Silver Peak

AWS EC-V for Multi-Instance Inbound Load Balancing

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Silver Peak AWS EC-V for Multi-Instance Inbound Load Balancing Guide

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Silver Peak Systems, Inc.
2860 De La Cruz Boulevard
Santa Clara, CA 95050

1.877.210.7325 (toll-free in USA)
+1.408.935.1850

http://www.silver-peak.com/support

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For product and technical support, contact Silver Peak Systems at either of the following:

1.877.210.7325 (toll-free in USA)
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Contents

Summary

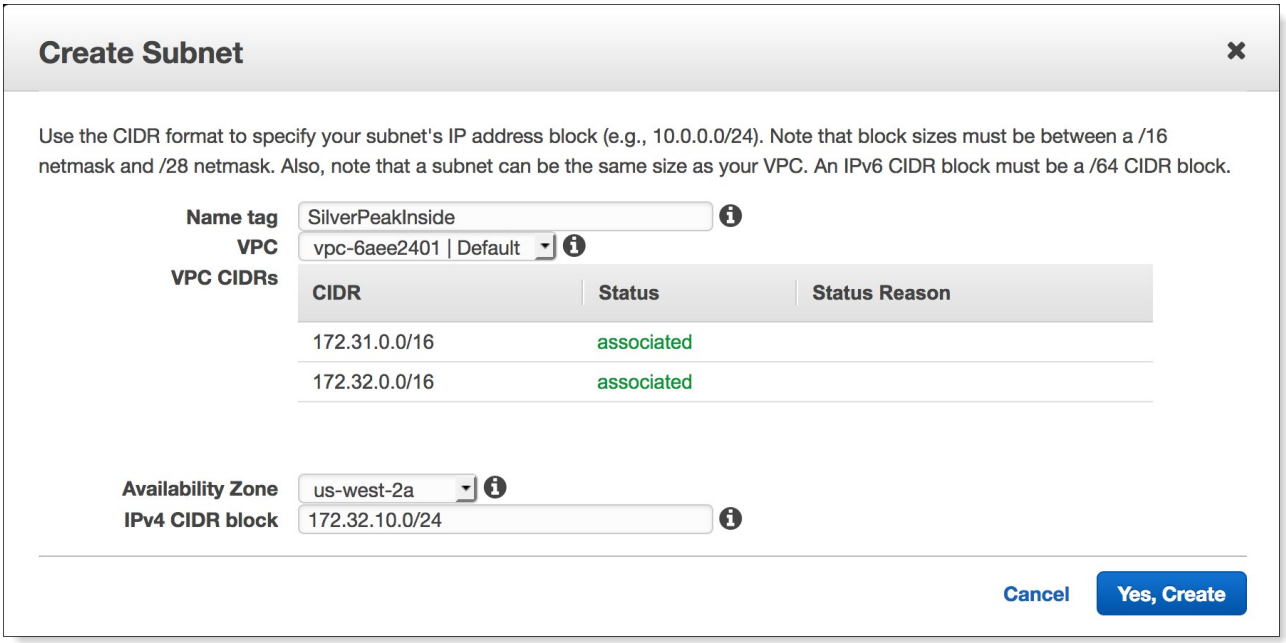
This set-up uses the inherent load balancing mechanism of the EdgeConnect platform routing engine to equally distribute load across multiple EdgeConnect virtual instances in AWS to achieve multi-gigabit ingestion of traffic.

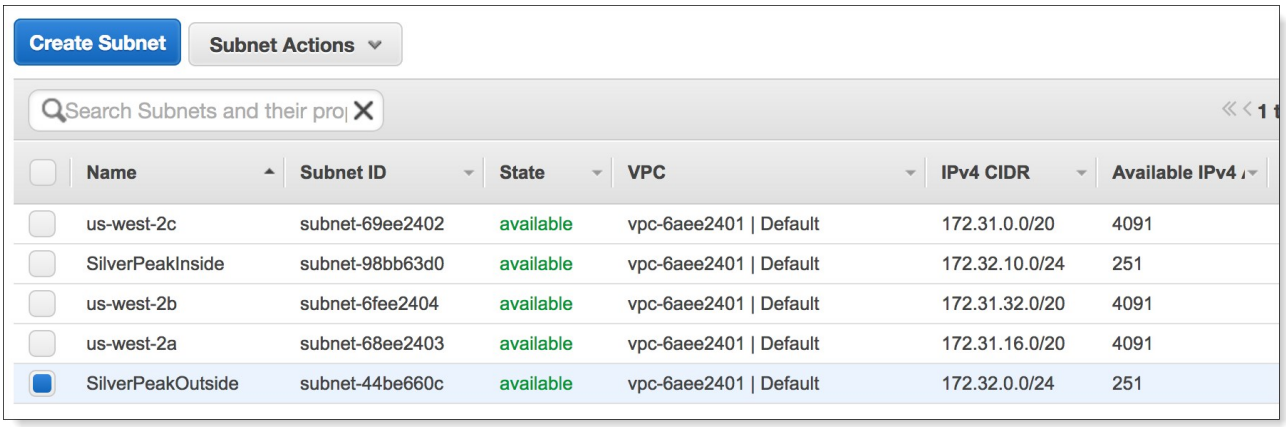
By advertising the same subnet across multiple appliances with an equal cost metric, combined with SNAT, Silver Peak is able to effectively load balance traffic across multiple appliances, while eliminating asymmetric network conditions to achieve scalable, high capacity performance into AWS. This document covers the design for 5Gbps of ingestion using a Silver Peak EC-XL which is capable of 5Gbps of optimization on-premise and 5 x EC-V virtual appliances in AWS, each capable of 1Gbps.

This document covers load balancing into AWS for traffic initiated on-premise.

Step 1 – Configure Subnets in AWS

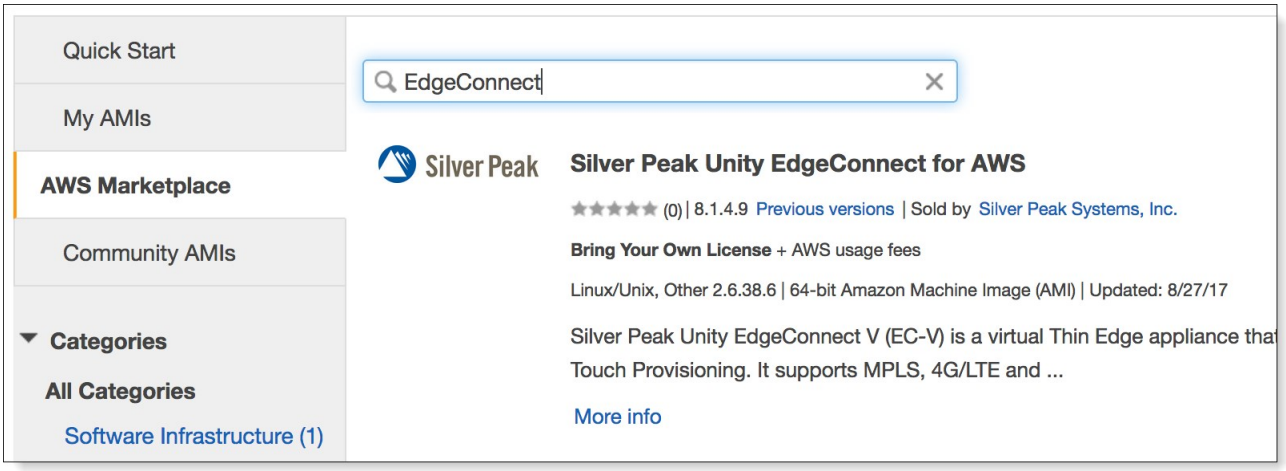
1. From the AWS console, go to **Services > VPC** and select **Subnets** from the menu.
2. Create **Outside** & **Inside** subnets in the relevant **Availability Zone**:



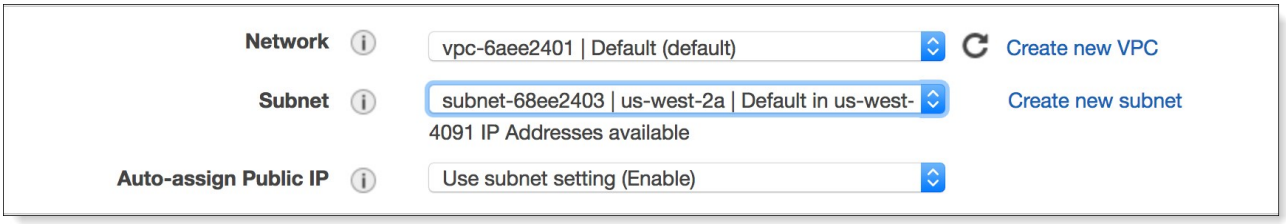


Step 2 - Setting up an instance

1. Go to **Services > EC2**, select **Instances**, then **Launch Instance**.
2. Select **EdgeConnect AMI**.



3. In Step 3 of the Wizard, the initial interface is for management; others are assigned after creation.



4. Add ports for **HTTPS** & **IPSec**.

Type	Protocol	Port Range	Source		Description
HTTP	TCP		Custom	0.0.0.0/0	e.g. SSH for Admin Desktop
SSH	TCP		Custom	0.0.0.0/0	e.g. SSH for Admin Desktop
Custom Prot	ESP (50)	all	Custom	0.0.0.0/0	e.g. SSH for Admin Desktop
Custom UDP	UDP	500	Custom	0.0.0.0/0	e.g. SSH for Admin Desktop
HTTPS	TCP	443	Custom	0.0.0.0/0	e.g. SSH for Admin Desktop

Add Rule

5. Create or use the existing key pair to connect.

Step 3 - Create & attach network interfaces

1. Navigate to **EC2 > Network & Security > Network Interfaces**.

Create Network Interface

Description spA-wan0

Subnet subnet-44be660c us-west-2a | SilverPeakOutside

Private IP auto assign

Security groups
sg-836379f9 - Silver Peak Unity EdgeConnect for AWS-8-1-4-9-Autoge
sg-01e2297c - Silver Peak with IPSec - This security group was genera
sg-6ce10903 - default - default VPC security group
sg-ca1903b0 - launch-wizard-1 - launch-wizard-1 created 2017-09-12T

Note the MAC address assigned to the two new interfaces:

Details | Flow Logs | Tags

Network interface ID	eni-01d3c530	Subnet ID	subnet-98bb63d0
VPC ID	vpc-6aee2401	Availability Zone	us-west-2a
MAC address	06:6f:83:51:8c:06	Description	spA-lan0
Security groups	Silver Peak with IPSec. view inbound	Owner ID	231411134485

2. Be sure to copy the NI description to the name; you will need this in the next steps.

Name	Network interf	Subnet ID	VPC ID	Zone	Security groups	Description
spA-lan0		subnet-98bb63…	vpc-6aee2401	us-west-2a	Silver Peak with IP…	spA-lan0
8/255		subnet-44be66…	vpc-6aee2401	us-west-2a	Silver Peak with IP…	spA-wan0
	eni-dc2234ed	subnet-68ee24…	vpc-6aee2401	us-west-2a	Silver Peak with IP…	Primary netwo…

Intitial Log in

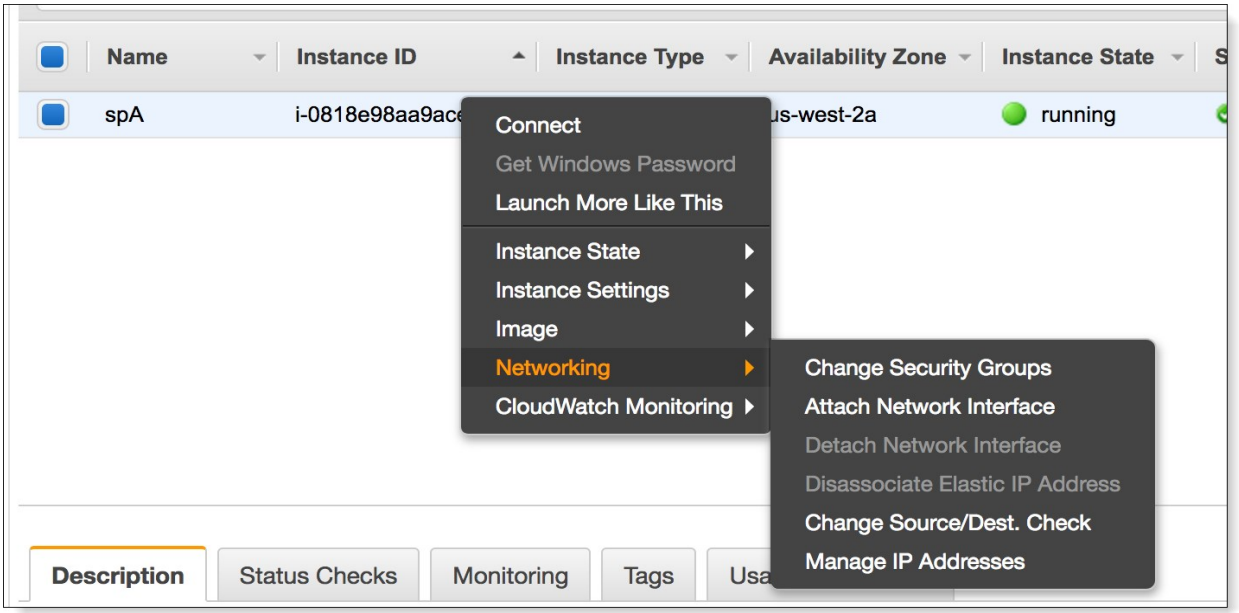
```
Frosty:Dropbox sbiggins$ ssh -i "silverpeak.pem" admin@54.186.249.171
The authenticity of host '54.186.249.171 (54.186.249.171)' can't be
established.
RSA key fingerprint is
SHA256:pJAniT8wiCeClWvYW7IL3uu6E12Oaj4itUf27cExgls.
Are you sure you want to continue connecting (yes/no)? yes
```

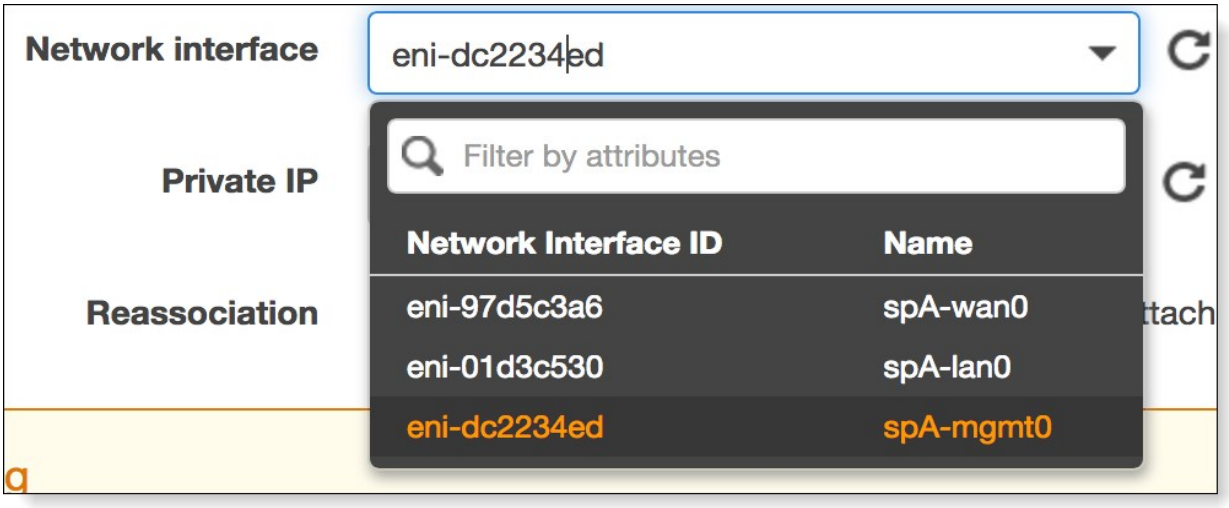
Assign web login credentials:

```
Last login: Tue Sep 26 16:08:57 2017 from 73.225.238.232
silverpeak-094976 > en
silverpeak-094976 # conf t
silverpeak-094976 (config) # username [redacted] password [redacted]
silverpeak-094976 (config) # exit
silverpeak-094976 # wr mem
```

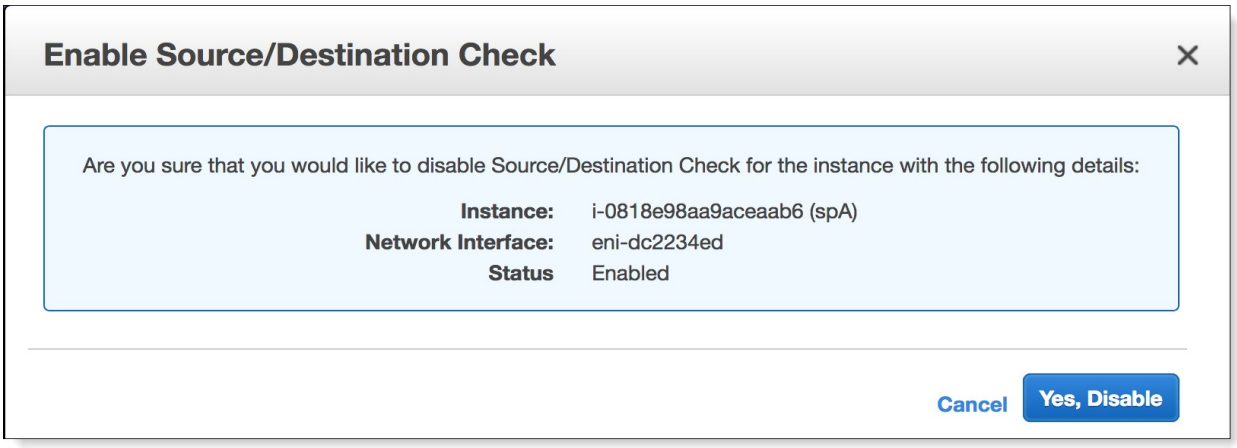
Step 4 - Associating interfaces

1. From **Instances**, right-click the instance, then go to **Networking > Attach Network Interface.**

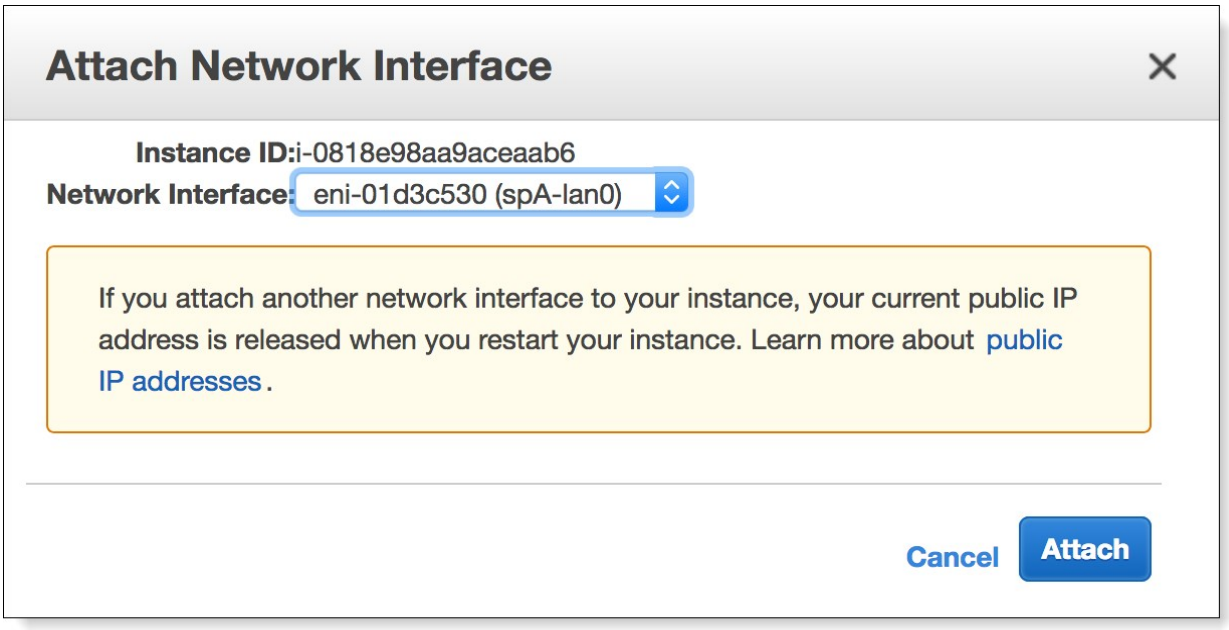




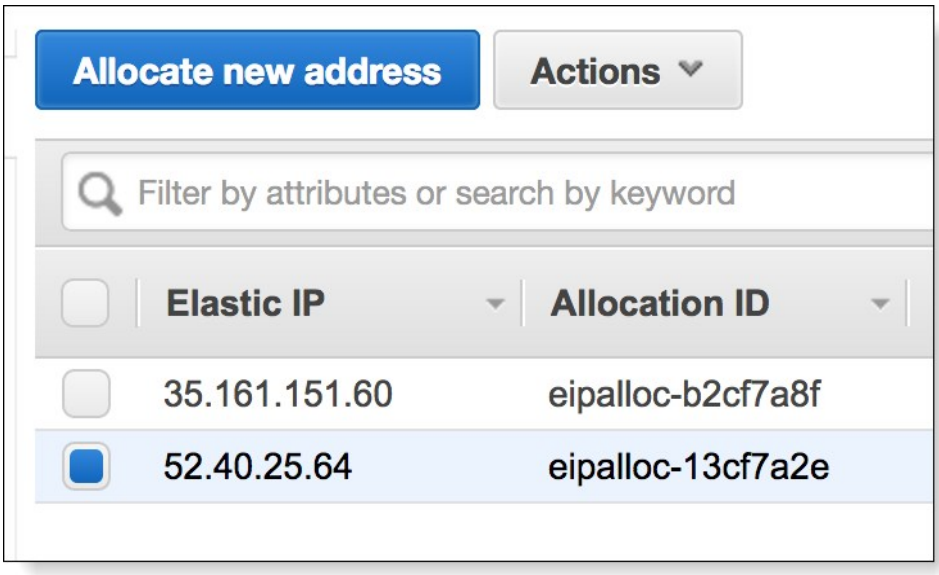
2. Also disable **Souce/Dest Check** in the same Networking menu.



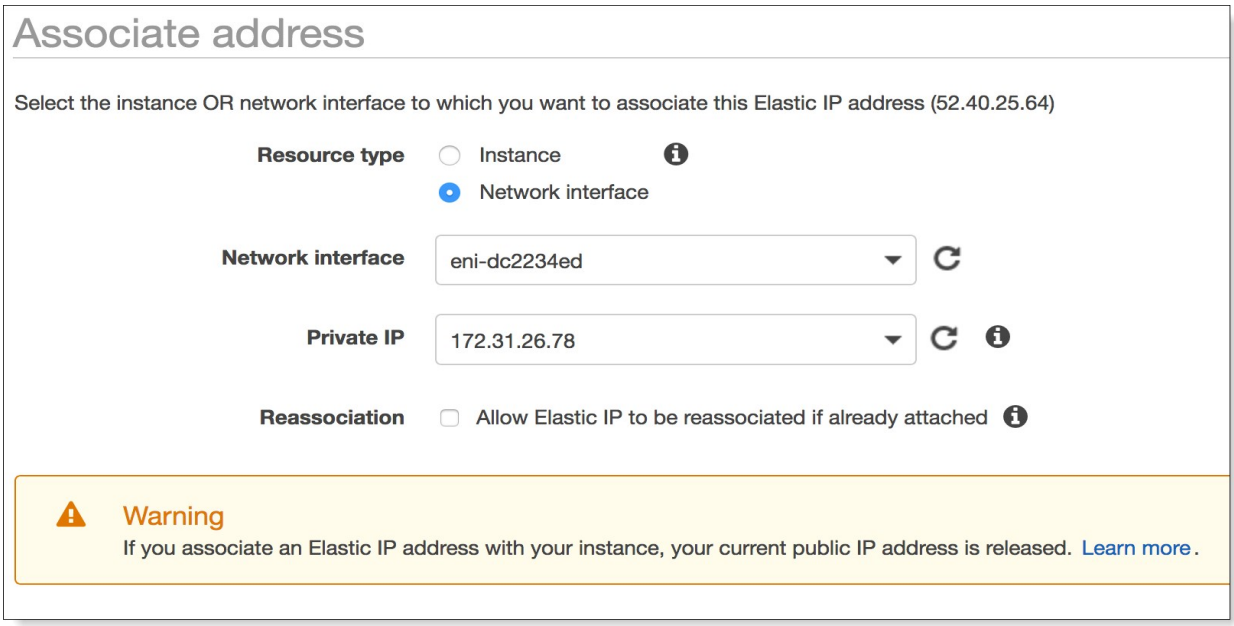
NOTE Attaching additional interfaces will disable the existing public IP on reboot. Elastic IPs need to be manually assigned.



3. Create & attach elastic IPs.
4. Go to **EC2 > Network & Security > Elastic IPs > Allocate new address**.



5. Attach to network interfaces.



6. Reboot the EC instance from the **Instances** view.
7. Log into the EC, then go to **Configuration > Interfaces**. Assign the correct interfaces per the MAC address noted earlier.

Interfaces 5 mins Monitor Statistics

8 Rows, 1 Selected Search

Name	Status	IP Address/Mask	Public IP	Speed	Duplex	MTU	MAC
mgmt0	up	172.31.26.78/20	52.40.25.64	10000Mb/s (auto)	full (auto)	1500	06:CA:3B:3D:E9:50
mgmt1	down	169.254.0.1/16		1000Mb/s (auto)	full (auto)	1500	Unassigned
wan0	up			1000Mb/s (auto)	full (auto)	1500	06:C1:97:81:81:90
lan0	up			1000Mb/s (auto)	full (auto)	1500	06:6F:83:51:8C:06

8. **Save** & Reboot.
9. Open the deployment page to switch the device to routed mode & assign IPs.
10. **Save** & Reboot.

Step 5 - NATing

1. Browse to **Configuration > NAT policies** and create a LAN / Internal facing source-nat policy (in this case, 172.32.10.0/24 was the subnet created and attached to the **lan0** interface).

Advanced Settings

map1 Active | map1 is active Add Map Delete Map Rename Map Show Dynamic Policies

Add Rule 1/300 rules used

2 Rows, 1 Selected

		Set Actions		
Priority	Match Criteria	NAT Type	NAT Direction	NAT IP
10	Dest IP/Subnet 172.32.10.0/24	source-nat	inbound	172.32.10.1
65535	Match Everything	no-nat	none	auto

2. From here, continue setup as normal for EC-Vs: add the account name & key, add to Orchestrator, create and apply overlays, etc.

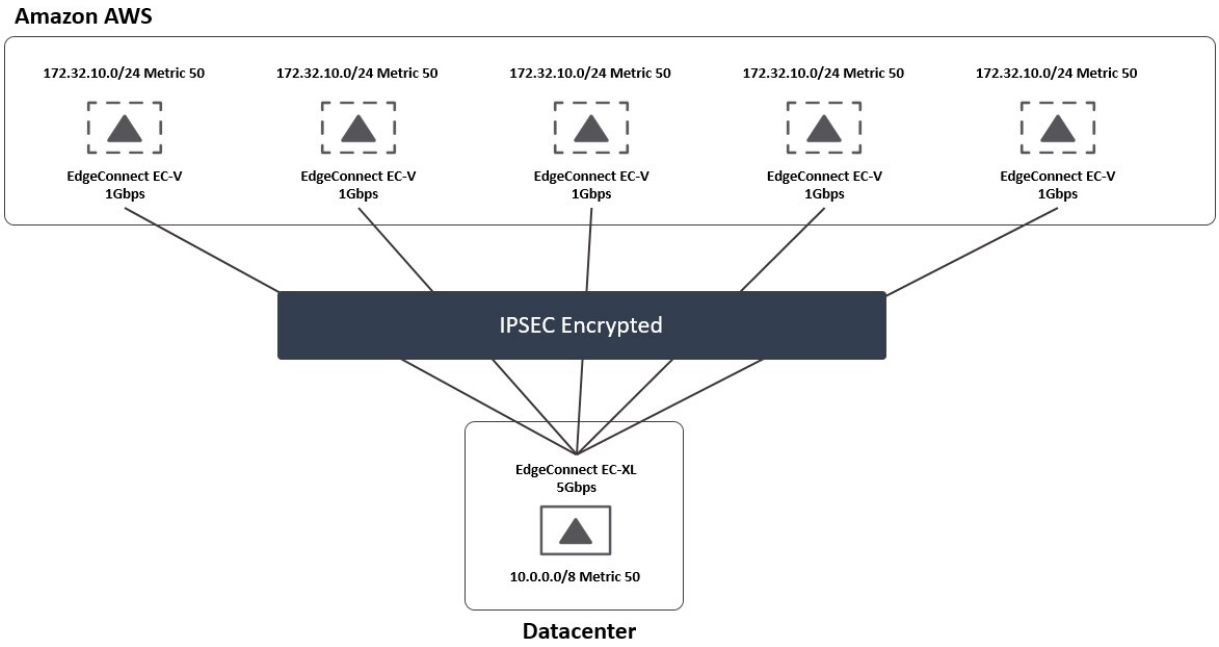
Step 6 Configure Equal Cost Subnet

After the Silver Peak appliances have been configured and the datacenter and Amazon AWS are connected to each, other the last step is to advertise a subnet with equal cost across the 5 appliances running in AWS.

In this example, we are showing that the optimized subnet in AWS is 172.32.10.0/24 and we are advertising it with an equal metric across all 5 Silver Peaks in AWS. The Silver Peak appliance in the datacenter is advertising its own unique subnet of 10.0.0.0/8.

With the same metric being set across all 5 appliances the datacenter Silver Peak will evenly distribute traffic amongst the 5 appliances allowing for 5Gbps of WAN optimized traffic into AWS.

To achieve greater than 5Gbps of optimized capacity more appliances can be added into the datacenter and AWS to distribute load.



Final Result