Integration Guide

VeloCloud SD-WAN Microsoft Route Server

Services

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Chapter 1

VeloCloud SD-WAN and Microsoft Route Server Integration Guide

This document provides instructions for integrating the VeloCloud SD-WAN with Microsoft Route Server.

Chapter 2

About VeloCloud SD-WAN and Microsoft Route Server Integration Guide

The VeloCloud SD-WAN and Microsoft Route Server Integration Guide describes the configurations that are required to integrate the VeloCloud SD-WAN with Microsoft Route Server. For guidance regarding large scale deployments and best practices for Hub and Spoke topologies, contact your SD-WAN Account Representative.

The VeloCloud SD-WAN and Microsoft Route Server Integration Guide includes the following topics:

- VeloCloud SD-WAN and Microsoft Route Server Integration Guide Overview
  - Recommended Architecture
- Integrate VeloCloud SD-WAN with Microsoft Route Server
  - Prerequisites
  - Establish Branch-to-Cloud Connectivity
  - Establish Branch-to-AVS Connectivity

Chapter 3

VeloCloud SD-WAN and Microsoft Route Server Integration Overview

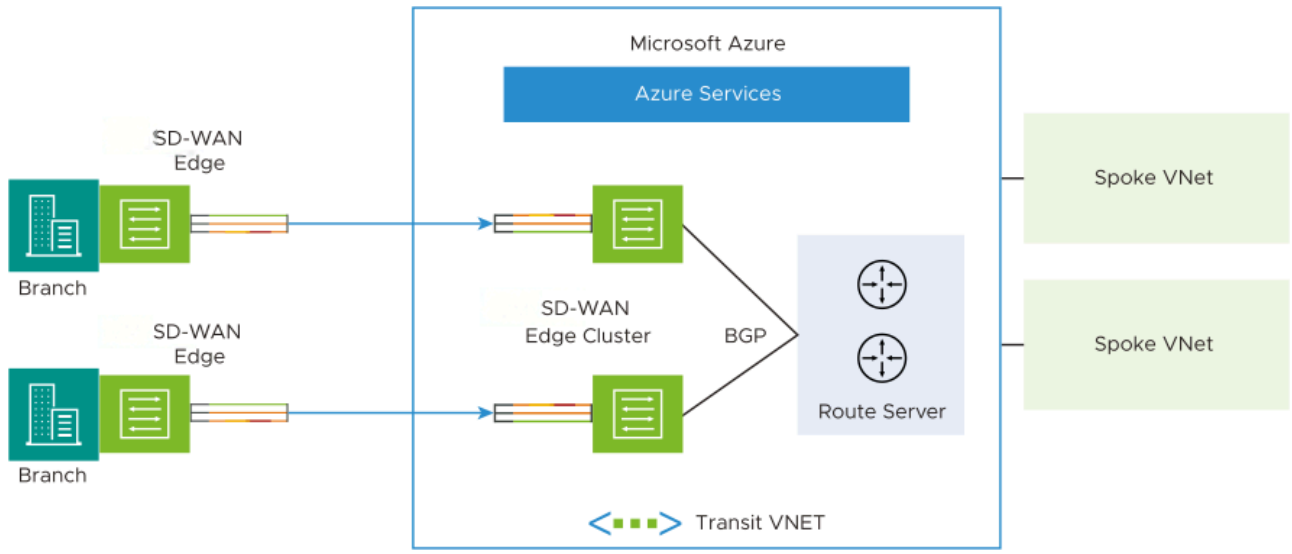
VeloCloud SD-WAN allows you to connect remote locations to Microsoft Virtual Network (VNET) in a simple, optimized, and secure way. This section provides an overview of the VeloCloud SD-WAN and Microsoft Route Server Integration, including recommended architecture.

VeloCloud SD-WAN allows you to connect remote locations to Microsoft Virtual Network (VNET) in a simple, optimized, and secure way. SD-WAN leverages the Dynamic Multi-Path Optimization (DMPO) technologies and distributed cloud gateway coverage across the globe. It transforms the unpredictable broadband transport to enterprise-class quality connections and ensures the application performance from on-premises to Microsoft Azure. Azure Route Server simplifies dynamic routing between your network virtual appliance (NVA) and your virtual network. It allows you to exchange routing information directly through Border Gateway Protocol (BGP) routing protocol between any NVA that supports the BGP routing protocol and the Azure Software Defined Network (SDN) in the Azure Virtual Network (VNET) without the need to manually configure or maintain route tables. Azure Route Server is a fully managed service and is configured with high availability.

Azure Route Server simplifies configuration, management, and deployment of your NVA in your virtual network.

The following diagram depicts the branch-to-cloud connectivity using VeloCloud SD-WAN and Microsoft Route Server:

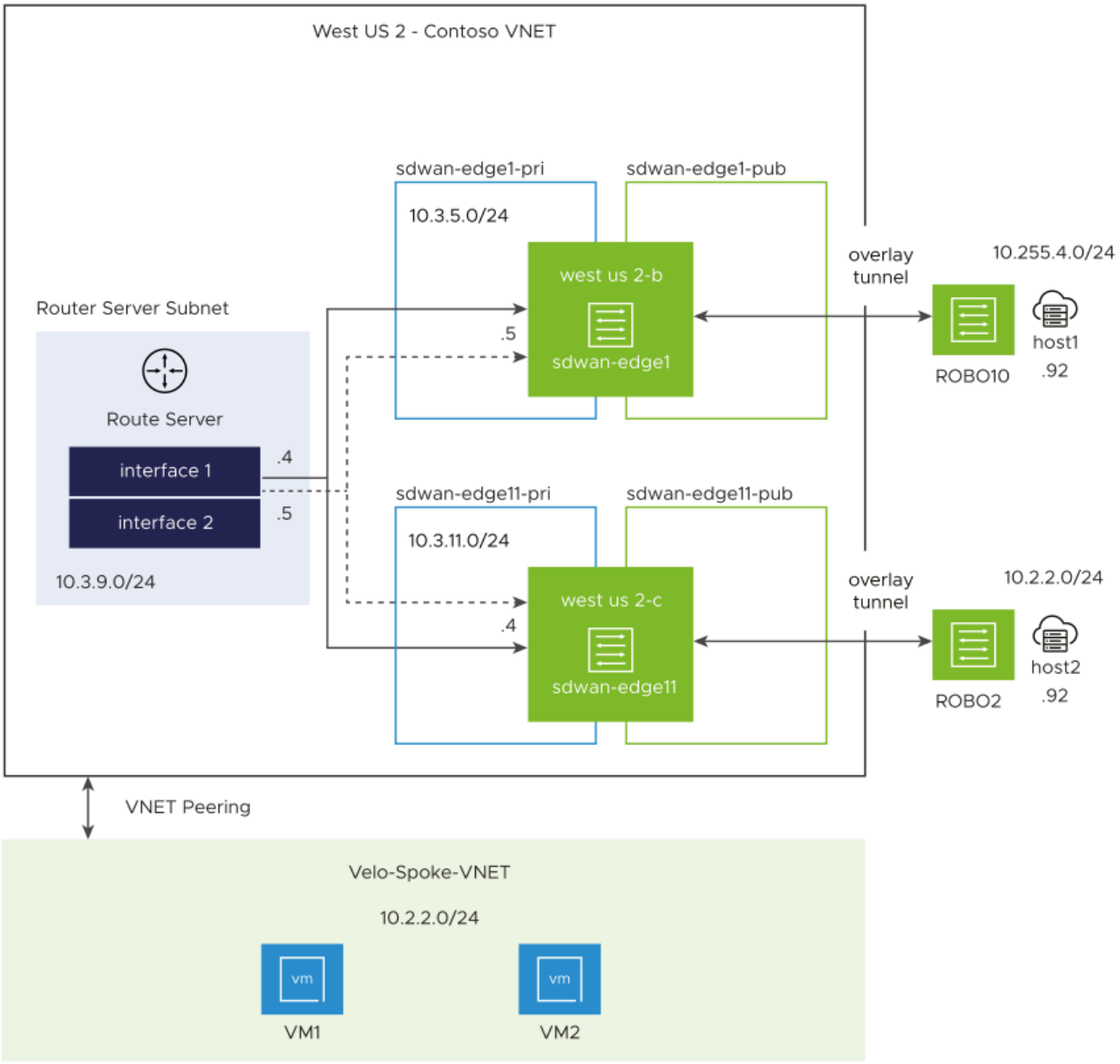
Figure 3-1: Branch-to-Cloud Connectivity using VeloCloud SD-WAN and Microsoft Route Server



Recommended Architecture

The recommended architecture is to have a hub VPC and this hub VPC should not contain any workloads other than the Network Virtual Appliance. The following diagram depicts the hub and spoke topology based on the recommended architecture:

Figure 3-2: Recommended Architecture- Hub and Spoke Topology



For additional information about Hub-Spoke network topology in Azure, refer to Hub-spoke network topology in Azure.

Chapter 4

Integrate VeloCloud SD-WAN with Microsoft Route Server

You can integrate VeloCloud SD-WAN with Microsoft Route Server for the Establish Branch-to-Cloud Connectivity and Establish Branch-to-AVS Connectivity use cases.

Prerequisites

Complete the following prerequisites before proceeding with integrating VeloCloud SD-WAN with Route Server:

- Obtain Enterprise account access to VeloCloud Orchestrator.
- On the VeloCloud Edges, run software version 4.2.0 or newer.
- Obtain access to the Microsoft Azure portal with the appropriate IAM roles.

Establish Connectivity

Complete the following high-level tasks to establish connectivity:

1. Deploy a 2-member cluster in a region.
2. Deploy the Route Server.
3. Connect on-premises either to Microsoft Azure resources and/or to Azure VeloCloud Solutions (AVS)

For detailed instructions on how to integrate VeloCloud SD-WAN with Microsoft Route Server, see the following use cases:

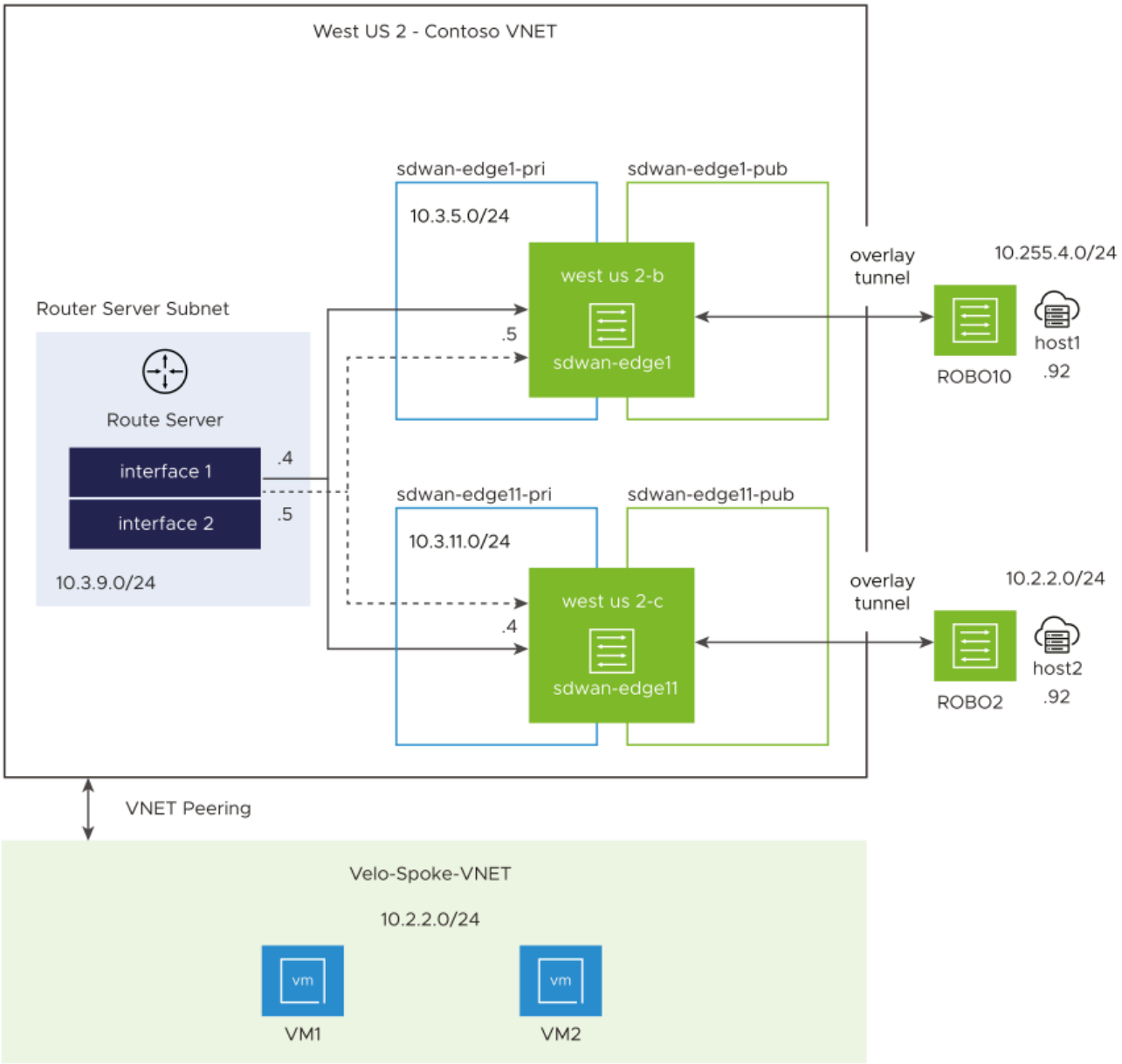
- Establish Branch-to-Cloud Connectivity
- Establish Branch-to-AVS Connectivity

4.1 Establish Branch-to-Cloud Connectivity

This section describes the steps to integrate VeloCloud SD-WAN with Microsoft Route Server for the Establish Branch-to-Cloud Connectivity use case.

The following figure illustrates the branch-to-cloud connectivity.

Figure 4-1: Branch-to-Cloud Connectivity



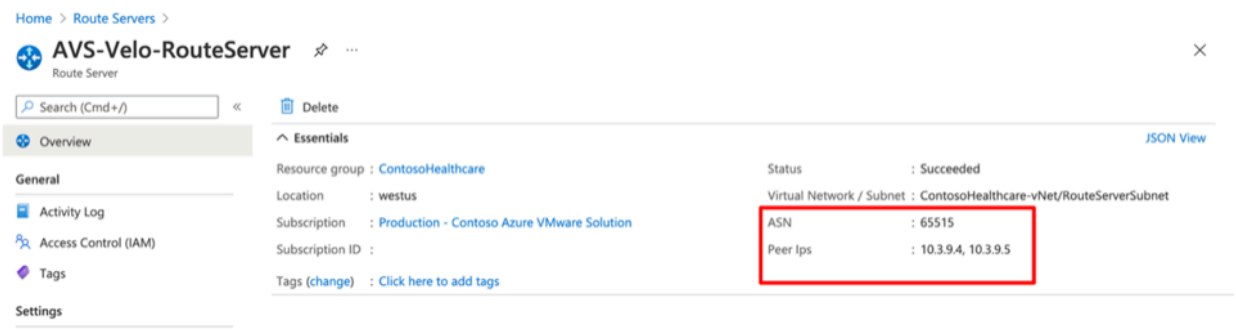
Note: As shown in the diagram, connect “host1” sitting on-premises to “VM1” and “VM2” in Azure.

To create Edge instances and Route Server and to establish branch-to-cloud connectivity, perform the following tasks:

1. Create two SD-WAN virtual Edge instances. For instructions, refer to the *Azure Virtual Edge Deployment Guide*.
2. Log in to the Orchestrator as an Enterprise user, and then add the two SD-WAN virtual Edge instances to a cluster. For instructions, refer to the “Configure Edge Clustering” section in the *VeloCloud SD-WAN Administration Guide*, and for more information, see the section titled, "How Edge Clustering Works."

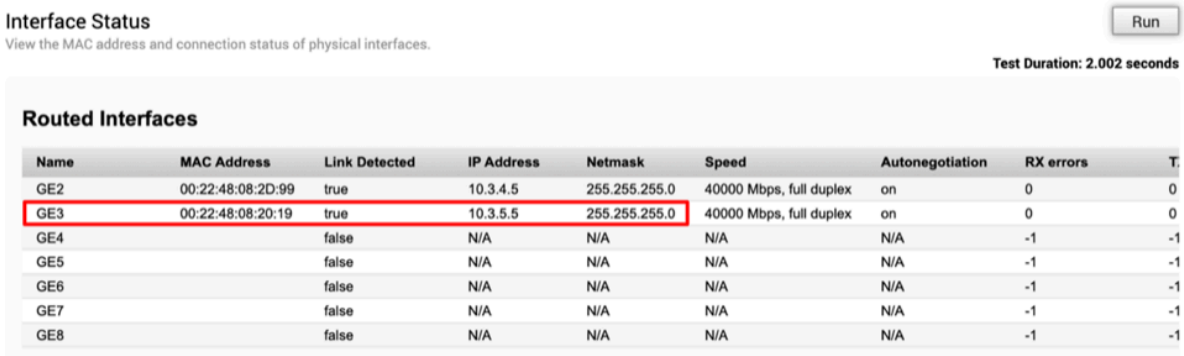
3. From the Azure Portal, create your Route Server. For instructions, refer to Create and Configure Route Server using the Azure portal.
4. Retrieve the Azure Route Server IPs and ASN.

Figure 4-2: Azure Route Server IPs and ASN Details



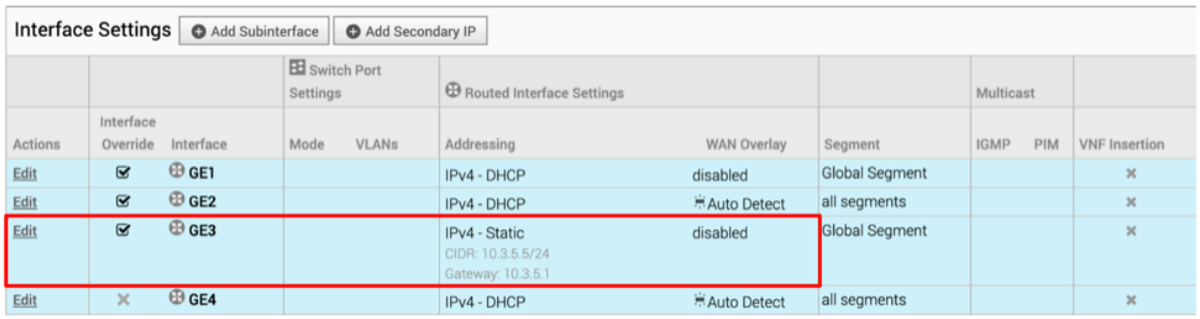
5. From the **Orchestrator**, for the first Edge called ***sdwan-edge1***:
   a. Statically assign an IP address to GE3 interface, which can be retrieved by selecting **Test & Troubleshoot** > **Remote Diagnostics** > **Edge** > **Interface status**.

Figure 4-3: Configure GE3 Routed Interface



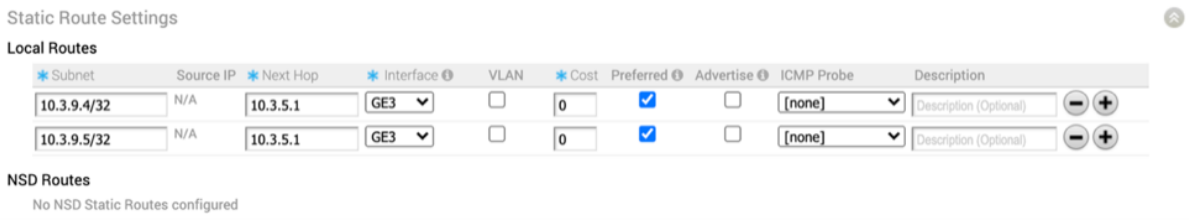
Name	MAC Address	Link Detected	IP Address	Netmask	Speed	Autonegotiation	RX errors	T
GE2	00:22:48:08:2D:99	true	10.3.4.5	255.255.255.0	40000 Mbps, full duplex	on	0	0
GE3	00:22:48:08:20:19	true	10.3.5.5	255.255.255.0	40000 Mbps, full duplex	on	0	0
GE4		false	N/A	N/A	N/A	N/A	-1	-1
GE5		false	N/A	N/A	N/A	N/A	-1	-1
GE6		false	N/A	N/A	N/A	N/A	-1	-1
GE7		false	N/A	N/A	N/A	N/A	-1	-1
GE8		false	N/A	N/A	N/A	N/A	-1	-1

Figure 4-4: GE3 Interface Settings



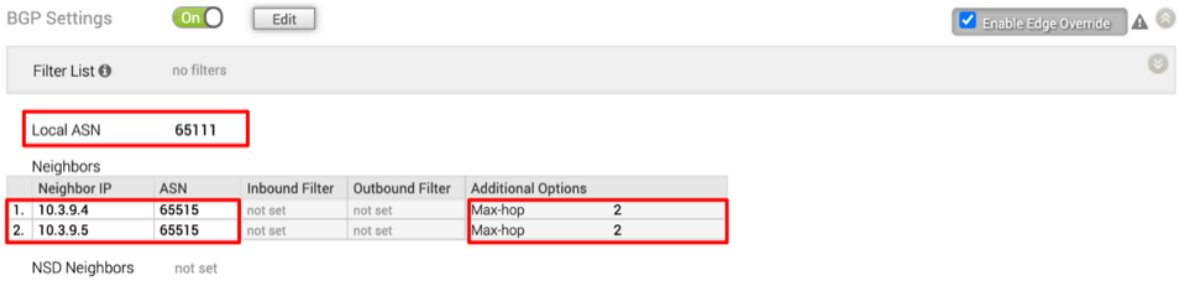
b. Configure the static routes for your Edge to be able to reach the Route Server IPs.

Figure 4-5: Configure Static Routes



c. Configure BGP by assigning your local ASN, neighbour IP/ASN (from step 4.) and configure eBGP multi-hop.

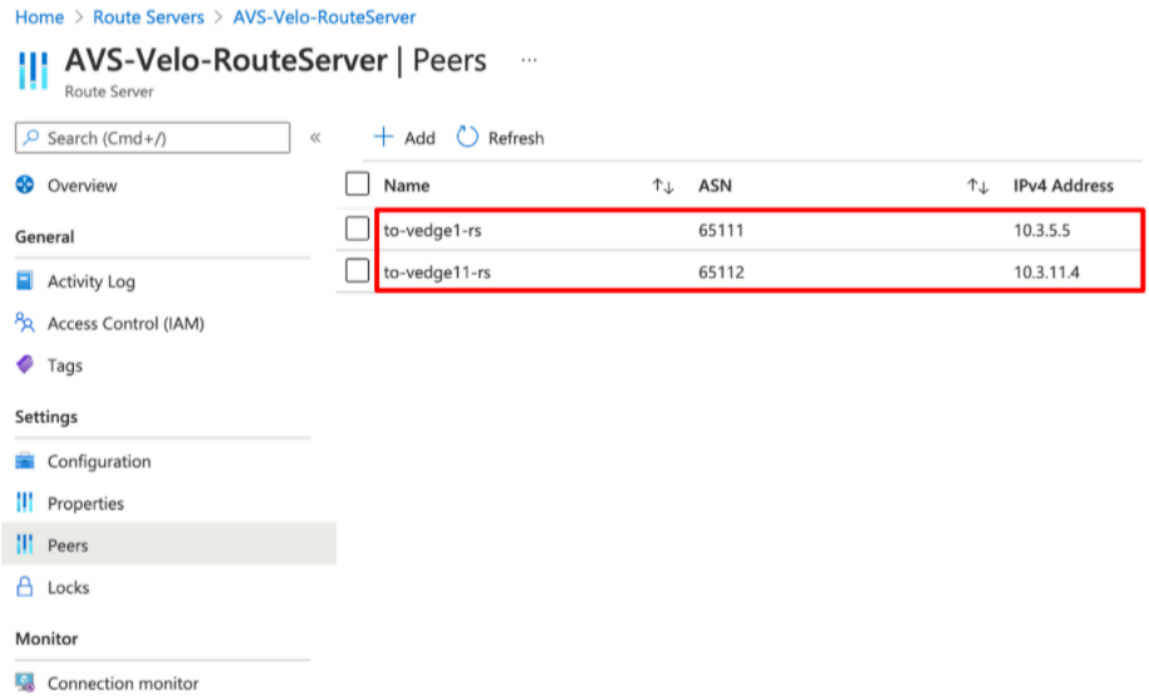
Figure 4-6: Configure BGP Settings



6. Repeat **Steps 5.a-5.c** for your second Edge ***sdwan-edge11***.
7. From the **Azure** portal, complete the Route Server configuration by completing the following steps:

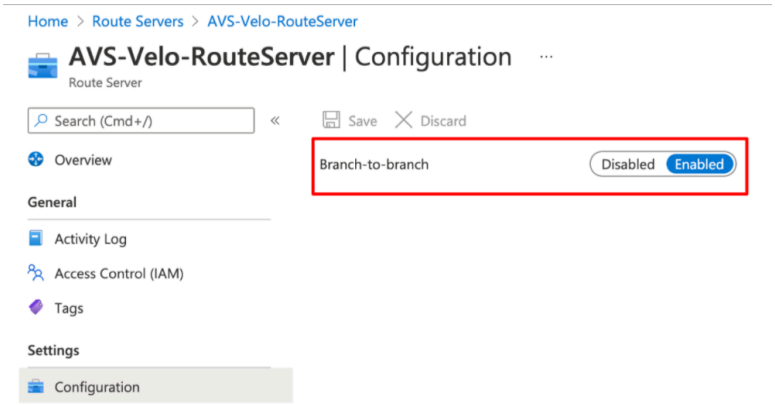
a. Configure its peers, as shown in the following image.

Figure 4-7: Configure Peers for RouteServer



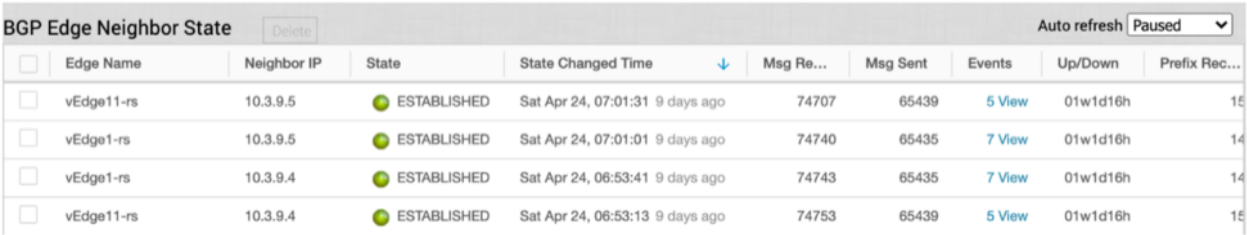
b. Configure Route Exchange, as explained here: Quickstart: Create and configure Route Server using the Azure portal, and as shown in the following image.

Figure 4-8: Configure Route Exchange for RouteServer



8. Verify that the four BGP sessions are UP.

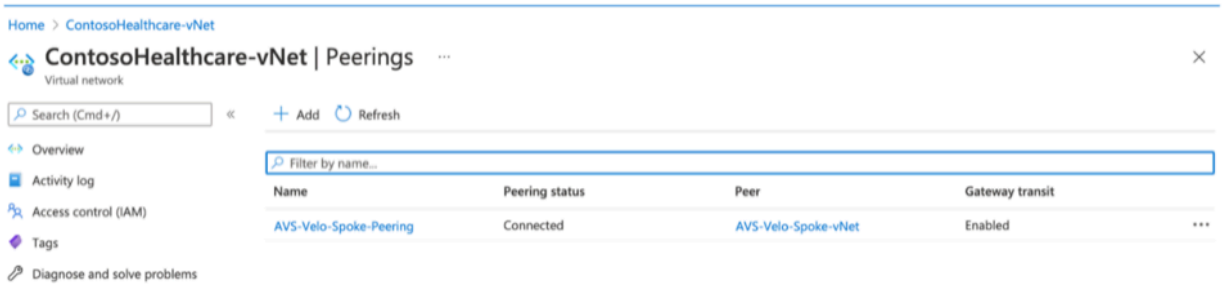
Figure 4-9: Verify BGP Sessions



Edge Name	Neighbor IP	State	State Changed Time	Msg Re...	Msg Sent	Events	Up/Down	Prefix Rec...
vEdge11-rs	10.3.9.5	ESTABLISHED	Sat Apr 24, 07:01:31 9 days ago	74707	65439	5 View	01w1d16h	15
vEdge1-rs	10.3.9.5	ESTABLISHED	Sat Apr 24, 07:01:01 9 days ago	74740	65435	7 View	01w1d16h	14
vEdge1-rs	10.3.9.4	ESTABLISHED	Sat Apr 24, 06:53:41 9 days ago	74743	65435	7 View	01w1d16h	14
vEdge11-rs	10.3.9.4	ESTABLISHED	Sat Apr 24, 06:53:13 9 days ago	74753	65439	5 View	01w1d16h	15

9. Configure VNET peering.

Figure 4-10: Configure VNET Peering



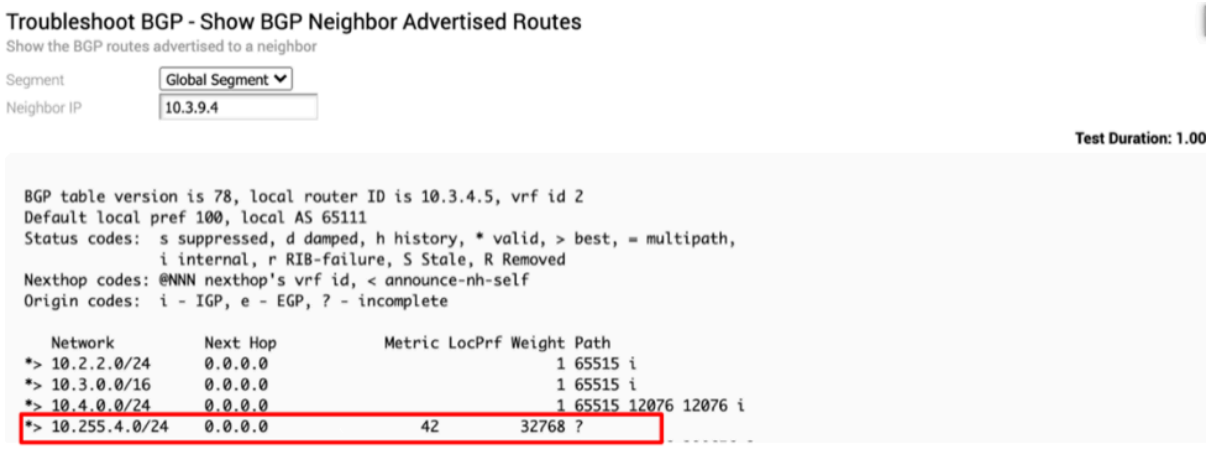
10. Verify route exchange as follows:

a. The Spoke VNET routes that are learned from the Route Server.

Figure 4-11: Verify Spoke VNET Route Exchange

b. The ROBO Site routes that are advertised to the Route Server.

Figure 4-12: Verify ROBO Site Route Exchange



Run a ping test to verify the connection between the ROBO Edge instance and **VM1** or **VM2**.

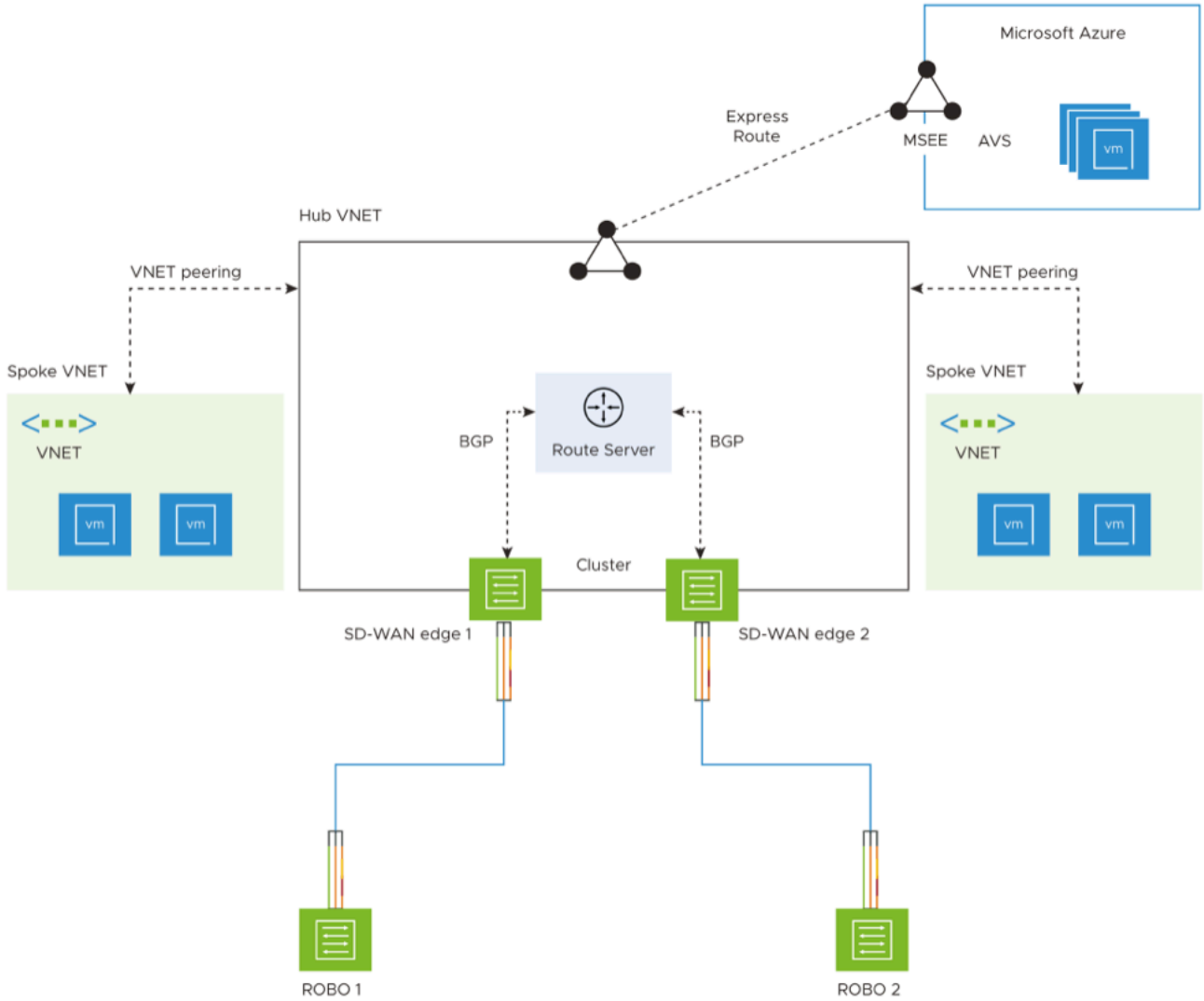
4.2 Establish Branch-to-AVS Connectivity

This section describes the steps to integrate VeloCloud SD-WAN with Microsoft Route Server for the Establish Branch-to-AVS Connectivity use case.

Azure VeloCloud Solution (AVS) enables enterprises to set up private clouds in Azure. The private cloud contains Arista's software defined datacenter clusters, built from dedicated bare-metal infrastructure from Azure. All private clouds are provisioned with vCenter Server, vSphere, vSAN, and NSX-T. Organizations

can migrate workloads from on-premises environments, create or deploy new virtual machines, and consume Azure services from private clouds using the familiar Arista tools.

Figure 4-13: Establish Branch-to-AVS Connectivity

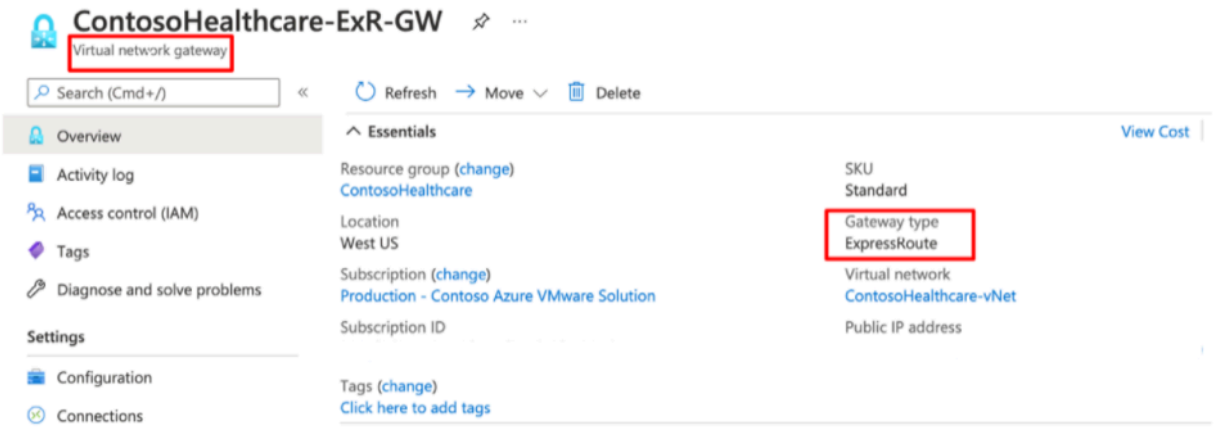


Complete the following tasks to establish branch-to-AVS connectivity:

1. Create SD-WAN virtual Edge instances and Route Server. Refer to steps 1-10 in Establish Branch-to-Cloud Connectivity.

2. From the **Azure** Portal, configure a Virtual Network Gateway for Express Route as well as a Gateway Subnet, as shown in the image below. For instructions, refer to Configure a Virtual Network Gateway for ExpressRoute.

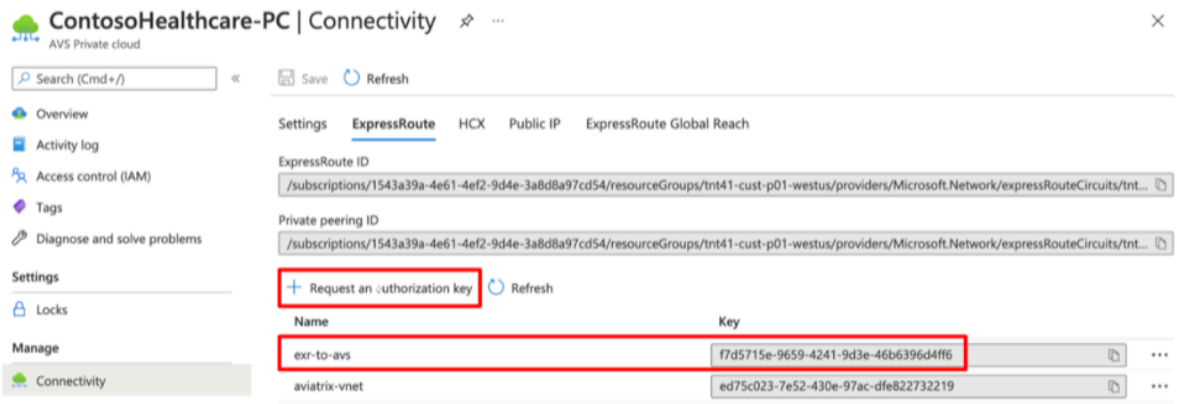
   Figure 4-14: Configure Virtual Network Gateway



3. Connect your Virtual Network to your Express Route Server:

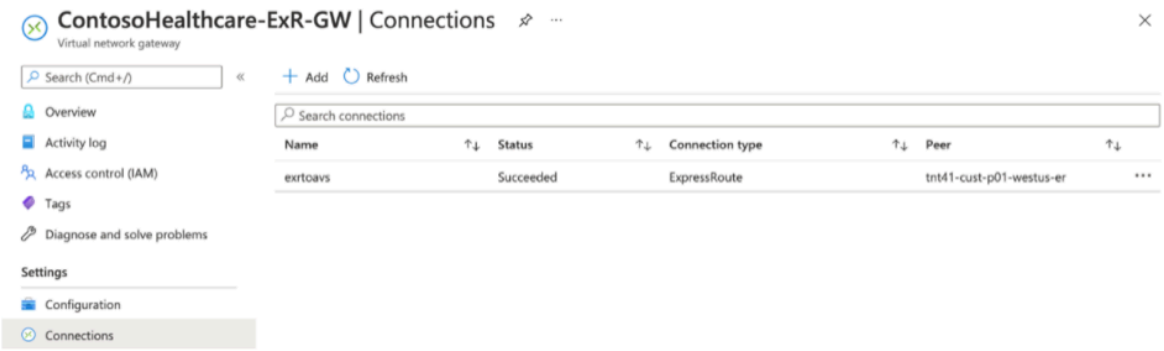
   a. From the **Azure** Portal, look up your AVS Private Cloud and request an Authorization Key.

   Figure 4-15: Manage Connectivity of Virtual Network to Express Route Server



b. Connect your Virtual network to your Express Route Server, as shown in the following image.

Figure 4-16: Connect Virtual Network to Express Route Server

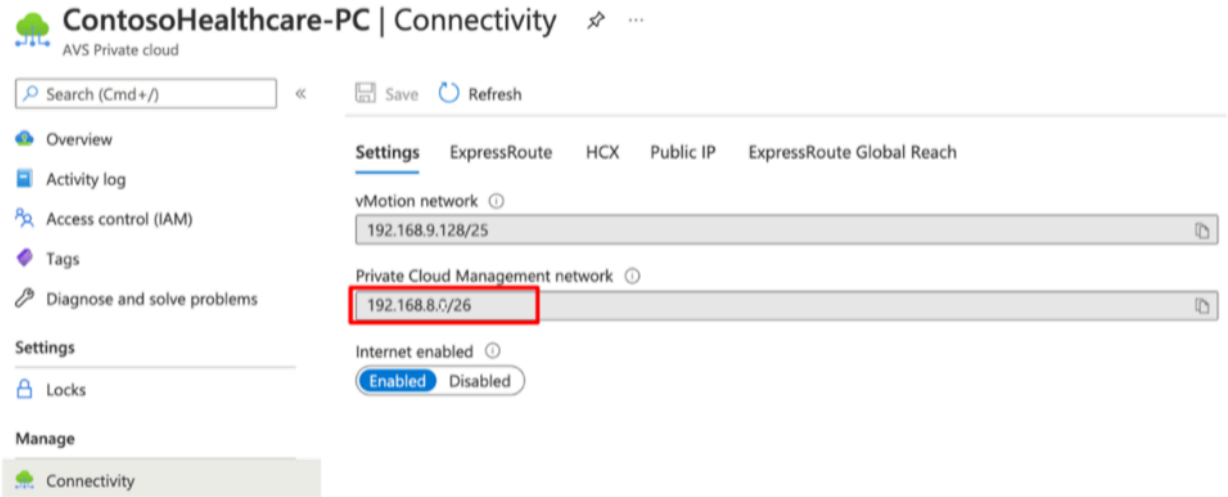


For information, see Azure VMware Solution Networking and interconnectivity concepts.

4. Verify the AVS subnets are advertised by the Route Server to your virtual Edge instances.

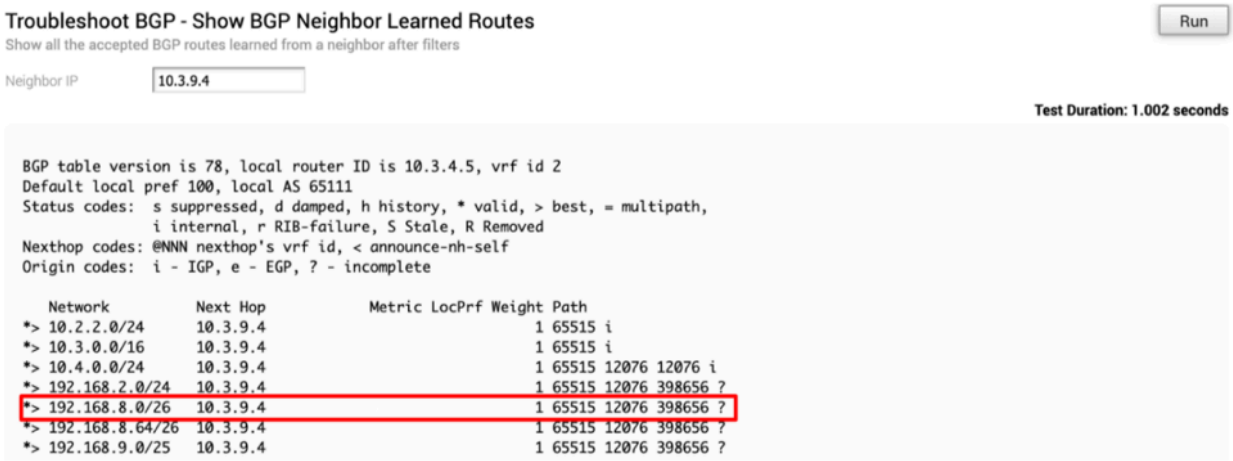
The following image below shows the subnet Private Cloud Management Network.

Figure 4-17: Verify Connectivity of Virtual Network to Express Route



5. Log into Orchestrator and verify it is being learned by the virtual Edge.

Figure 4-18: Show BGP Neighbor Learned Routes



6. Log in to **Orchestrator** and then verify connectivity to the route table on the virtual Edge instances.

Run a ping test to verify the connection between the on-prem Edge instance, ***host1*** and your workloads that reside in AVS.

Appendix A

References

- Related Documents

A.1 Related Documents

The following documentation is available for ***Arista VeloCloud SD-WAN***:

- *Arista VeloCloud SD-WAN Operator Guide*
- *Arista VeloCloud SD-WAN Administration Guide*
- *Arista VeloCloud SD-WAN Gateway Monitoring Guide*
- *Arista VeloCloud SD-WAN Orchestrator Deployment and Monitoring Guide*
- *Arista VeloCloud SD-WAN Partner Guide*
- *Arista VeloCloud SASE Global Settings Guide*
- *Arista VeloCloud SD-WAN Troubleshooting Guide*
- *Arista VeloCloud SD-WAN Design Guide for Enhanced Firewall Services*
- *Arista VeloCloud SD-WAN 6.4 API*
- *Arista VeloCloud Portal API 6.4*
- *Arista AliCloud Virtual Edge Deployment Guide*
- *Arista AWD Virtual Edge Deployment Guide*
- *Arista Azure Virtual Edge Deployment Guide*
- *Arista Google Cloud Platform Virtual Edge Deployment Guide*
- *Arista VeloCloud SASE and QRadar SIEM Integration Guide*
- *Arista VeloCloud SD-WAN and Cloud on AWS Deployment Guide*
- *Arista VeloCloud SD-WAN and Forcepoint SSE Integration Guide*
- *Arista VeloCloud SD-WAN and Google Network Connectivity Center Integration Guide*
- *Arista VeloCloud SD-WAN and Microsoft Route Server Integration Guide*
- *Arista VeloCloud SD-WAN and Netskope SSE Integration Guide*
- *Arista VeloCloud SD-WAN Azure Private Multi-Access Edge Compute Deployment Guide*
- *Arista VeloCloud SD-WAN License Management Guide*