Overview

About APIC Cluster Connectivity to the Fabric Over a Layer 3 Network

With Cisco APIC Release 5.2(1), Cisco ACI introduces a novel architecture in which the APIC cluster is connected to the ACI fabric through a layer 3 inter-pod network (IPN). Unlike the traditional APIC cluster, there is no direct connection between APICs and fabric leaf switches in this new architecture. This architecture allows the APIC cluster to be in a separate security zone from the fabric. APIC cluster connectivity to the fabric over a layer 3 network is similar to Cisco ACI Multi-Pod with the exception that the pod containing the APIC cluster contains no fabric nodes and the fabric pod contains no APICs.

The following figure shows an example of a layer 3 connected APIC cluster topology.

Figure 1: A layer 3 connected APIC pod with multiple fabric pods
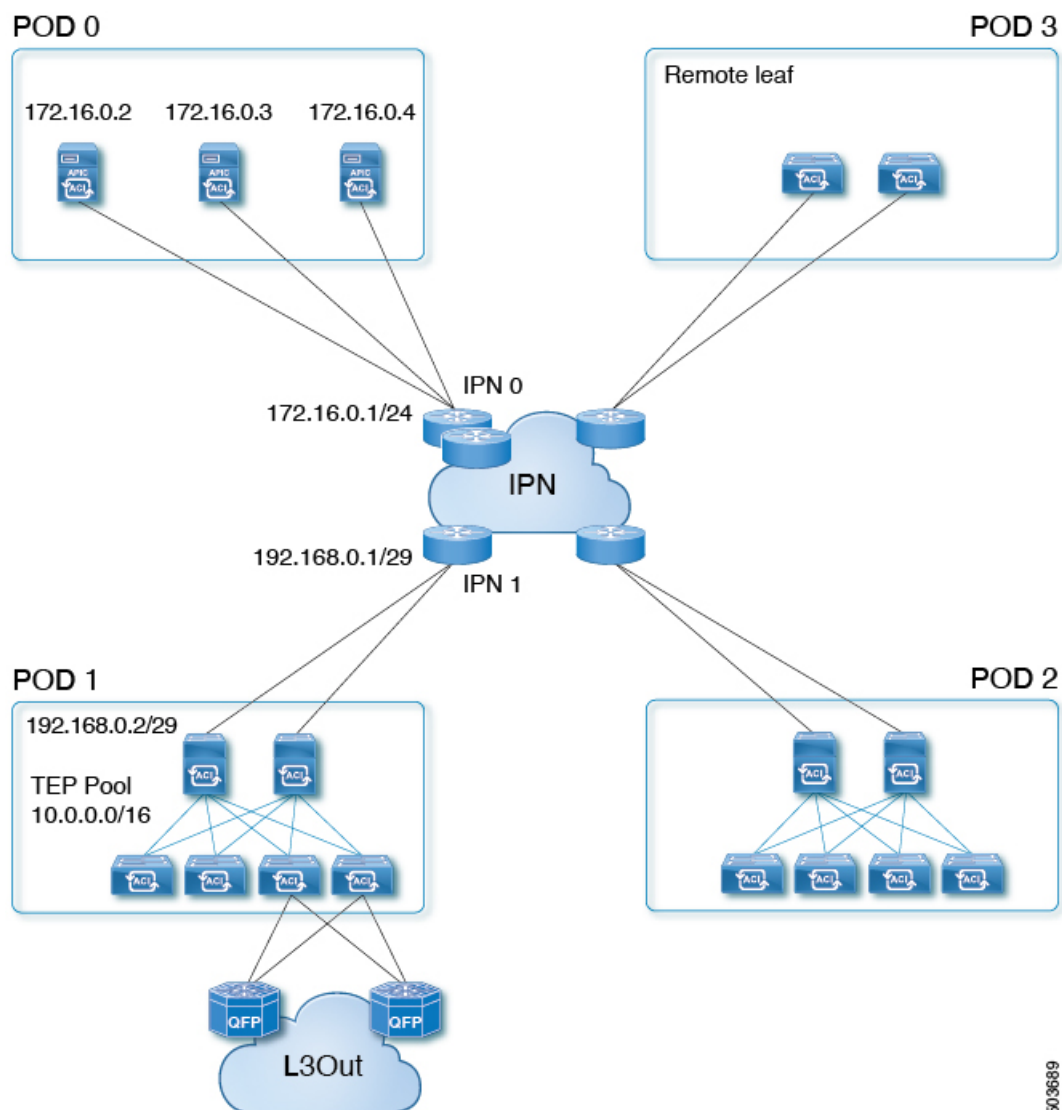
We define IPN0, which is connected to the APIC cluster, as the APIC IPN. The IPNs connecting to fabric pods, such as IPN1, are defined as Multi-Pod (MPod) IPNs. We differentiate APIC IPNs from MPod IPNs because, although they are part of the same layer 3 network, each has different network requirements.

In the example shown in Figure 1, IPN0 comprises two switches. Each APIC is connected to both switches (dual-homed). The IP address of IPN0 (172.16.0.1/24) is an HSRP Virtual IP address for both IPN0 switches.

The layer 3 connected APIC cluster is able to discover the fabric nodes using DHCP relay and an OSPF or BGP underlay provided by the IPN.

Note   BGP underlay is supported with APIC release 5.2(3) and later releases.

Creating an ACI Network with a Layer 3 Connected APIC Cluster

The following list outlines the steps to deploy an ACI network with a layer 3 connected APIC cluster:

1. Configure the IPN as described in Provisioning the APIC Cluster-Facing IPN Device and Provisioning the Fabric-Facing IPN Device.

2. Bring up the APIC cluster as described in Initial APIC Cluster Setup. The layer 3 connected APIC cluster is always Pod 0 by default.

Note The APIC pod (Pod 0) does not count towards the maximum pod scale as documented in the *Verified Scalability Guide for Cisco APIC*.

3. Configure a layer 3 connection for the APIC cluster to communicate over the IPN with the fabric pod. This configuration is described in Preparing Connectivity to the Fabric Pod.

4. Bring up the fabric pod. The fabric will be discovered by the APIC cluster over the layer 3 connection as described in Summary of Fabric Discovery and Registration.

Additional fabric pods and remote leaf sites can be connected to the layer 3 connected APIC cluster in a similar manner.