WE MANAGE AUTOMATE DATA CENTER

Cisco ACI and RH integrations

Alberto DEGRADI  Cisco Italy DC Leader
For over 30 years, we’ve focused on helping to change the way the world works, lives, plays, and learns.
Cisco Strategy

We create solutions built on secure, intelligent networks that solve our customers’ challenges.
Digital is transforming business.
And Everything We Do...

- Transform processes and business models
- Empower workforce efficiency and innovation
- Personalize citizen/customer/employee experience
Power a Multicloud world
Reinvent the network
Unlock the power of data
Security is Foundational
Create meaningful experiences

Increased pace of innovation

#RedHatOSD
Data Center Vision

Re-invent the DC
Delivering the best in class intent-aware secure platforms to modernize the Data Center

Unlock the Power of Data
Harvesting data from the Network and Clouds to ensure a safe and enhanced customer experience

Embrace Multi-cloud
Providing the right software tools to embark on a secured and optimized Multi-Cloud journey
Today DC Complexity

Multicloud

Data Center
Edge
IOT
Mobile
Branch Office
Enterprise Campus

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Changing in workloads and consumption models are shaping IT Infrastructure

- AI and ML
- IoT
- Blockchain
- X-as-a-service consumption
- Multicloud and Edge Computing
- Containerization
- Faster data access
- Ubiquitous Security
DC Morphing (Yesterday and Today)

Performance

Simplification, Modernization & Security

Automation, Software-Defined, Programmability

Multicloud

Applications and Analytics

Reliable

Secure
DC Architecture E2E

Application and Business Performance Monitoring

Workload Optimization and Placement

Infrastructure Assurance

Prime Service Catalog <-> 3rd Party ITSM Ex. ServiceNow

Multi-Cloud

Cloud Native

Policy Driven Automation

Nexus, UCS/Converged, HyperFlex

Security Admin

LOB / IT Apps

Developer

Infra. Manager

Infra. Manager
Automation with ACI Anywhere
Any Workload, Any Location, Any Cloud

Remote Leaf / Virtual PoD
APIC / Multi-Site
Multi-Cloud Extensions

Remote Location
On Premise
Public Cloud

Security Everywhere
Analytics Everywhere
Policy Everywhere

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Hypervisor Integration with ACI

- Relationship is formed between APIC and Virtual Machine Manager (VMM)
- Provides APIC with virtualized inventory
- APIC has visibility of virtualized hosts, Virtual Machines, vNICs and more.
- APIC manages the hypervisor virtual switch (VDS, OVS, AVE, etc…)
- Multiple VMMs supported on a single ACI Fabric simultaneously
ACI Unified Plugin for Open Stack

Unified Plugin

- Single Plugin for Group-Based Policy API and standard Neutron API

- No longer need to choose GBP vs Neutron API at setup time. Both can be used simultaneously.

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Red Hat Virtualization

VMM Domain with APIC 3.1

- ACI Fabric as a Policy Authority
- Dynamic Physical and Virtual Network Provisioning and Operations
- Integrated Policy domains across Physical and Virtual
ACI and RHV VMM Integration Workflow

1. Cisco APIC connects to RHVM:
   - Finds Datacenter
   - Collects Hypervisor and VM inventory

2. Create Network and/or App Policy

3. Map EPG To VMM Domain

4. Push Policy (pre-provision)

5. Network automatically assigned to labelled hosts

6. Server admin Instantiates VMs, Assign to Networks

Server Admin

Fabric Admin

Application Network Profile

Clusters in DC

- WEB Network
- APP Network
- DB Network

Fabric Admin

Virtualization Manager

Web App DB Web DB

HYPERVERSOR

HYPERVERSOR

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Native Support for Container Application Platform

- Application Container Orchestration
  - Docker
  - Kubernetes
  - Openshift
  - Pivotal Cloud Foundry
  - Mesosphere
  - Opflex
  - CNI

- Fast, Secure and Scalable Networking
  - Physical
  - Virtual
  - Private
  - Any Cloud

- Intent based Infrastructure Automation

- Pervasive Security

- Pervasive Analytics

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• Network policies supported using standard upstream format but enforced through OpFlex / OVS using APIC Host Protection Profiles.

• Openshift apps can be moved without modification to/from ACI and non-ACI environments.

• Embedded fabric and virtual switch load balancing:
  - PBR in fabric for external service load balancing
  - OVS used for internal service load balancing

• VMM Domain for Openshift:
  - Stats per namespace, deployment, service, pod
  - Physical to container correlation

```yaml
kind: NetworkPolicy
apiVersion: extensions/v1beta1
metadata:
  name: allow-orange-to-blue-same-ns
spec:
podSelector:
  matchLabels:
    type: blue
ingress:
- from:
  - podSelector:
    matchLabels:
      type: red
```

ACI Policy

OVS | OpFlex

APIC

OPENSHIFT

Network Policy API

Policy applied to OpenShift objects

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The relevance of RHV and OpenStack with ACI for BBVA

**Automate and accelerate provisioning:**
ACI to provision the Logical Networks

**Operations:**
ACI visibility into RHV domains

**Security:**
Leverage ACI for distributed security and segmentation

**Migrate:**
Simplify Migration from other hypervisors
GRAZIE PER L’ATTENZIONE

Alberto DEGRADI – DC Sales Leader