Cisco and SUSE have partnered to deliver a certified joint solution that integrates SUSE OpenStack Cloud (SOC) with the Cisco® Application Centric Infrastructure (Cisco ACI™) platform. The solution enables customers to build an enterprise-class infrastructure-as-a-service (IaaS) private cloud environment to increase business agility, accelerate application deployment, and reduce operating costs.
Problems Addressed by SUSE OpenStack Cloud and Cisco ACI

In today’s competitive environment, businesses require agility, flexibility, and responsiveness, and traditional IT organizations must evolve to keep pace with the demands of new applications and developer-led programming models. One of the major outcomes of this transformation is the movement toward private IaaS environments to accelerate new application deployment without compromising security or incurring the unbounded costs of the public cloud.

OpenStack, with its open-source technology, has established itself as the solution of choice across a broad range of enterprises.

But if the solution is not approached correctly, operational challenges may limit the effectiveness of the cloud environment. The solution must provide enterprise-class performance and reliability; integrate with tools within the organization; and provide visibility and control to the infrastructure teams without compromising speed, flexibility, or scale.

Cisco and SUSE have partnered to address these challenges through the integration of the SUSE OpenStack Cloud and Cisco ACI platforms.

Joint Solution

SUSE OpenStack Cloud simplifies the installation and configuration of the OpenStack Neutron service to integrate with the Cisco ACI fabric (Figure 1).

SUSE supports two OpenStack plug-in options for Cisco ACI:

- Cisco Application Policy Infrastructure Controller (APIC) Modular Layer 2 (ML2) driver: This option uses the standard Neutron APIs, including networks, routers, and security groups, and transparently converts those APIs into Cisco ACI policies.

- APIC group-based policy (GBP) driver: This option uses the GBP framework to expose an application-centric API from OpenStack Neutron, allowing cloud users and administrators to directly create groups, rule sets, and Layer 2 and 3 policies.

The SUSE platform also provides support and integration for the Cisco OpFlex™ agent on each OpenStack computing node, allowing the APIC to extend its policy control to the Open vSwitch (OVS) and KVM hypervisor. The OpFlex agent is a critical part of the Cisco ACI architecture. It enables capabilities such as local policy enforcement, port security, and Network Address Translation (NAT) functions to be coordinated from the APIC.

SUSE OpenStack Cloud is an enterprise OpenStack distribution that is rapidly deployed and that easily manages highly available, mixed hypervisor IaaS clouds. It was designed to use best-in-class data center technology, such as Cisco ACI and Cisco Nexus® 9000 Series Switches, to deliver a highly flexible cloud platform that can easily evolve with future innovations. SUSE OpenStack Cloud also closely integrates with SUSE Enterprise Storage, powered by Ceph, for highly scalable and resilient software-defined storage capabilities.
Additionally, SUSE OpenStack Cloud can be used in a multihypervisor environment using both the KVM and VMware hypervisors with unified networking provided by the Cisco ACI platform.

Figure 1. SUSE OpenStack Cloud and Cisco ACI Architecture

Main Benefits of the Solution

- Enterprise-class, easy-to-install OpenStack solution
- Automated deployment of Cisco ACI GBP and ML2 APIC plug-ins, including the OpFlex agent
- Fully distributed, scalable networking solution for OpenStack
- Option to use a combination of VMware hypervisor and KVM
- Deep telemetry and operational visibility across the physical and virtual environments
- Capability to scale the enterprise infrastructure without the need to increase IT staff
- Rapid, easy, and customized deployment of services

For More Information

For additional information, see:
- Cisco ACI platform: [www.cisco.com/go/aci](http://www.cisco.com/go/aci)