Cisco Elastic Services Controller Active/Active High Availability Overview

This chapter contains the following sections:

Cisco Elastic Services Controller Active/Active HA Overview

ESC supports High Availability (HA) in the form of an Active/Active model. ESC Active/Active HA has three VMs as a cluster in one datacenter.. There are two datacenters. Between the two datacenters, one datacenter acts as active, another acts as standby. ESC Active/Active HA uses Openstack heat template to deploy the three VM cluster in a datacenter.

In a datacenter, ESC service runs on each VM; however, there is only one ESC on a datacenter that runs as cluster leader. DB service runs only on the leader. The ESC services on the other two ESC VMs run as cluster follower. The DB service is only active on ESC services leader VM.

DRBD synchronises the data among ESC VMs. The ESC service on the three ESC VMs connect to the active DB service. When a leader switchover happens, all the ESC service connects to the newly active DB service.

ESC Active/Active Architecture

Figure 1: Cisco Elastic Services Controller Active/Active Architecture

Local AA Architecture
Active-Active LCM core services, Active-Standby support services
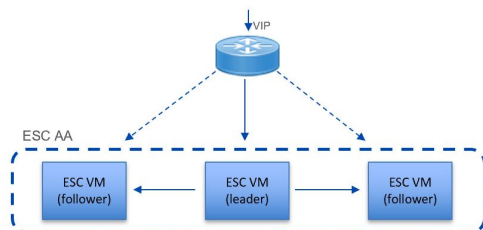
Northbound access via Virtual IP (VIP):

- Option 1: VIP as a 2nd ip address on an ESC interface
- Option 2: VIP as an ESC BGP Anycast ip address

Cluster Leader Elections:

- Elect leader on startup and when the leader fails
- Leader owns the VIP, receives all northbound requests

Internal Load Balancing:

- Northbound requests are internally distributed across leader and follower nodes for processing

Active-Standby support services:

- Some microservices only run on the leader node
- For example, a single database on the leader is used by all nodes
- On failure, a new ESC leader is elected, starts leader-only services
- Data is replicated from leader to one or more follower nodes