

RED HAT
SUMMIT

BOSTON, MA
JUNE 23-26, 2015

OpenStack with Cisco and Red Hat

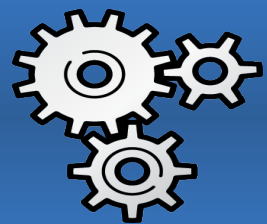
Duane DeCapite
Director, Product Management
Cisco

Karthik Prabhakar
Global Cloud Technologist
Red Hat

Session Overview



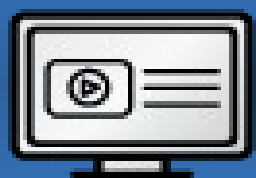
Enterprise Context for OpenStack and Value of Cisco – Red Hat Collaboration



Cisco OpenStack Technologies and Integration with RHEL OpenStack Platform



Cisco and Red Hat Joint OpenStack Solutions



Demo



Best Practices from Customer Deployments & Open Discussion

OpenStack Software Architecture

horizon.openstack.org/project

CURRENT PROJECT ▾

Overview

24

5

With The API

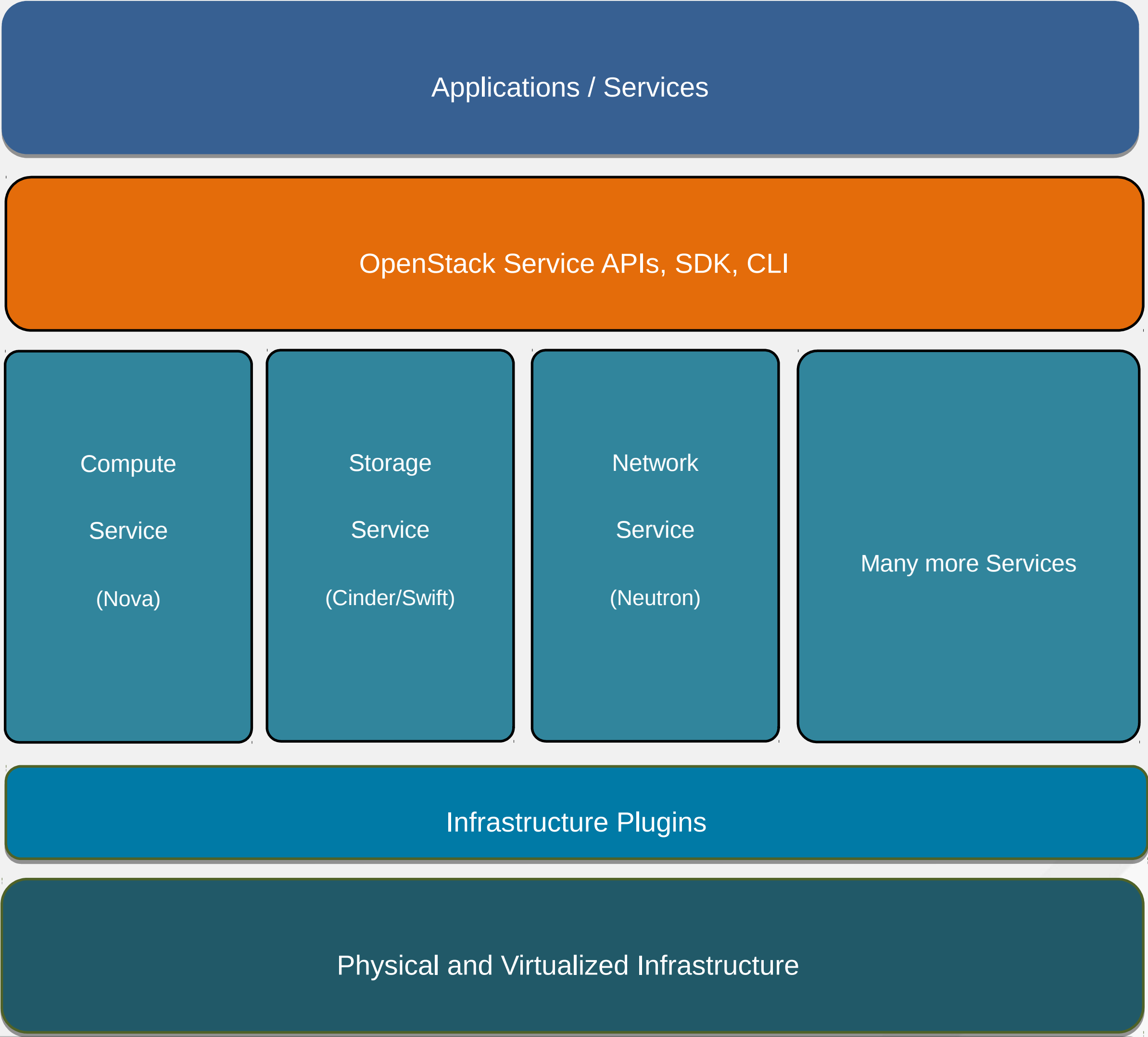
SOFTWARE TO CONTROL YOUR CLOUD

With The Dashboard

```
nova boot --flavor 1 --image 397e713c-b95b-4186-ad46-6126863ea0a9 --key-name key_pair1 my_server
```

```
nova list
```

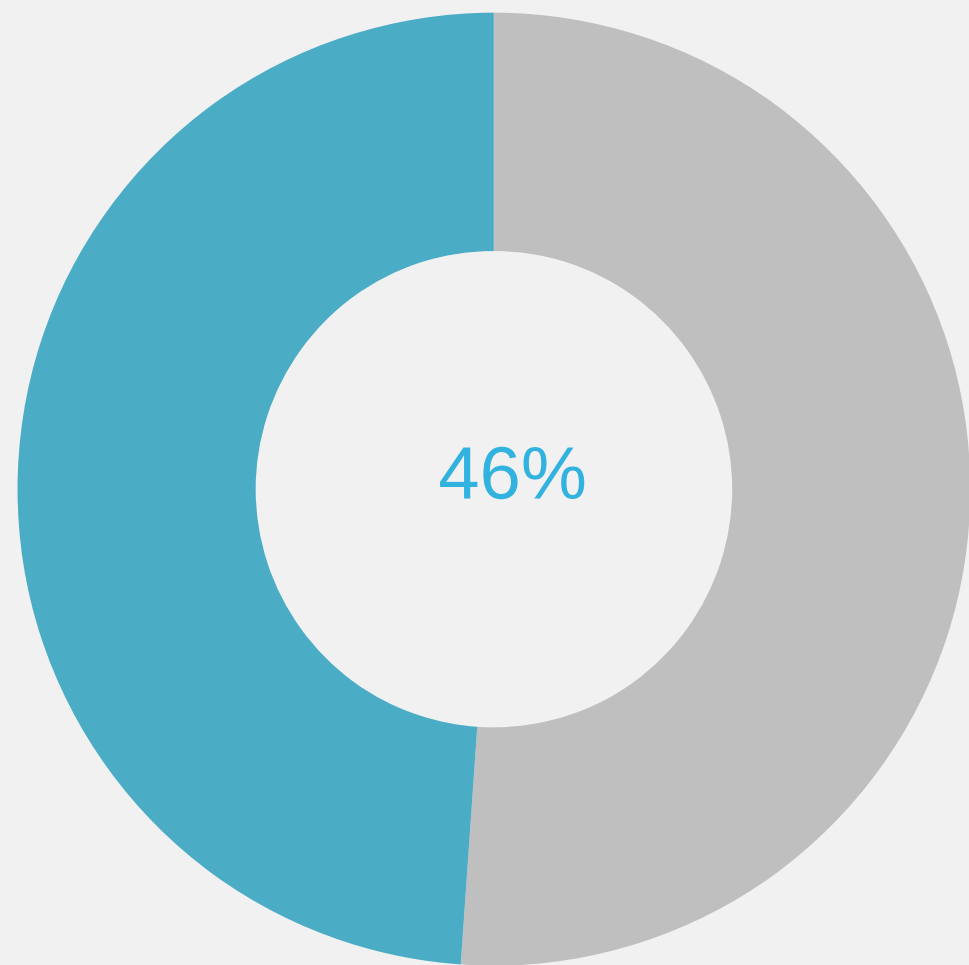
```
swift upload my_container ~/this_object
```



OpenStack Projects

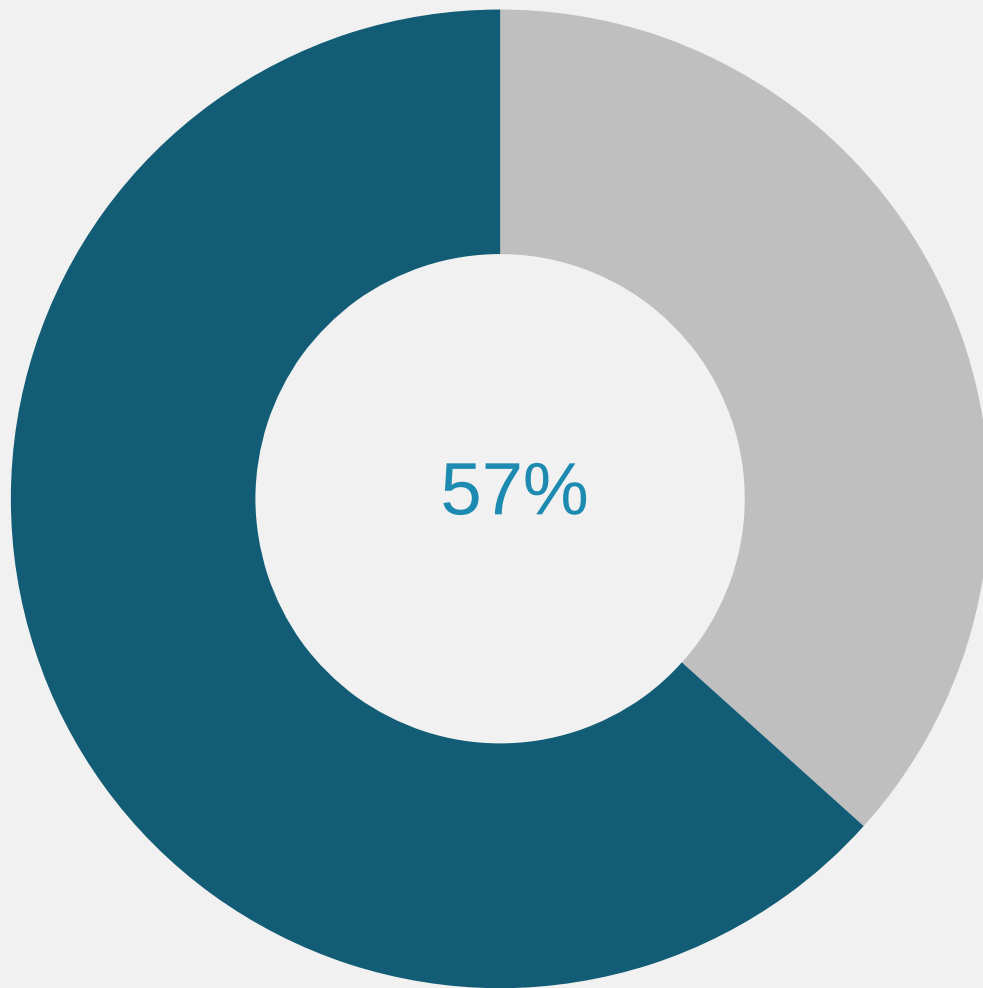
Compute (Nova)	Telemetry (Ceilometer)	Key Management (Barbican)
Network (Neutron)	Orchestration (Heat)	DNS (Designate)
Object Storage (Swift)	Database (Trove)	Shared File System (Manila)
Block Storage (Cinder)	Bare Metal (Ironic)	Deployment (Triple O)
Dashboard (Horizon)	Data Processing (Sahara)	Application Catalog (Murano)
Image (Glance)	Containers (Magnum)	Policy (Congress)
Identity (KeyStone)	Messaging (Zaqar)

OpenStack IS Ready!



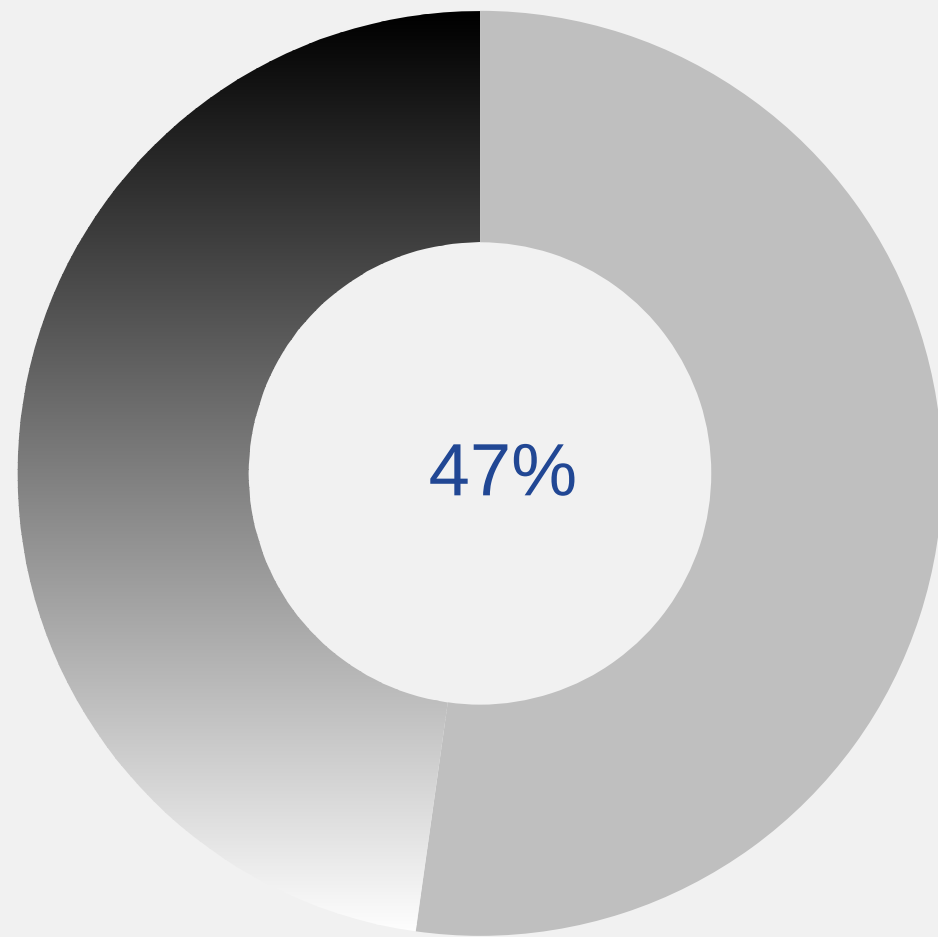
Production

- Almost 50% of customers polled in November have OpenStack running in production networks
- Myth debunked, OpenStack is in production networks



Mission Critical Apps

- Most common service is [web-services](#) 57%
- Strong demand for [Database Enterprise Apps](#)
- Not just fringe apps or Dev Ops Apps
- These are business-critical, customer-facing Apps



#1 Ability to Innovate
This is why you pick Cisco and Red Hat

- Innovation not cost, saving is the number one business driver
- Innovative customers choose Cisco and Red Hat, not commodity vendors

BRINGING OPENSTACK TO THE ENTERPRISE AND SERVICE PROVIDERS



#1 IN ENTERPRISE
OPEN SOURCE
SOFTWARE



#1 IN CLOUD
INFRASTRUCTURE
AND CLOUD SERVICES



Enterprise-hardened distribution
Award-winning support and training
Broad Ecosystem
Leading OpenStack contributor



Platforms optimized for Cloud-scale management, like UCS
Driving SDN innovation, like ACI
Integrated solution stack and Cisco Validated Designs (CVD's)
Leading OpenStack contributor

CISCO AND RED HAT OPENSTACK COLLABORATION

Strategic Integration across Product Portfolio



OPENSTACK EXPERTISE

- Simpler deployment with joint solutions and Cisco Validated Designs
- Seamless security and management across clouds with plug-ins
- Accelerated implementation and reduced risk with consulting services



APPLICATION-CENTRIC INFRASTRUCTURE

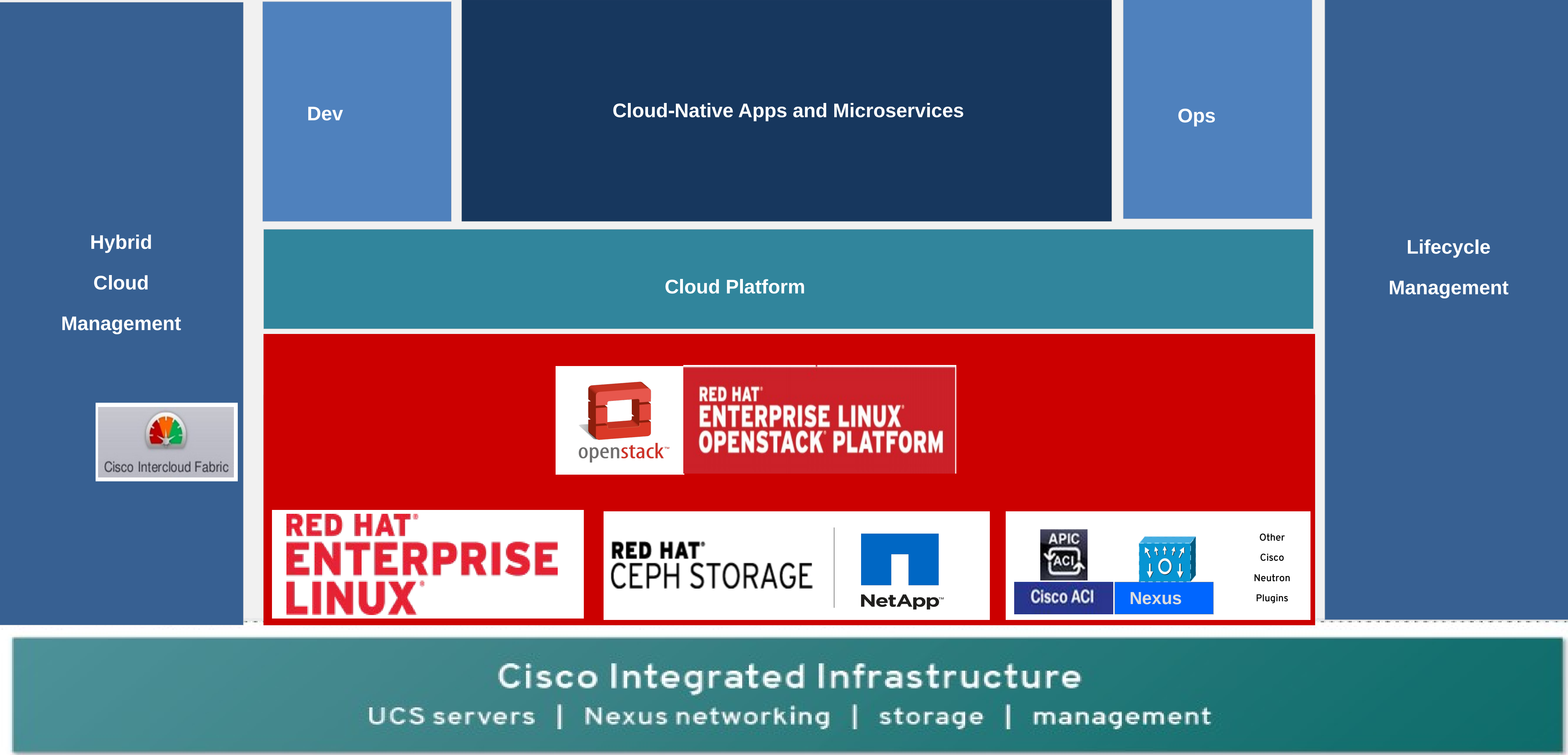
- Working to standardize application-driven infrastructure in OpenStack
- Support for APIC controller and Group Based Policy Framework
- Integration with RHEL OpenStack Platform



INTERCLOUD

- Cisco Cloud Services ecosystem
- Seamless application mobility across private and hybrid clouds
- Intercloud-ready OpenStack infrastructure stacks

OpenStack Focus At This Session



Partnership Success

“In order to provide our internal customers with revolutionary service, we needed to supply powerful and dynamic resources.”

- Chris Dwan, Director, research computing and data services
Broad Institute

“**Cisco** is a true partner, giving us what we need to respond to our researchers quickly and efficiently” - Chris Dwan, director, research computing and data services, Broad Institute

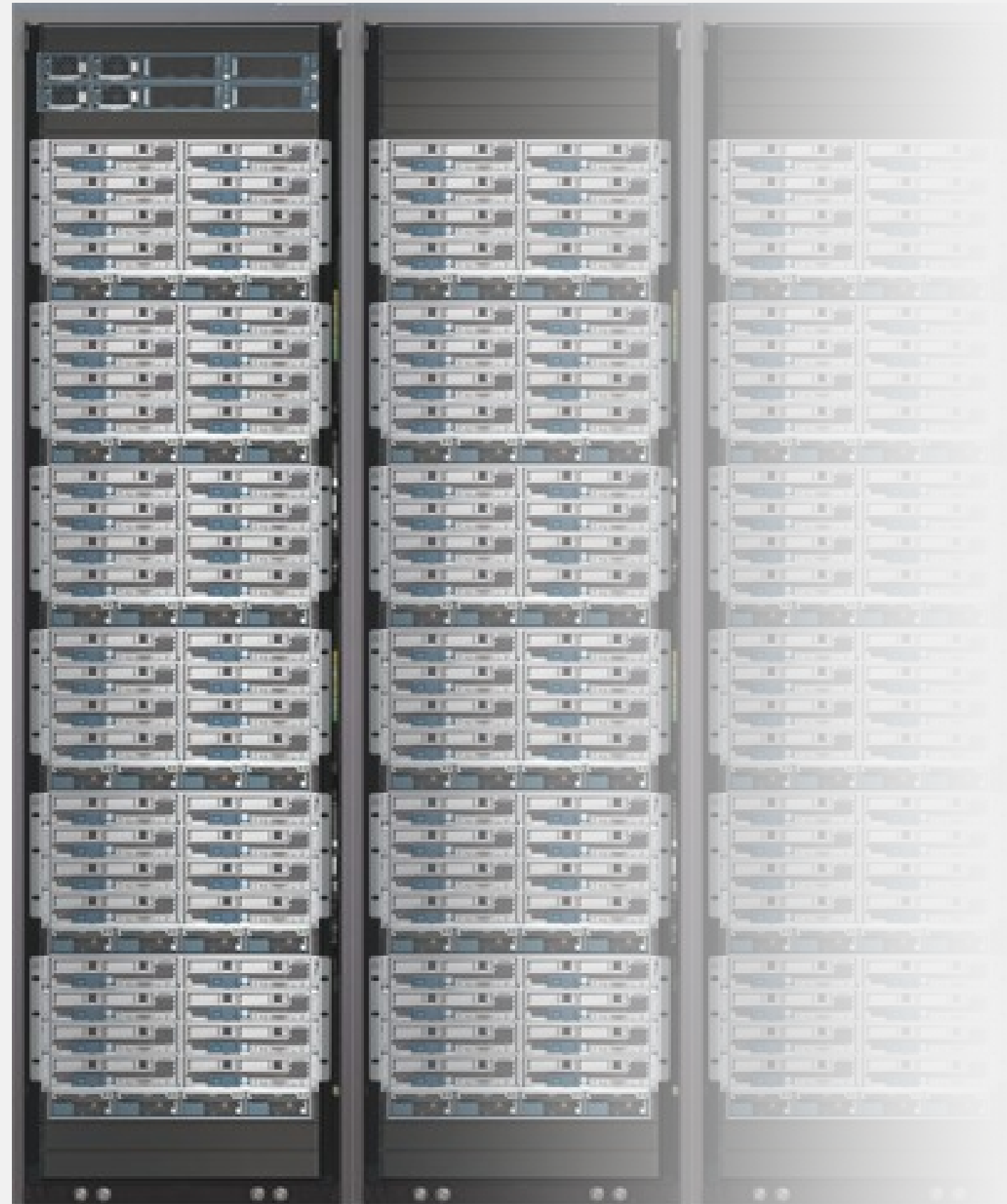


BROAD INSTITUTE

“Using **Red Hat** Enterprise Linux OpenStack Platform gave us the strong foundation we needed for building our internal cloud from the ground up” - James Weatherell, Linux enterprise engineer, Broad Institute

CISCO AND OPENSTACK

Cisco Unified Computing System



A single system that unifies

- Compute: Industry standard x86
- Network: Unified fabric
- Virtualization: Control, scale, performance
- Storage Access: Wire once for SAN, NAS, iSCSI

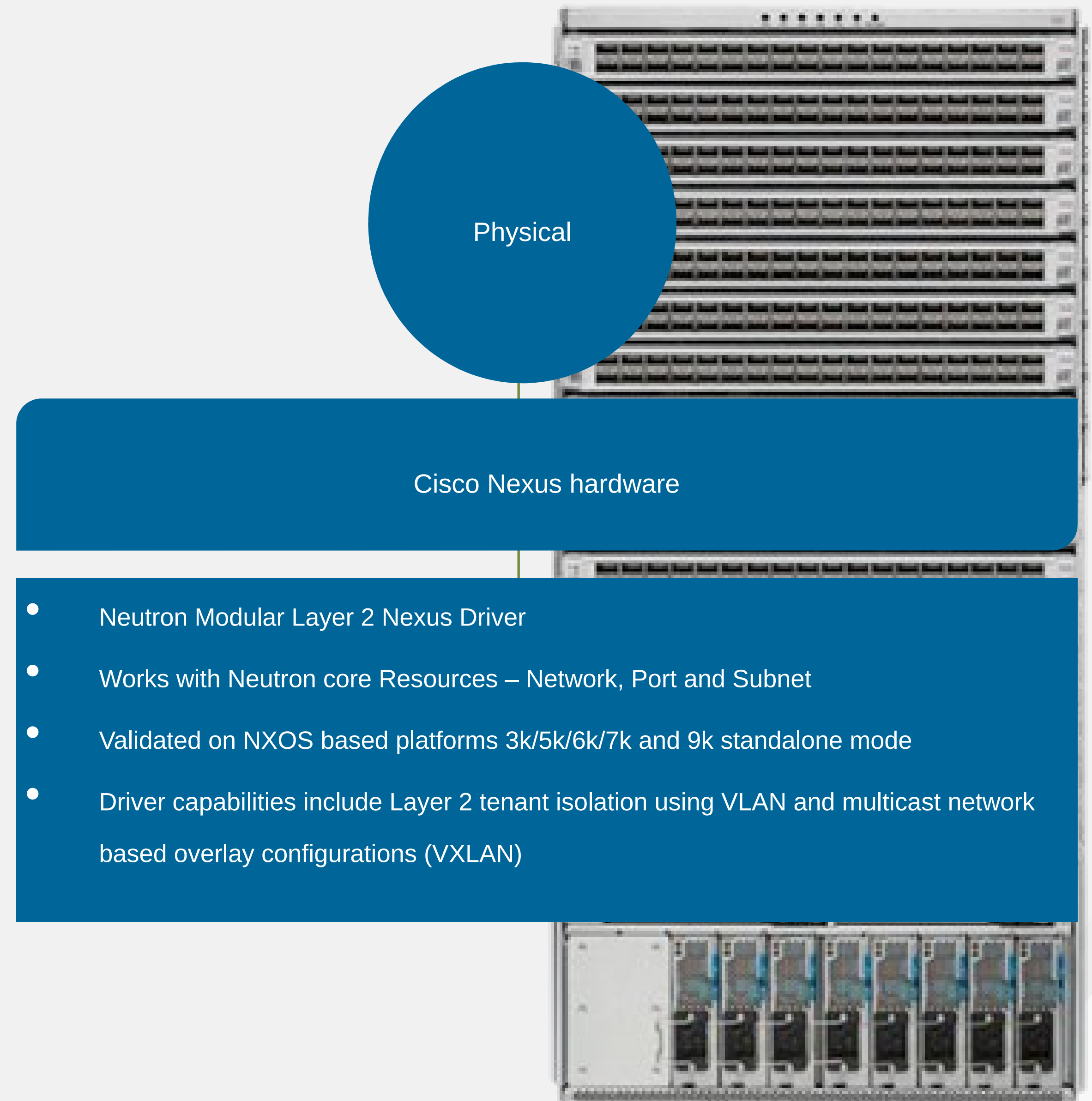
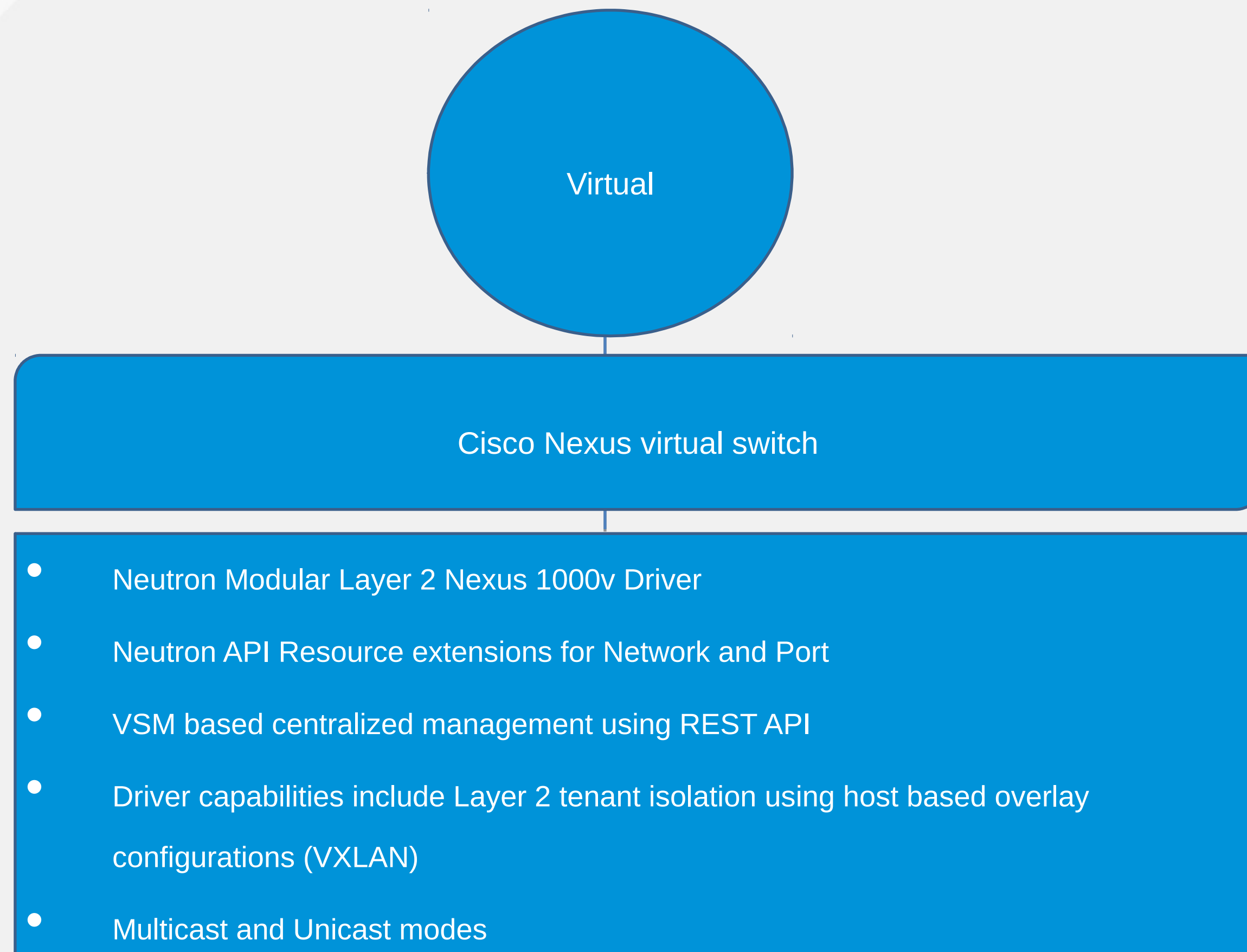
Embedded management

- Increase scalability without added complexity
- Dynamic resource provisioning
- Ability to integrate with broad partner ecosystem

Energy efficient

- Fewer servers, switches, adapters, cables
- Lower power and cooling requirements
- Increase compute efficiency by removing I/O and memory bottlenecks

OpenStack integration with Cisco Nexus

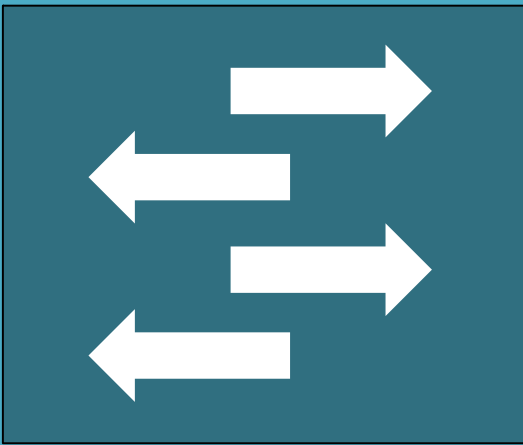


Cisco Application Centric Infrastructure (ACI)



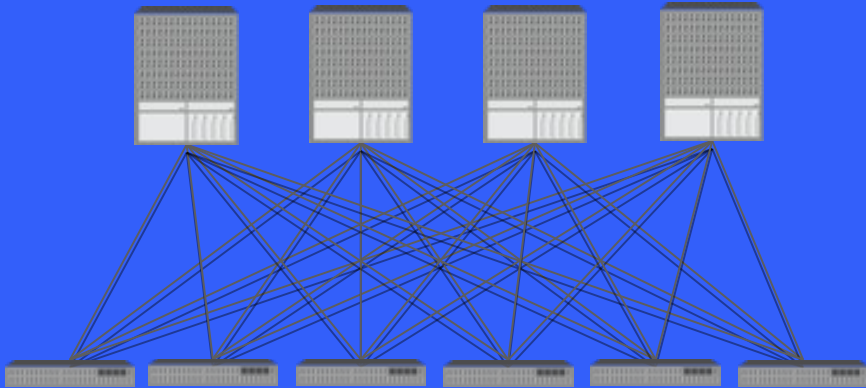
Group Based Policy Model

- Automation
- Intent-drive



Physical + Virtual

- Zero-touch performance
- Physical server
- Multi-hypervisor



Fabric Tunnels

- Automatic VXLAN
- Distributed L2
- Distributed L3



Service Chaining

- Service chaining and redirection

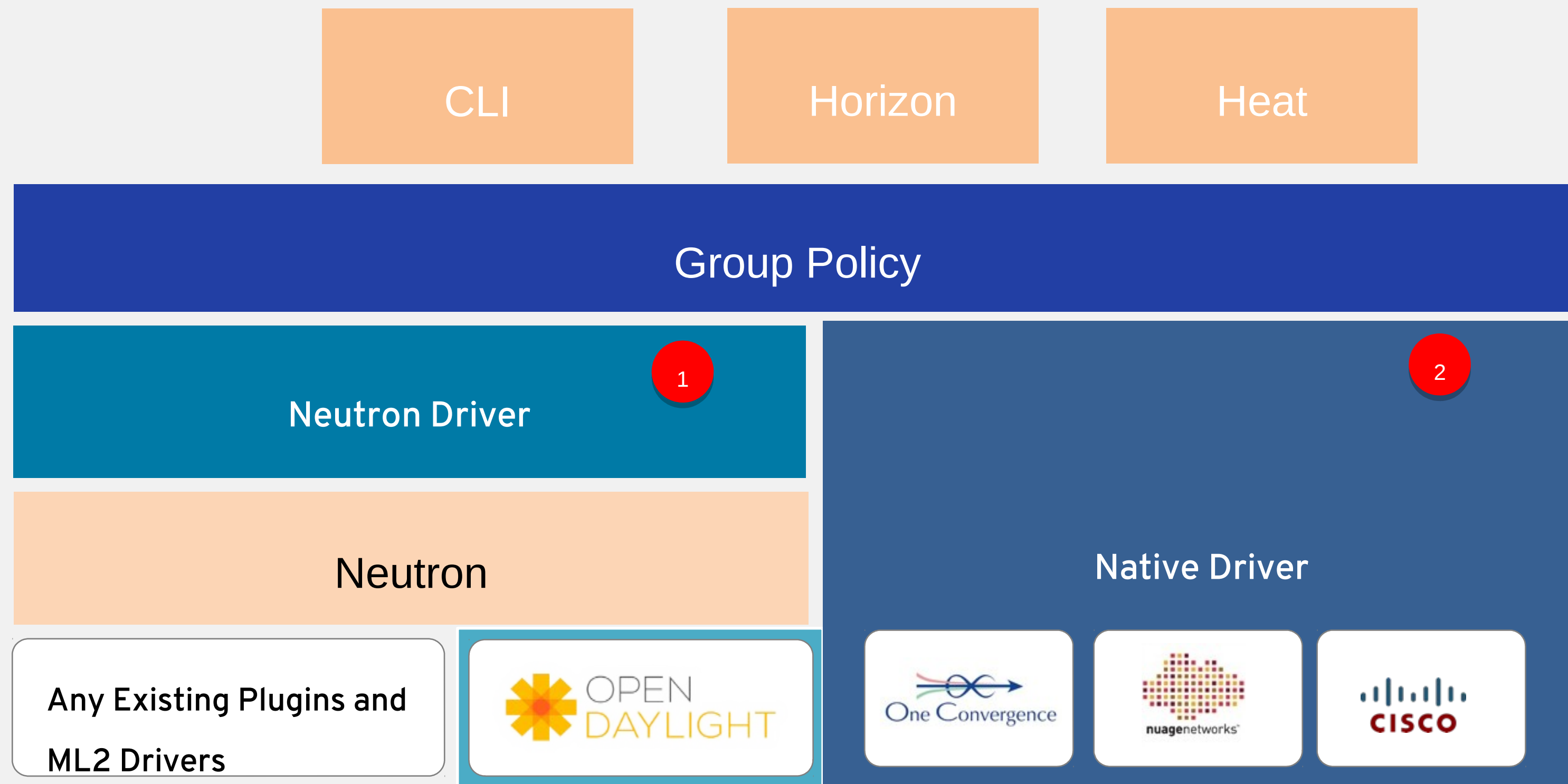


Telemetry

- Health Metrics
- Visibility
- Troubleshoot



OpenStack Group Based Policy Overview

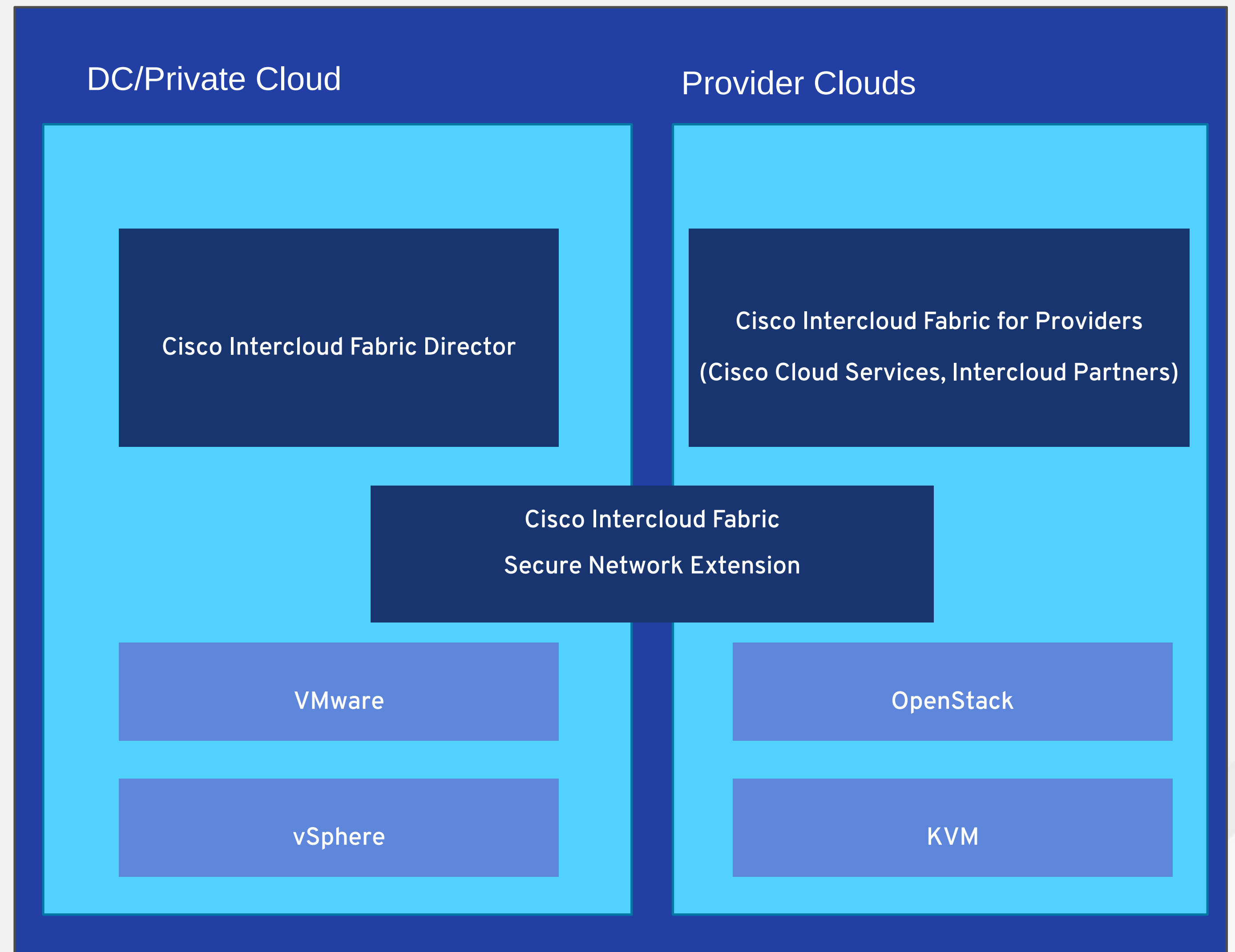


1 Neutron Driver maps GBP to existing Neutron API and offers compatibility with any existing Neutron Plugin

2 Native Drivers exist for OpenDaylight as well as multiple vendors (Cisco, Nuage Networks, and One Convergence)

Cisco Intercloud Fabric (ICF) support for OpenStack

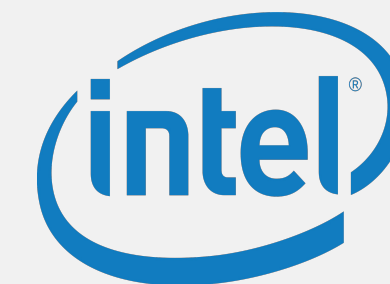
- Secure Hybrid Cloud enabled using ICF
- Layer 2 network extension from VMware private cloud environment to OpenStack based provide clouds
- Automatic image conversion from vSphere to KVM and back
- REST API based Intercloud Fabric Director (ICFD)



Cisco and Red Hat Joint OpenStack Solutions

Cisco UCS Integrated Infrastructure for RHEL OpenStack Platform

Private Cloud IaaS solution



- Enterprise ready solution
- Easy deployment with OSP Director (RHEL OpenStack Platform 7 based on Kilo)
- High Availability and Live Migration capabilities
- Scalable compute and storage infrastructure
- Cisco plugins to leverage UCS Integrated Infrastructure capabilities

Validated and supported by Cisco, RedHat & Intel

Delivered by partners

Integrated Solution



PLUG INS
ACI READY



Coming Soon!

FlexPod with Red Hat Enterprise Linux OpenStack Platform 6 (Juno Release)

- Private Cloud Infrastructure as a Service
- New and existing FlexPod customers for production deployments
- Customer Benefits
 - FlexPod robustness provided with OpenStack HA hardening
 - Block and Object Storage now with File Sharing in a later update
 - Supports Dev/Test environments and in-house applications
 - Simplified Red Hat install saves time, up and running faster
 - Storage flexibility with FAS and E-series

Coming Soon!



DEMO

Best Practices from Customer Deployments

Pilot to Production to Scale

Considerations

- Build-Your-Own vs. Packaged, Validated Solutions
- Focus on your Enterprise use-cases in Pilot
- Choose Plugins/drivers for Cinder and Neutron based on your need and certification status
- Consistent Platform personality across deployment, leveraging UCS Service Profiles
- Include Day-2 Operations and Support Processes within Pilot plan
- Develop Upgrade Plan and timetable for infrastructure upgrades

Co-company Solution Collaboration – Open Innovation

Testing

Integrated Support

Connect, Communicate, and Move Workloads across the Intercloud

New tools, frameworks, and best practices needed to quickly build new applications and services

IaaS/PaaS

Containers

Ceph

Making it easy

Summary / Q&A

RED HAT **SUMMIT**

LEARN. NETWORK.
EXPERIENCE OPEN SOURCE.