



Overview

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About Deploying Application-Centric Infrastructure Layer 4 to Layer 7 Services

Traditionally, when you insert services into a network, you must perform a highly manual and complicated VLAN (Layer 2) or virtual routing and forwarding (VRF) instance (Layer 3) stitching between network elements and service appliances. This traditional model requires days or weeks to deploy new services for an application. The services are less flexible, operating errors are more likely, and troubleshooting is more difficult. When an application is retired, removing a service device configuration, such as firewall rules, is difficult. Scale out/scale down of services that is based on the load is also not feasible.

Although VLAN and virtual routing and forwarding (VRF) stitching is supported by traditional service insertion models, the Application Policy Infrastructure Controller (APIC) can automate service insertion while acting as a central point of policy control. The APIC policies manage both the network fabric and services appliances. The APIC can configure the network automatically so that traffic flows through the services. The APIC can also automatically configure the service according to the application's requirements, which allows organizations to automate service insertion and eliminate the challenge of managing the complex techniques of traditional service insertion.

You must perform the following tasks to deploy Layer 4 to Layer 7 services using the APIC:

- 1 Import the device package
Only the provider administrator can import the device package.
- 2 Configure a tenant
- 3 Register the device and the logical interfaces
This task also registers concrete devices and concrete interfaces, and configures concrete device parameters.
- 4 Configure device (logical device) parameters
- 5 Configure a Layer 3 network
- 6 Configure a bridge domain
- 7 Configure an application profile

- 8 Configure a physical domain or a VMM domain
For a VMM domain:
 - a Configure VMM domain credentials
 - b Configure a vCenter/vShield controller profile
- 9 Configure a VLAN pool
 - a Configure an encapsulation block range
- 10 Configure a contract
- 11 Configure a management endpoint group (EPG)
- 12 Configure a service graph template
- 13 Select the default service graph template parameters from an application profile
- 14 Configure the service graph template parameters, if needed
- 15 Attach the service graph template to a contract
- 16 Configure additional configuration parameters

**Note**

Virtualized appliances can be deployed with VLANs as the transport between VMware ESX servers and leaf nodes, and can be deployed only with VMware ESX as the hypervisor.

About Service Graphs

The Cisco Application Centric Infrastructure (ACI) treats services as an integral part of an application. Any services that are required are treated as a service graph that is instantiated on the ACI fabric from the Cisco Application Policy Infrastructure Controller (APIC). Users define the service for the application, while service graphs identify the set of network or service functions that are needed by the application. Once the graph is configured in the APIC, the APIC automatically configures the services according to the service function requirements that are specified in the service graph. The APIC also automatically configures the network according to the needs of the service function that is specified in the service graph, which does not require any change in the service device.

ACI

The ACI allows you to define a sequence of meta-devices, such as a firewall of a certain type followed by a load balancer of a certain make and version. This is called an abstract graph. When an abstract graph is referenced by a contract, the abstract graph is instantiated by mapping it to concrete devices, such as the firewall and load balancers that are present in the fabric. The mapping happens with the concept of a "context". The "device context" is the mapping configuration that allows the ACI to identify which firewalls and which load balancers can be mapped to the abstract graph. Another key concept is the "logical device", or device cluster, which represents the cluster of concrete devices. The rendering of the abstract graph is based on identifying the suitable logical devices that can be inserted in the path that is defined by a contract.