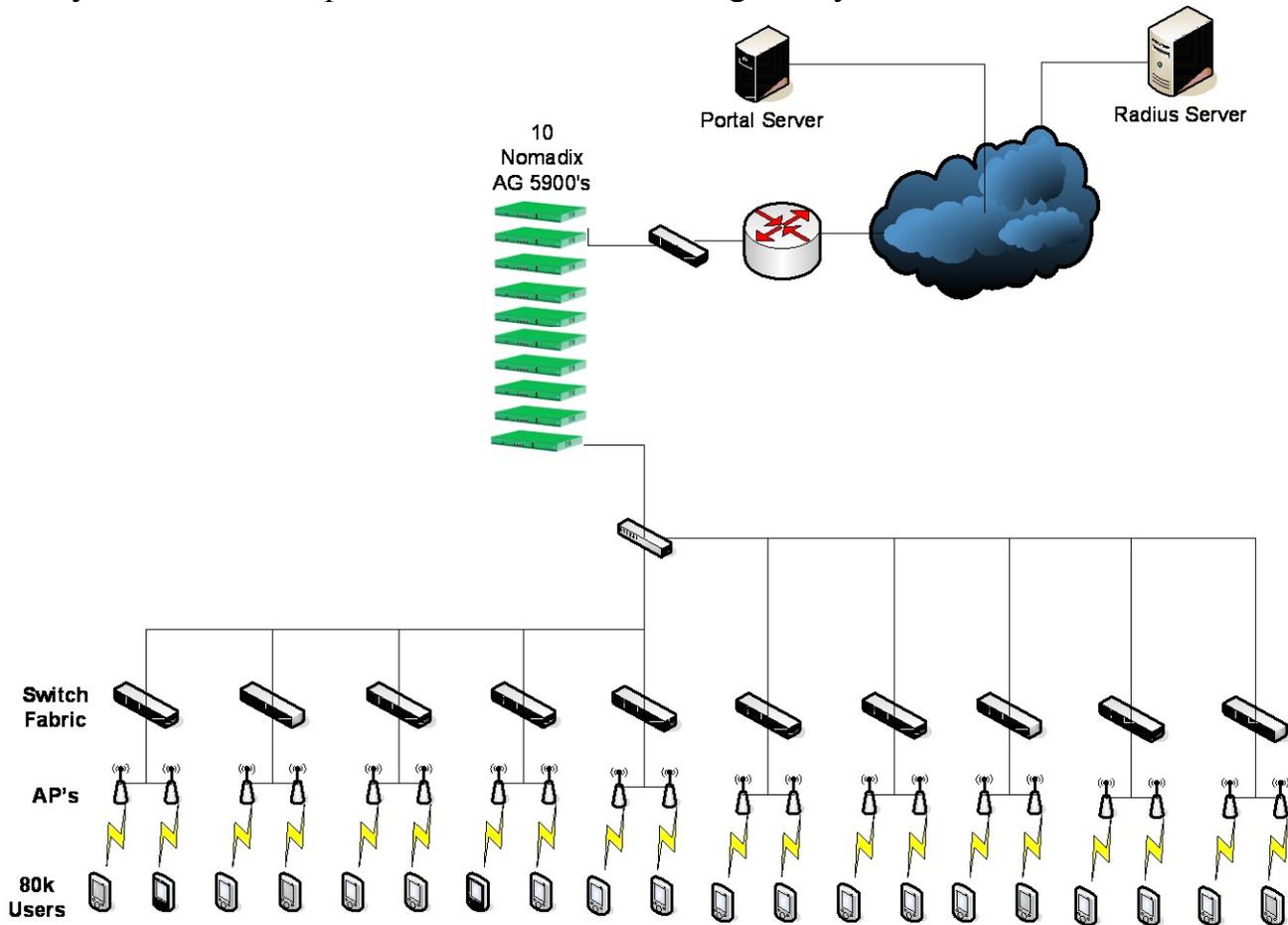


How to Configure Clustering

Function:

Clustering allows multiple Nomadix gateways on the same network segment, providing the ability to service enterprise-scale networks. Each gateway sees all LAN traffic.



Considerations before enablement:

- Guest management and handling Configurations match between all gateways in the cluster (AAA, Billing plans, HPR, Radius, etc.)
- DHCP scopes are non-overlapping between Gateways. Server IP's can be same but Leases cannot overlap
 - Each Gateway in the Cluster needs Unique WAN, INAT, and Multi- NAT addresses
 - All gateways need the same Subscriber License count

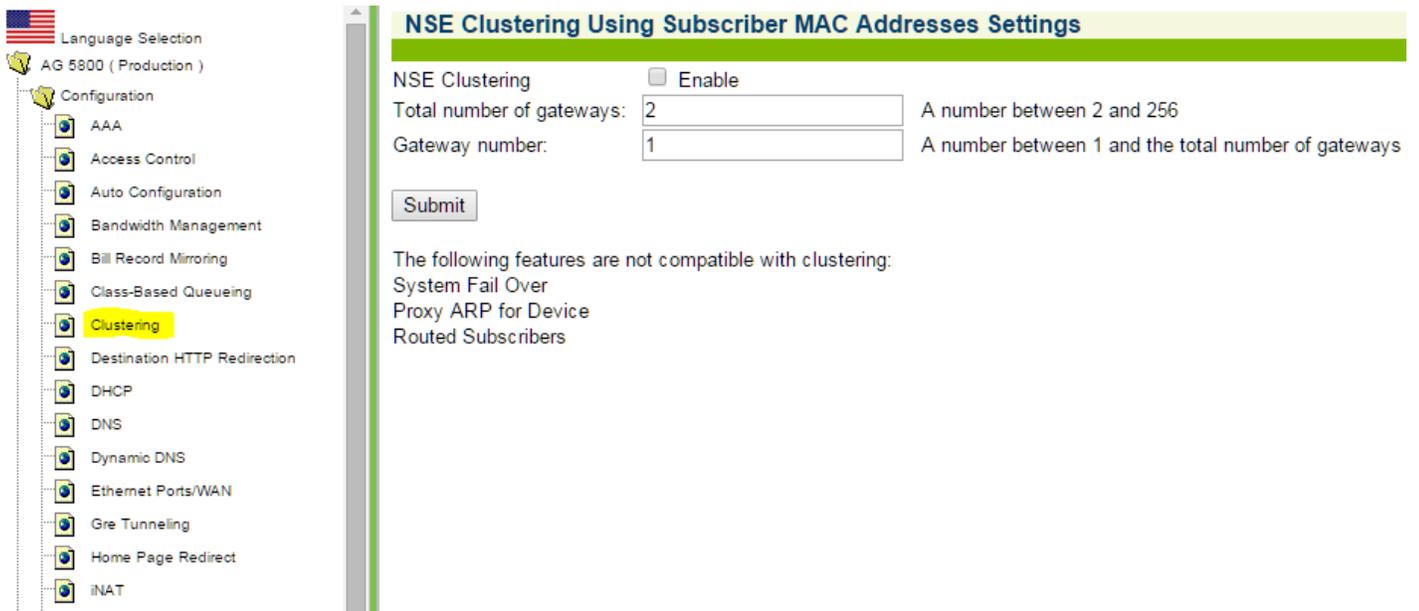
Configuration:

Navigate to Configuration -> Clustering and enable the feature.

Enter the total amount of gateways in the cluster.

Provide the unique number of each gateway. For instance with 2 gateways in a cluster the first configured would be 1, second configured 2.

Submit the changes.



The screenshot displays the configuration page for 'NSE Clustering Using Subscriber MAC Addresses Settings'. On the left is a navigation tree with 'Clustering' highlighted. The main content area shows the following settings:

- NSE Clustering**: Enable
- Total number of gateways:** (A number between 2 and 256)
- Gateway number:** (A number between 1 and the total number of gateways)

A 'Submit' button is located below the input fields. A warning message states: 'The following features are not compatible with clustering: System Fail Over, Proxy ARP for Device, Routed Subscribers'.

Install the gateways and connect through an L2 switch as shown in the first diagram.

PMS connections are required on each gateway

After Installation Considerations:

To determine what Gateway a specific Device would be managed by:

Modulus Calculation Formula: $(L3MAC \text{ MODULUS } TNG) + 1 = \text{Gateway Managing MAC}$

Example MAC: 50-46-5D-E9-B4-E2

- Last Three bytes of Device MAC address (L3MAC) = E9B4E2
- Total Number of Gateways (TNG) = 5

Using Windows Calculator in Programming and Hex mode to do the modulus calculation
 $(E9B4E2 \text{ MODULUS } 5) + 1 = (4) + 1 = 5$

So the example MAC would be managed by Clustered Gateway 5

Static Port Mapping would be configured on the gateway matching the modulus calculation for that device.

Communication with internal devices requires the guest and device MAC be in the same IP subnet and VLAN. Testing indicates not entering the MAC address as a Device has a higher success rate as long as the device is active on the network.

Intra-port Communication support requires VLAN's to be identically configured on all gateways and the guests on the same IP subnet.

Current Limitations to Clustering:

- No Failover (High Availability) Support
- No Proxy Arp for Device Support
- No Routed Subscriber Support

If a gateway has a hardware failure Clustering must be reconfigured to provide access for guests serviced by the failed gateway.