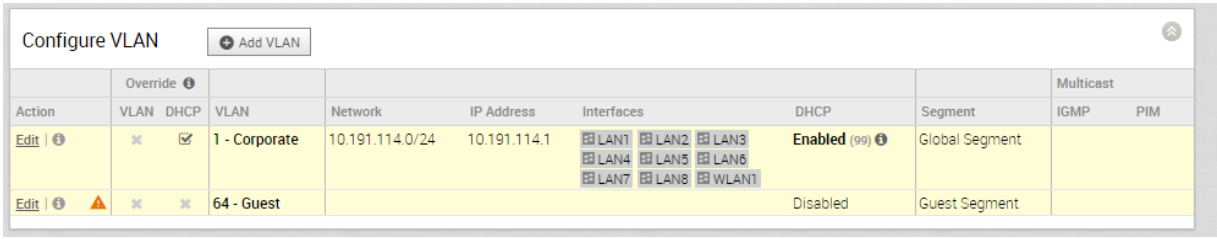
Handoff Network Information	
Static	Local Edge IP address
	Subnet Mask:
	Gateway IP Address:

Please provide the following for every Static route required from the edge to the customers networks

Static Routes	
	Network address
	Subnet Mask:
	Gateway address:

Configure LAN Networking

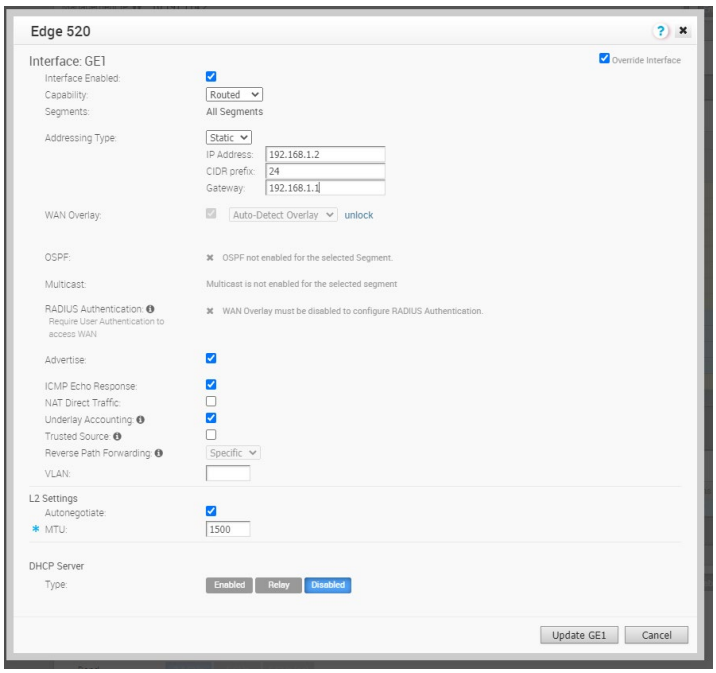
Create a dummy network on the LAN side. Ensure this network does not conflict with the customers actual network range



Configure WAN Networking

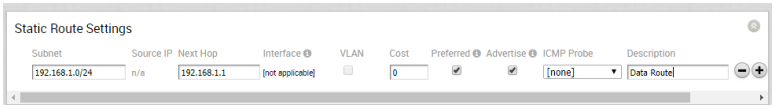
Program the IP address from the data sheet on the selected WAN interface
Change the following settings

- Deselect “NAT directed traffic”
- Select “Advertise”



Configure the Static Routes

In the MiCloud Edge configuration set up the data route under static routes



Customer Network Configuration

The customer configures their network to route all Mitel DC bound traffic via the MiCloud Edge WAN interface address. The traffic then flows from the customers network to the MiCloud Edge and then over the VPN tunnel to the Gateway in the DC.
Mitel’s data centre MiCloud Gateway will tag the traffic to the customers VLAN(s) in the Mitel data centre.

BEHIND THE FIREWALL NETWORK CONFIGURATION - OPTION 2 DUAL NIC

In this configuration the MiCloud Edge handles all traffic from the voice VLAN with the LAN port of the device and the WAN port of the MiCloud Edge device is connected to the rest of the customer's internal data network. The customer's firewall is still responsible for all Internet bound traffic. In the voice VLAN the MiCloud Edge is set as the default gateway for the Voice VLAN/subnet and the WAN port is the uplink for all outbound traffic outside of that Voice VLAN to the rest of the customers network (including Internet bound traffic via the customer's firewall).

To route between the voice and data networks the MiCloud Edge WAN interface in the data VLAN and there is a default route set to the data network and Internet via the firewall. The customer is required to configure a route for voice traffic back to the voice VLAN via the MiCloud Edge

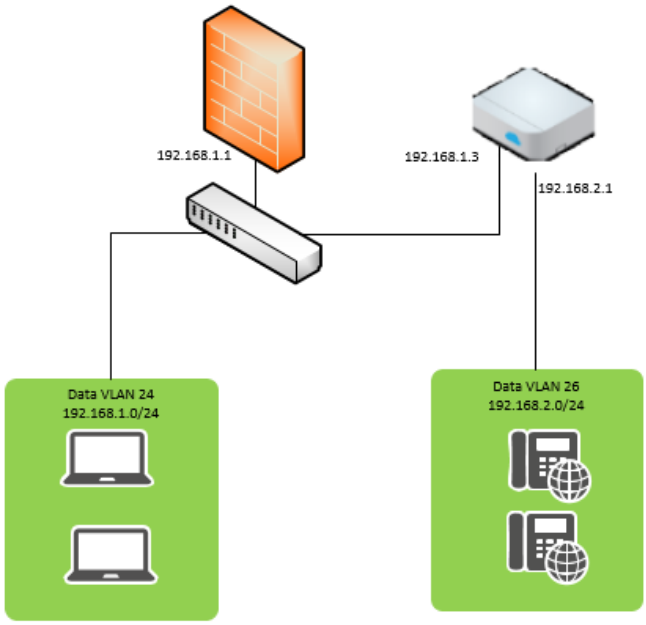


Figure 5

Required information

LAN data	
Voice VLAN	
	VLAN ID
	IP Address Range:

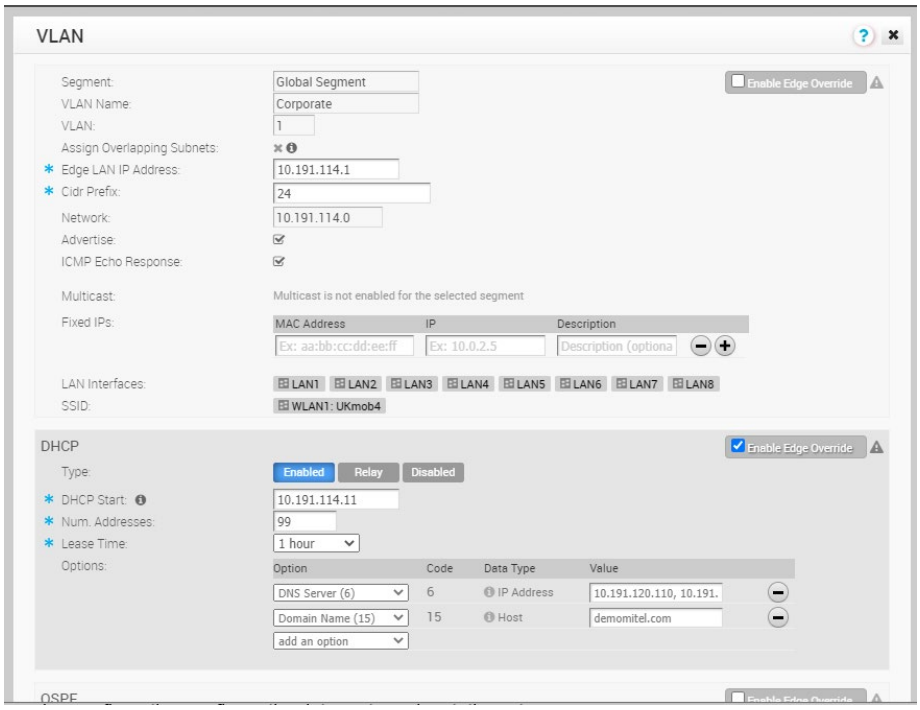
	Subnet Mask:
	Gateway address:
Will the Edge be the DHCP addressing resource?	DHCP ranges (Start IP Address – End IP Address):
Data VLAN	
	VLAN ID
	IP Address Range:
	Subnet Mask:

Please provide the following for every Static route required from the edge to the customers networks

Static Routes	
	Network address
	Subnet Mask:
	Gateway address:

Configure LAN Networking

Create the Voice VLAN using the networking information collected from the customer

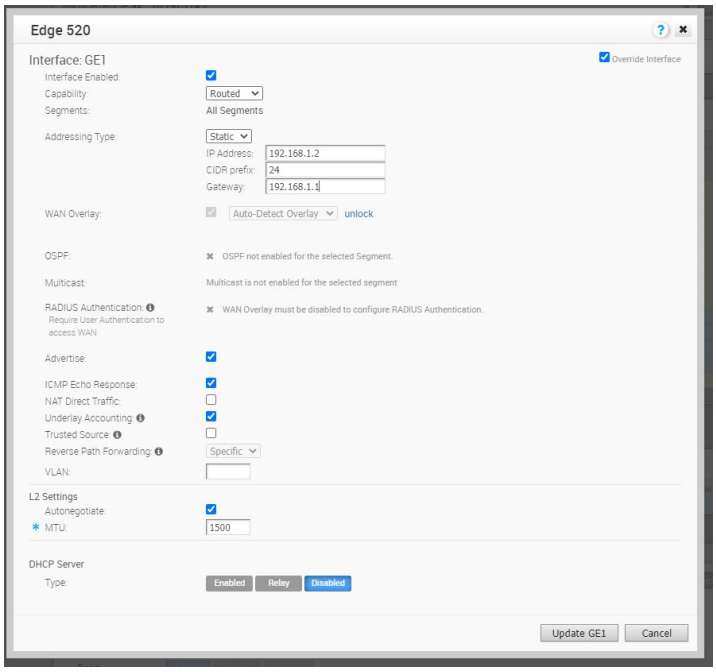


Configure WAN Networking

Program the IP address from the data sheet on the selected WAN interface

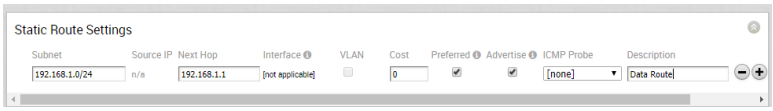
Change the following settings

- Deselect “NAT directed traffic”
- Select “Advertise”



Configure the Static Route

In the edge configuration configure the data route under static routes



The same should be done on the firewall to route the voice traffic via the edge

EDGE IN DMZ WITH SINGLE NIC

In this configuration the MiCloud Edge sits in the DMZ using a single interface GE3-6 or SFP1-2 . This config is mostly used when using cloud VPN connections from an enterprise site to the MiCloud Flex DC.

Network Configuration

In this configuration the MiCloud Edge resides in a dedicated subnet in the customer's DMZ with a /30 network mask

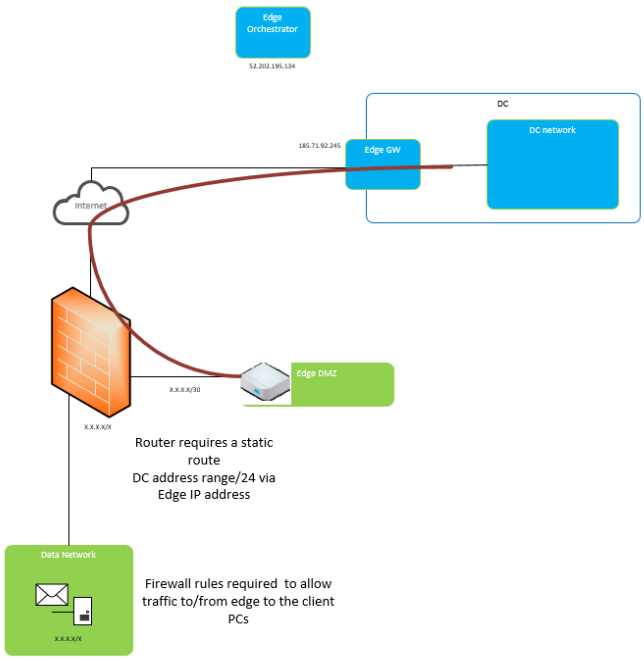


Figure 6

Required Information

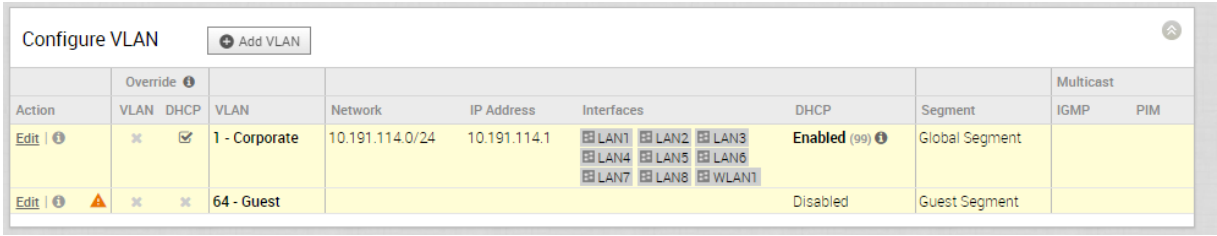
Handoff Network Information	
Static	Local Edge IP address
	Subnet Mask:
	Gateway IP Address:

Please provide the following for every Static route required from the edge to the customers networks

Static Routes	
	Network address
	Subnet Mask:
	Gateway address:

Configure LAN Networking

In the orchestrator under the customer's account create a dummy network on the LAN side. Ensure this network does not conflict with the customers actual network range

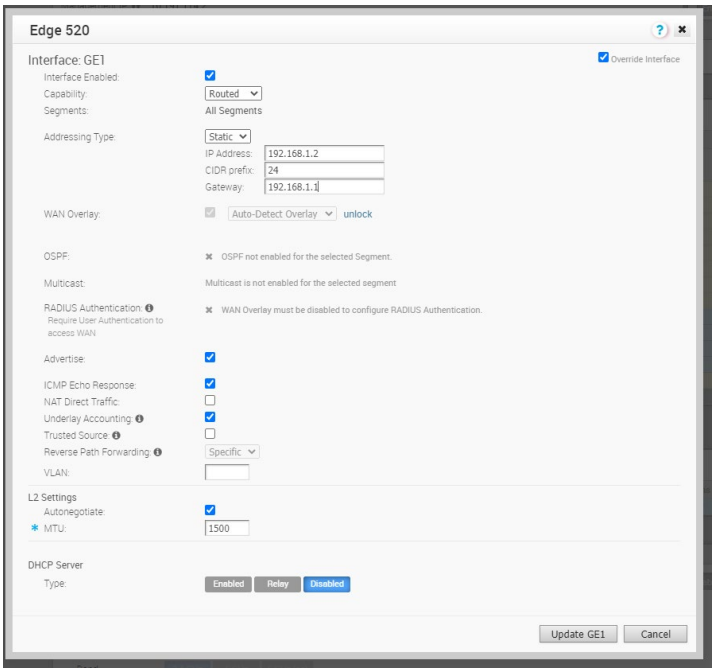


Configure networking

Program the IP address from the data sheet on the selected WAN interface

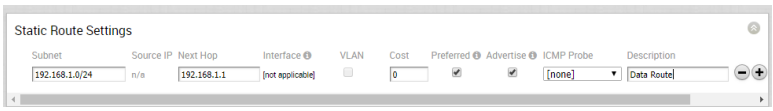
Change the following settings

- Deselect "NAT directed traffic"
- Select "Advertise"



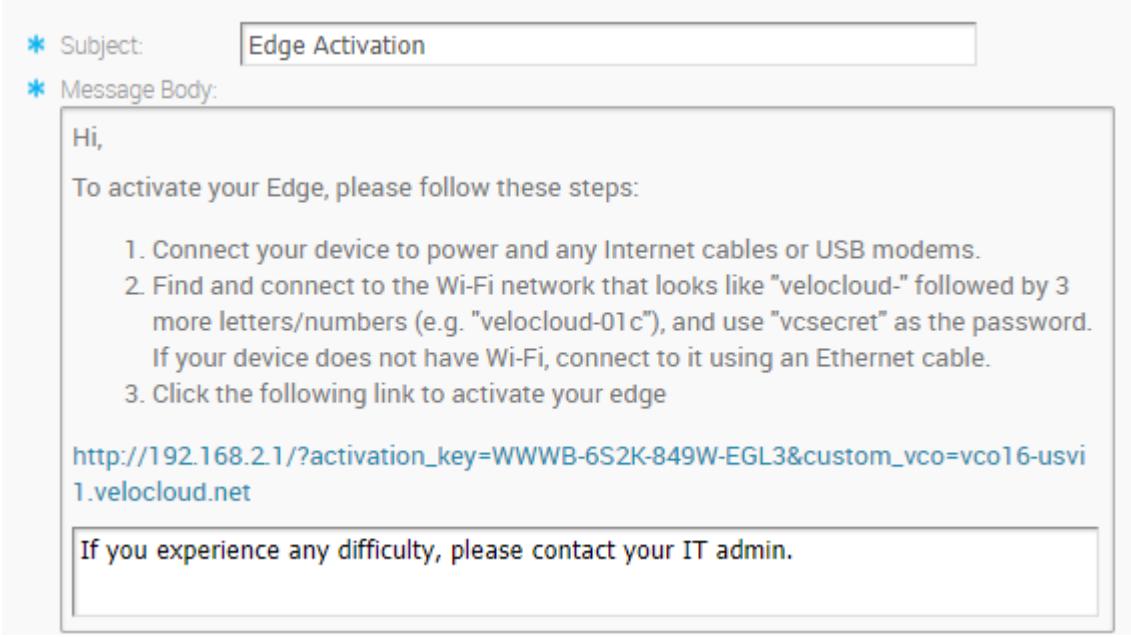
Configure the static routes

In the edge configuration configure the data route under static routes



EDGE DEPLOYMENT PROCESS

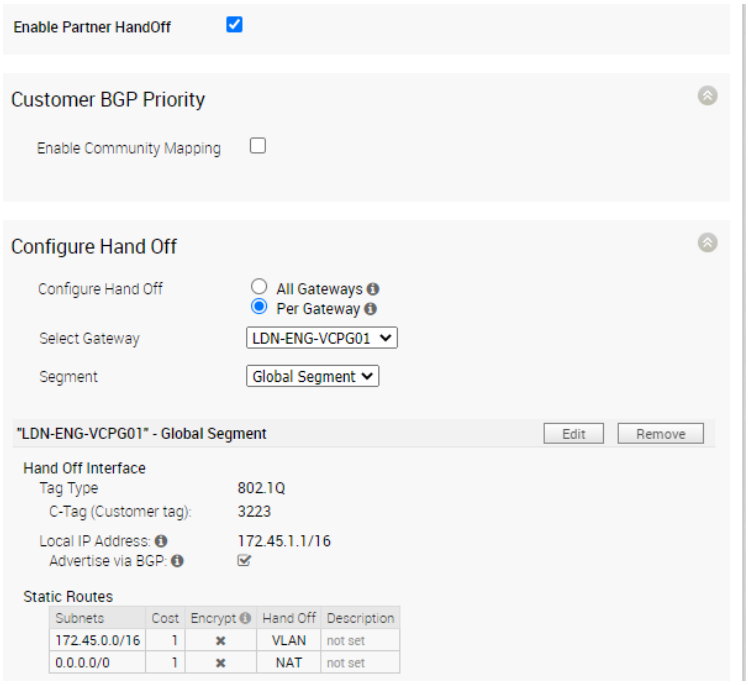
1. The customer agrees the deployment profile as described in this document with a Mitel specialist
2. The customer provides the required networking information
3. The Mitel specialist configures the MiCloud Edge profile on the central Orchestrator and arranges for the MiCloud Edge appliance to be shipped
4. The Mitel specialist informs the customer of the MiCloud Edge configuration and wire map. Once configured an email is sent with MiCloud Edge deployment process



5. Once activated the MiCloud Edge sets a tunnel up to the Data Centre
6. The customer programs static routes to the Data Centre address using the edge as its next hop

DATACENTER CUSTOMER HANDOFF

Within the Data Centre, the customers profile is programmed to hand off into the customers DC network



MISCELLANEOUS NOTES

- Upon request the customer or partner may be provided read only level access to the Orchestrator. Write access is not provided as part of the MiCloud Edge solution.

- The Mitel MiCloud Edge Orchestrator can only orchestrate and manage Mitel MiCloud Edge devices. It cannot manage other non-Mitel SD- WAN devices.

- SD-WAN connects over the Internet. The SD-WAN router is fundamentally creating a Virtual Private Network (VPN) between the SD-WAN routers configured by their offboard Orchestrator. While certain proprietary SD-WAN technology can mitigate Internet service degradation such as packet loss (at the expense of additional bandwidth), there is no guaranteed service level for the connection. Service guarantees are similar to that of an OTT deployment and as such a single internet connection is best suited for customers that are not 24x7x365