



## Integrate VOS Devices in an Alibaba Cloud Deployment

 For supported software information, [click here](#).

This article describes how to integrate Versa Operating System™ (VOS™) devices in an Alibaba cloud deployment.

### Activate the OSS

To activate the Alibaba object storage service (OSS):

1. Log in to the Alibaba cloud website.
2. In the product list, click Object Storage Service.
3. On the Object Storage page, click Buy Now.
4. When the OSS is activated, access the OSS console. To do this, either click Management Console on the Object Storage Service page, or click Console in the upper right corner to access the Alibaba cloud console and then select Object Storage Service in the left menu bar.

The screenshot shows the Alibaba Cloud OSS console. The left sidebar has a red box around the 'Object Storage Service' item under 'Products'. The main area displays OSS statistics: Traffic This Month (0 Byte), Requests This Month (764), and Internet Outbound Traffic Last Month (16 Byte). It also shows sections for 'Event Notifications' and 'Cross-Region Replication (CRR)'. The right side shows a summary of Buckets (4 Buckets), Alert Rules (0 Triggered, 0 Warnings, 0 Disabled), and links to Official Tools like Data Online Migration and OSSBrowser Client Tool.

### Create an OSS Bucket

To create an OSS storage bucket:

[https://docs.versa-networks.com/Getting\\_Started/Deployment\\_and\\_Initial\\_Configuration/Branch\\_Deployment/Initial\\_Configuration/](https://docs.versa-networks.com/Getting_Started/Deployment_and_Initial_Configuration/Branch_Deployment/Initial_Configuration/)...

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1. Log in to the OSS console.
2. Click Create Bucket to open the Create Bucket screen. Enter information for the following fields.

## Create Bucket

[Create a bucket](#) X

**Note:** Storage Class and Region cannot be changed after the bucket is created.

Bucket Name	sdwan-storage	13/63 ✓	
Region	Hong Kong	▼	
Alibaba Cloud services in the same region can communicate with each other over an internal network. The region cannot be changed after the purchase. Exercise caution when you select a region.			
Endpoint	oss-cn-hongkong.aliyuncs.com		
Storage Class	Standard	IA	Archive
Standard: high reliability, high availability, and high performance. Data of this type is frequently accessed.			
<a href="#">How to Choose a Suitable Storage Class</a>			
Access Control List (ACL)	Private	Public Read	Public Read/Write
Private: Authentication is required for users to read from or write to files.			

Server-side  
Encryption

None

AES256

KMS

**i** After a file is uploaded to OSS, it will be automatically encrypted and stored in the bucket. Encryption is provided by KMS, and requires authorization. KMS provides only default CMKs for OSS. To use Bring Your Own Key (BYOK) to encrypt data, contact technical support. For more information, see [Server-side Encryption Guide](#).

Real-time Log Query

Enable

Disable

OSS is integrated with Log Service to provide real-time OSS log queries for the last seven days free of charge. After this function is enabled, users can query and analyze records of access to objects in OSS buckets in real time. [Learn more](#)

OK

Cancel

Field	Description
Bucket Name	Enter a name for the bucket. The name must comply with the Alibaba bucket naming conventions, and it must be unique among all existing buckets in the Alibaba cloud OSS. Note that once you have created a bucket, you cannot change its name.
Region	Select the data center for the bucket. Note that once you have created a bucket, you cannot change its region.
Storage Class	Select Standard.
Access Control List (ACL)	Select Private Access Permission. With private permission, only the owner of the bucket and the authorized users can perform read, write, and delete operations on the objects in the bucket. Other users cannot access objects in the bucket.

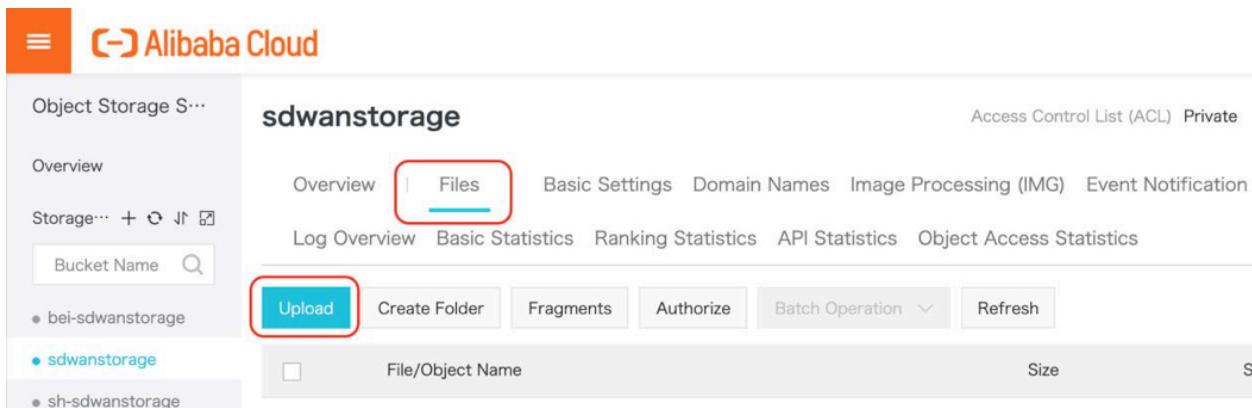
3. Click OK.

# Upload the VOS Image

The Alibaba cloud classifies ECS images as public images, custom images, shared images, and marketplace images. VOS images must be deployed as custom images. You can import image files whose format is QCOW2, RAW, or VHD.

To upload the VOS image to the OSS bucket:

1. Log in to the OSS console.
2. In the bucket name list, click the name of the bucket to which you want to upload the VOS image file.
3. Select the Files tab.



The screenshot shows the OSS console interface for the bucket 'sdwanstorage'. The 'Files' tab is active. At the top, there are tabs for Overview, Basic Settings, Domain Names, Image Processing (IMG), Event Notification, Log Overview, Basic Statistics, Ranking Statistics, API Statistics, and Object Access Statistics. Below these tabs, there are buttons for Upload, Create Folder, Fragments, Authorize, Batch Operation, and Refresh. The 'Upload' button is highlighted with a red box. On the left, there is a sidebar with a list of buckets: bei-sdwanstorage (selected), sdwanstorage (highlighted with a blue box), and sh-sdwanstorage.

4. Click Upload.
5. In the Directory Address field, enter the directory to which to upload the file.
6. In the File ACL field, select the read and write permissions of the file that you are uploading. By default, a file inherits the read and write permissions of its bucket.
7. In the Upload field, drag one or more files to upload to this area, or click Upload Them Directly to select one or more files to upload.



The screenshot shows the OSS console interface for the 'sdwanstorage' bucket. The 'Files' tab is selected. The file 'versa-flexvnf-5173396-16.1R2S8.qcow2' is listed in the file list. The file details are shown: Size 4.009GB, Storage Class Standard, Updated At June 12, 2019, 14:41. There are 'View Details' and 'More' links next to the file.

## Create a Custom Image for Versa VMs on Alibaba

1. Navigate to the Images page.

[https://docs.versa-networks.com/Getting\\_Started/Deployment\\_and\\_Initial\\_Configuration/Branch\\_Deployment/Initial\\_Configuration/](https://docs.versa-networks.com/Getting_Started/Deployment_and_Initial_Configuration/Branch_Deployment/Initial_Configuration/)...

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Overview | Files | Basic Settings Domain Names Image Processing (IMG) Event Notification |

Log Overview Basic Statistics Ranking Statistics API Statistics Object Access Statistics

Upload	Create Folder	Fragments	Authorize	Batch Operation	Refresh	Selected: 1 / 1	Enter a file name prefix <input type="text"/>
<input checked="" type="checkbox"/>	File/Object Name			Size	Storage Class	Updated At	Actions
<input checked="" type="checkbox"/>	 versa-flexvnf-5173396-16.1R2S8.qcow2			4.009GB	Standard	June 12, 2019, 14:41	<a href="#">View Details</a> <a href="#">More</a>

<input checked="" type="checkbox"/>	File/Object Name	Size	File Name: versa-flexvnf-5173396-16.1R2S8.qcow2
<input checked="" type="checkbox"/>	 versa-flexvnf-5173396-16.1R2S8.qcow2	4.009GB	ETag: A02EDCA7FC0ED4746AD54E8882C4B7E9
			Validity Period (Seconds): 3600
			HTTPS: <input checked="" type="checkbox"/>
			URL: <a href="https://sdwanstorage.oss-cn-hongkong.aliyuncs.com/versa-flexvnf-5173396-16.1R2S8.qcow2?Expires=1564545332&amp;OSSAccessKeyId=TMPPhVYgYV7u2RkAQfj5FcCLE1HED7rBSpjKPTTy7KmSzcpWoAYKupnPJWk36NgpVbzBFjMB9rq6E7U4MhYEPyYQSeE25f1RxFkUZDUMVEphNnJUYcRvkEMkRmEr.tmp&amp;Signature=yTSQ9bOJhrl2jt2XBgzLkBl0%3D">https://sdwanstorage.oss-cn-hongkong.aliyuncs.com/versa-flexvnf-5173396-16.1R2S8.qcow2?Expires=1564545332&amp;OSSAccessKeyId=TMPPhVYgYV7u2RkAQfj5FcCLE1HED7rBSpjKPTTy7KmSzcpWoAYKupnPJWk36NgpVbzBFjMB9rq6E7U4MhYEPyYQSeE25f1RxFkUZDUMVEphNnJUYcRvkEMkRmEr.tmp&amp;Signature=yTSQ9bOJhrl2jt2XBgzLkBl0%3D</a>
			<a href="#">Download</a>   <a href="#">Open File URL</a>   <a href="#">Copy File URL</a>   <a href="#">Copy File Path</a>
		Type: application/octet-stream	<a href="#">Set HTTP Header</a>
		File ACL: Private	<a href="#">Set ACL</a>
		Storage Class: Standard	
		Server-side Encryption: None	

[https://docs.versa-networks.com/Getting\\_Started/Deployment\\_and\\_Initial\\_Configuration/Branch\\_Deployment/Initial\\_Configuration/](https://docs.versa-networks.com/Getting_Started/Deployment_and_Initial_Configuration/Branch_Deployment/Initial_Configuration/)...

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The screenshot shows the Alibaba Cloud dashboard. At the top left is the Alibaba Cloud logo with three horizontal bars. To its right is the text "Hong Kong ▾". Below the logo is a navigation bar with several items: "Products" (with a grid icon), "Express Connect" (with a satellite icon), "VPN Gateway" (with a globe icon), "Resource Access Management" (with a cloud icon), "Elastic Compute Service" (with a server icon, highlighted with a red box), "ApsaraDB for RDS" (with a database icon), "Virtual Private Cloud" (with a cloud icon), "Object Storage Service" (with a cloud icon), "Alibaba Cloud CDN" (with a cross icon), "Server Load Balancer" (with a cluster icon), "Domains" (with a globe icon), and "Cloud Enterprise Network" (with a network icon). To the right of the navigation bar is a search bar with the placeholder "Name" and a "Search" button. Below the search bar is a list of items, with the first item partially visible: "ges" followed by "m Images", "Name", "Search", and a "Delete Image" button.

Elastic Compute Serv...  
Overview  
Events  
Tags  
Instances & Images  
Instances  
Elastic Container In...  
Dedicated Hosts  
HPC Clusters  
Reserved Instances  
Images

Summary  
Total 12      Running 5  
My Resources  
China (Shanghai)  
Elastic Compute Service 4

2. On the Images page, click Import Image.

Cloud Hong Kong ▾  
Images  
Custom Images Public Image Shared Images  
Image Name Search by image name Search Tag  
ID/Name Tag Type Platform Bit Size of OS Created At Status Progress Actions

3. In the Import Image screen, enter information for the following fields.

When you create an image, a snapshot will be created at the same time. Because the snapshot service is a paid service, your images will incur snapshot fees.

How to import an image:

1. Perform the following:[Activate OSS](#)
2. Upload the image file to the bucket in the same region that the image will be imported to.
3. Make sure that you have authorized ECS to access your OSS.[Confirm Address](#)
4. Check if the image meets[Notes](#)

\* Region of Image: Hong Kong

\* OSS Object Address: <https://sdwanstorage.oss-cn-hongkong.aliyuncs.com/FlexVNF-16.1.R2S8-IMG> How to get the address of OSS files

\* Image Name: FlexVNF-16.1.R2S8-IMG

\* Operating System: Linux

\* System Disk Size (GB): 80 40 to 500 GB for Windows and 40 to 500 GB for Linux.

\* System Architecture: x86\_64

\* Platform: Ubuntu

Image Format: QCOW2

Image Description:

Add Data Disk Image

OK Cancel

Field	Description
Region of Image	Select the region where the OSS Bucket of the image file to upload is located.
OSS Object Address	Copy the object address of the image file from the OSS console.
Image Name	Enter a name for the custom image. The name must be 2 to 128 characters in length and can contain letters, numbers, Chinese characters, periods (.), underscores (_), colons (:), and hyphens (-).
Operating System	Select Linux
System Disk Size	Select 80 GiB. The system disk size can be from 40 through 500 GiB.
System Architecture	Select x86_64.
Platform	Select Ubuntu.
Image Format	Select the image format: <ul style="list-style-type: none"> <li>◦ QCOW2</li> <li>◦ RAW</li> <li>◦ VHD. This is the recommended format</li> </ul>

4. Click OK.

To copy a custom image to a different region:

1. Click Copy Image.

ID/Name	Tag	Type	Platform	Bit Size of OS	Created At	Status	Progress	Actions
versa-flexvnf-5173396...	Custom Image	Ubuntu	64bit	June 12, 2019, 12:48	Available	100%	<a href="#">Create Instance</a>   <a href="#">Delete Image</a>   <a href="#">Modify Description</a> <a href="#">Related Instances</a>   <a href="#">Copy Image</a> (highlighted)   <a href="#">Share Image</a>	

2. In the Copy Custom Image screen, select the region.

## Copy Image [?](#) Copy custom image



Custom Image ID: m-j6cainrnl58ifi0pet0

Target Region: China (Shanghai)

\* Custom Image Name: SH-FlexVNF-16.1.R2S8-IMG

The name must be 2 to 128 characters in length and can contain periods (.), underscores (\_), hyphens (-), and colons (:). It cannot start with a special character or digit.

Custom Image Description: The specified image is copied from image m-j6cainrnl58ifi0pet0 in the Hong Kong region.

It must be 0 to 256 characters in length and cannot start with "http://" or "https://".

OK

Cancel

3. Click OK.

## Create an Instance from a Custom Image

1. Log in to the Elastic Computer Service console.
2. In the left menu bar, click Instances. Alternatively, you can click Images to locate the target image, and then click Create Instance in the Actions column.
3. Click Create Instance.

The screenshot shows the Alibaba Cloud Instances page. At the top, there's a search bar with placeholder text "Select an instance attribute or enter a keyword" and a "Tags" tab. Below the search bar is a table with columns: Instance ID/Name, Tag, Monitoring, Zone, IP Address, Status, Network Type, Specifications, Billing Method, and Actions. One instance is listed: "i-uf6gb4f4322kopv3xzf" (IP: 192.168.2.100, Status: Running, Network: VPC, Specs: 4 vCPU 16 GiB (I/O Optimized) ecs.sn2ne.xlarge, Billing: Subscription August 3, 2019, 12:00 Expire). A red box highlights the "Create instance" button in the top right corner.

4. Use the wizard to create the instance. In the Region field, select the region where the image is located. In the Image field, select Custom Image, and then select an image.

The screenshot shows the "Basic Configurations" step of the ECS instance creation wizard. It includes tabs for "Billing Method" (Subscription selected), "Networking", "System Configurations", and "Grouping". On the left, there's an "Instance Type" section with a list of items. The "Region" dropdown is highlighted with a red box and set to "China (Shanghai)". Below the region dropdown, there are three tabs: "Random", "Zone G", "Zone F", "Zone E", "Zone D", "Zone C", "Zone B" (selected), and "Zone A". The main area shows regions grouped by continent: Asia Pacific (Qingdao, Beijing, Zhengjiakou, Hohhot, Hangzhou, Shanghai, Shenzhen, Chengdu, Hong Kong, Singapore, Australia (Sydney), Malaysia (Kuala Lumpur), Indonesia (Jakarta), Japan (Tokyo)), Europe & Americas (US (Silicon Valley), US (Virginia), Germany (Frankfurt), UK (London)), and Middle East & India (UAE (Dubai), India (Mumbai)). A summary at the bottom indicates Network Performance, Instance Type: ecs.sn2ne.xlarge, 2 vCPUs, 8 GiB RAM, and Processor: Platinum 8163, 2.5 GHz.

**Instance Type**

- I/O Optimized ⓘ
- vCPU: Select a type ⓘ
- Memory: Select a type ⓘ
- Instance Type: Enter a type

Current Generation All Generations Purchase History

Architecture: x86-Architecture Heterogeneous Computing ECS Bare Metal Instance Super Computing Cluster

Category: General Purpose Compute Optimized Memory Optimized Big Data Local SSD High Clock Speed Entry-Level (Shared)

Family	Instance Type	vCPU	Memory	Physical Processor	Clock Speed	Internal Network Bandwidth	Packet Forwarding Rate
General Purpose	Type with Enhanced Network Performance sn2ne	2 vCPUs	8 GiB	Intel Xeon E5-2682v4 / Intel Xeon(Skylake) Platinum 8163	2.5 GHz	1 Gbps	300,000 PPS
General Purpose	Type with Enhanced Network Performance sn2ne	4 vCPUs	16 GiB	Intel Xeon E5-2682v4 / Intel Xeon(Skylake) Platinum 8163	2.5 GHz	1.5 Gbps	500,000 PPS
General Purpose	Type with Enhanced Network Performance sn2ne	8 vCPUs	32 GiB	Intel Xeon E5-2682v4 / Intel Xeon(Skylake) Platinum 8163	2.5 GHz	2 Gbps	1000,000 PPS
General Purpose	Type with Enhanced Network Performance sn2ne	12 vCPUs	48 GiB	Intel Xeon E5-2682v4 / Intel Xeon(Skylake) Platinum 8163	2.5 GHz	2.5 Gbps	1300,000 PPS

Selected Instance Type: ecs.sn2ne.xlarge (4 vCPU 16 GiB, General Purpose Type with Enhanced Network Performance sn2ne)

Purchased Instances: 1 Units

**Image \***

- Public Image
- Custom Image
- Shared Image
- Marketplace Image

versa-flexvnf-5173396-16.1R2S8.qcow2

**Storage**

Disk specifications and performance

**System Disk** Ultra Disk 80 GiB

Ultra Disk 80 GiB 2440 IOPS

For more information about how to select standard SSDs, ultra disks, and basic disks, click here>

> Data Disk 0/16

## 5. Confirm the order.

## 6. Check that your cloud infrastructure is correct.

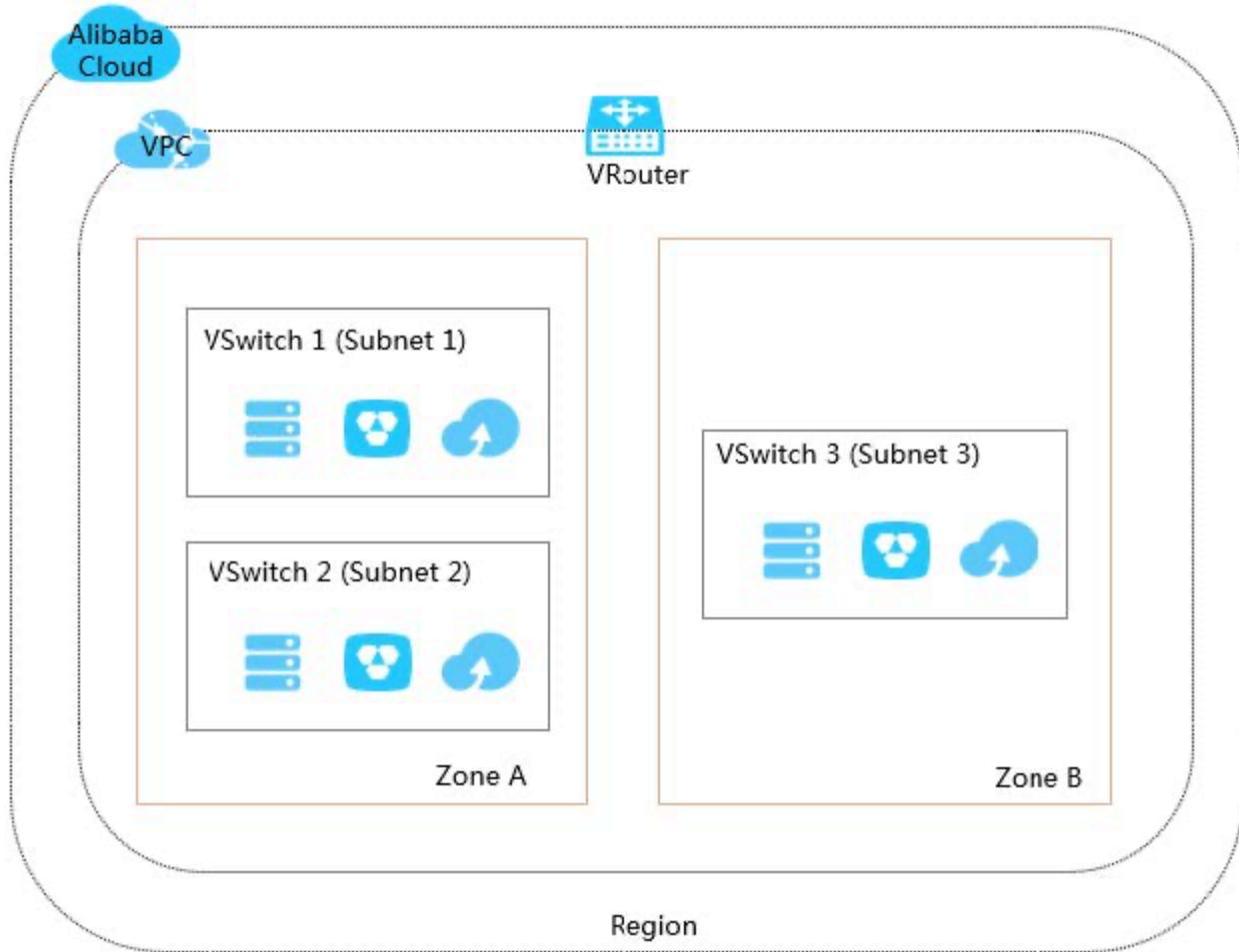
## Create a VPC

A virtual private cloud (VPC) is a private network established in the Alibaba cloud. VPCs are logically isolated from other virtual networks in the Alibaba Cloud. Each VPC is assigned a private CIDR block and contains one virtual router (VRouter) and at least one virtual switch (VSwitch).

[https://docs.versa-networks.com/Getting\\_Started/Deployment\\_and\\_Initial\\_Configuration/Branch\\_Deployment/Initial\\_Configuration/](https://docs.versa-networks.com/Getting_Started/Deployment_and_Initial_Configuration/Branch_Deployment/Initial_Configuration/)

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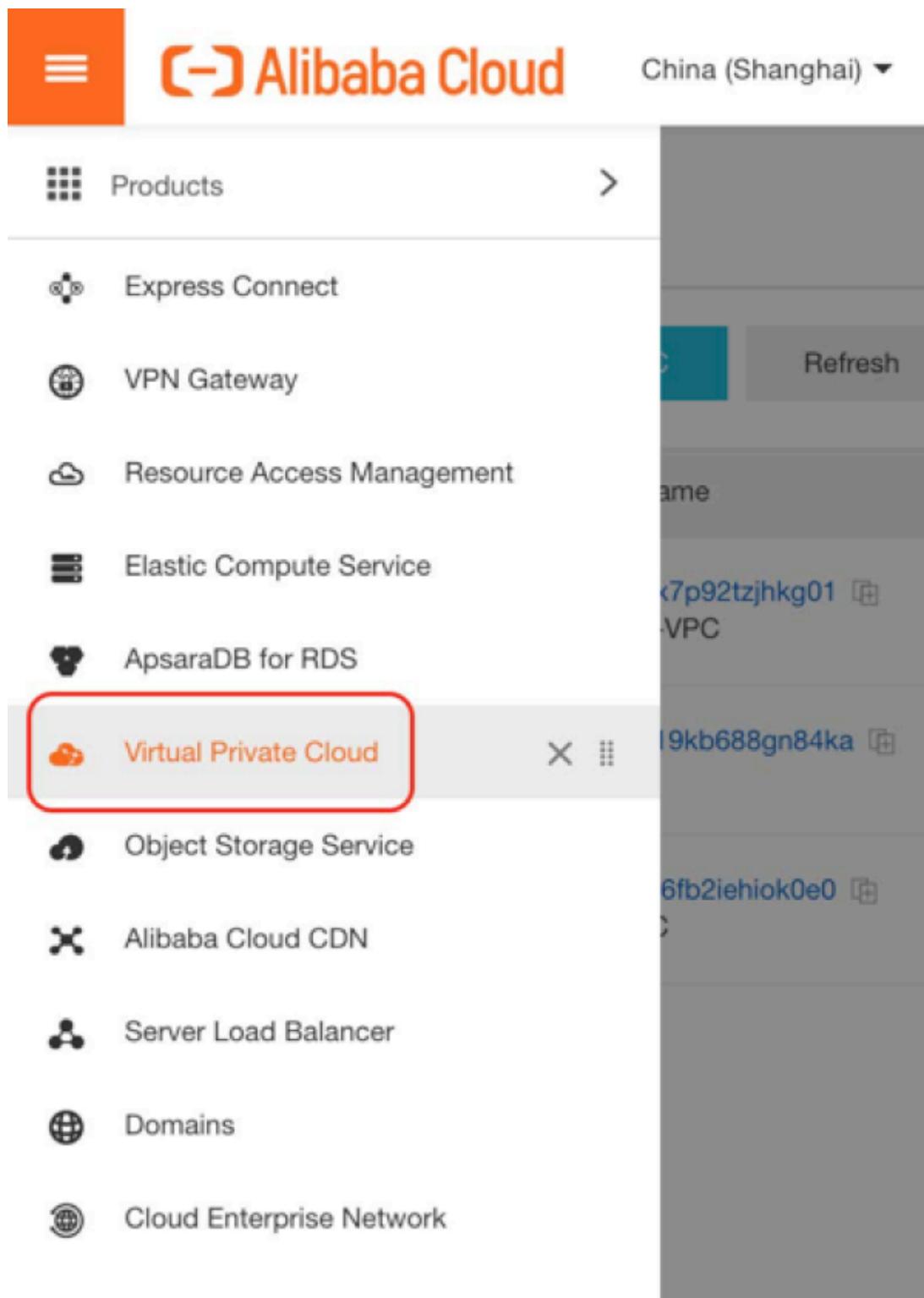
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VSwitches are basic network devices that are used to form a VPC and that connect different cloud product instances. VPCs are region-level resources. A VPC cannot be used across multiple regions, but it can contain all zones in a region. You can create one or more VSwitches in a zone to divide the zone into multiple subnets.

To create a VPC:

1. In the left menu bar, select Virtual Private Cloud.



2. In the Create VPC screen, configure the VPC as illustrated in the following screenshots.

# Create VPC

## VPC

### Region

China (Shanghai)

### • Name ?

SDWAN-VPC

9/128

### • IPv4 CIDR Block ?

Default CIDR Block

Custom CIDR Block

192.168.0.0/16



The CIDR cannot be changed once the VPC is created.

### Description ?

0/256

## VSwitch

● Name ?  
SH-SDWAN-LAN 12/128 ✓

● Zone ?  
Shanghai Zone D

Zone Resource ?  
ECS ✓ RDS ✘ SLB ✓

● IPv4 CIDR Block  
192 . 168 . 2 . 0 / 24 ✓  
! The CIDR cannot be changed once the VPC is created.

Number of Available Private IPs  
252

Description ?  
0/256

+ Add      - Delete

**Name** SH-SDWAN-WAN 12/128

**Zone** Shanghai Zone D

**Zone Resource** ECS (✓) RDS (✗) SLB (✓)

**IPv4 CIDR Block** 192 - 168 - 1 - 0 / 24

**Number of Available Private IPs** 252

**Description**

**Add** **Delete**

3. Click Add.

## Create a VOS Virtual Machine

You create a virtual machine (VM) for the VOS device. Note that this is a critical step, because the first network that you choose below becomes the primary elastic network interface (ENI), and it must be the LAN interface. You cannot change the primary ENI later to a different network. Another reason that the primary ENI must be the interface is that when you later deploy HAVIP (VRRP), Alibaba requires that you must deploy it on the primary ENI.

To create a VOS VM:

- Select the network type.

Elastic Compute Service (ECS) Quick Launch Custom Launch

1 Basic Configurations (Required) 2 Networking (Required) 3 System Configurations 4 Grouping 5 Preview (Required)

**Network Type \***

VPC (selected) SH-SDWAN-LAN

If you need to create a new VPC, you can [Go to Console and Create >](#)

VPC: SDWAN-VPC / vpc-uf6xr79q19kb688gn84ka  
VSwitch Zone: Shanghai Zone D (2)

VSwitch: SH-SDWAN-LAN / vsw-uf6uywkixew1kd1zkxqtz  
VSwitch CIDR Block: 192.168.2.0/24

**Network Billing Method**

Assign Public IP Address If you leave this box unchecked, your instance will not be assigned a public IPv4 address and is inaccessible from the Internet unless you bind an elastic IP address (EIP) to it. [Click here to learn how to bind an EIP to your instance](#)

\* Bandwidth pricing

**Security Group \***

Reselect Security Group A security group functions similarly to firewalls and is used to set network access controls for one or more ECS instances. You can go to the Security Groups page in the ECS console to [Create Security Groups](#). [Learn More >](#)

Security Group: sg-uf63qyamsvd92bs54b5f (contains 6 instances, and 1994 more instances can be added.)

Ensure that your security group has port 22 (Linux) or 3389 (Windows) configured in its allow rules. Otherwise, you will not be able to remotely connect to the ECS instance. You can add security group rules to your security group in the ECS console.

- Select the type of login credentials and the instance name. For the login credentials, you can choose SSH key pair or Password, depending on the requirements of your cloud administrator. Note that SSH key pair is the more secure option.

1 Basic Configurations (Required) 2 Networking (Required) 3 System Configurations (selected) 4 Grouping 5 Preview (Required)

**Logon Credentials:**  Key Pair  Inherit Password From Image  Password  Set Later

Key Pair: [Select a key pair](#) [Learn More](#) [Create Key Pair](#)

If you do not specify a key pair or password, Set Later is selected by default.

**Instance Name:** SH-FlexVNF-01

The name must be 2 to 128 characters in length and can contain letters, Chinese characters, digits, and the following special characters: -\_. The name must start with a letter or Chinese character.

**Description:** Description

The description must be 2 to 256 characters in length. It cannot start with "http://" or "https://".

**Host:** Enter a hostname

For Linux systems and other operating systems: The name must be 2 to 64 characters in length. It can contain several segments delimited by periods (.). Each segment can contain letters, digits, and hyphens (-), but consecutive periods (.) or hyphens (-) are not allowed. The name cannot start or end with a period (.) or hyphen (-).

**Sequential Suffix:**  Add Sequential Suffix to Instance Name and Hostname

Sequential suffixes can be from 001 to 999. For example: LocalHost001, LocalHost002 or MyInstance001, MyInstance002.

## Create SSH Key Pair

[Back to SSH Key Pair List](#)

\*SSH Key Pair Name:

SHG-keypair

The name must be 2 to 128 characters in length and can contain periods (.), underscores (\_), hyphens (-), and colons (:). It cannot start with a special character or digit.

\*Creation Type:

Auto-Create SSH Key Pair  Import SSH Key Pair

Download the private key immediately after its creation. You cannot download the private key at any time afterwards.

Tag:

Select a tag key.

Select a value or enter a new one...

OK

Cancel

3. When prompted, save the .pem key on the managing workstation.
4. If required by your cloud administrator, create a deployment set.
5. Click Preview > Purchase.
6. If, at any point, you want to use a username and password instead of SSH, go to ECS > *instance-name* > More > Reset Password.

SH-FlexVNF-01

Basic Information

ID: i-uf6a47t80hnkq2gyhj5g

Zone: Shanghai Zone D

Name: SH-FlexVNF-01

Description:

Region: China (Shanghai)

More ▾

- Reset Password
- Modify Instance Properties
- Set User Data
- Create Custom Image
- Get Instance Screenshot
- Get Instance System Logs

7. Create the ENIs for LAN, WAN, MGMT and the EIP for WAN and MGMT, as described below. After you create these, you can log in using SSH.

## Create Security Groups

To create security groups for the WAN, LAN, and MGMT interfaces:

1. Go to ECS > Network and Security > Security Groups > Create Security Group. The following example is for MGMT.

The screenshot shows the 'Create Security Groups' interface for the MGMT interface. The top navigation bar includes 'Tutorial', 'Back', 'Add Security Group Rule' (which is highlighted with a red box), and 'Quick Rule Creation'. Below the navigation are tabs for 'Inbound' (selected) and 'Outbound'. On the right are 'Import Rules' and 'Export Rules' buttons. A message box at the bottom states: 'The security group does not have any custom rules for access permissions. In this case, you cannot access any instances in the security group. To resolve this issue, add rules to allow access to the relevant instance ports.'

2. Select the Add Security Group Rule tab. In the Add Security Group Rules screen, enter information for the security group rule.

## Add Security Group Rule [?](#) Add security group rules



NIC Type:	Internal Network
Rule Direction:	Inbound
Action:	Allow
Protocol Type:	Customized TCP
* Port Range:	<input type="text" value="22"/> <span style="color: blue;">i</span>
Priority:	<input type="text" value="1"/> <span style="color: blue;">i</span>
Authorization Type:	IPv4 CIDR Block <span style="color: blue;">i</span>
* Authorization Objects:	<input type="text" value="0.0.0.0/0"/> <span style="color: blue;">i</span> Tutorial
Description:	<input type="text"/> <p style="font-size: small; color: gray;">It must be 2 to 256 characters in length and cannot start with "http://" or "https://".</p>

OK Cancel

3. Select the Inbound tab, and enter information about inbound ports.

Action	Protocol Type	Port Range	Authorization Type(All)	Authorization Object	Description	Priority	Created At	Actions
Allow	All ICMP (IPv4)	-1/-1	IPv4 CIDR Block	0.0.0.0/0	-	1	July 31, 2019, 00:28	<a href="#">Modify</a>   <a href="#">Clone</a>   <a href="#">Delete</a>
Allow	Customized TCP	22/22	IPv4 CIDR Block	0.0.0.0/0	-	1	July 31, 2019, 00:28	<a href="#">Modify</a>   <a href="#">Clone</a>   <a href="#">Delete</a>

4. Select the Outbound tab, and enter information about outbound ports.

Action	Protocol Type	Port Range	Authorization Type(All)	Authorization Object	Description	Priority	Created At	Actions
--------	---------------	------------	-------------------------	----------------------	-------------	----------	------------	---------

5. Click OK.

For the LAN security group, you restrict it or set it to any/any.

The following table is the ports required for the WAN security group.

Purpose	Traffic Direction	Protocol	Port Numbers
Encapsulating Security Payload (ESP)	Both	IP	50
ICMP reachability for ZTP	Both	ICMP	
IPsec IKE	Both	UDP	500, 4500
REST port, for fetching operational information from VOS device	Inbound	TCP	8443
VXLAN communication among VOS hub, VOS branch, and Controller node	Both	UDP	4790

## Create ENIs

1. Go to ECS > Network and Security > ENI > Create ENI.

## Create ENI [?](#) Create ENI

Network Interface Name:

SH-Flex-VNF-01-WAN

The name must be 2 to 128 characters in length and can contain Chinese characters, letters, digits, hyphens (-), and underscores (\_). It cannot start with "http://" or "https://". The name must start with a letter or Chinese character.

\* VPC:

vpc-uf6xr79q19kb688gn84ka / SDWAN-VP...

\* VSwitch:

- SH-CEN-Test-VPC
- SDWAN-VPC**
- Test-VPN-VPC

2. Select the IP address to allocate, or leave this field blank to allocate an available IP address from within the subnet.
3. Select the security group depending on whether the ENI belongs to a LAN, WAN, or MGMT interface.

Primary Private IP:

Must be the free address in the address section of the VSwitch to which it belongs. By default, the free address in the switch is allocated randomly.

\* Security Group

Select Security Group

Description:

sg-uf63qyamsvd92bs54b5f

It must be 2 to 256 characters in length and cannot start with "http://" or "https://".

---

Tag:

Select a tag key.

Select a value or enter a new o... ▾

---

OK Cancel

#### 4. Repeat Steps 1, 2, and 3 for the MGMT ENI and an other ENIs

Create the EIPs (public IP addresses) for the WAN and MGMT interfaces:

1. Go to ECS > Network and Security > EIP, or go to VPC > Elastic IP addresses > Create EIP or VPC > Elastic IP addresses > Create EIP.

VPC      | Elastic IP Addresses

VPCs      Create EIP      Request Specific EIP      Refresh      Export      Custom

<input type="checkbox"/>	Instance ID/Name	IP Address	Monitor	Bandwidth	Charge Type(All) ▾	Status(All) ▾
<input type="checkbox"/>	eip-uf6k1tdb4wii4a89y vssc	47.102.120.197		5 Mbps Pay By Traffic	Pay-As-You-Go 07/03/2019, 11:05:49 Created	
<input type="checkbox"/>	eip-uffhdnuvh9rlqze6ejqy	47.102.204.216		5 Mbps Pay By Traffic	Pay-As-You-Go 07/03/2019, 11:05:49 Created	

Elastic IP Addresses      NAT Gateways      Global Acceleration

## 2. Create the EIPs.

Region: China (Qingdao) China (Beijing) China (Zhangjiakou) China (Hohhot) China (Hangzhou) **China (Shanghai)**

Network Traffic: **By traffic**

isp: **BGP**

Max Bandwidth: 5 Mbps

Billing Cycle: 1 Hour(s)

Eip Rentalfee: Yes

Billing Item: Configuration Fee(IP Fee)+Traffic Fee

Quantity: 1

Fee: **\$0.003 / Hour(s)**

Public Traffic Fee: **\$0.123 / GB**

**Buy Now**

Fee: Billing Cycle: Hour

Purchase Plan: Quantity: 1

You currently have 18 instances. You can create 2 more instances

## 3. Confirm the order and click Activate.

[https://docs.versa-networks.com/Getting\\_Started/Deployment\\_and\\_Initial\\_Configuration/Branch\\_Deployment/Initial\\_Configuration/](https://docs.versa-networks.com/Getting_Started/Deployment_and_Initial_Configuration/Branch_Deployment/Initial_Configuration/)  
 Updated: Wed, 23 Oct 2024 07:23:30 GMT  
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## Confirm Order

Confirm Order		Activated Successfully			
Item Information	Method of Payment	Quantity	Discount	Fee	
<b>Elastic IP</b> Region: China (Shanghai) Length of Service Time: Hour Network Traffic: By traffic isp: BGP Max Bandwidth: 5Mbps Eip RentalFee: Yes Billing Item: Configuration Fee(IP Fee)+Traffic Fee	Pay-As-You-Go	1	\$0.000/ Hour(s)	Base Price: \$0.003/ Hour(s) Network Flow Price: 0.123/GB	
<input checked="" type="checkbox"/> Elastic IP Agreement of Service <input type="button" value="Activate"/>					

4. Click End.

## Elastic IP Addresses

		Create EIP		Request Specific EIP		Refresh	Export	Custom	Elastic IP Address		Enter a ID	<input type="button" value=""/>
		Instance ID/Name	IP Address	Monitor	Bandwidth	Charge Type(All) ▾	Status(All) ▾	Shared Bandwidth/Global Acceleration	Bind Instance	Instance Type(All) ▾	Actions	
<input type="checkbox"/>	eip-uf692kj54q5vshxgtu31	-	47.103.114.160	<input type="button" value=""/>	5 Mbps Pay By Traffic	Pay-As-You-Go 07/31/2019, 00:46:03 Created	Available	Add to Shared Bandwidth Package Add to Global Acceleration	-	-	<input type="button" value="Bind"/> <input type="button" value="Unbind"/> <input type="button" value="More"/>	

5. Associate the EIPs with the WAN and MGMT ENIs:

## Bind Elastic IP Address

### IP Address:

47.103.114.160

#### ● Instance Type

Secondary ENI

#### Mode

NAT Mode

- i** 1. The elastic IP address binds to the ENI as a NAT IP. The ENI supports both public IP address and private IP address.  
2. You cannot view the elastic IP address in the OS. However, you can use Open API to retrieve the public IP address of a specified ENI.  
3. NAT mode does not support NAT ALG protocols such as H.323, SIP, DNS, RTSP, TFTP.

#### ● Secondary ENI

SH-FlexVNF-02-MGMT/eni-uf63h3n22mfcyuu7b6fm  
SH-FlexVNF-02-WAN/eni-uf6gsg2xv24gf6i7aunv  
SH-FlexVNF-01-MGMT/eni-uf65pz2xotjgah568ldd  
SH-Flex-VNF-01-WAN/eni-uf6fhn2vs8awnhvqgxq6

OK

## Configure HAVIP

High availability virtual private network IP (HAVIP) is a private network IP resource that you can create and release independently. A feature of this private network IP is that the user can use the ARP protocol on the ECS to announce this IP address.

A HAVIP object can be bound to a maximum of two ECS instances. Instances can be bound by ARP by the way of private network IP announcement.

An ECS instance can hold the common private network IP address. A user can declare multiple private network IP addresses of HAVIP type, thereby simultaneously holding multiple private IP addresses.

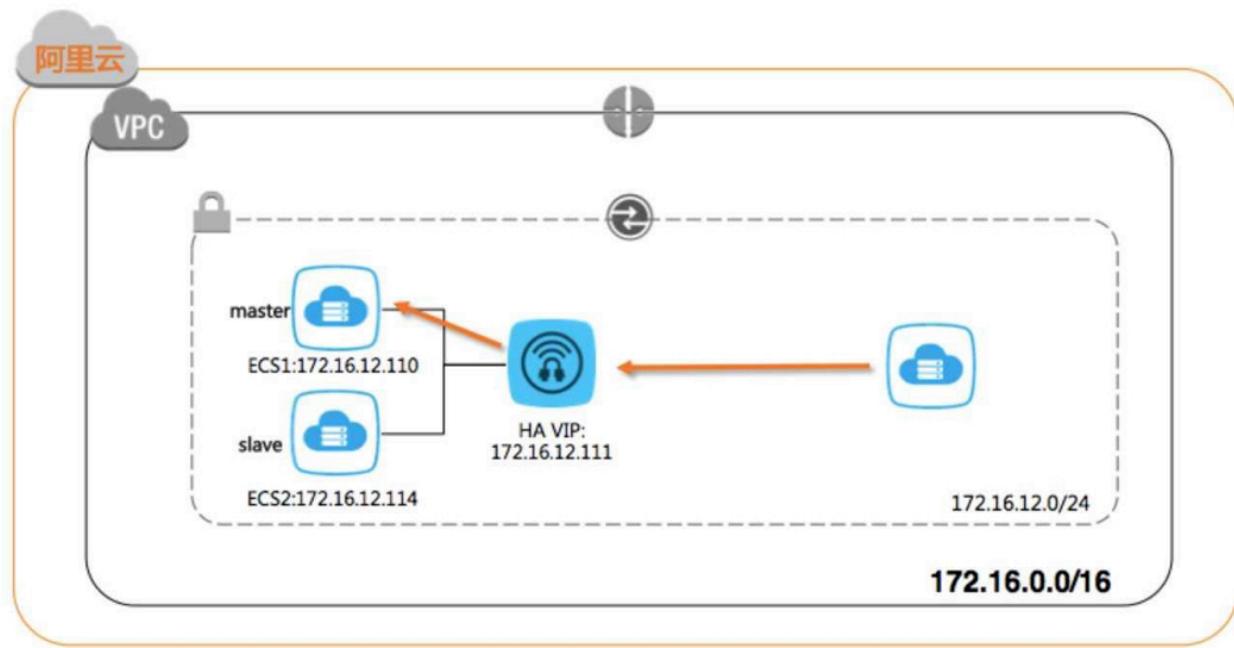
Utilizing the private network IP announcements available on ECS, you can implement high-availability solutions based on VRRP, including mature open source solutions such as keepalived and heartbeat.

HAVIP can be bound to the EIP so that when HAVIP switches between ECS instances, messages sent to the EIP are redirected to the new ECS instance.

HAVIP supports only VPC network environments. The HAVIP function is not available in the Classic network environment.

By default, HAVIP is not visible under the VPC. You must open a support ticket with Alibaba to enable the HAVIP dashboard for the cloud account. When you open the support ticket, you must include the open source tools keepalived and heartbeat, at a minimum, in the HAVIP backend.

A typical use case for using HAVIP is when an application on ECS needs to rely on the declaration of private IP addresses by ARP. Because open source tools such as keepalived and heartbeat are used in HAVIP to achieve high availability for the network and services, two ECS instances are needed, as shown in the following figure. These two ECS instances, based on HAVIP, use keepalived to form a private network service with high availability. Other instances in the VPC can access the service through the private network, and the service address is the IP address of HAVIP. When instance 1 fails, instance 2 takes over the service and the service IP address does not change.



HAVIP has the following limitations:

- Each instance can hold a maximum of five HAVIP objects. Deleted HAVIP objects are not counted.
- A maximum of five HAVIP objects can exist simultaneously in each VPC. Deleted HAVIP objects are not counted.
- Each cloud server instance can bind up to five HAVIPs at the same time. A user can only bind a maximum of two cloud server instances at a time.
- Multicast communication cannot be used.
- Broadcast communication cannot be used.

Before you configure HAVIP, you must modify the VOS boot configuration file and stage the VOS device using ZTP.

## Modify the VOS Boot Configuration File

Make the following modifications to the VOS boot-config file so that it can integrate with Alibaba HAVIP:

1. Modify `sshd_config` to allow password-based authentication for the Director node southbound IP address. You can do this in one of the following ways:
  - Allow password authentication only for the Director southbound IP address (control network IP address). This option provides suitable security for production environments.

```
~$ sudo nano /etc/ssh/sshd_conf
```

```
Match Address 172.23.1.2/32
  PasswordAuthentication yes
Match all
```

- Allow password authentication for all, which is suitable for testing and preproduction environments.

```
~$ sudo nano /etc/ssh/sshd_conf  
PasswordAuthentication yes
```

2. Change available interfaces to present to global routing table from eth0 to eth2.

```
~$ sudo nano /etc/network/interfaces  
//Change eth0 to eth2
```

```
GNU nano 2.2.6                                         File: /etc/network/interfaces

# This file describes the network interfaces available on your system
# and how to activate them. For more information, see interfaces(5).

# The loopback network interface
auto lo
iface lo inet loopback

# The primary network interface
auto eth2
iface eth2 inet dhcp
```

- Edit the /opt/versa/etc/vsboot.conf file, and change the avoid list interface from eth0 to eth2.

```
GNU nano 2.2.6                                         File: /opt/versa/etc/vsboot.conf

-- vim: se ft=lua:
-- This file is what gets generated from VOAE

vsm_configs = {
    appliance_id      = '7fb2e6f6-11ea-4338-90a1-b8b27ca2b810', -- from Versa Director
    avoid             = 'eth2',                                     -- not for Versa Director; dev only
    personality       = 'VCSN',                                     -- deprecate personality file, and use this instead
    vcn_instance      = 0,                                         -- VCN instance number (0/1 - intra chassis)
    vcn_ip_addr       = '127.0.0.1',                                -- MGMT_INT IP, only to be used by ConfD
    vcn_master_ip_addr = '127.0.0.1',                                -- floating IP between active and standby VCN/RE.
    vcsn_only         = true,                                       -- should be in the same subnet as MGMT_INT IP
    vsn_slot          = 0,                                         -- change to false, when there are multiple VSNS
    -- VSN slot number

    -- NOTE: try to keep the fields in-use (un-commented), sorted.

    sng_id            = 0,                                         -- dropped vsn_ prefix (0 = default)
    sng_name          = 'default',                                 -- DEPRECATED - remove
    virtio            = false,                                     -- todo
    vnm_ip            = '192.168.122.1',                            -- todo

    -- cli_port and ring configs not imported
    numa_node_0_cfg   = {
        cpumask        = '0xfef',                                -- { X in range [0, 3], mask obtained from
                                                                -- lscpu -x. If not specified default is
                                                                -- obtained from the system. To exclude
                                                                -- specify '0x0'}
    },
}
```

- Issue the **vsh restart** CLI command to restart Versa services.

## Stage the VOS Device

Stage the device using CLI ZTP:

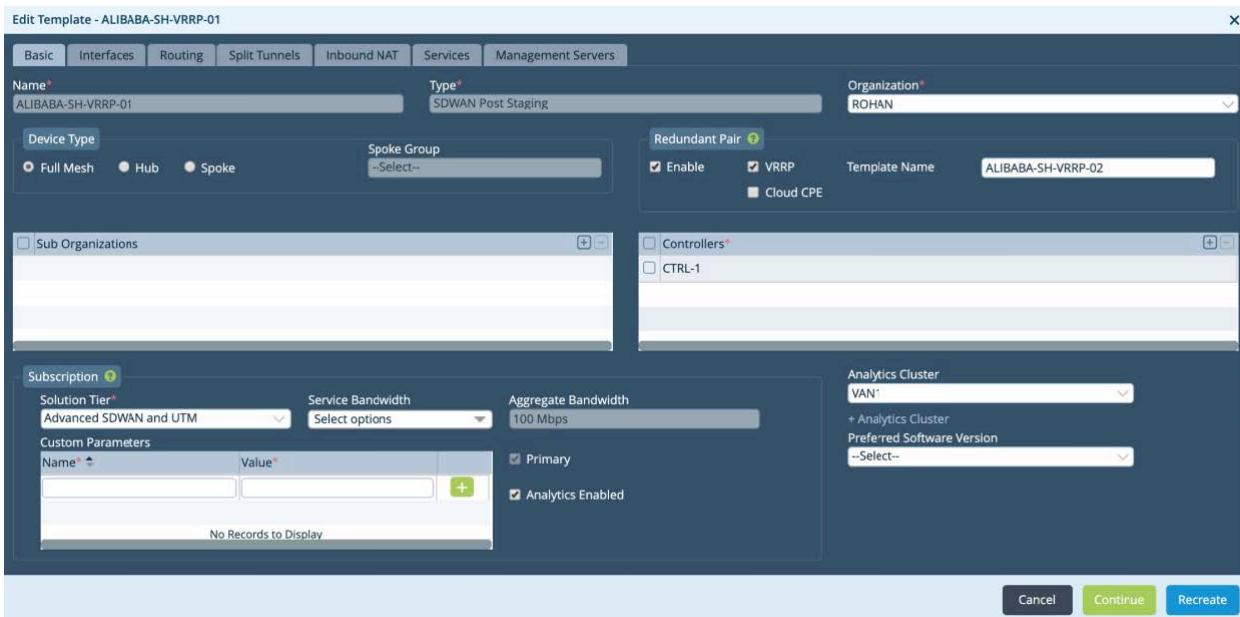
1. Run the staging script, providing an IP address in the **-c** and specifying the name of the Controller node and provider organization. After the staging script completes, the order of the ports is as follows:

- LAN (eth0)—vni-0/0
- WAN (eth1)—vni-0/1
- MGMT (eth2)—Exposed to the Linux kernel namespace

For example:

```
~$ sudo /opt/versa/scripts/staging.py -w 1 -c 103.231.208.60 -d -l SDWAN-Branch@Versa.com -r Controller01-staging@Versa.com
```

2. Configure the VOS device. Sample templates used are listed here for reference.



Edit Template - ALIBABA-SH-VRRP-01

Basic Interfaces Routing Split Tunnels Inbound NAT Services Management Servers

**Device Port Configuration**

Number of Ports	0	1	2	3	4	5
6	Mgmt	LAN	WAN			

**Redundant Device Port Configuration**

Number of Ports	0	1	2	3	4	5
6	Mgmt	LAN	WAN			

**WAN Interfaces**

Port #	Interface	VLAN ID	Network Name	Priority	IPv4	IPv6	Allow SSH To CPE	Link Monitor	Sub Interfaces
0	vni-0/1		INTERNET-1		Static	DHCP	Static	DHCP	

**Redundant Device WAN Interfaces**

Port #	Interface	VLAN ID	Network Name	Priority	IPv4	IPv6	Allow SSH To CPE	Link Monitor	Sub Interfaces
0	vni-0/1		INTERNET-1		Static	DHCP	Static	DHCP	

**LAN Interfaces**

Port #	Interface	VLAN ID	Network Name	Organization	Zones	Routing Instance	IPv4	IPv6	Sub Interfaces
0	vni-0/0		ROHAN-LAN	ROHAN	--Select--	ROHAN-LAN-VR	Static	DHCP	

Back Cancel Continue Recreate

Edit Template - ALIBABA-SH-VRRP-01

Basic Interfaces Routing Split Tunnels Inbound NAT Services Management Servers

**Split Tunnels**

VRF Names	WAN Interfaces	DIA	Gateway
--Select--	--Select--		
ROHAN-LAN-VR	INTERNET-1		

Load Balance

Back Cancel Continue Recreate

Monitor Configuration Workflows Administration Analytics

Home ALIBABA-SH-VRRP-01

**Options**

**VRRP Options**

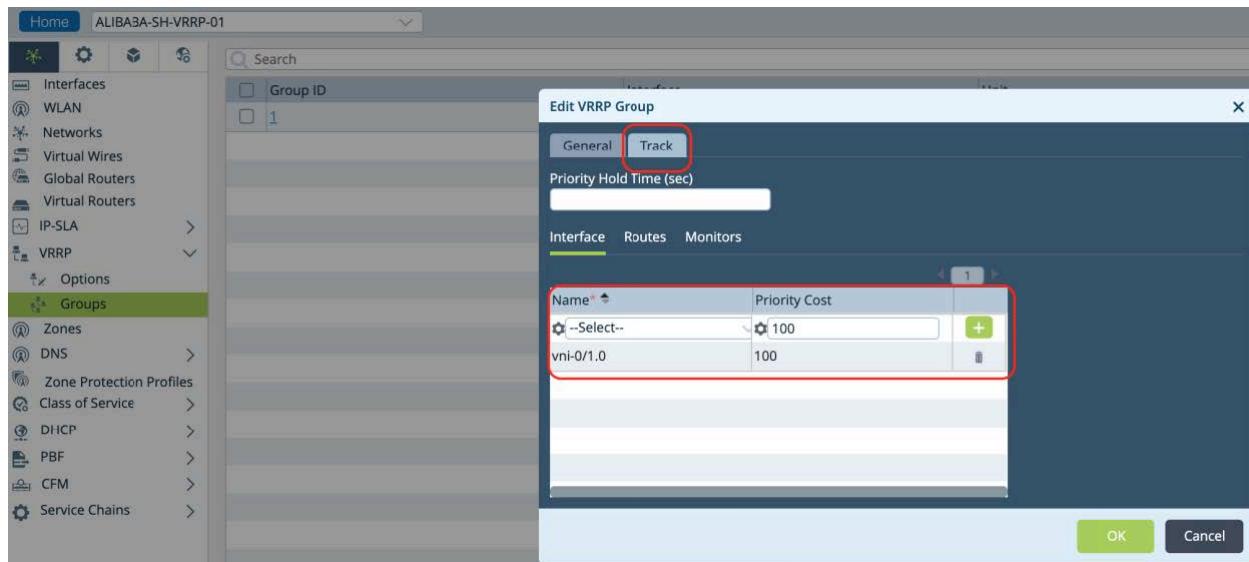
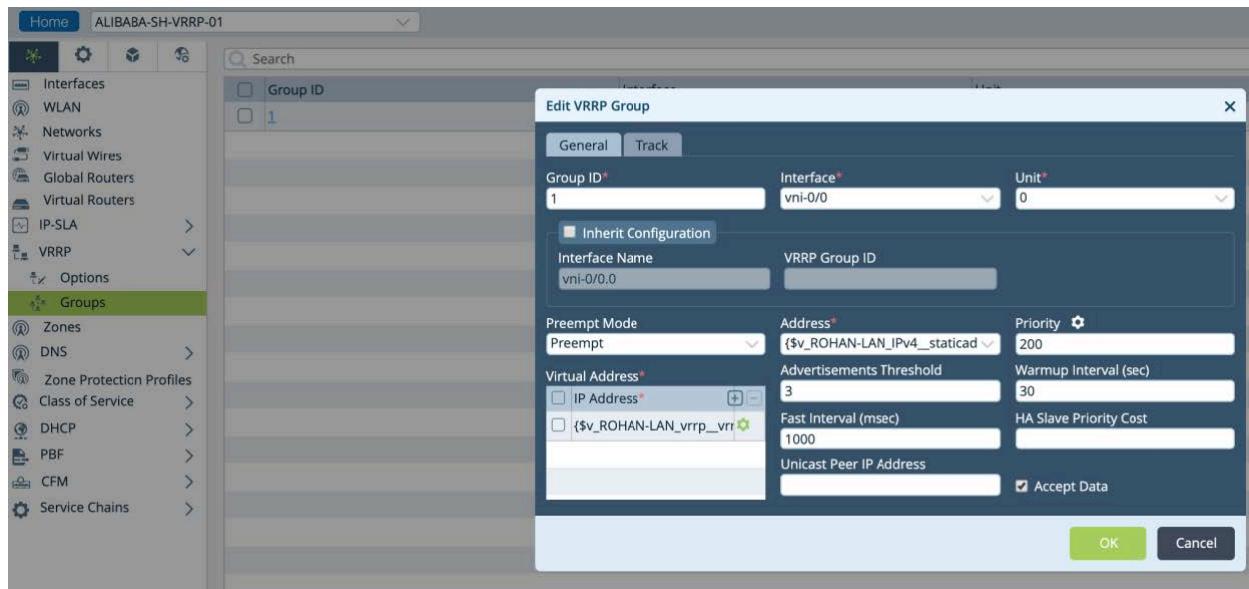
MAC Address Mode	: physical
Version	: v3
Unicast Peer IP Address	: \${\$v_vrrp_Uncast_peer_ip_address}
Alarm Logs Soak Time (sec)	:
<input type="checkbox"/> IPv4 Checksum With Pseudoheader	

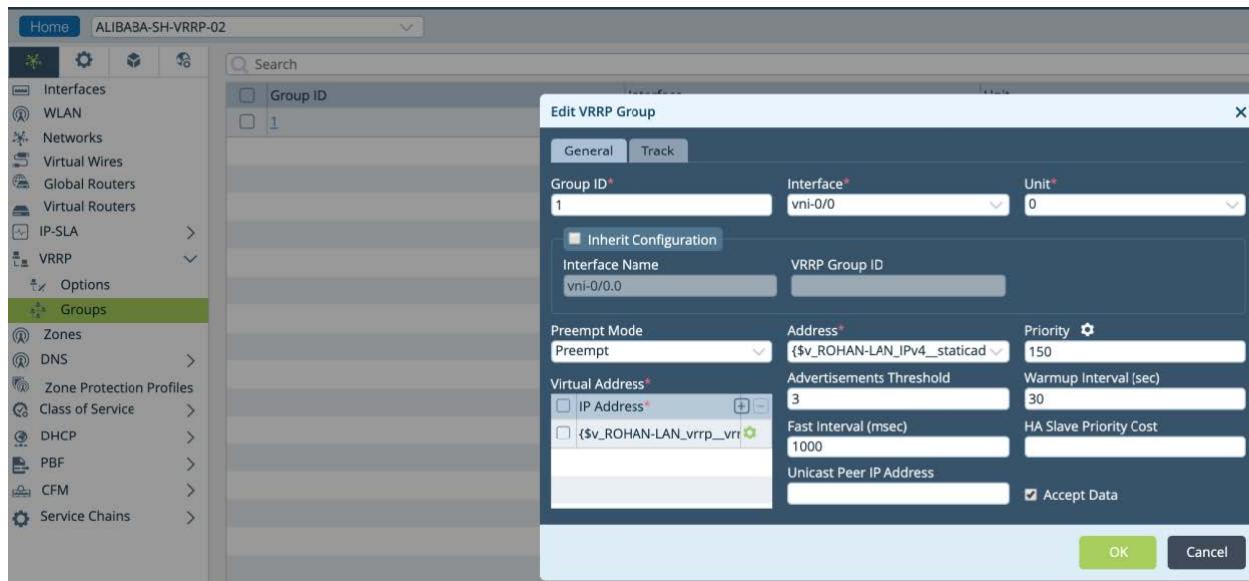
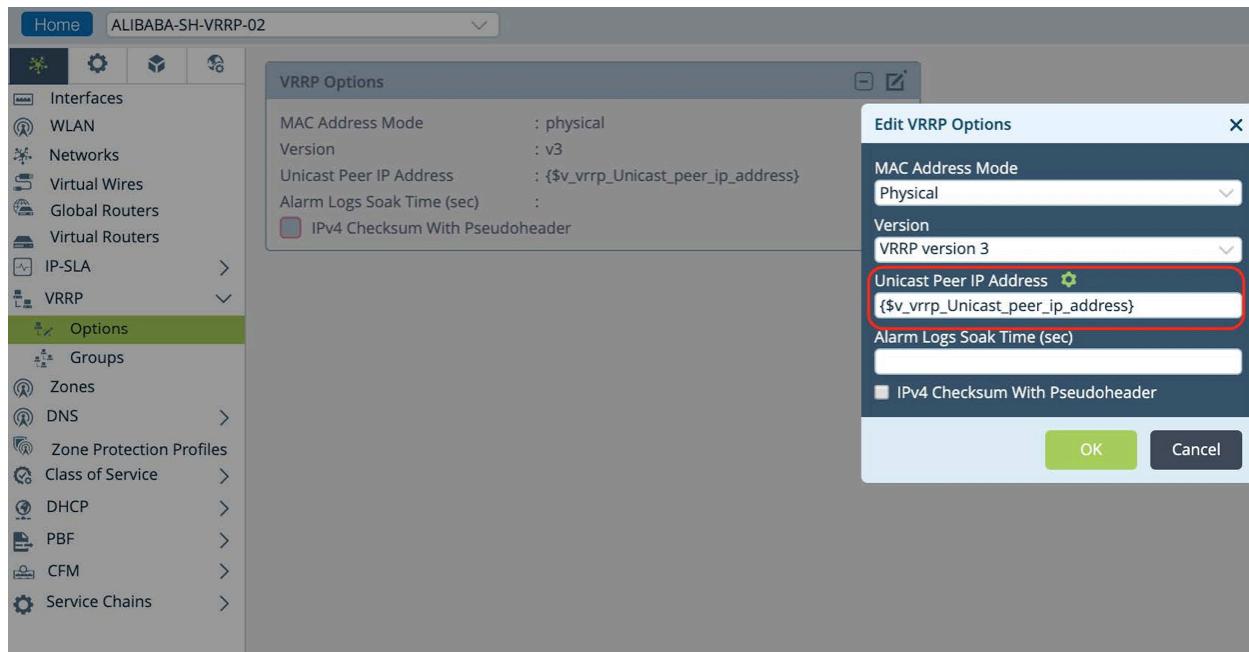
**Edit VRRP Options**

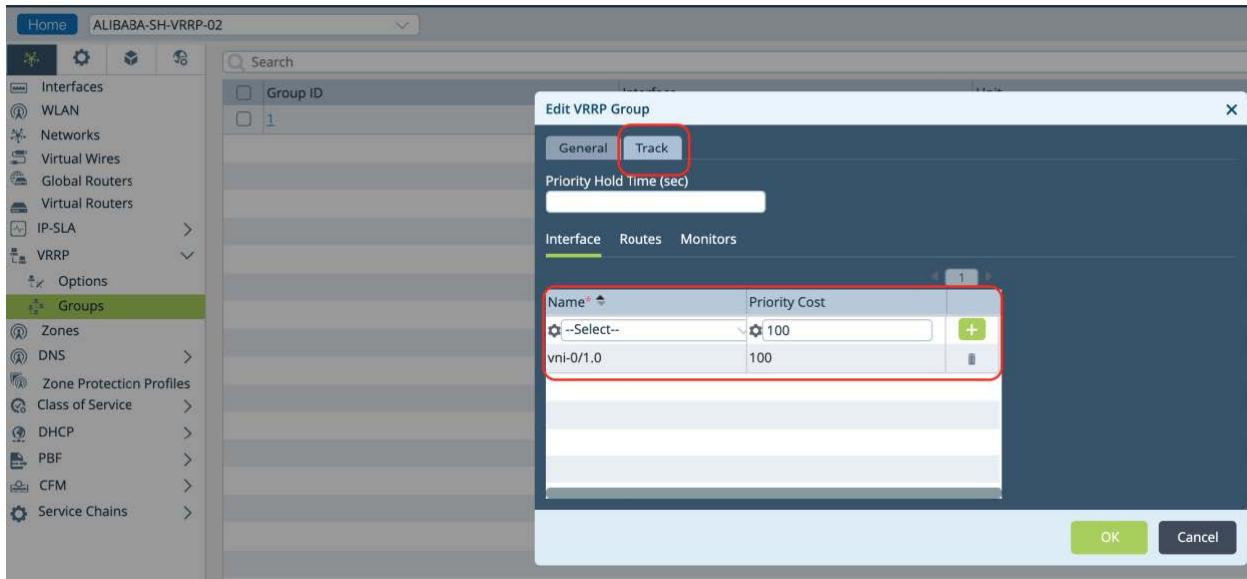
MAC Address Mode	Physical
Version	VRRP version 3
Unicast Peer IP Address	\${\$v_vrrp_Uncast_peer_ip_address}
Alarm Logs Soak Time (sec)	
<input type="checkbox"/> IPv4 Checksum With Pseudoheader	

OK Cancel

[https://docs.versa-networks.com/Getting\\_Started/Deployment\\_and\\_Initial\\_Configuration/Branch\\_Deployment/Initial\\_Configuration](https://docs.versa-networks.com/Getting_Started/Deployment_and_Initial_Configuration/Branch_Deployment/Initial_Configuration)  
 Updated: Wed, 23 Oct 2024 07:23:30 GMT  
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## Configure HAVIP

To configure HAVIP for VRRP integration on the LAN interface:

1. Go to VPC > HAVIP > Create HAVIP Address. Note: that, by default, HAVIP is not visible under the VPC. To enable the HAVIP dashboard for the cloud account, open a support ticket with Alibaba. While raising the support ticket, open source tools keepalived and heartbeat at a minimum must be included in the HAVIP backend.

## Create HaVip Address

X

### Region

China (Shanghai)

#### • VPC

SDWAN-VPC/vpc-uf6xr79q19kb688gn84ka

#### • VSwitch

SH-SDWAN-LAN/vsw-uf6uywkixew1kd1zkxqtz

### VSwitch CIDR Block

192.168.2.0/24

#### Private IP Address

192 • 168 • 2 • 200

OK

Cancel

## HaVip Addresses

Create HaVip Address Refresh Custom Instance ID Enter a ID

Instance ID	IP Address	Status	Bind Instance	VPC	VSwitch	Actions
havip-uf65x42vxmvo70bqww0jr	192.168.2.200(Intranet IP)	Allocated	i-uf6gb4f4322kopv3xzof(Master) i-uf6a47t80hnkq2gyhj5g(Slave)	vpc-uf6xr79q19kb688gn84ka SDWAN-VPC	vsw-uf6uywkwixew1kd1zkxqzt SH-SDWAN-LAN	<a href="#">Manage More</a>

Information

ID	havip-uf65x42vxmvo70bqww0jr	Status	Allocated
Region	China (Shanghai)	Intranet IP	192.168.2.200
VPC ID	vpc-uf6xr79q19kb688gn84ka	Created At	07/03/2019, 12:39:29
VSwitch	vsw-uf6uywkwixew1kd1zkxqzt	Description	<a href="#">Edit</a>

Resources

No EIP Bound

HaVip Address: 192.168.2.200 (Intranet IP)

ECS Instance(Slave)  
i-uf6a47t80hnkq2gyhj5g  
Running

ECS Instance(Master)  
i-uf6gb4f4322kopv3xzof  
Running

Map FlexVNF NVAs to Master and Slave role as per topology

Unbind

## Control Route Tables

After you create a VPC, the system creates a default route table to control routes in the VPC. By default, all the VSwitches in the VPC use this route table. You cannot create or delete the default route table. However, you can create a custom route table and attach it to the VSwitch to control the routes in the subnet.

To create a custom route table:

1. Go to VPC > Route Table > Create Route Table.
2. Go to Created Route Table > Add Route Entry

The example here creates a custom route using the HAIP IP address (here, the VRRP virtual IP address), to reach the Beijing LAN subnet 192.168.100.0/24:

[https://docs.versa-networks.com/Getting\\_Started/Deployment\\_and\\_Initial\\_Configuration/Branch\\_Deployment/Initial\\_Configuration/](https://docs.versa-networks.com/Getting_Started/Deployment_and_Initial_Configuration/Branch_Deployment/Initial_Configuration/)

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## Create Route Table

● **VPC**

SDWAN-VPC/vpc-uf6xr79q19kb688gn84ka ✓

● **Name**

SDWAN-Route-Table 17/128

**Description**

0/256

## Add Route Entry

● Name ?

Beijing-subnet-192-168-100-0-24 31/128 ✓

● Destination CIDR Block

192 • 168 • 100 • 0 / 24 ✓

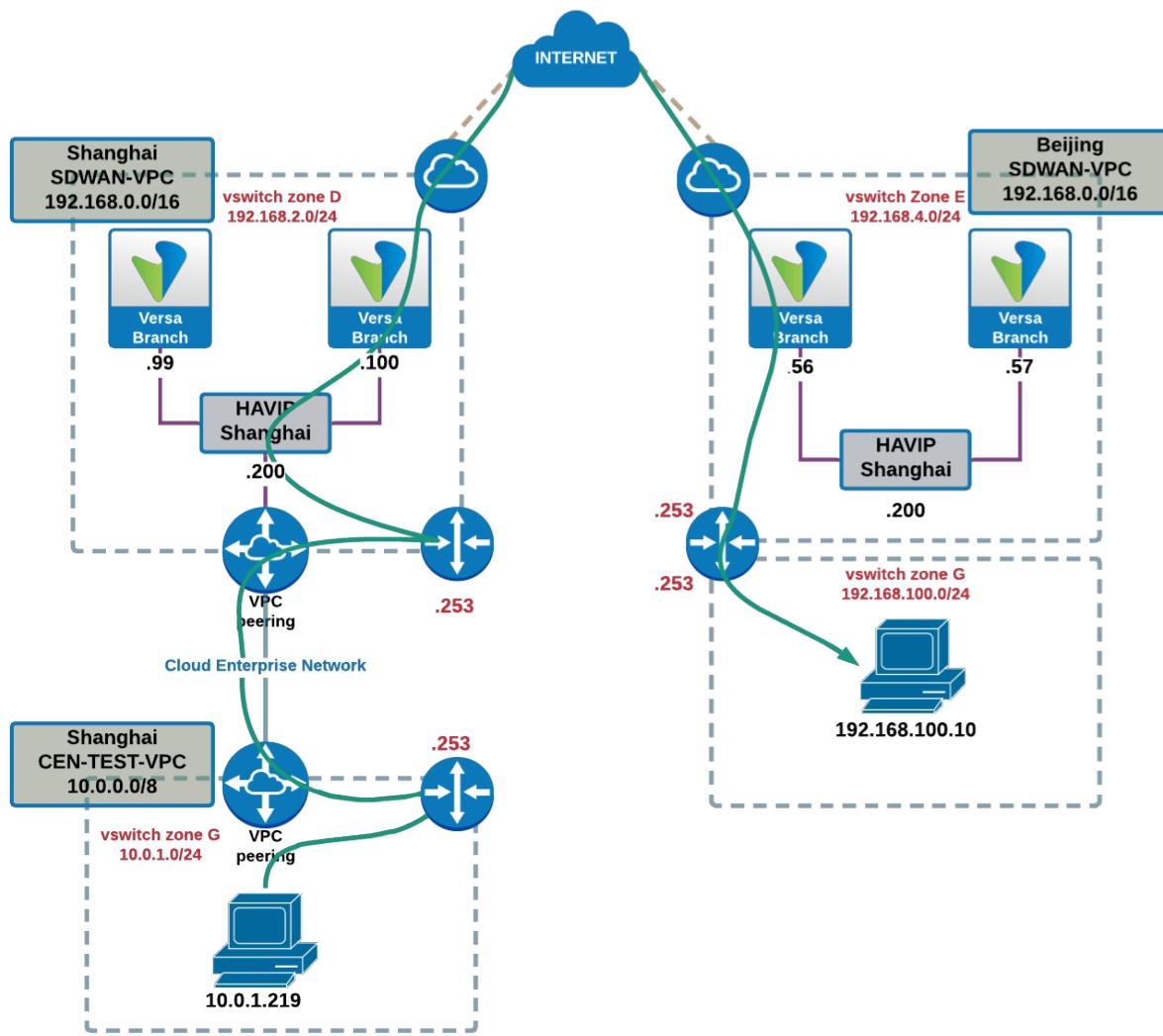
● Next Hop Type

HaVip Address ✓

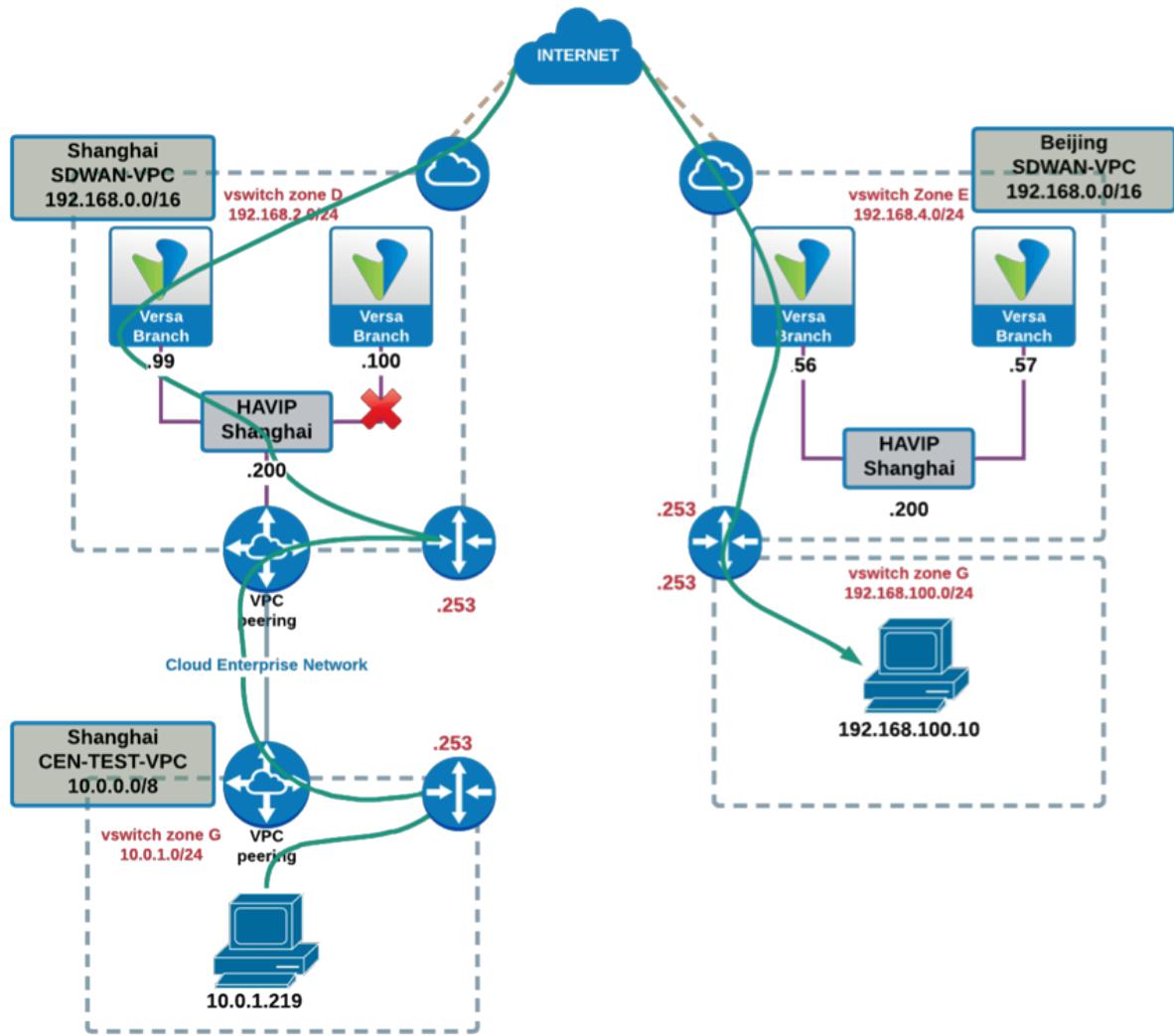
● HaVip Address

havip-uf65x42vxmlvo70bqww0jr ✓

The following figures and **ping** command output illustrate the convergence times when a LAN or WAN link fails. The following figure shows the operational topology.



Failure of a Shanghai LAN:

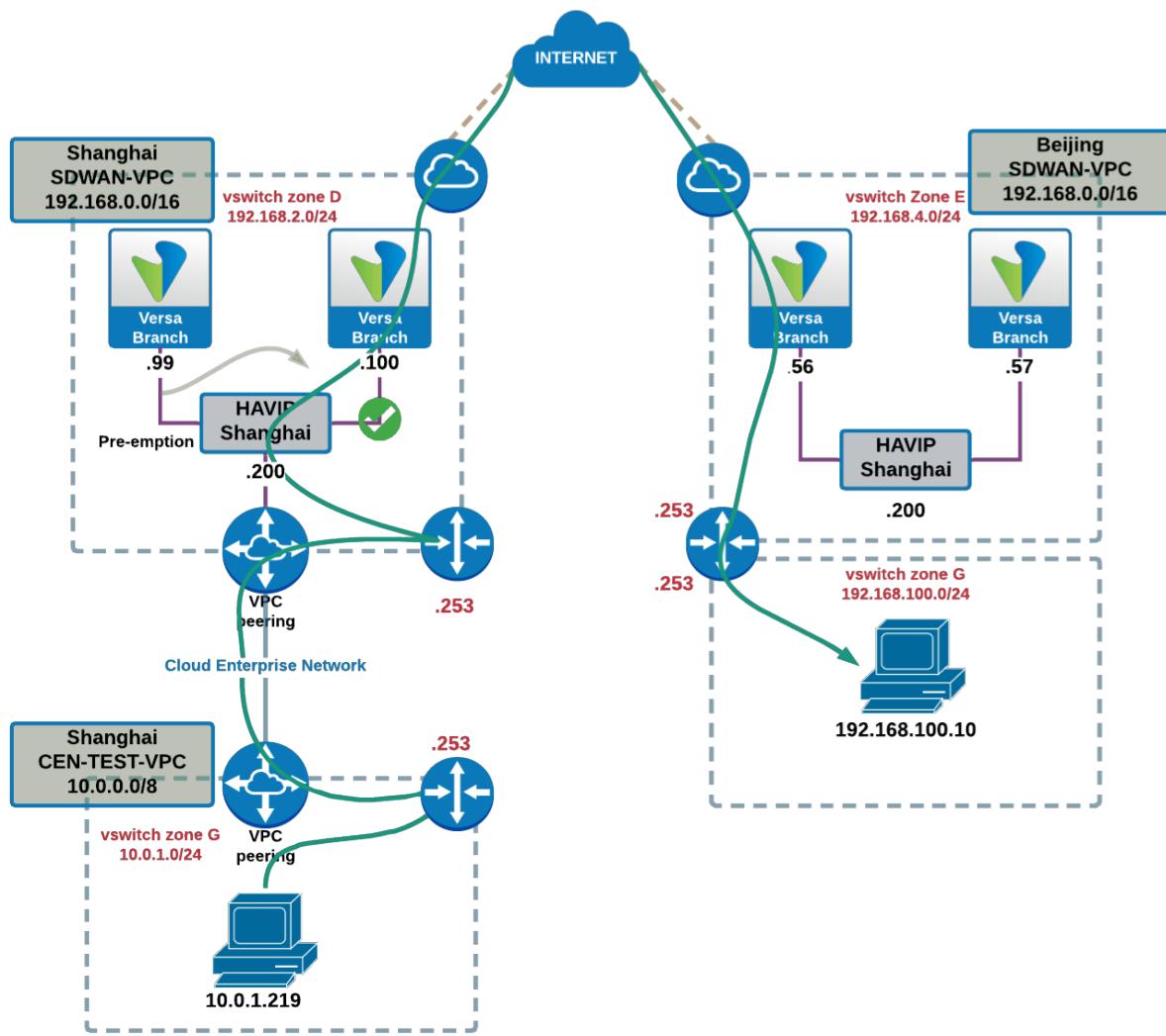


```
C:\>ping 192.168.100.10 -t -w 1000

Pinging 192.168.100.10 with 32 bytes of data:
Reply from 192.168.100.10: bytes=32 time=26ms TTL=126
Reply from 192.168.100.10: bytes=32 time=25ms TTL=126
Reply from 192.168.100.10: bytes=32 time=25ms TTL=126
Reply from 192.168.100.10: bytes=32 time=25ms TTL=126
Reply from 192.168.100.10: bytes=32 time=26ms TTL=126
Reply from 192.168.100.10: bytes=32 time=25ms TTL=126
Reply from 192.168.100.10: bytes=32 time=26ms TTL=126
Reply from 192.168.100.10: bytes=32 time=25ms TTL=126
Reply from 192.168.100.10: bytes=32 time=26ms TTL=126
Reply from 192.168.100.10: bytes=32 time=25ms TTL=126
Reply from 192.168.100.10: bytes=32 time=26ms TTL=126
Reply from 192.168.100.10: bytes=32 time=25ms TTL=126
Reply from 192.168.100.10: bytes=32 time=25ms TTL=126
Reply from 192.168.100.10: bytes=32 time=26ms TTL=126
Reply from 192.168.100.10: bytes=32 time=25ms TTL=126
Reply from 192.168.100.10: bytes=32 time=26ms TTL=126
Reply from 192.168.100.10: bytes=32 time=25ms TTL=126
Reply from 192.168.100.10: bytes=32 time=25ms TTL=126
Reply from 192.168.100.10: bytes=32 time=26ms TTL=126
Reply from 192.168.100.10: bytes=32 time=25ms TTL=126
Reply from 192.168.100.10: bytes=32 time=26ms TTL=126
Reply from 192.168.100.10: bytes=32 time=25ms TTL=126
Reply from 192.168.100.10: bytes=32 time=25ms TTL=126
Reply from 192.168.100.10: bytes=32 time=26ms TTL=126
Reply from 192.168.100.10: bytes=32 time=25ms TTL=126
Request timed out.
Request timed out.
Request timed out.
Reply from 192.168.100.10: bytes=32 time=24ms TTL=126

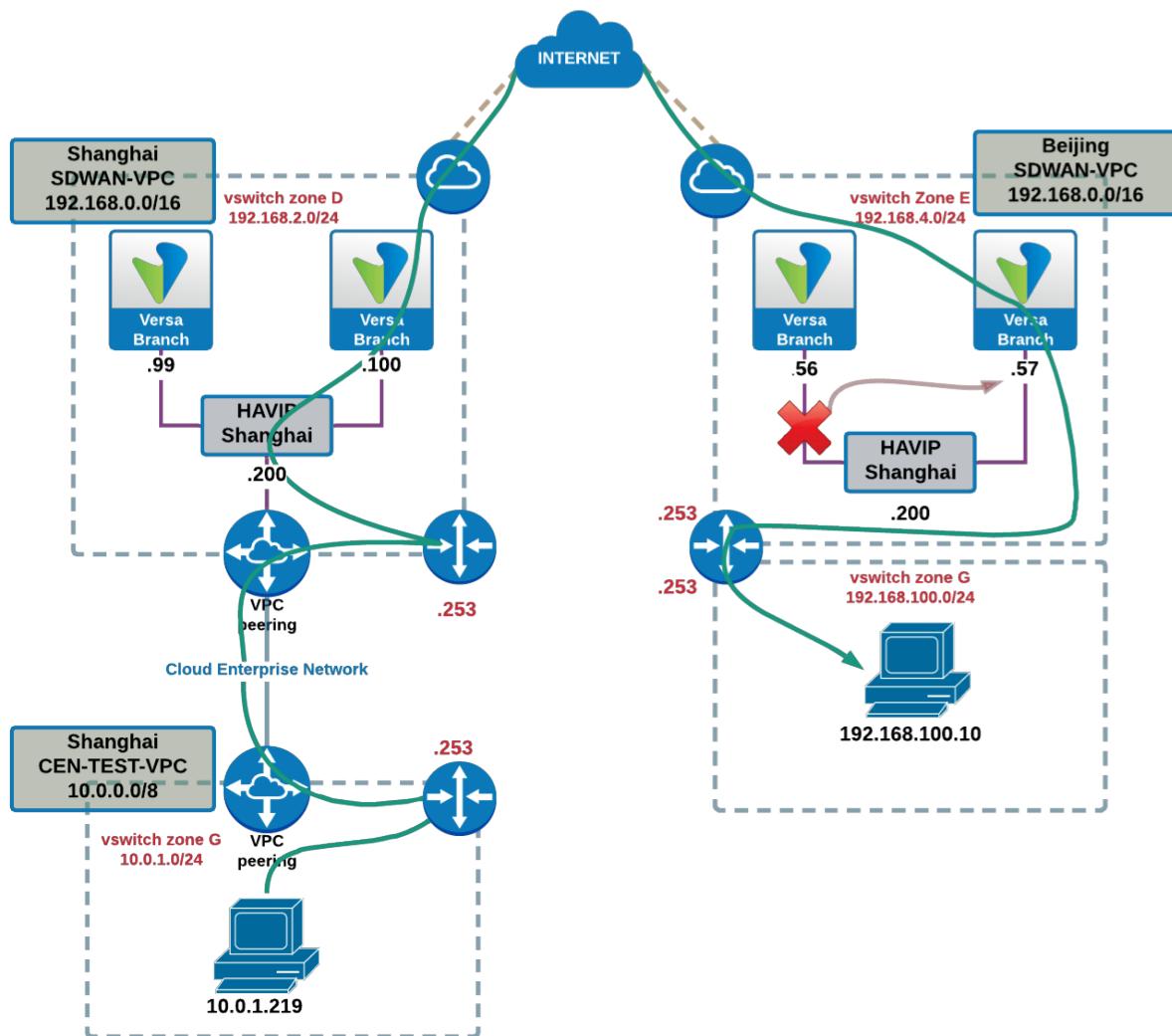
Ping statistics for 192.168.100.10:
    Packets: Sent = 36, Received = 33, Lost = 3 (8% loss),
Approximate round trip times in milli-seconds:
    Minimum = 24ms, Maximum = 26ms, Average = 25ms
Control-C
```

Recovery of the Shanghai LAN:



```
Reply from 192.168.100.10: bytes=32 time=24ms TTL=126
Reply from 192.168.100.10: bytes=32 time=24ms TTL=126
Request timed out.
Reply from 192.168.100.10: bytes=32 time=26ms TTL=126
Reply from 192.168.100.10: bytes=32 time=25ms TTL=126
Reply from 192.168.100.10: bytes=32 time=25ms TTL=126
Reply from 192.168.100.10: bytes=32 time=26ms TTL=126
Reply from 192.168.100.10: bytes=32 time=26ms TTL=126
Reply from 192.168.100.10: bytes=32 time=25ms TTL=126
Reply from 192.168.100.10: bytes=32 time=26ms TTL=126
Reply from 192.168.100.10: bytes=32 time=25ms TTL=126
Ping statistics for 192.168.100.10:
  Packets: Sent = 87, Received = 86, Lost = 1 (1% loss),
Approximate round trip times in milli-seconds:
  Minimum = 24ms, Maximum = 26ms, Average = 24ms
Control-C
```

Failure of a Beijing LAN:

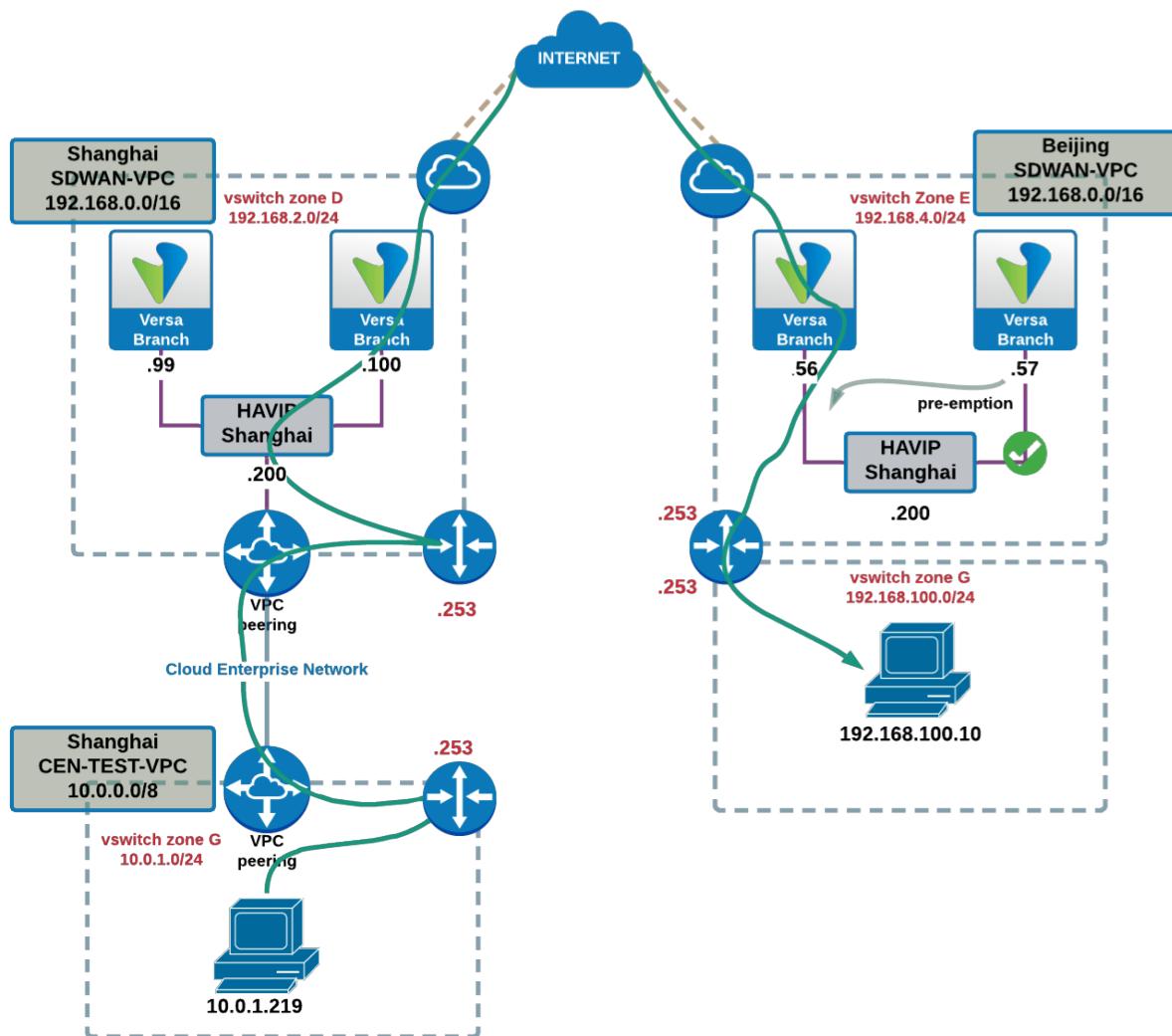


```
C:\Users\Administrator>ping 192.168.100.10 -t -w 1000

Pinging 192.168.100.10 with 32 bytes of data:
Reply from 192.168.100.10: bytes=32 time=26ms TTL=126
Reply from 192.168.100.10: bytes=32 time=25ms TTL=126
Reply from 192.168.100.10: bytes=32 time=26ms TTL=126
Reply from 192.168.100.10: bytes=32 time=28ms TTL=126
Request timed out.
Request timed out.
Request timed out.
Reply from 192.168.100.10: bytes=32 time=28ms TTL=126
Reply from 192.168.100.10: bytes=32 time=27ms TTL=126
Reply from 192.168.100.10: bytes=32 time=27ms TTL=126

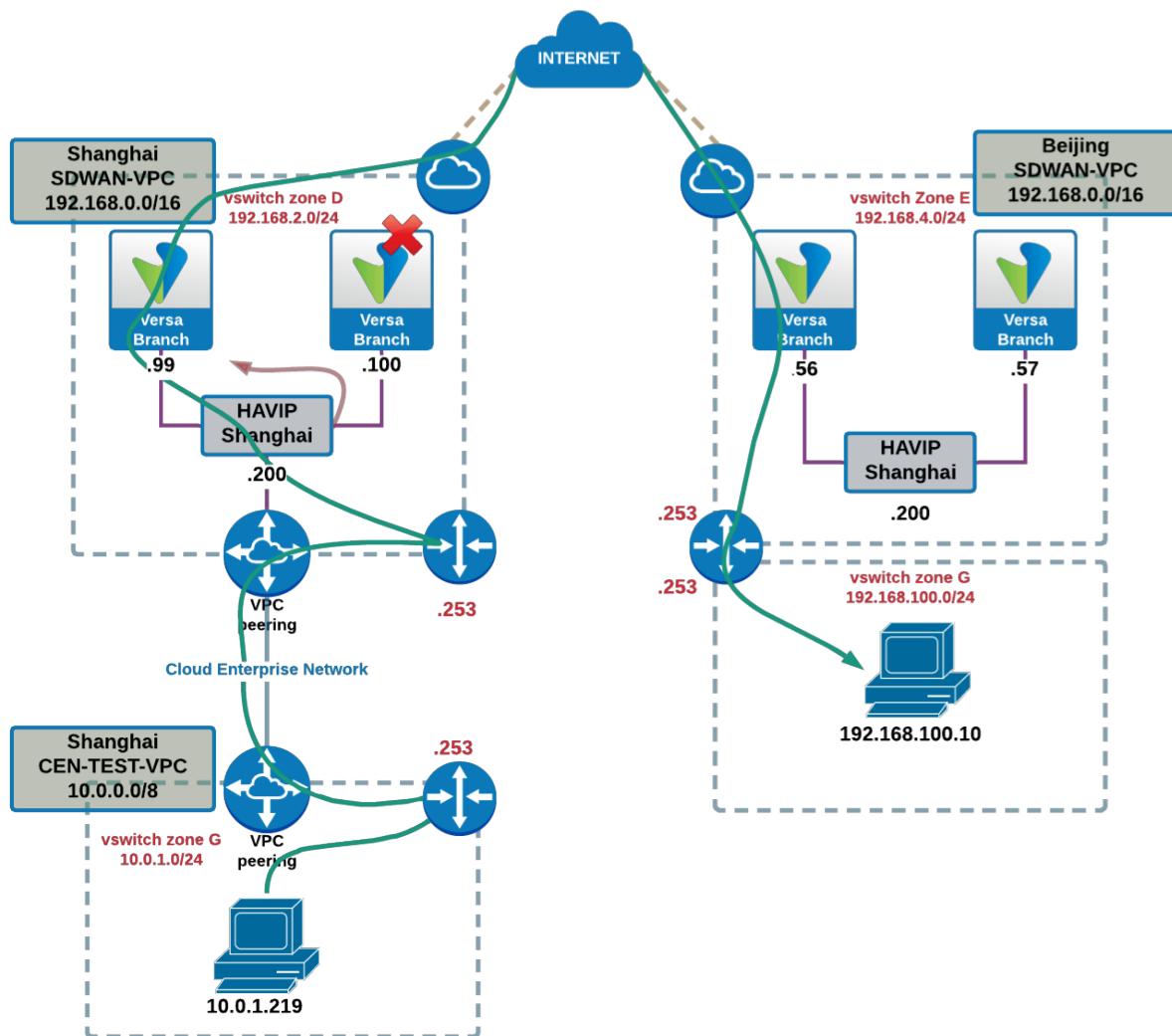
Ping statistics for 192.168.100.10:
    Packets: Sent = 28, Received = 25, Lost = 3 (10% loss),
Approximate round trip times in milli-seconds:
    Minimum = 25ms, Maximum = 28ms, Average = 27ms
Control-C
```

Recovery of the Beijing LAN:



```
Ping statistics for 192.168.100.10:
    Packets: Sent = 93, Received = 92, Lost = 1 (1% loss),
Approximate round trip times in milli-seconds:
    Minimum = 25ms, Maximum = 28ms, Average = 26ms
Centos-5
```

## Result of the Shanghai LAN failure:

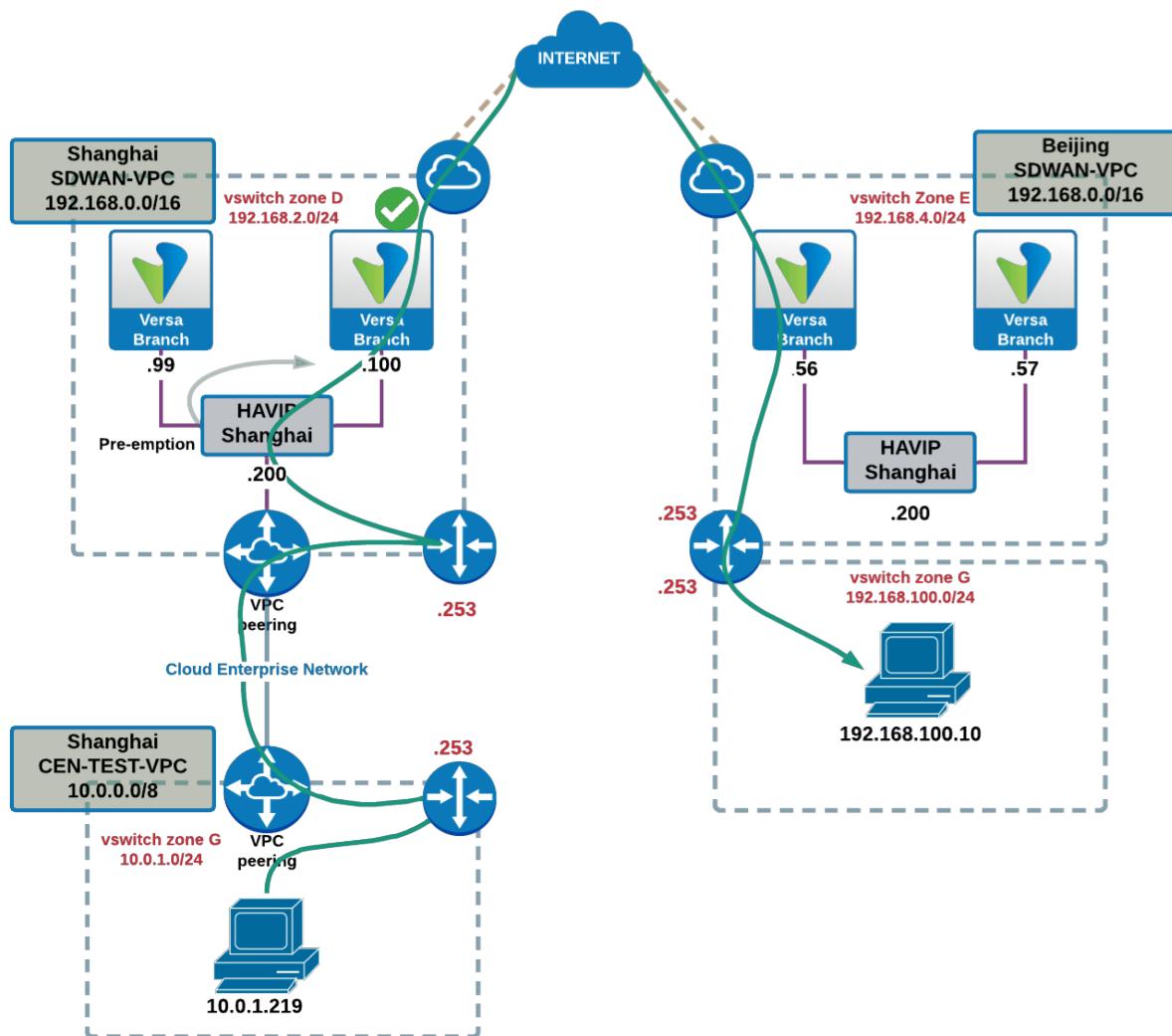


```

Pinging 192.168.100.10 with 32 bytes of data:
Reply from 192.168.100.10: bytes=32 time=26ms TTL=126
Reply from 192.168.100.10: bytes=32 time=25ms TTL=126
Reply from 192.168.100.10: bytes=32 time=26ms TTL=126
Reply from 192.168.100.10: bytes=32 time=25ms TTL=126
Reply from 192.168.100.10: bytes=32 time=26ms TTL=126
Reply from 192.168.100.10: bytes=32 time=26ms TTL=126
Reply from 192.168.100.10: bytes=32 time=26ms TTL=126
Reply from 192.168.100.10: bytes=32 time=25ms TTL=126
Reply from 192.168.100.10: bytes=32 time=26ms TTL=126
Reply from 192.168.100.10: bytes=32 time=25ms TTL=126
Reply from 192.168.100.10: bytes=32 time=26ms TTL=126
Reply from 192.168.100.10: bytes=32 time=25ms TTL=126
Reply from 192.168.100.10: bytes=32 time=28ms TTL=126
Reply from 192.168.100.10: bytes=32 time=25ms TTL=126
Reply from 192.168.100.10: bytes=32 time=26ms TTL=126
Reply from 192.168.100.10: bytes=32 time=25ms TTL=126
Request timed out.
Request timed out.
Request timed out.
Reply from 192.168.100.10: bytes=32 time=24ms TTL=126

Ping statistics for 192.168.100.10:
  Packets: Sent = 47, Received = 44, Lost = 3 (6% loss),
Approximate round trip times in milli-seconds:
  Minimum = 24ms, Maximum = 28ms, Average = 25ms
Control-C
^C

```

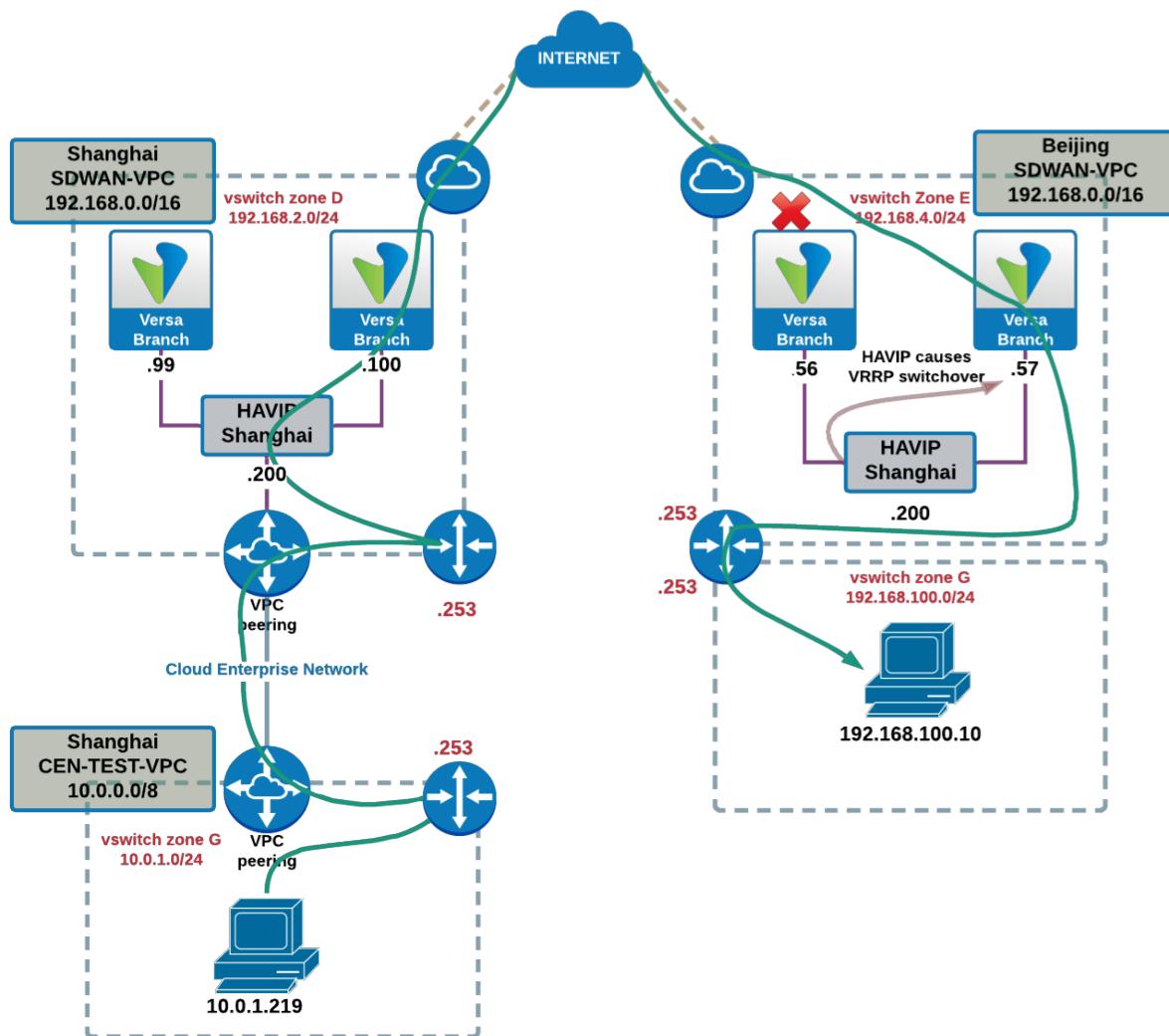


```
C:\Users\Administrator>ping 192.168.100.10 -t -w 1000

Pinging 192.168.100.10 with 32 bytes of data:
Reply from 192.168.100.10: bytes=32 time=24ms TTL=126
Request timed out.
Reply from 192.168.100.10: bytes=32 time=27ms TTL=126
Reply from 192.168.100.10: bytes=32 time=25ms TTL=126
Reply from 192.168.100.10: bytes=32 time=25ms TTL=126
Reply from 192.168.100.10: bytes=32 time=25ms TTL=126
Reply from 192.168.100.10: bytes=32 time=26ms TTL=126
Reply from 192.168.100.10: bytes=32 time=25ms TTL=126
Reply from 192.168.100.10: bytes=32 time=25ms TTL=126
Reply from 192.168.100.10: bytes=32 time=25ms TTL=126
Reply from 192.168.100.10: bytes=32 time=26ms TTL=126
Reply from 192.168.100.10: bytes=32 time=25ms TTL=126

Ping statistics for 192.168.100.10:
  Packets: Sent = 25, Received = 24, Lost = 1 <4% loss>,
Approximate round trip times in milli-seconds:
  Minimum = 24ms, Maximum = 27ms, Average = 24ms
Control-C
^C
```

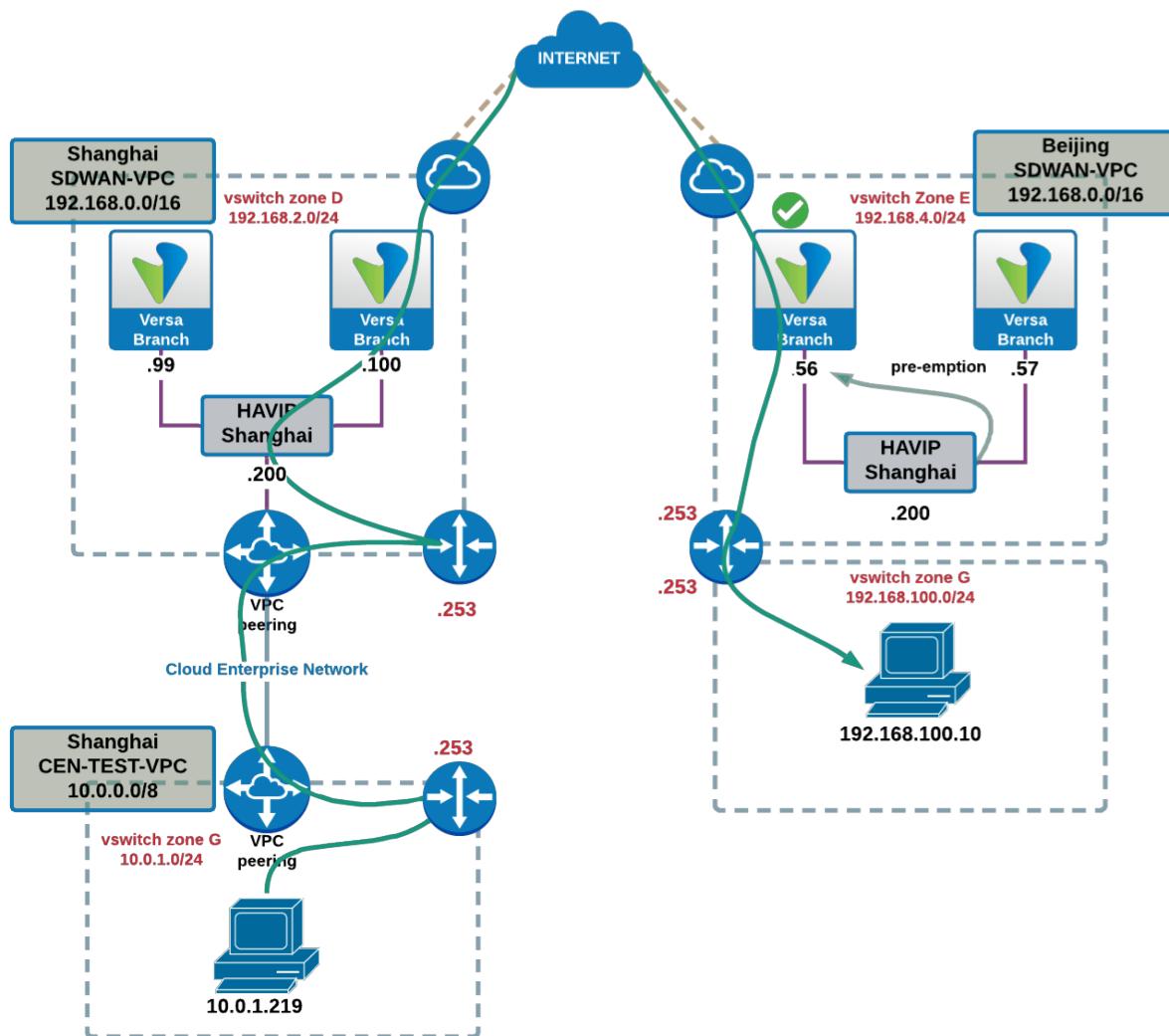
Result of the Beijing LAN failure:



```
C:\Users\Administrator>ping 192.168.100.10 -t -w 1000

Pinging 192.168.100.10 with 32 bytes of data:
Reply from 192.168.100.10: bytes=32 time=26ms TTL=126
Reply from 192.168.100.10: bytes=32 time=26ms TTL=126
Reply from 192.168.100.10: bytes=32 time=25ms TTL=126
Reply from 192.168.100.10: bytes=32 time=26ms TTL=126
Reply from 192.168.100.10: bytes=32 time=25ms TTL=126
Reply from 192.168.100.10: bytes=32 time=25ms TTL=126
Reply from 192.168.100.10: bytes=32 time=26ms TTL=126
Reply from 192.168.100.10: bytes=32 time=26ms TTL=126
Reply from 192.168.100.10: bytes=32 time=25ms TTL=126
Reply from 192.168.100.10: bytes=32 time=27ms TTL=126
Reply from 192.168.100.10: bytes=32 time=25ms TTL=126
Reply from 192.168.100.10: bytes=32 time=26ms TTL=126
Reply from 192.168.100.10: bytes=32 time=26ms TTL=126
Reply from 192.168.100.10: bytes=32 time=26ms TTL=126
Reply from 192.168.100.10: bytes=32 time=25ms TTL=126
Reply from 192.168.100.10: bytes=32 time=26ms TTL=126
Reply from 192.168.100.10: bytes=32 time=26ms TTL=126
Request timed out.
Request timed out.
Request timed out.
Reply from 192.168.100.10: bytes=32 time=28ms TTL=126
Reply from 192.168.100.10: bytes=32 time=27ms TTL=126
Reply from 192.168.100.10: bytes=32 time=28ms TTL=126

Ping statistics for 192.168.100.10:
    Packets: Sent = 39, Received = 36, Lost = 3 (7% loss),
Approximate round trip times in milli-seconds:
    Minimum = 25ms, Maximum = 28ms, Average = 26ms
Control-C
^C
```



```
C:\>ping 192.168.100.10 -t -w 1000

Pinging 192.168.100.10 with 32 bytes of data:
Reply from 192.168.100.10: bytes=32 time=28ms TTL=126
Reply from 192.168.100.10: bytes=32 time=27ms TTL=126
Reply from 192.168.100.10: bytes=32 time=28ms TTL=126
Request timed out.
Reply from 192.168.100.10: bytes=32 time=26ms TTL=126
Reply from 192.168.100.10: bytes=32 time=25ms TTL=126
Reply from 192.168.100.10: bytes=32 time=25ms TTL=126
Reply from 192.168.100.10: bytes=32 time=26ms TTL=126
Reply from 192.168.100.10: bytes=32 time=26ms TTL=126
Reply from 192.168.100.10: bytes=32 time=26ms TTL=126

Ping statistics for 192.168.100.10:
    Packets: Sent = 32, Received = 31, Lost = 1 (3% loss),
Approximate round trip times in milli-seconds:
    Minimum = 25ms, Maximum = 28ms, Average = 27ms
Control-C
^C
```

## Supported Software Information

Releases 21.2.2 and later support all content described in this article.