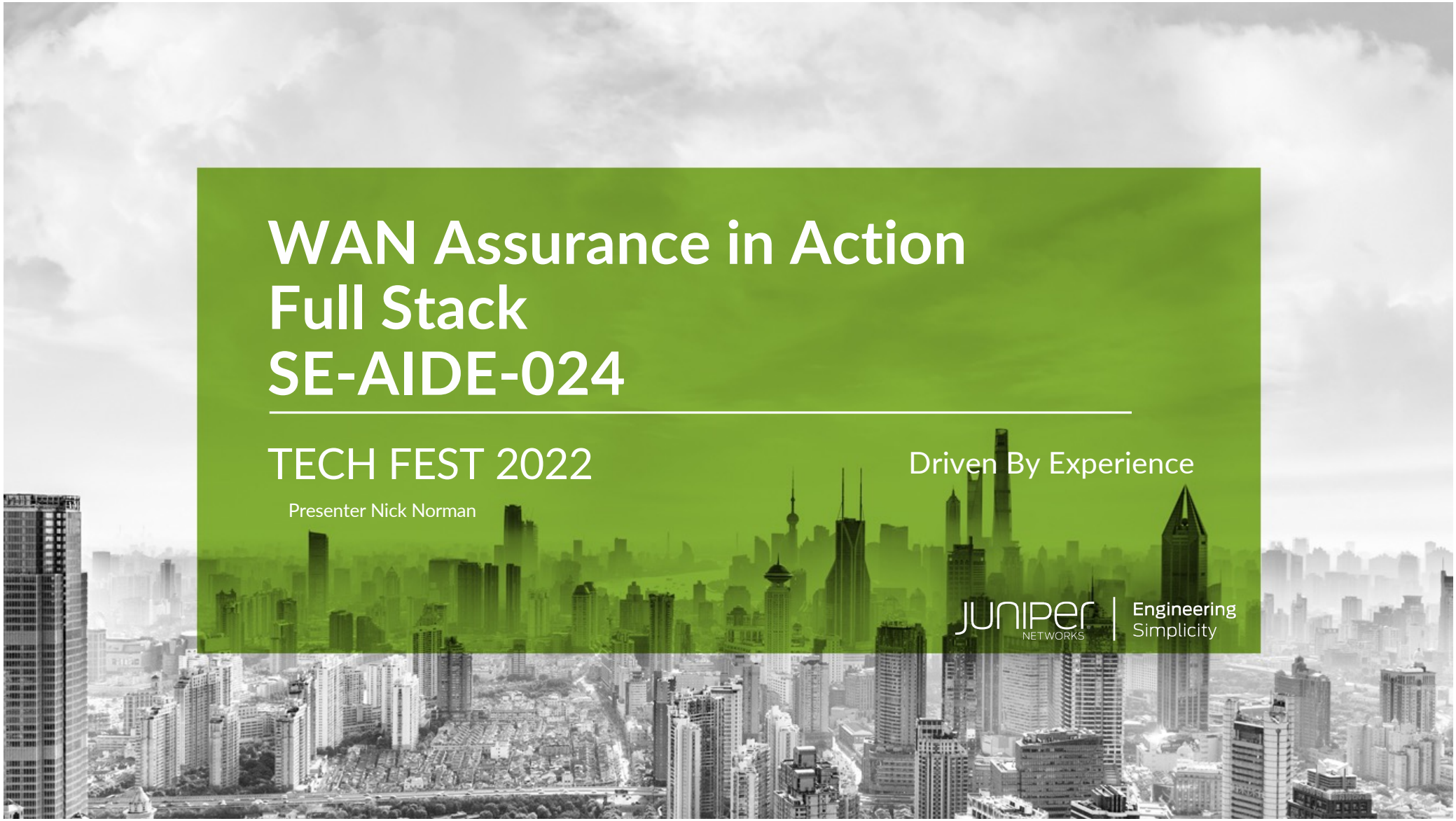
WAN Assurance in Action
Full Stack
SE-AIDE-024
TECH FEST 2022
Driven By Experience
Presenter Nick Norman
JUNIPER NETWORKS
Engineering Simplicity

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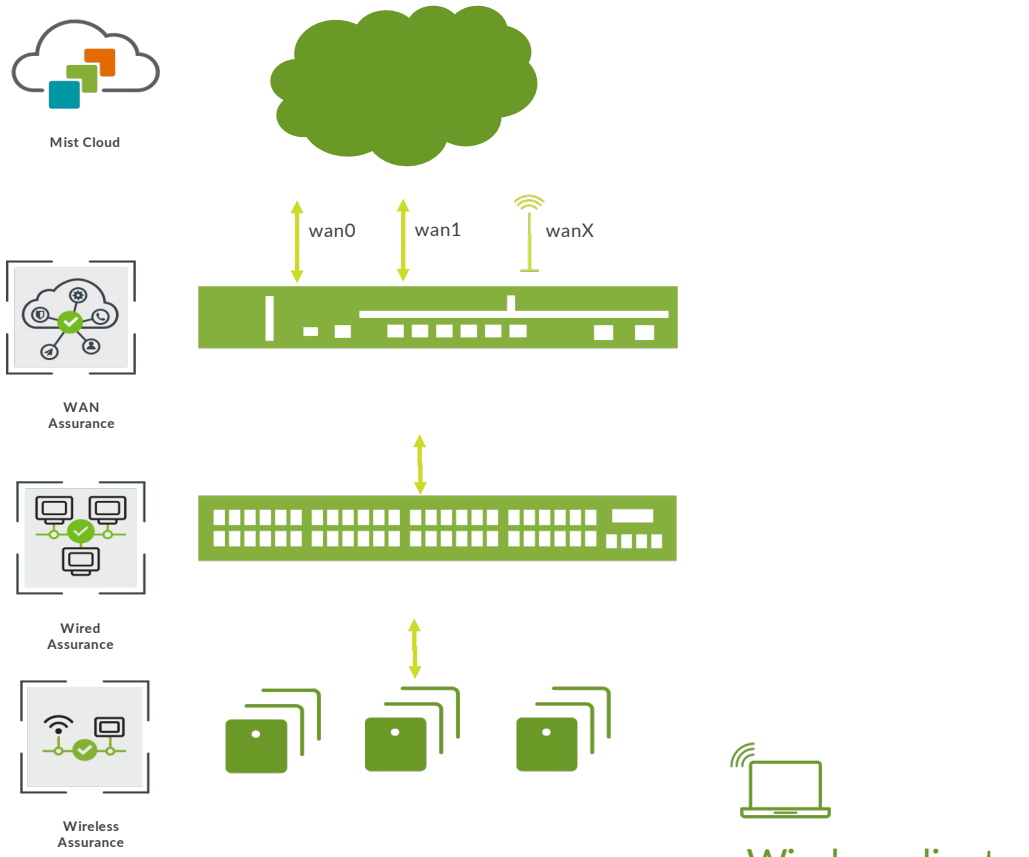
Topology



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WAN Design

Concepts and Methodology

- "***Who***" are my user & device segments
- Segmentation of networks

- "***What***" are my users connecting to
- Network services
- SaaS
- Private subnets
- Cloud workloads

- "***Where***" are my sites
- Define site types
- Transports connecting them
- Overlay paths

- "***How***" sessions are delivered
- Access
- Security
- SLA
- Routing
- QoS

- Templates & Automation
- Identify site type configs
- Save site specific variables

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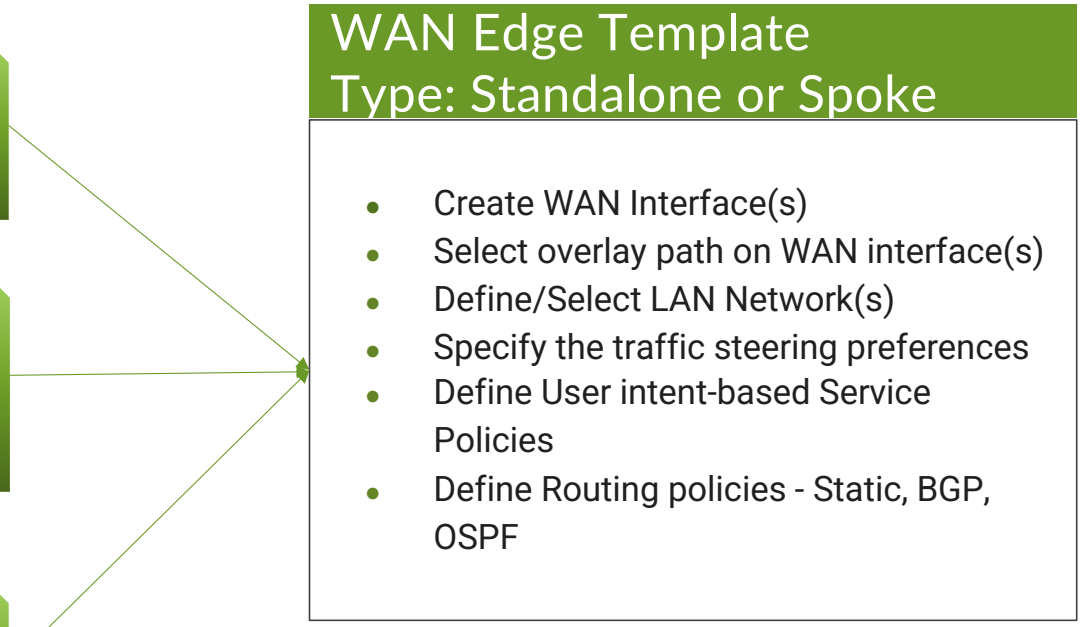
Wan edge Definitions

Hub Profiles:
A Hub profile automates the Overlay definition with a path per Hub WAN link

Networks:
Define the subnet. Create LAN segments. Define NAT rules and Users (source addresses to be used in policies)

Applications:
Define applications based on addresses, apps, app categories or hostnames.



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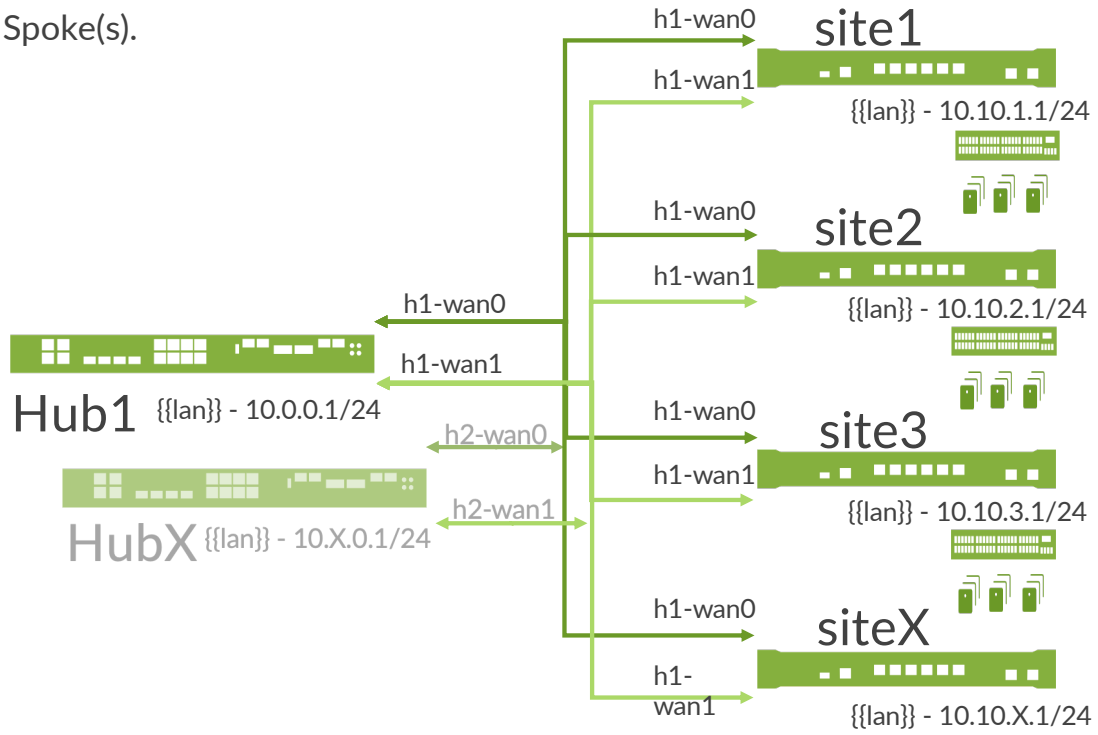
Wan edge Definitions: Overlay and paths

An **Overlay** is the connectivity between the Hub(s) and Spoke(s).

- Adding/removing WAN links in Hub Profiles add/remove paths on the overlay.
- Paths are added to WAN interfaces within a Spoke.
- The Mist CA generates/transfers the certificates used to authenticate the IPSec tunnel(s) created between the Hub(s) and Spoke(s).
- A WAN link probe is created to detect WAN outages. This steers traffic to other WAN links automatically and can be customized in API.



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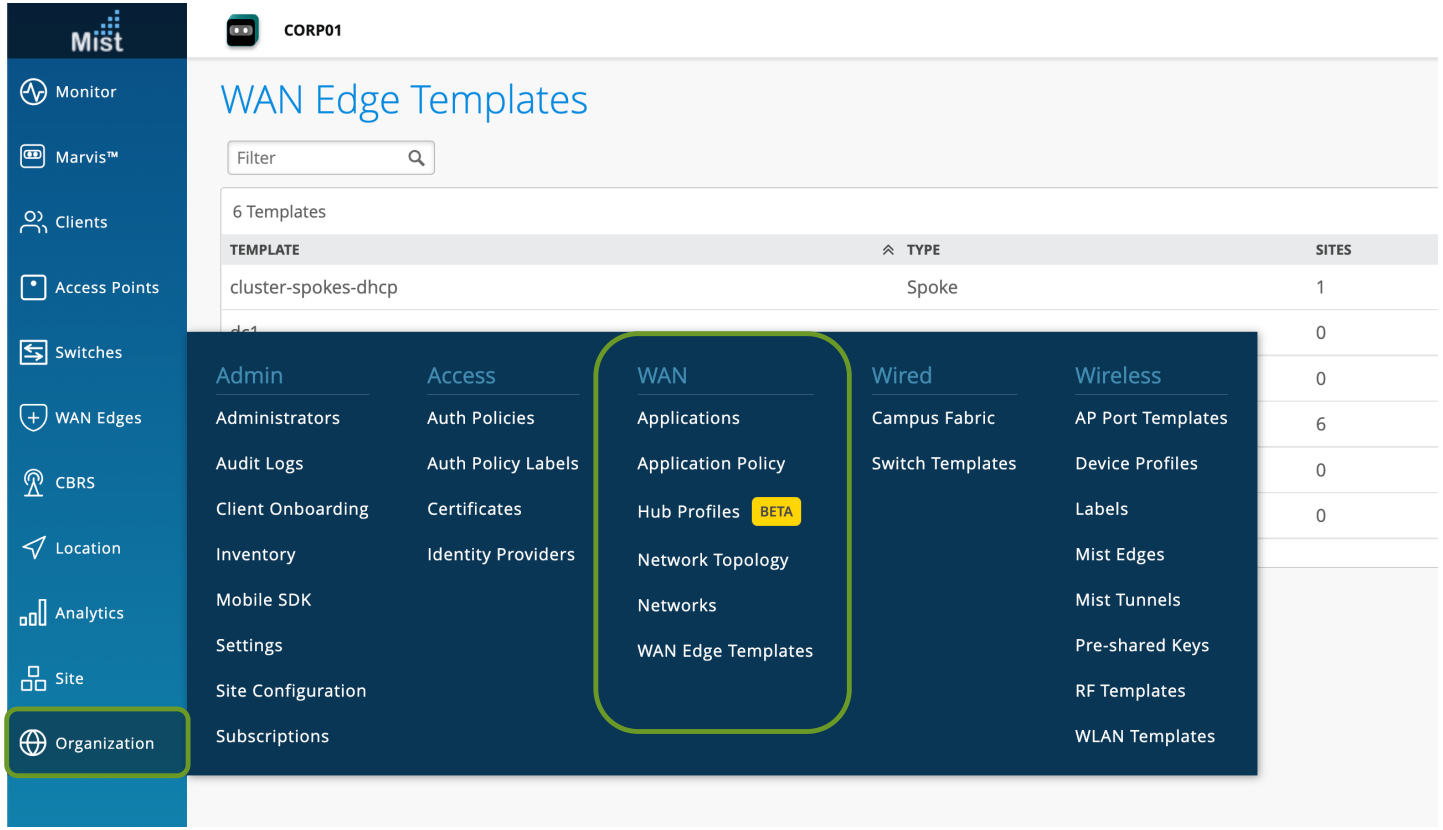
WAN Edge UI navigation



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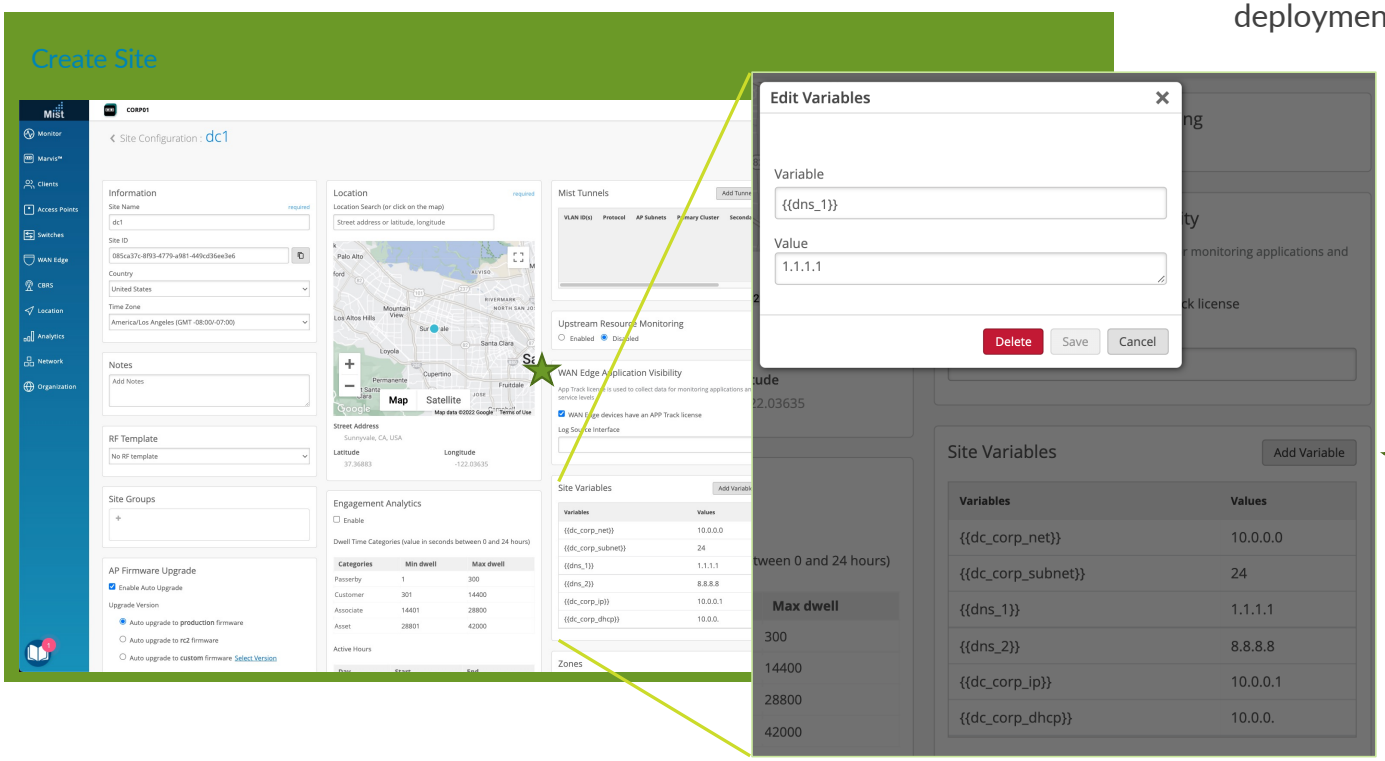
STEP 1: Site Creation and site-specific variables

Site variables provide simplicity and flexibility for deployment at scale



★ Please ensure your device has the application signature package installed. Mist will perform this for you if you enable at the site level (WAN Edge Application Visibility) or on the device.

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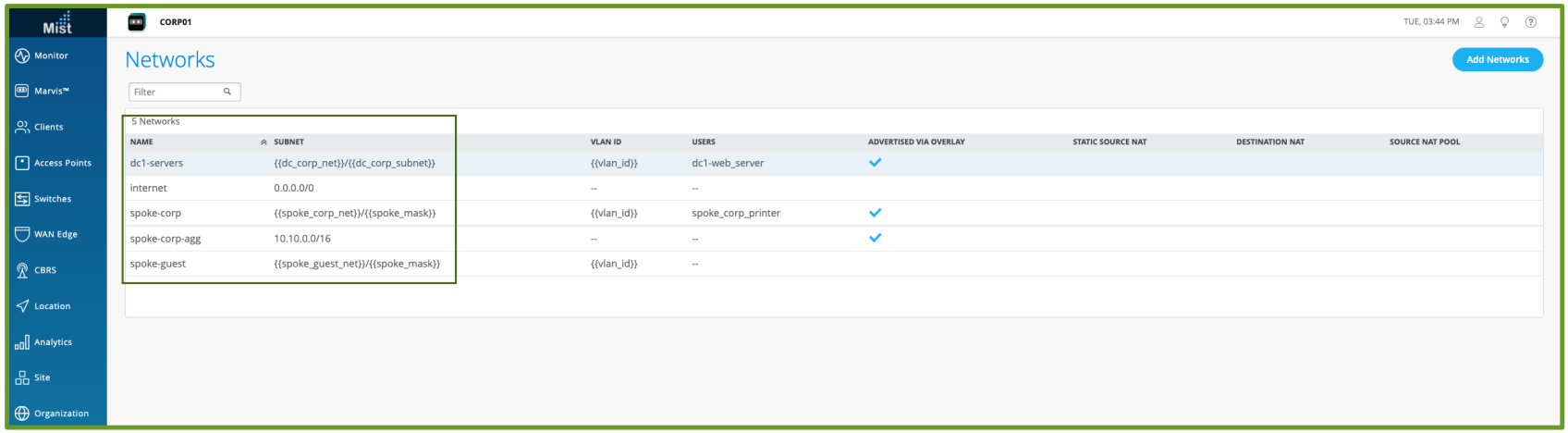
STEP 2: Networks

"***Who***" are my users & devices?

- How is my network segmented?



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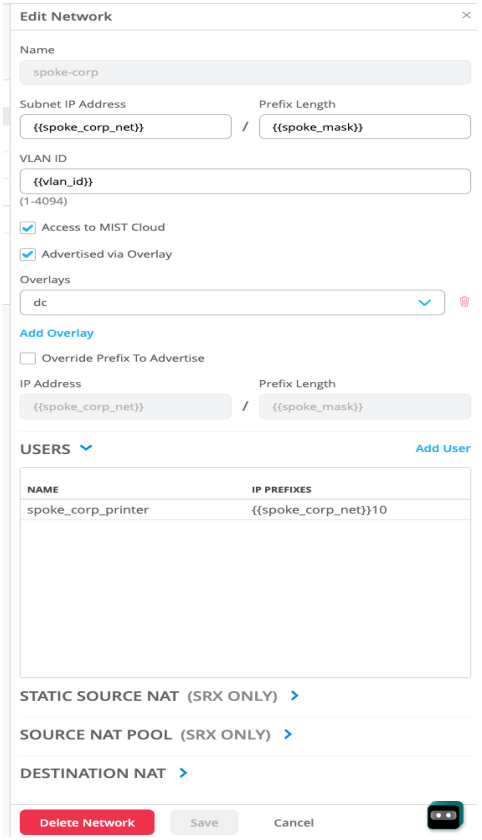
STEP 2: DEFINE the Network

Give your network a name and define the subnet.
For SRX use a default VLAN id of 1 if untagged.

Enable “Access to Mist Cloud” to permit services from this network to the Mist cloud. Enable “Advertise via Overlay” to announce this network via iBGP.

Add users/hosts representing the LAN segments – these will be used as source in service policies.

Support for Source and Destination NAT



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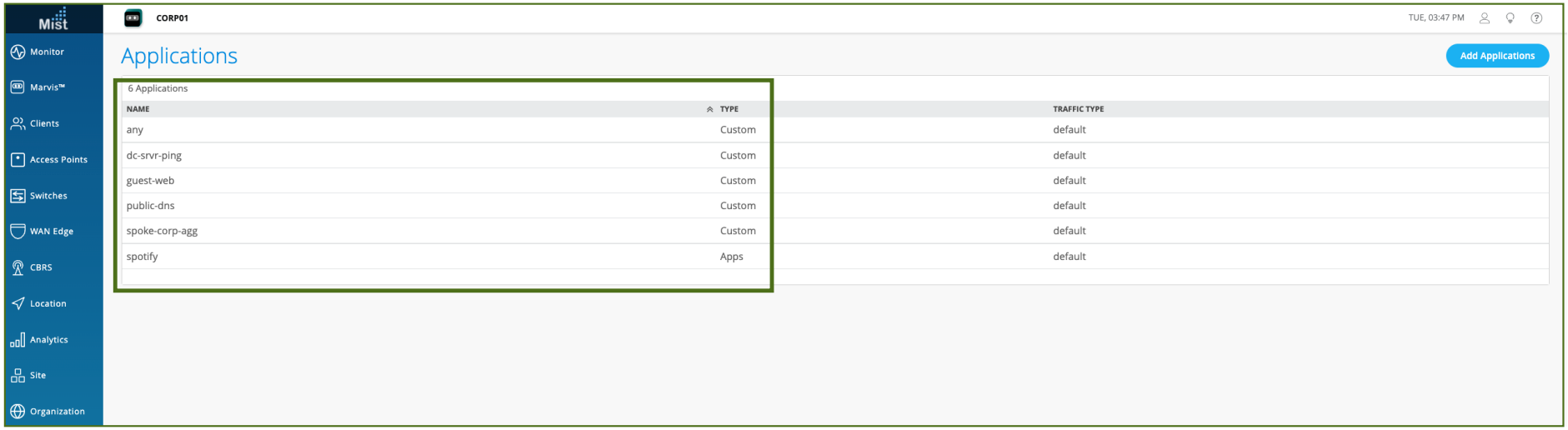
STEP 3: Applications

"***What***" are my users connecting to?

- Network services
- SaaS apps
- Private subnets
- Cloud workloads



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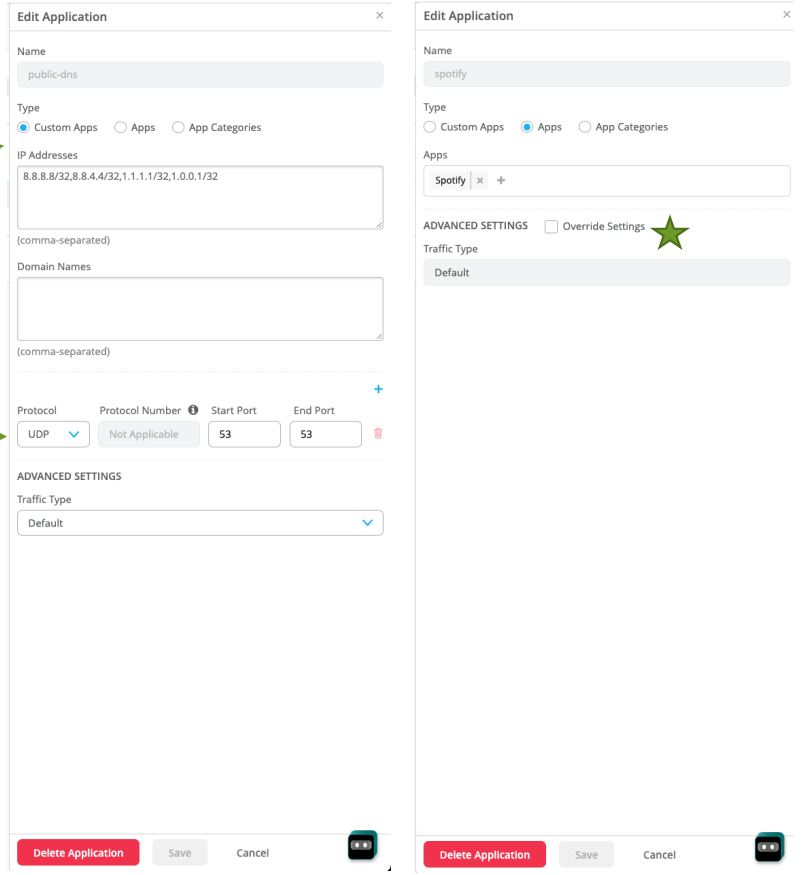
STEP 3: DEFINE applications

Give your application a name and select Custom Apps and provide the IP/Domain along with protocol or select Apps or App categories and choose from the Mist Application list or Application category list.

Support for all protocols including “any”.



★ Advanced Settings not in-scope for Phase 1

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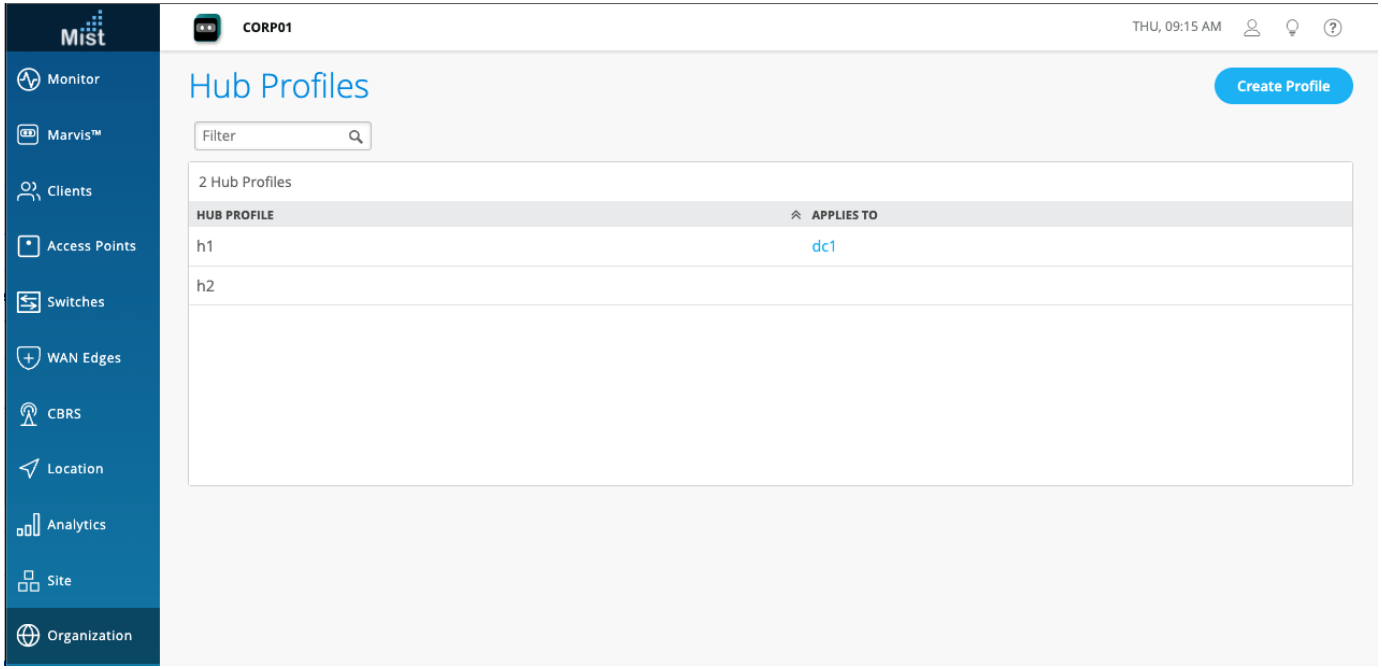
STEP 4: Wan edge Hub Profiles

Hub Profiles are assigned to stand-alone or clustered devices and automate Overlay Path creation. Each WAN link will have a path that can be selected on a Spoke Device/Template.



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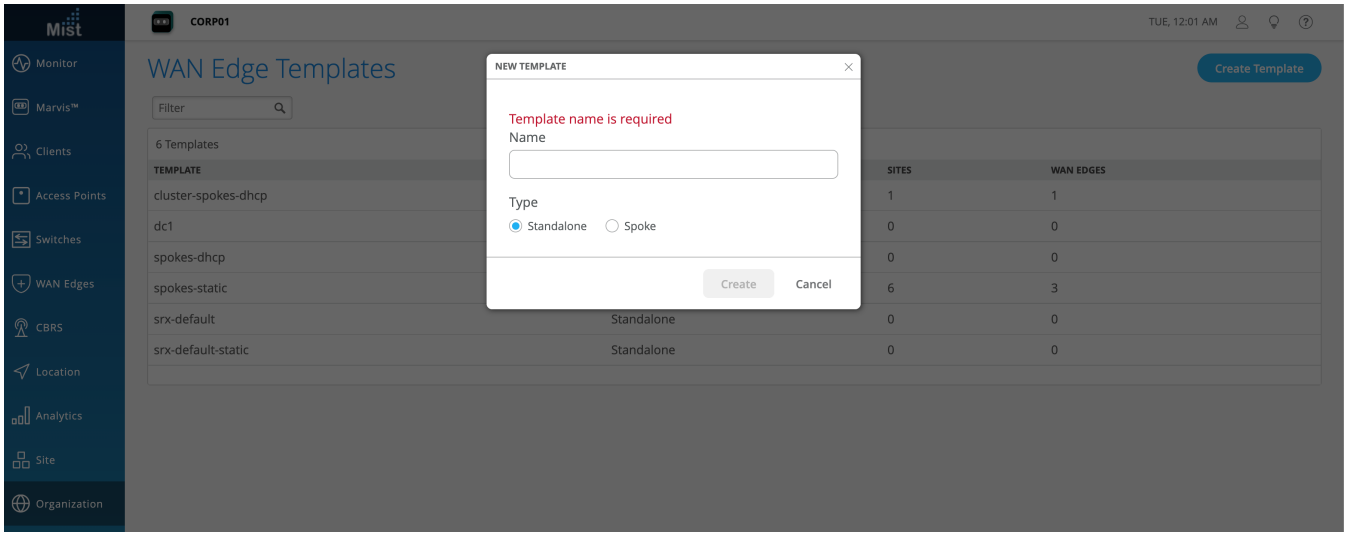
STEP 5: Wan edge templates

This is where the “***who***”, “***what***”, “***where***”, “***how***” constructs come together.

Create a Standalone or Spoke template

Spoke templates are used to connect remote locations to hub devices



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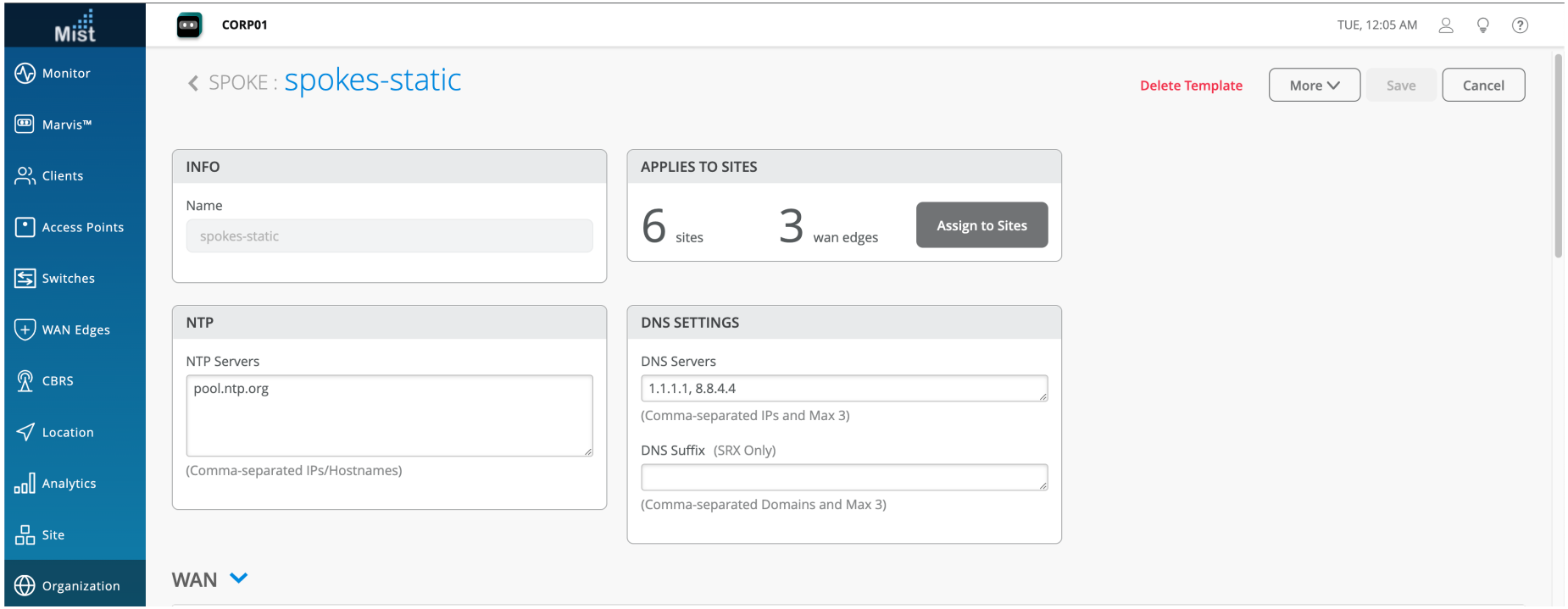
STEP 5: Wan edge template – DNS/NTP settings



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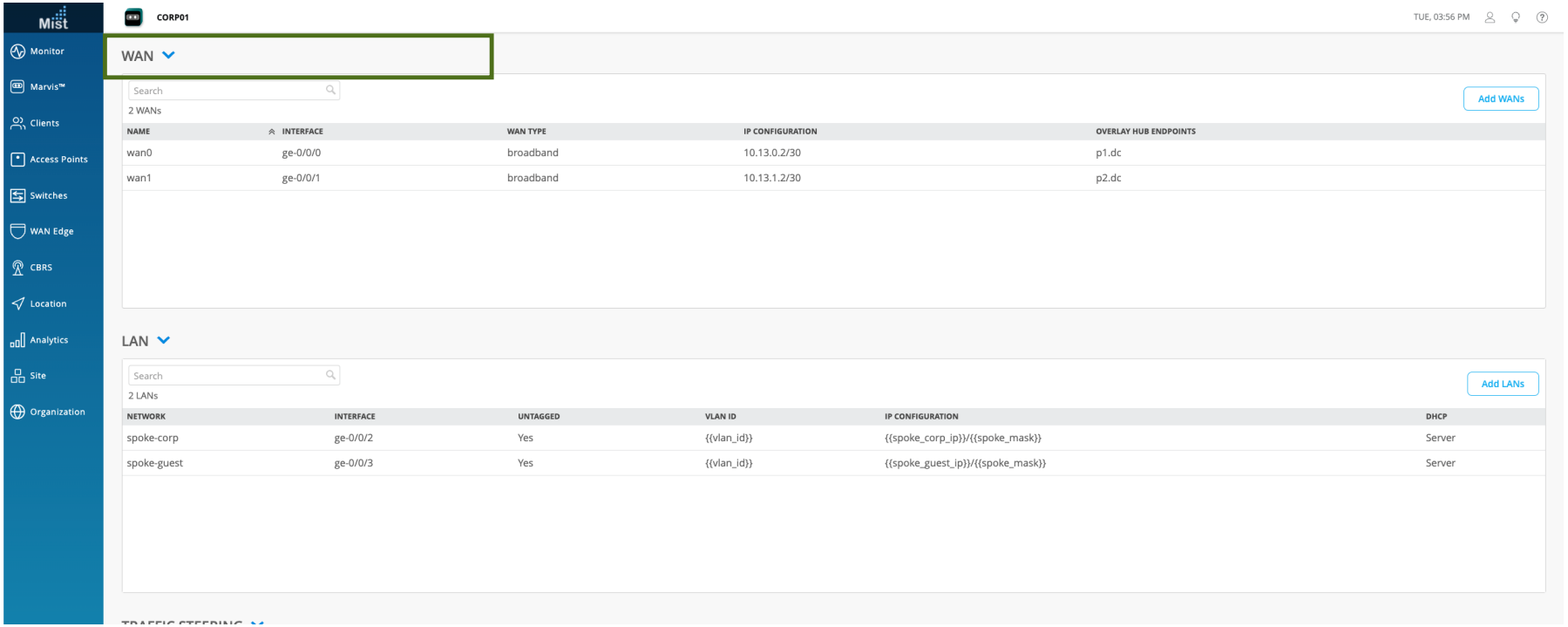
STEP 5A: Wan edge template – Wan



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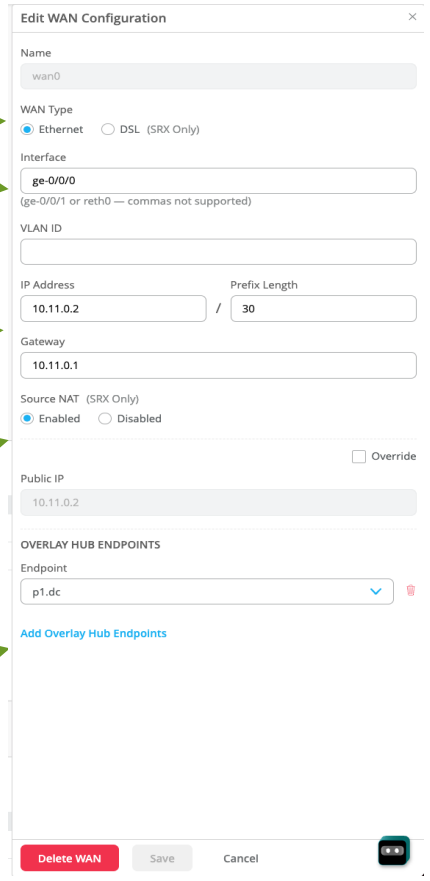
STEP 5A: Wan edge template– wan detail

Name of the security-zone and interface used for your wan link. Add vlan-id if needed. Interface specific options like LTE APN will be shown where necessary.

Static IP/mask of the hub, along with gateway. Spoke can be DHCP.

Select to enable Source NAT and Override the public IP for the Hub if needed when the Hub does not have the IP needed to terminate Auto-VPN.

The endpoint selected here ties the Hub and Spoke together and creates the Auto-VPN tunnel.



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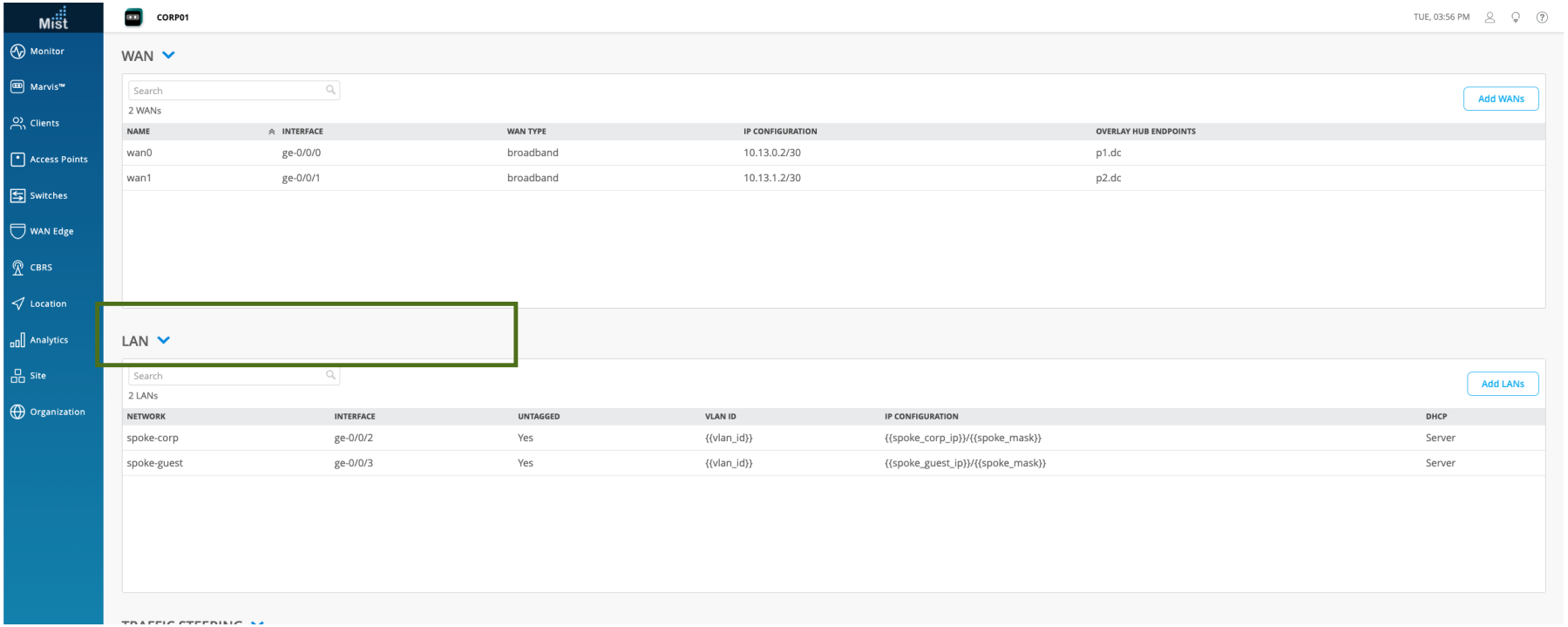
STEP 5B: Wan edge template – lan



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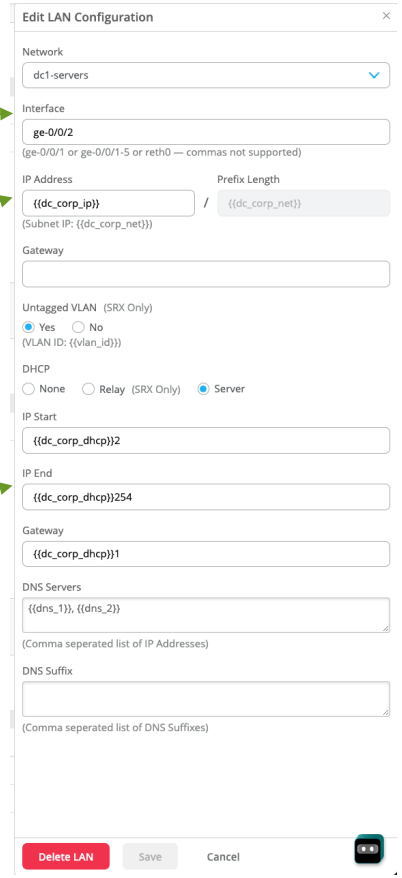
STEP 5B: Wan edge template– lan detail

Pick the LAN Network from the drop-down list and assign an interface.

Insert related IP info and select Yes/No based on untagged/tagged VLAN.

Configure DHCP Relay or Server as well as DNS Servers and Suffix.



**Gateway does not apply to SRX

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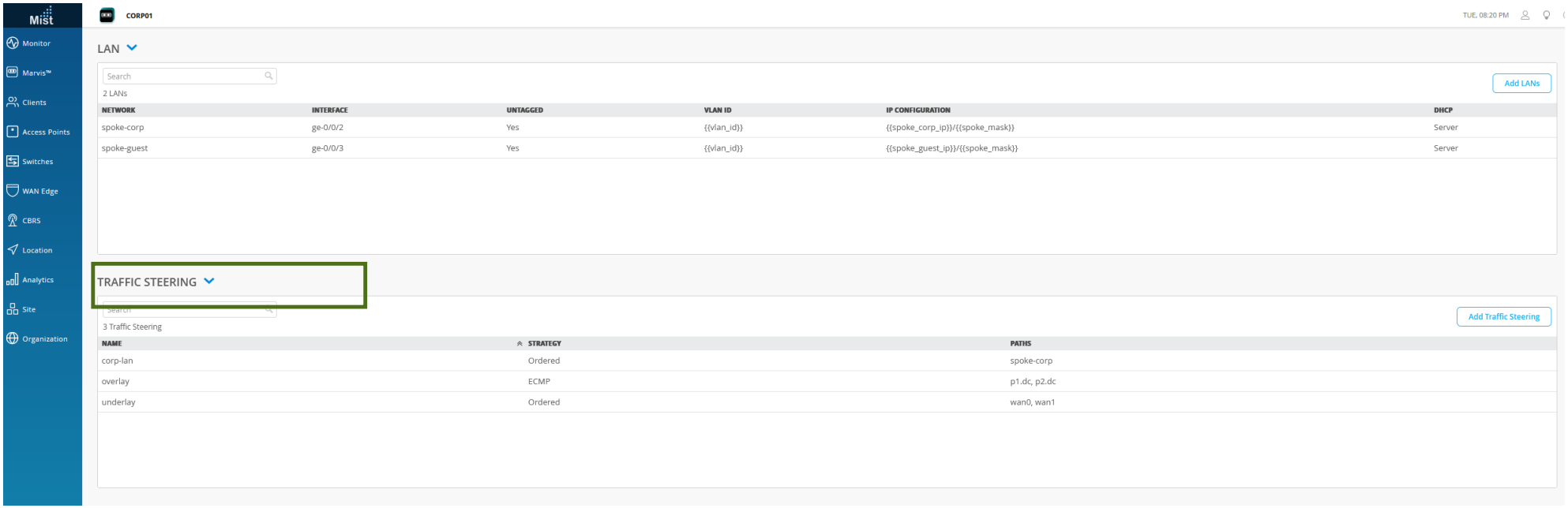
STEP 5C: Wan edge template – traffic steering

"***How***" to steer the user traffic?

- Path preference
- Routing , Overlay, Underlay
- SLA
- QoS



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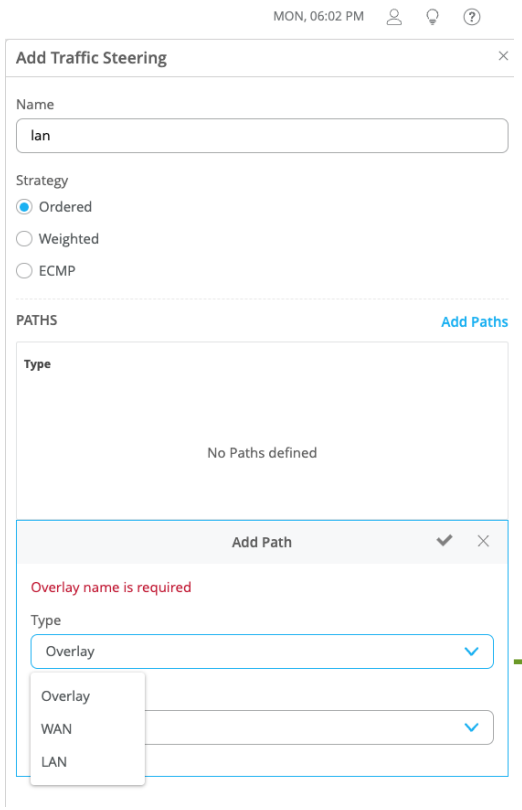
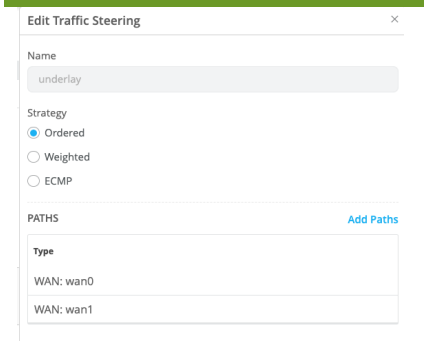
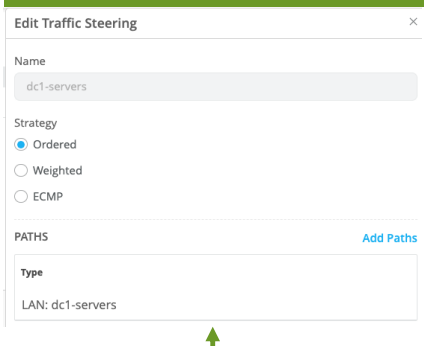
STEP 5C: Wan edge template– traffic steering detail



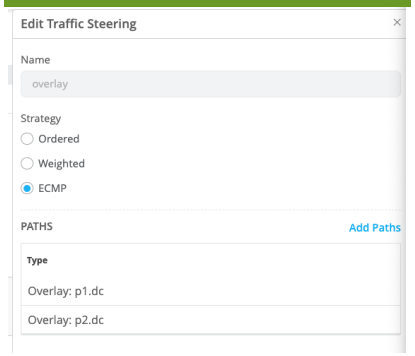
Underlay Path
- Phase 1 supports Ordered only.



LAN Path
- Phase 1 supports Ordered only.



Overlay Path
- Phase 1 supports ECMP only.



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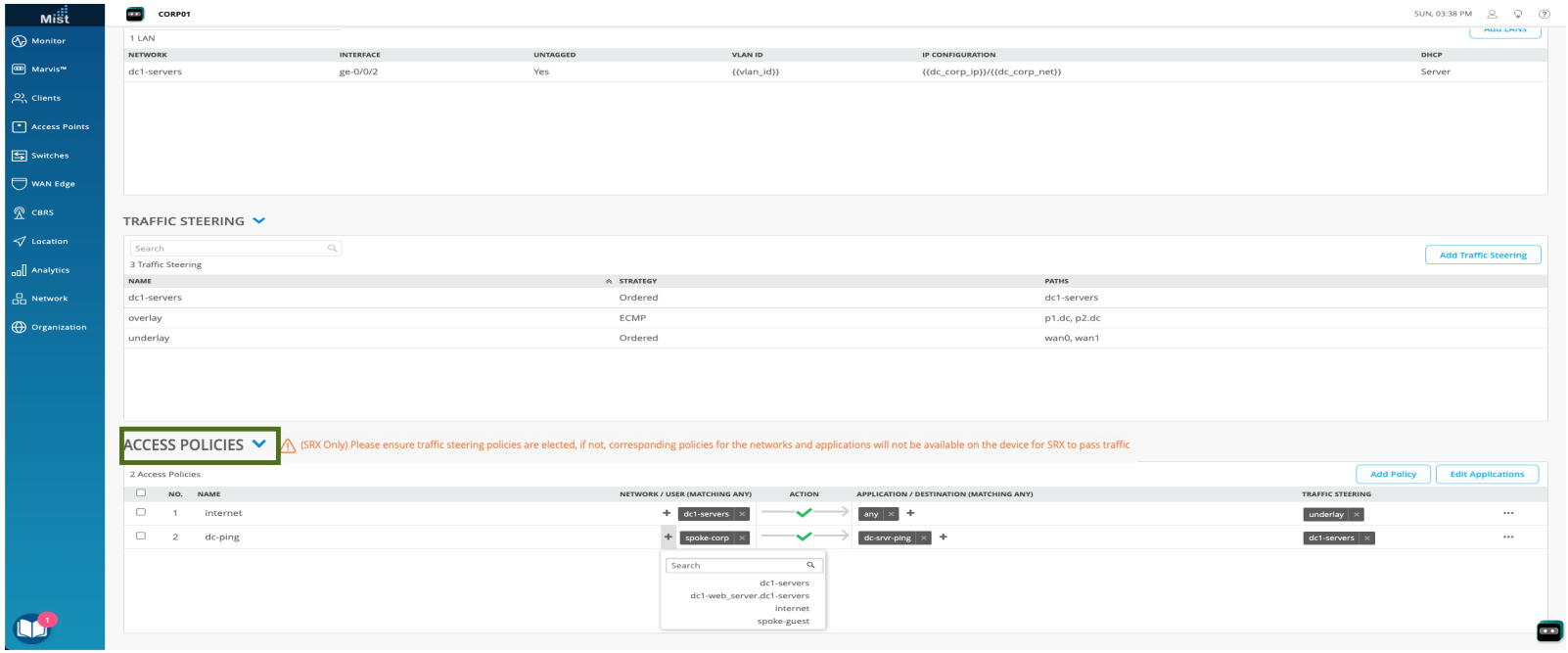
STEP 5D: Wan edge template – access policy

"**Who**" can access "**what**" and "**how**" ?



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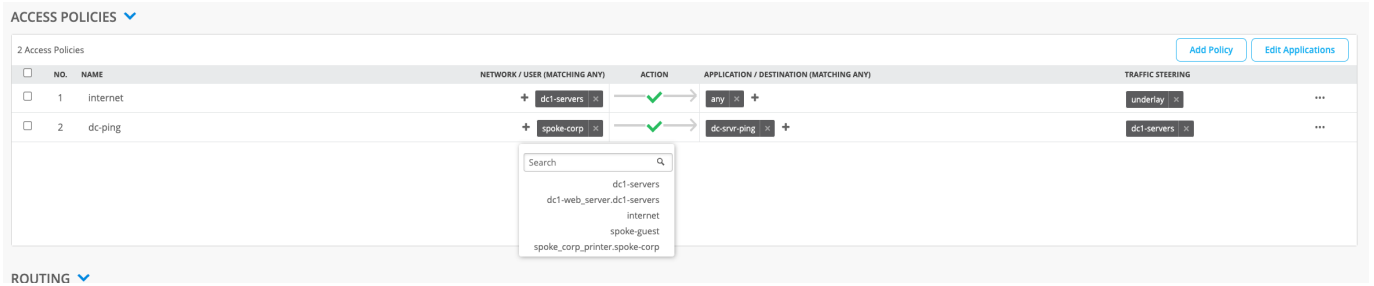
STEP 5D: Wan edge template – access policy detail

Access policy consists of:

- Name
- Network/User (source)
  - Selected from the network/users already defined under Network
- Action – Permit or Deny
- Application / Destination
  - Selected from the application(s) already define under Applications
- Traffic Steering Path
  - Select from the Paths already defined for traffic steering.
  - Destination zone is determined by the traffic steering path

Note: Traffic steering is mandatory for SRX in Access policy



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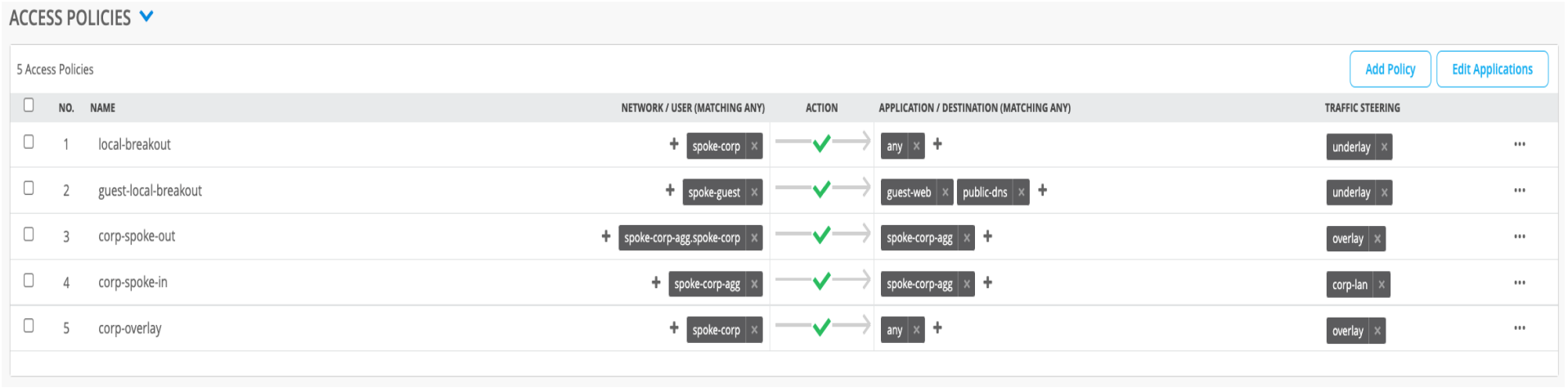
STEP 5D: Wan edge template – access policy spoke example



Policy 1 - addresses local breakout via underlay.

Policy 2 - addresses local breakout via underlay for guest allowing only ports tcp/80,tcp/443,udp/53

Policy 3&4 - addresses spoke<->spoke traffic out/in using aggregate network attached to overlay.

Policy 5 - addresses Internet breakout via overlay at the Hub .

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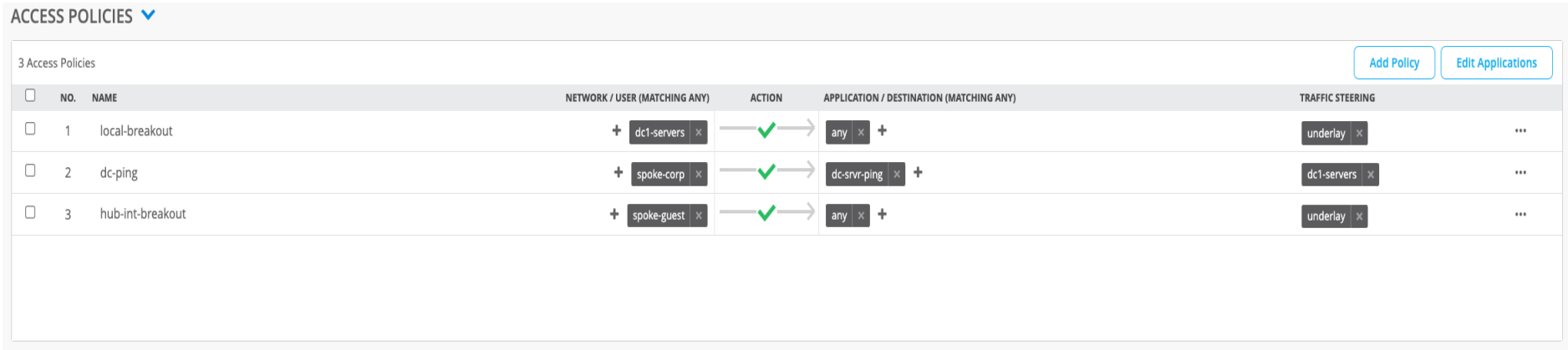
STEP 5D: Wan edge template – access policy hub example



Policy 1 - addresses local breakout to internet via underlay.

Policy 2 - addresses connectivity to a server behind the Hub.

Policy 3 - addresses Internet breakout at the Hub – here spoke-guest network breaks out to Internet at the hub using Hub underlay.

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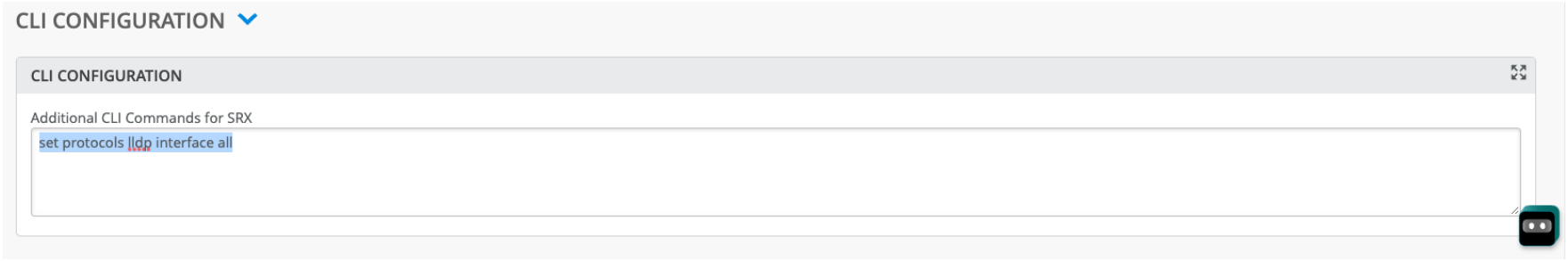
STEP 5E: Additional cli

For configuration settings that are not natively supported in Mist model use the Additional CLI commands. Additional CLI is available within the template and at the device level. Additional CLIs from the template are merged with the CLIs at the device level.



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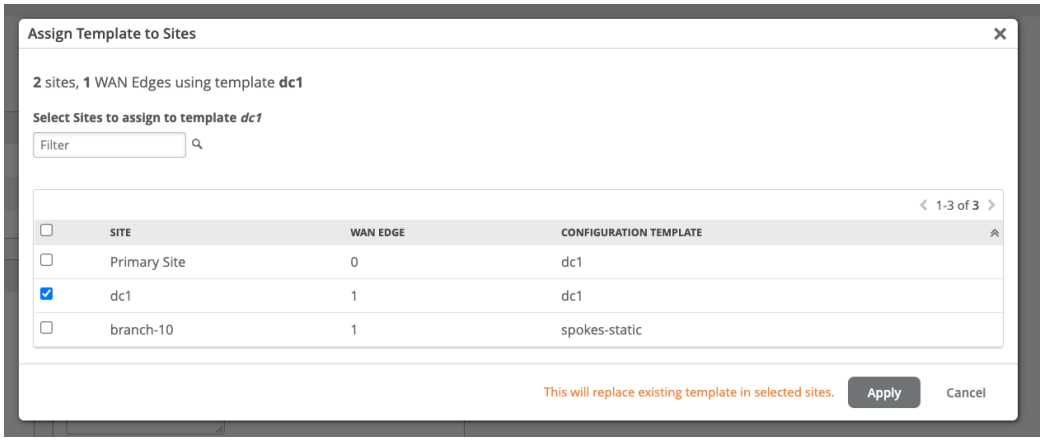
STEP 6: Wan edge template – site assignment

Assign the WAN Edge template to site (s)



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