



# Multi-AZ Support for AWS

Avi Technical Reference (v20.1)

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# Multi-AZ Support for AWS

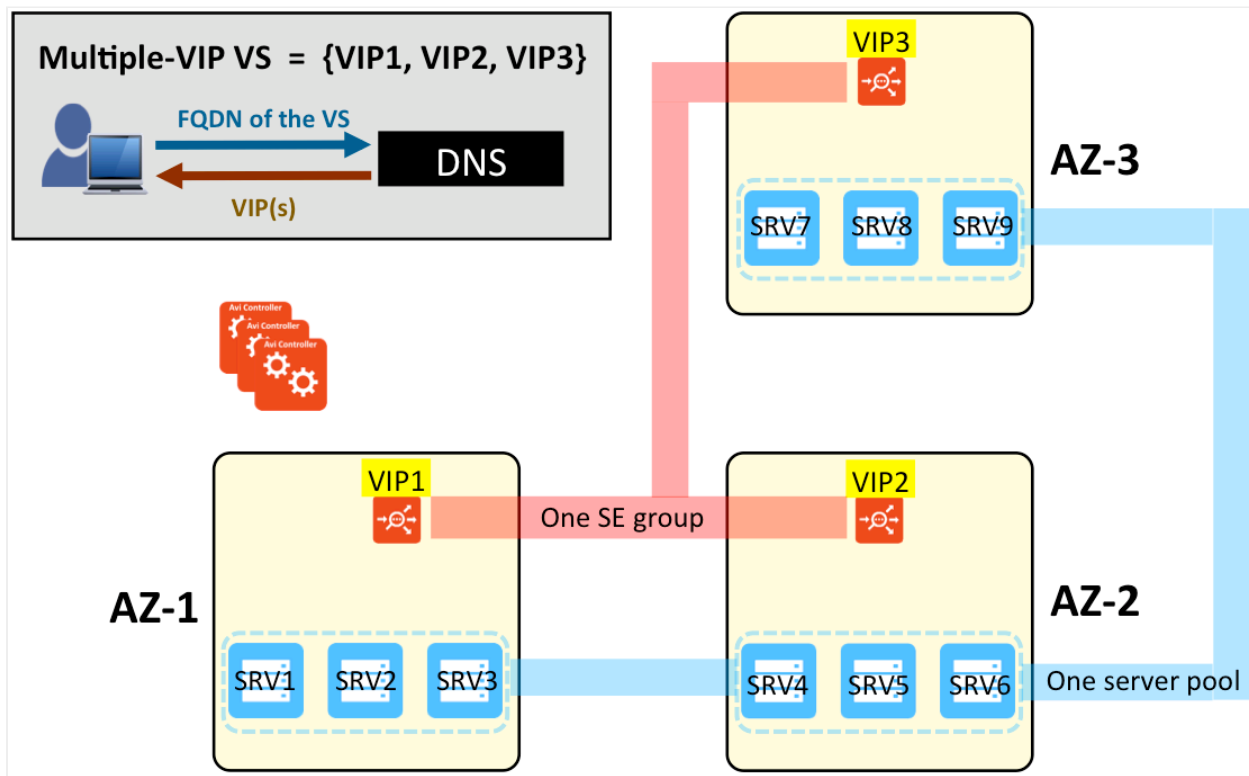
[view online](#)

This article introduces a feature which supports a single application spanning N availability zones (AZs).

## Overview

The Multi-AZ feature addresses load balancing back-end servers of an application (virtual service) spread across multiple AZs in AWS with a VIP in each AZ. Without this feature, the user has to configure separate virtual services, one in each AZ. Avi Vantage centrally configures the Multi-AZ VS, and combines analytics and logs across multiple VIPs of the same VS into a single consolidated view for the application.

Refer to the below diagram. The application's virtual service shares a common pool of nine servers (SRV1 - SRV9) in a single pool spanning the 3 availability zones (AZ-1, AZ-2, AZ-3). The servers are accessed via 3 VIPs (VIP1, VIP2, VIP3), one per AZ.



*Note: In a Multi-AZ deployment, it is not required to have Active/Active HA for VIPs within each AZ. The Multi-AZ deployment automatically provides the HA by having SE instances across AZs. Also, Avi supports non-disruptive upgrades (SE in each AZ is upgraded one at a time, keeping the VS always up during the upgrade). Hence the recommended HA mode is N+M with buffer of 0.*

Recommended Reading: [Avi GSLB in a Multi-AZ AWS Deployment](#) shows how Avi GSLB can be incorporated to raise the deployment to a higher level of sophistication. Applications can span N availability zones (AZs) in multiple AWS regions of AWS and Avi GSLB load balances the traffic among regions, providing a highly available solution that optimizes user experience based on the proximity.

## DNS

For the Multi-AZ feature, the virtual service must be configured with an FQDN. Avi Vantage integrates with Avi DNS as well as Route 53 in AWS. One or the other is a pre-requisite for the Multi-AZ feature. In both cases, all the VIPs for the VS are automatically populated in the DNS. It is recommended to configure DNS with consistent hashing algorithm to minimize cross-AZ traffic (AWS charges extra for inter-AZ traffic).

## Server Selection

Any of Avi Vantage's [load balancing algorithms](#) are available for server selection. In the current release, Avi Vantage does not automatically localize traffic on a VIP to the pool servers in the same AZ. This enhancement will be added in a future release.

## Operational Status

Each individual VIP generates an event when it is UP/DOWN; this information can be used to determine the health of the VIP. Starting with 17.1.2, when a VIP is down, Avi Vantage automatically withdraws that VIP from DNS (be it Avi DNS or Route 53). When the VIP is up again, the DNS is updated automatically as well.

VS oper_status	VIP oper_status
down	if no VIP is UP
up	if any of the VIPs are UP

In the virtual service list shown below, the IP addresses of the member VIPs are revealed.

Name	Health	Address
sekhar-vs1	100%	10.144.10.146 (↑), 10.144.10.38 (↑)

Virtual service health on a per-VIP basis can be viewed in the virtual service's submenu, as shown below.

**Virtual Service: sekhar-vs1** Scale Out Scale In Migrate

Up 40s	Service Port 2048	FQDN - Alerts
Address 10.144.10.38 10.144.10.146	Service Engine sekhar-se-ulkgf (primary) sekhar-se-ozphx (primary)	Status Up Up
Application Profile System-HTTP	TCP/UDP Profile System-TCP-Proxy	Cloud Default-Cloud
Non-Significant Logs Disabled	Client Log Filters 0 rules	Anomalies (0)
Real Time Metrics Disabled	Client Insights None	

Clicking on the Scale Out, Scale In, or Migrate button appearing in the above display results in windows with pulldown menus that enable selection of a particular VIP to be scaled or migrated.

### Scale In: sekhar-vs1

Select VIP Address to scale in

10.144.10.38

---

Please select a Service Engine to scale in [?](#)

(Select Automatically)

### Scale Out: sekhar-vs1

Select VIP Address to scale out

10.144.10.38

---

Please select a Service Engine to scale out

(Select Automatically)

Create Service Engine

### Migrate: sekhar-vs1

Select VIP Address to migrate

10.144.10.38

---

Select a Service Engine to migrate

(Select Automatically)

Select where to migrate Service Engine

(Select Automatically)

Create Service Engine

## Creating a Multi-VIP VS in the UI

The user can use the Multi-AZ feature by specifying more than one VIP in the list within the VIP Address section of the Settings tab of the VS editor. Two VIPs are selected in the example below by specifying two networks from which they will be auto-allocated. In addition, its FQDN needs to be registered with Route 53.

### Edit Virtual Service: sekhar-vs1

Settings Policies Analytics Advanced Help

Name\*  Enabled  Virtual Hosting VS

**• VIP Address •**

Network for VIP Address Allocation\*

+ Add VIP Address

Register DNS Name in Route53

**• Service Port •** [Switch to Advanced](#)

Services   SSL

+ Add Port

**• Profiles •**

Application Profile\*

TCP/UDP Profile\*

**• Pool •**

Pool  Pool Group

Pool

Ignore network reachability constraints for the server pool

Cancel Save