

Cisco Datacenter Strategy

A *Better Way* to Deliver Operational Simplicity

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September 2014

The Data Center Is the Information Broker for All Applications

Applications Are Changing

- Type** ➤ Traditional, Big data, distributed, mobile
- Consumption** ➤ Cloud – public, private, hybrid
- Delivery** ➤ Any where, any time, any device



Bridging Applications and Infrastructure Through Policy

Application Language



- **Programmable**
- **Open Source**
- **Rapid Deployment**
- **Grow, Shrink, Move as Needed**
- **Compute, Storage, and Network**

Any
Application
Any Time
Anywhere

Infrastructure Language



- **Physical/Virtual**
- **Scale-out**
- **Security**
- **Scalability**
- **Stability**
- **Reliability**
- **Performance**

Requires Simplification and Fewer Points of Integration

Data Center Economics

Keeping
current data
center up and
running is

73%

of overall
IT spend

The Cisco Unified Data Center

Delivering an Application Centric Infrastructure



Networking



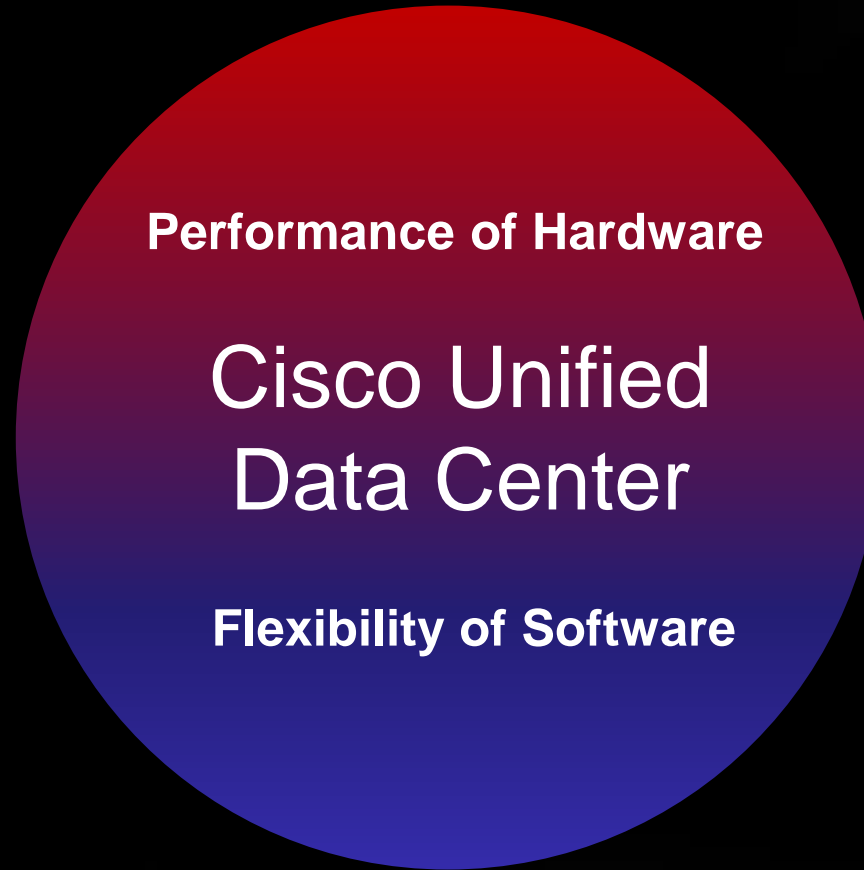
Computing



Automation



Security



Financial Efficiency

Operational Simplicity

Business Agility

Characteristics of Application Centric Infrastructure

POLICY-BASED

Extends application lifecycle and operations to consistent IT Infrastructure. Includes development, inspection, management and control

OPEN PLATFORM

Flexibility through APIs to build application profiles in software then deploy on physical and virtual IT resources.

UNIFIED ARCHITECTURE

Delivering the performance of hardware with the flexibility of software across DC, WAN and access

Cisco Unified Data Center

Delivering an Application Centric Infrastructure

MANAGEMENT AND
AUTOMATION
POLICY-BASED
RESOURCE MANAGEMENT

UNIFIED
COMPUTING

MODULAR STATELESS
COMPUTING AND
APPLICATION
ACCELERATION

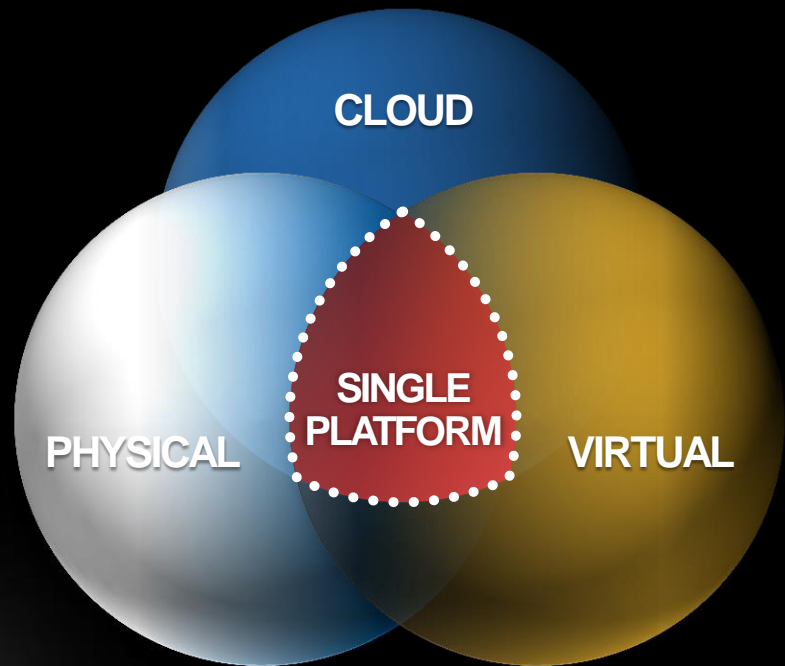
NETWORKING

POLICY-BASED, SCALABLE,
SECURE NETWORK FABRIC

INTERCLOUD
FABRIC

OPEN AND SECURE
WORKLOAD MIGRATION
AMONG CLOUDS

Cisco Unified Computing System



Orchestration Ready via Open API

Fabric-Centric Design Scales Simply and Efficiently

Automates IT Processes with Configuration by Policy

Consolidates Monitoring and Troubleshooting

Physical <<< >>> Virtual
Blade <<< >>> Rack
Local Storage <<< >>> Centralized

Single Tenant <<< >>> Multi-Tenant
Single DC <<< >>> Multi DC

Ideal Infrastructure for ALL Application Requirements

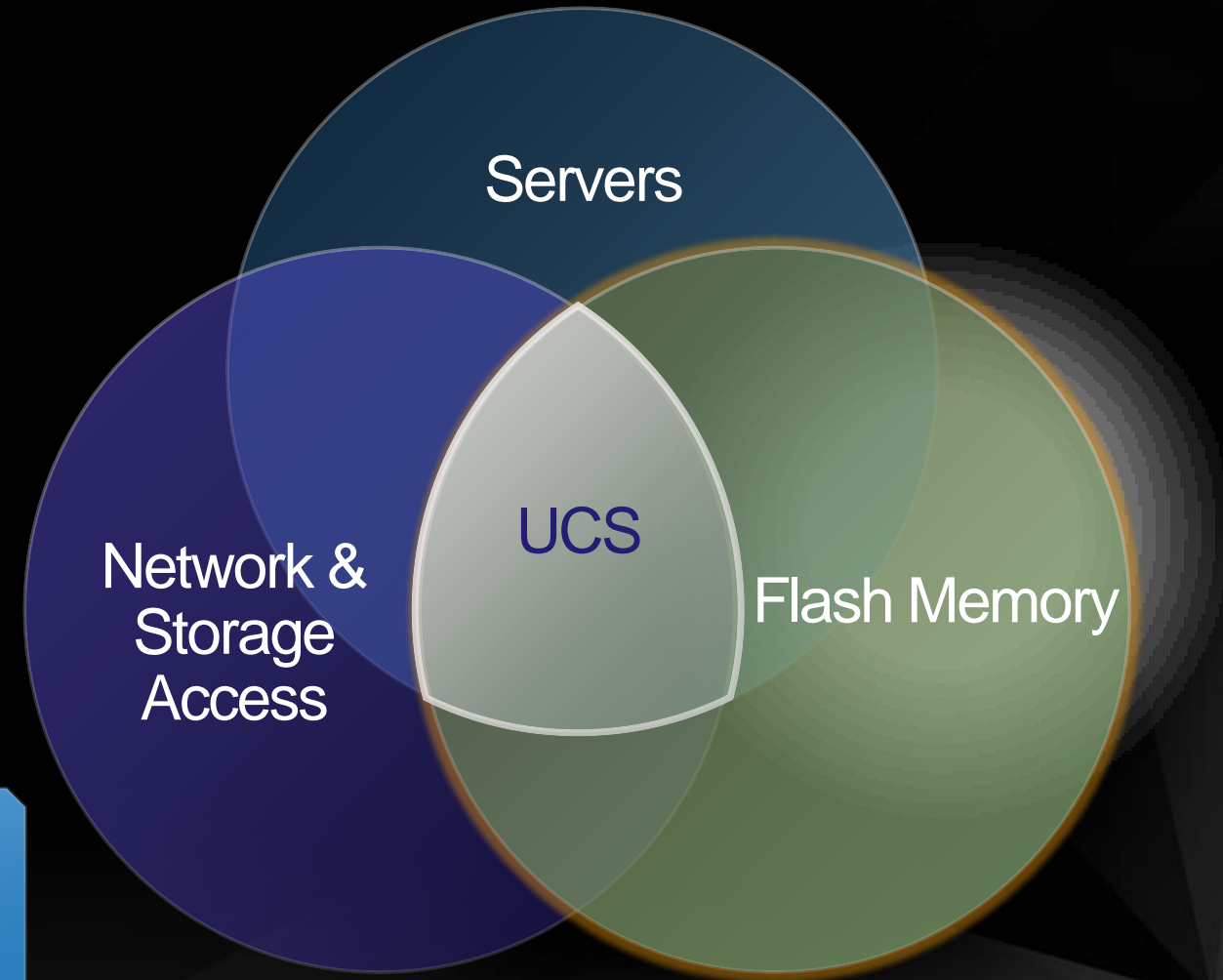
Flash-based Application Acceleration Cisco UCS Invicta

UCS Invicta Series: flash memory to accelerate applications with UCS



Address new data
velocity and scale
requirements

Flash-based
application
acceleration



Abstracting Management with Service Profiles

UCS SERVICE PROFILES

- UUIDs, WWNs, MACs
- Resource Pool assignments

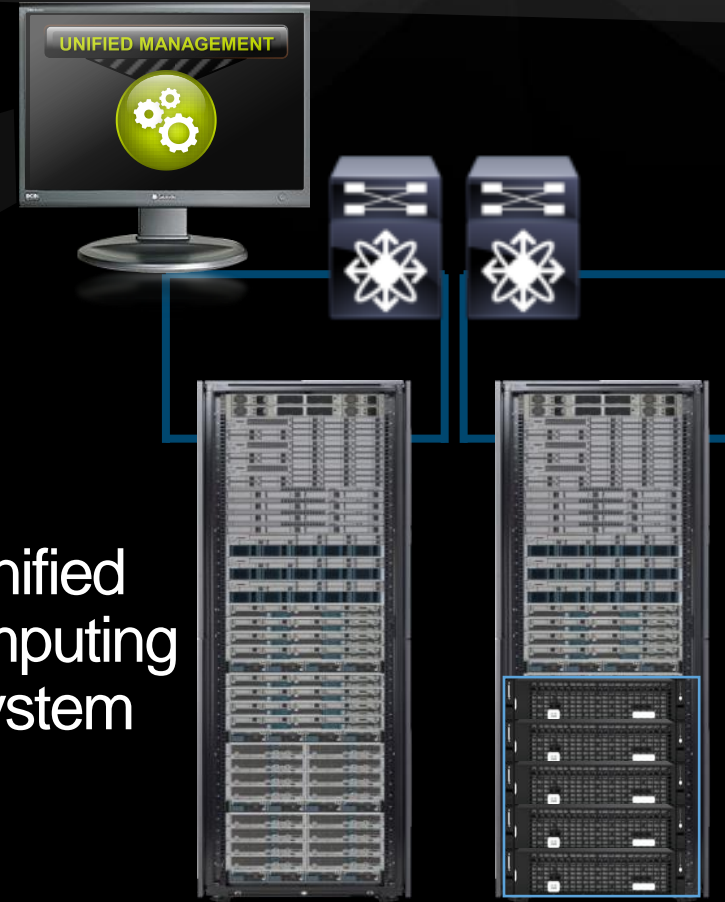
- BIOS, Firmware
- Local storage configuration
- Boot order/targets
- I/O Adapter type and quantity
- Network/SAN configuration
- UUIDs, WWNs, MACs
- Resource Pool assignments

- BIOS, Firmware
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- Memory

Unified
Computing
System

UCS Invicta



1

Subject matter expert
define policies

2

Policies used to create
service profile templates

3

Service profile templates
create service profiles

4

Associating profiles with
hardware configures
servers

Cisco Unified Computing System

Delivering “Business Outcomes” For Over 30,000 Customers Worldwide

“We can offer leading solutions to our customers and continue to expand our business.”

Martin Breslin
Infrastructure Architect, SEI

“Our Cisco Unified Computing System decision is a game-changer.”

Wes Wright
CIO, Seattle Children’s

“With Cisco UCS, we can adapt much more quickly to user demand.”

Mark Adams
VP, Information Technology, HireRight

**Greater
Business Agility**

84%

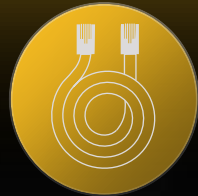
**Reduce
Provisioning
Times**



**Lower Operating
Expenses**

77%

**Reduce
Cabling**



**Reduced Costs/
Complexity**

61%

**Reduce
Management
Costs**



**Lower Computing
Cost**

54%

**Reduce Power
and Cooling
Costs**



**Faster Fact-based
Decision Making**

90%

**World-Record
Performance
Benchmarks**



Cisco Unified Computing System

Fastest Growing Product in the Market

33,000+ UNIQUE UCS CUSTOMERS ²

#1 Americas revenue market share in x86 blades ¹

\$2.6B+ Data Center Annualized Revenue Run Rate ²

Top 5 Server Vendor ¹

More than **75%** of all **Fortune 500** customers have invested in UCS

3,600+ UCS CHANNEL PARTNERS

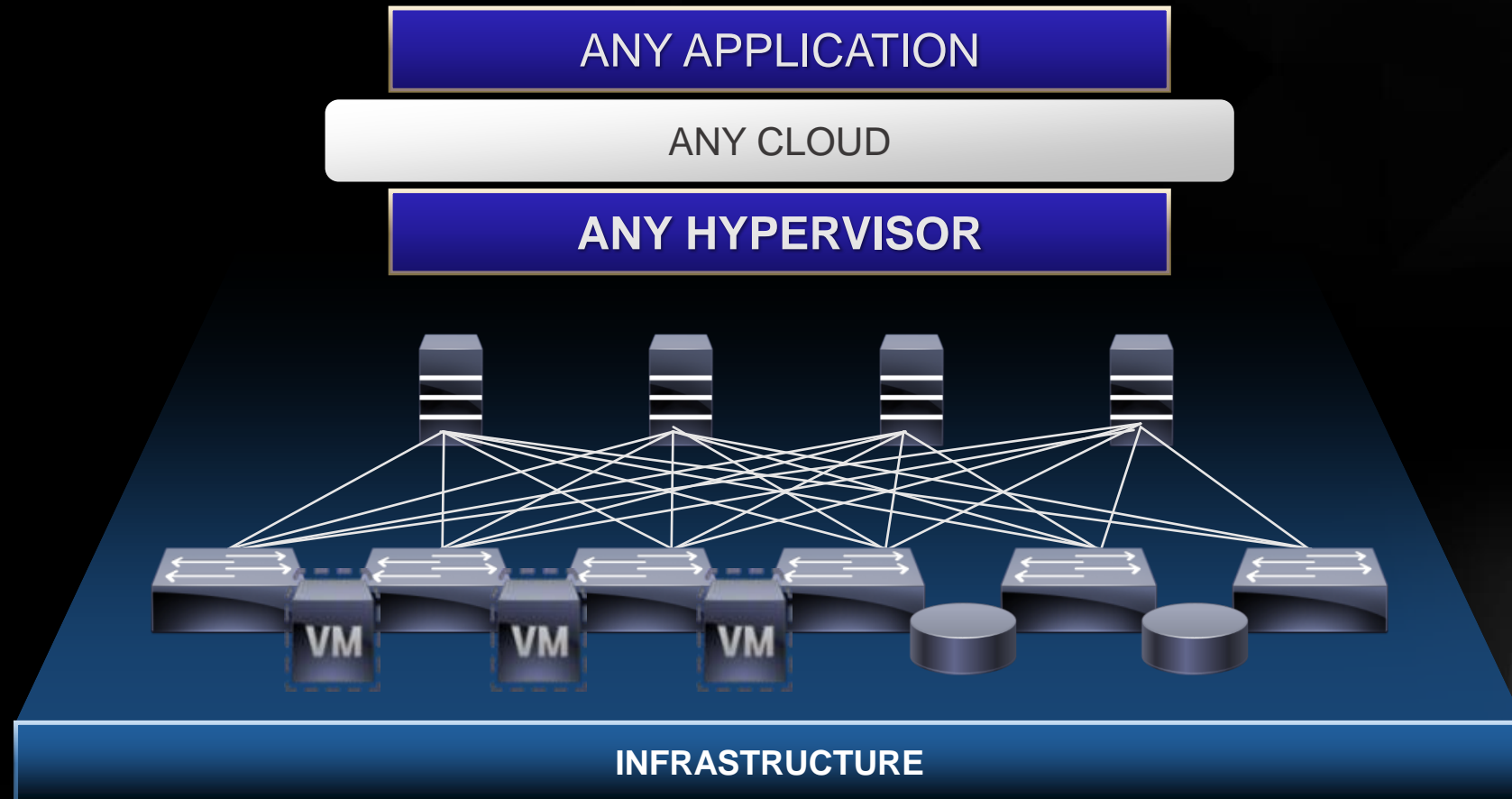
94 world record performance benchmarks to date



Source: ¹ IDC Worldwide Quarterly Server Tracker, 2014Q1, May 2014, Vendor Revenue Share
Source: ² As of Cisco Q3FY14 earnings results. Data Center Revenue is defined as Cisco UCS and Nexus 1000V

Common Network—Physical, Virtual, Cloud Flexibility, Performance, and Visibility

- Systems Approach for delivery of
 - Resiliency
 - Security
 - Mobility
 - Performance
- Hypervisor- agnostic
- Consistent Policy
- Converged
- Real-time End-To-End visibility of the application



Cisco Data Center and Cloud Networking

Continuous Market Leadership

DC TECHNOLOGY LEADER

55,000+

Cisco NX-OS
Customers

Cisco FabricPath
Customers

3,000+

11M+

10GE Ports
Shipped

Cisco FEX
Customers

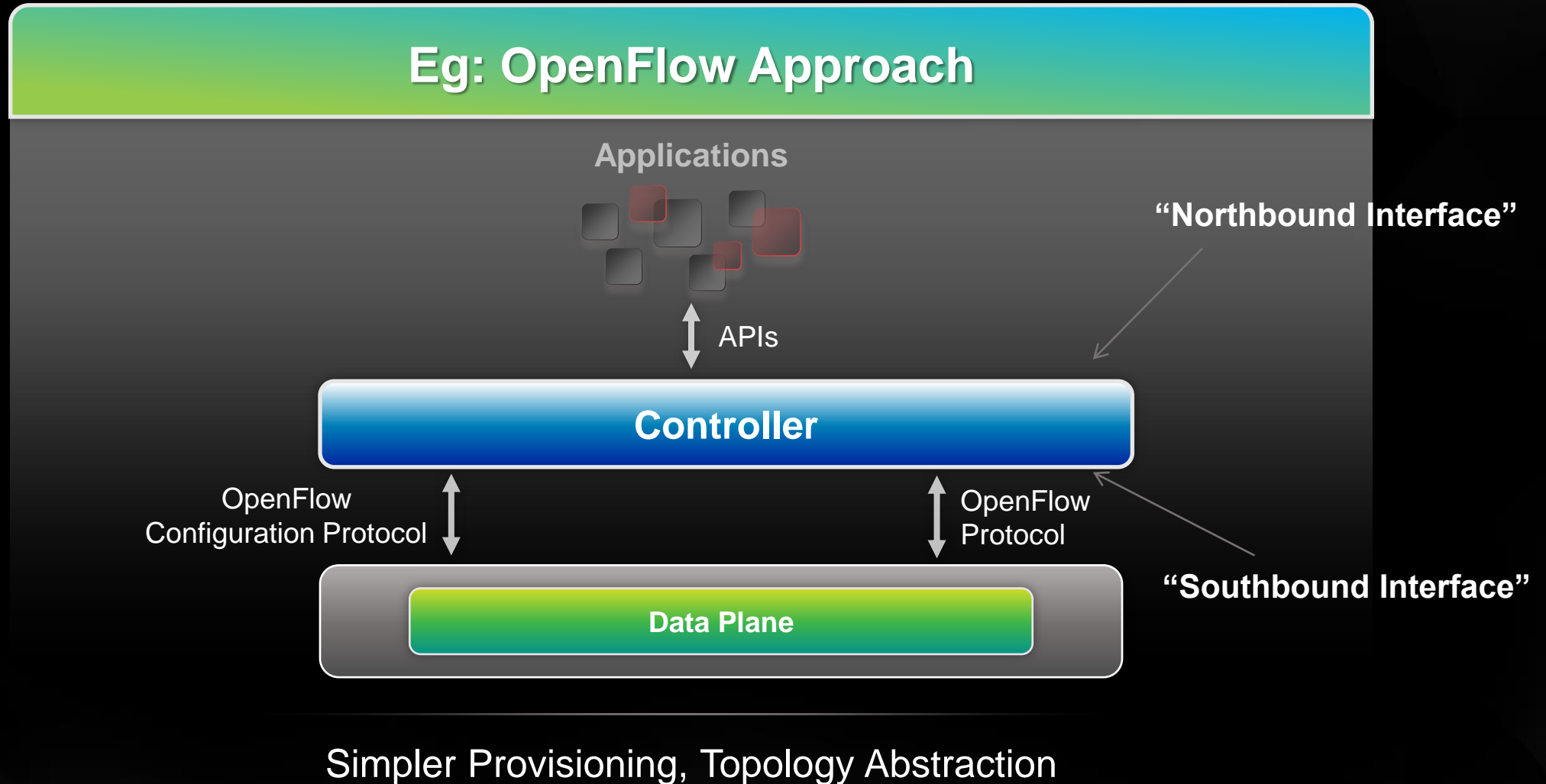
17,000+

DATA CENTER SWITCHING LEADER

1 Market share by revenue
in Q3 2012 for DC Ethernet Switching
at **71.7%***

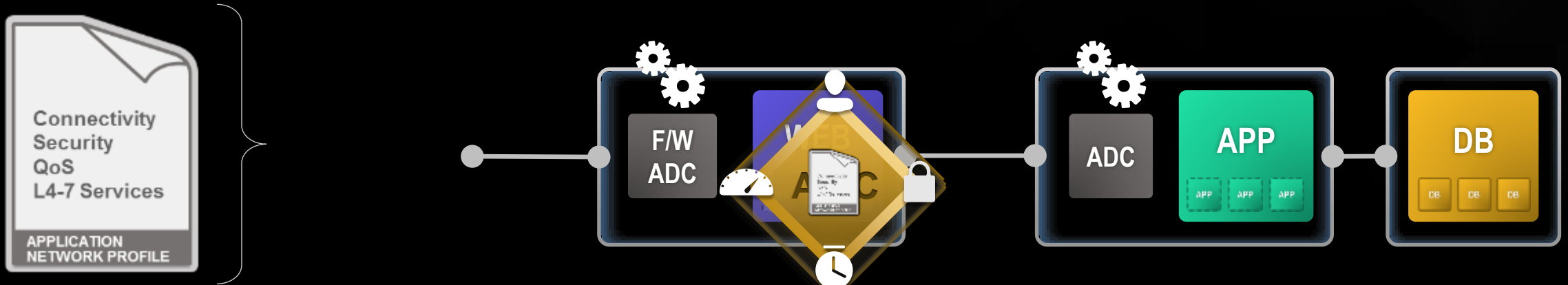
1 Market share by revenue
in Q3 2012 for FCoE SAN Switching
at **87.3%****


SDN Basic Concept

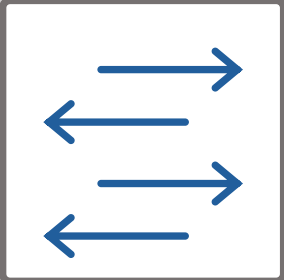



Application Policy Infrastructure Controller (APIC)

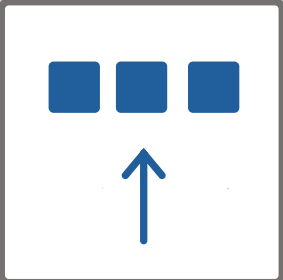
Network Automation




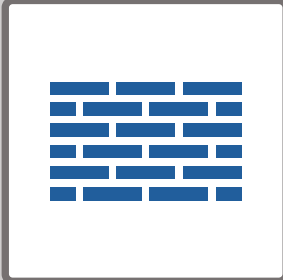
Physical Networking 





Hypervisors and Virtual Networking 




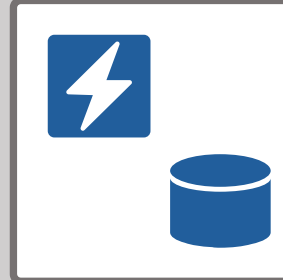
L4-L7 Services 




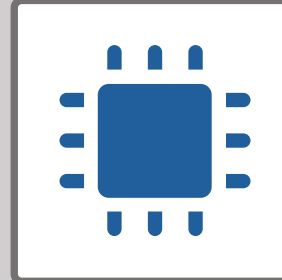
Multi DC WAN and Cloud 



Storage 



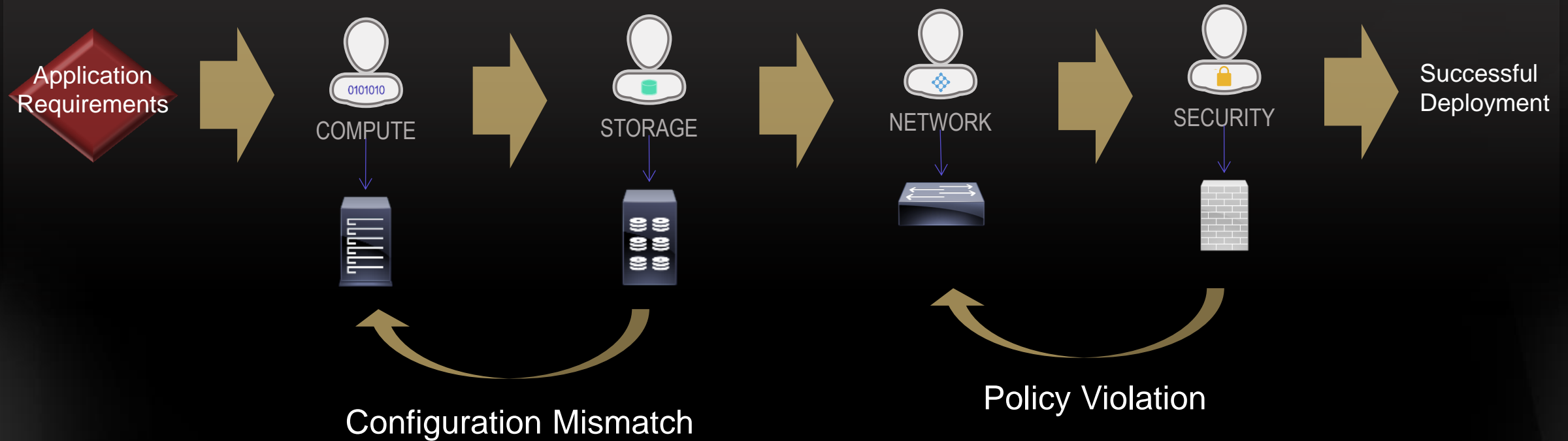
Compute 



Data Center Automation and IT Collaboration

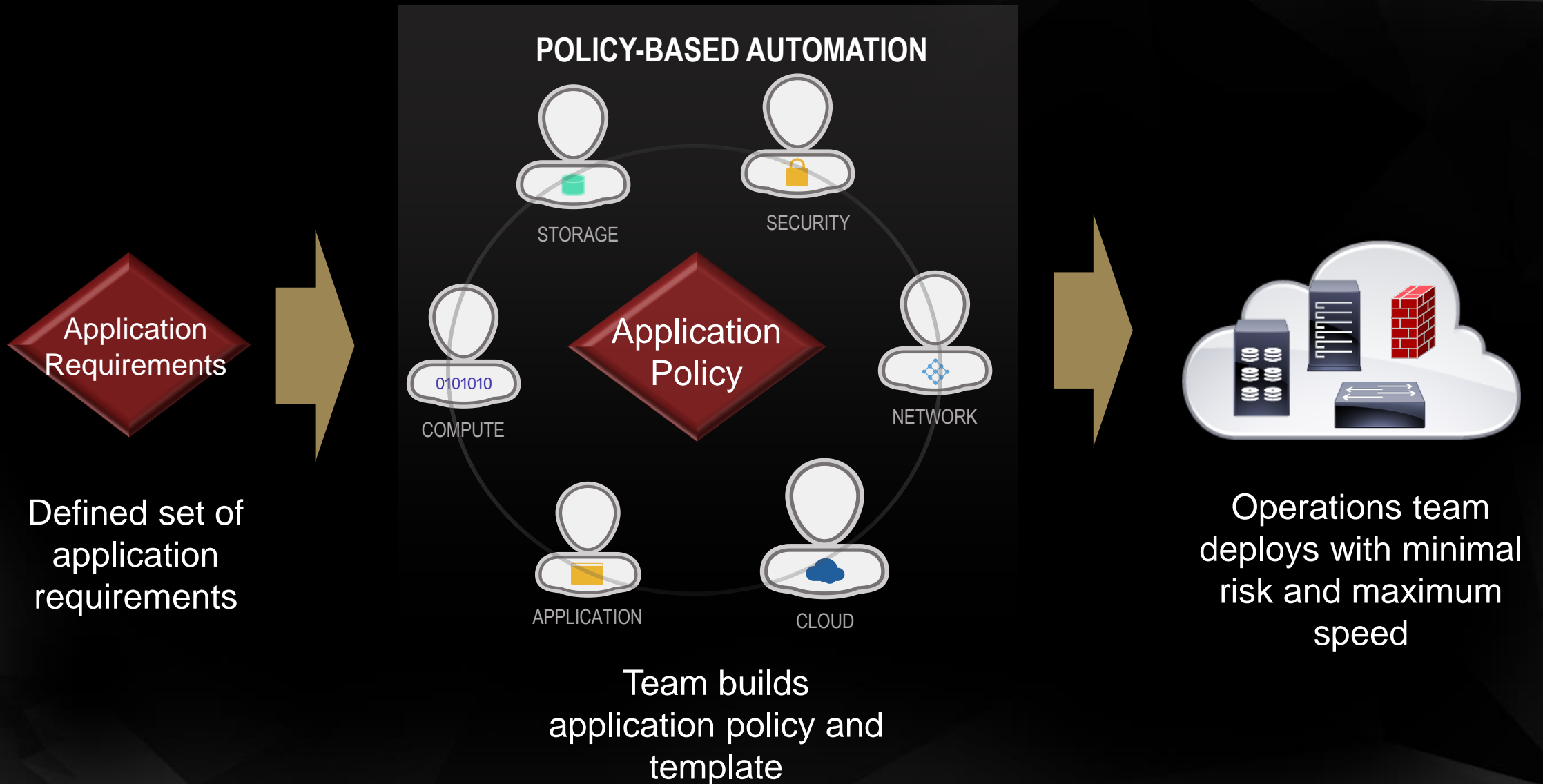
Serialized Configuration and Management

MANUAL PROCESS LEADS TO INCREASED DEPLOYMENT TIMES

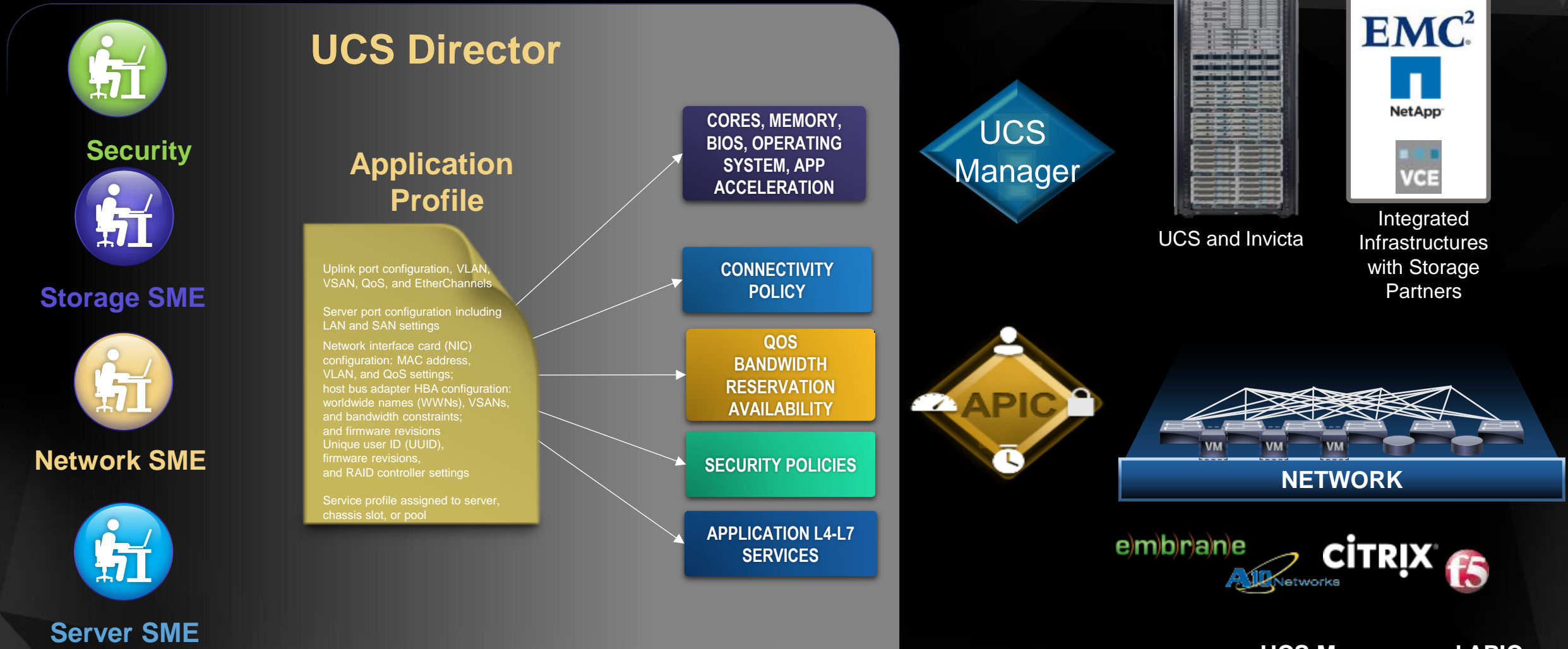


Data Center Automation and IT Collaboration

Common Policy Framework and Operational Model



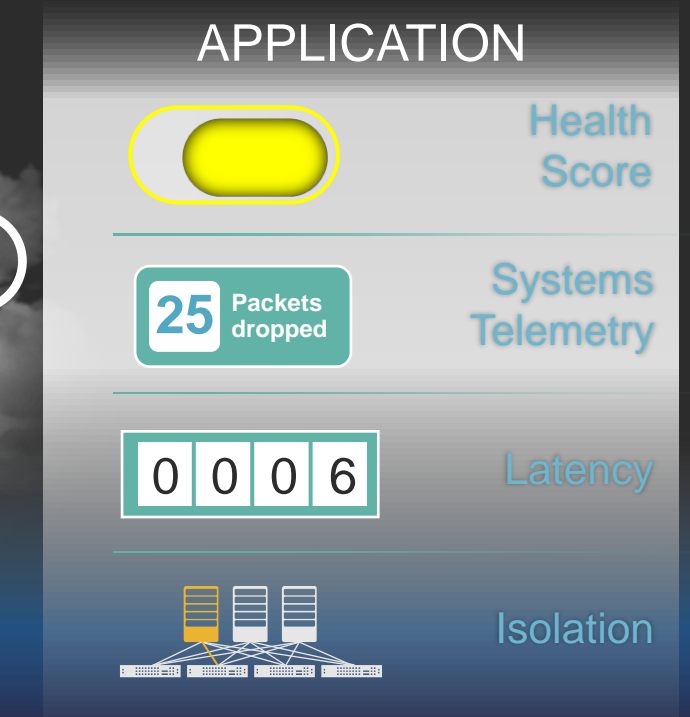
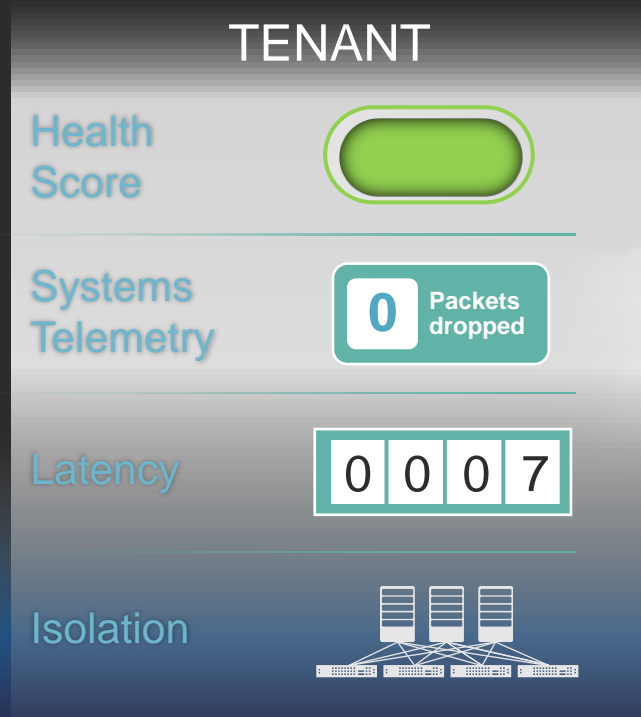
Deploying an Application Centric Infrastructure



- 1 Operations defines relationships and requirements of app
- 2 SMEs develop the application profile for the infrastructure
- 3 UCS Director automates the deployment of policies for that application
- 4 UCS Manager and APIC deploy the profiles within the infrastructure

The Benefits of an Application Centric Policy

Application Workload Mobility



**CONSISTENT VISIBILITY
ACROSS CLOUD AND DC**

Application Centric Infrastructure Delivering Business Outcomes

“Cisco ACI is an open, future-proofed data center architecture that can continue to grow as we enhance client services.”*

Chuck Crane
Network and Security Architect, Axcium
(Transitioning from AWS to Private Cloud)

“Cisco’s open standards approach makes ACI even stronger. We conducted testing on ACI ... it fully delivered everything we expected, and proved to be quite stable and mature.”*

Nik Weidenbacher
Principal Engineer, SunGard

“This will enable Telstra to deliver service agility, security and performance that our customers expect from an enterprise grade cloud.”

Erez Yarkoni
Executive Director, Telstra

**Greater
Business Agility**

58%

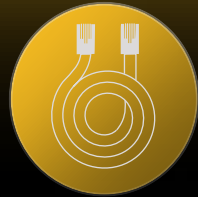
**Reduce
Network
Provisioning**



**Lower Capital
Expenses**

25%

**CAPEX
Reduction**



**Reduced Costs/
Complexity**

21%

**Reduce
Management
Costs**



**Lower Operating
Cost**

45%

**Reduce
Power and
Cooling Costs**



**Resource
Optimization**

10-20%

**Compute and
Storage
Optimization**



Source: Cisco IT

* 4/2014 Cisco announced Opflex a standards track southbound protocol for integration of ACI with a broad ecosystem of L4-7 Services. Opflex was coauthored by: Microsoft, Citrix, IBM, and Sungard Availability Services

Eduardo Rosa
Chief Technology Officer
UOL DIVEO

UOLDiveo automates cloud deployments with ACI seamlessly connecting cloud and customer networks

0:44 / 10:06

<https://www.youtube.com/watch?v=C1n4kiJ9aFw>

BROAD ECOSYSTEM OF PARTNERS EMBRACE OPEN

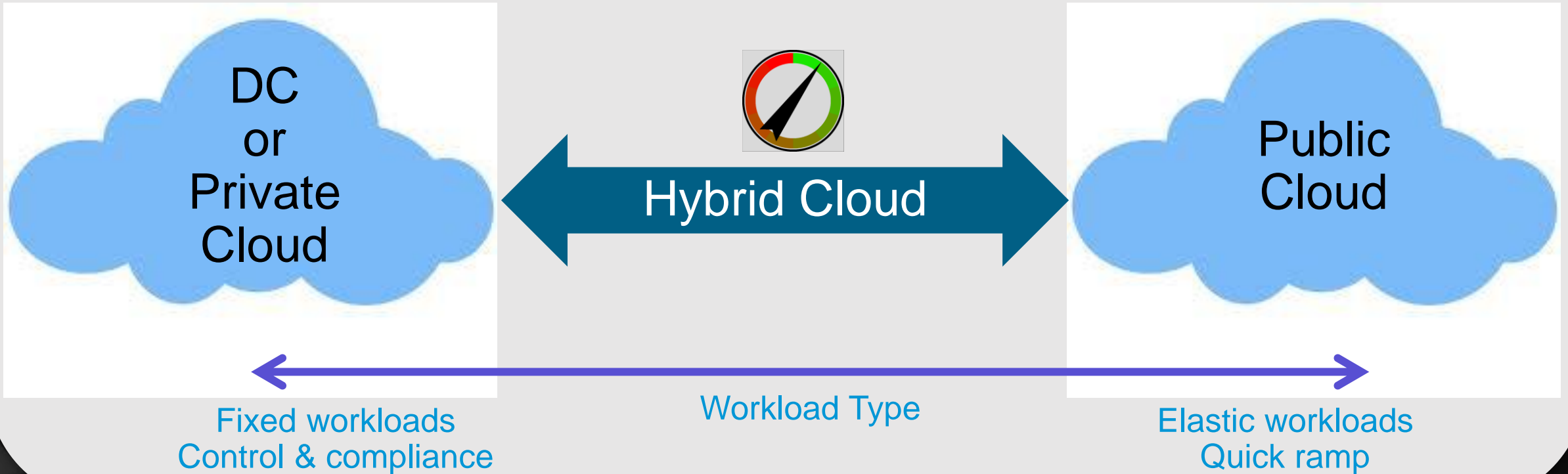


THE JOURNEY BEGAN ON THE NORTHBOUND

Why Hybrid Clouds?

It is all about the workload

- Choice to build & rent across providers
 - Workload portability
 - Consistent security



Cisco's Hybrid Cloud Approach



Cisco's Hybrid Cloud Differentiation

No Vendor Lock-In

Any Hypervisor to Any Provider

Heterogeneous Infrastructure

Customer



Open



Choice

Cisco
Intercloud Fabric

Cloud Providers

Cloud Brokers

Cisco Powered
Services

Open
Ecosystem



End-to-End Security

Unified Workload Management and Governance

Workload Mobility Across Clouds

Cisco Intercloud Fabric Benefits for Business



Choice Of Infrastructure to Meet Changing IT Requirements

Open

Heterogeneous On-Premises and Public Cloud Infrastructure

Multi-Cloud Support

Multi-Hypervisor Support



Protect Business Assets and Meet Compliance

Secure

Secure, Scalable Connectivity to Extend Private Cloud to Public Cloud

Consistent Policy Enforcement throughout the Hybrid Cloud

Workload Security in Public Cloud



Consistent Operations and Workload Mobility Across Clouds

Flexible

Unified Hybrid Cloud Management for Users and IT Admins

Workload Portability To and From Physical/Virtual/Hybrid Cloud

Policy Based Workload Placement

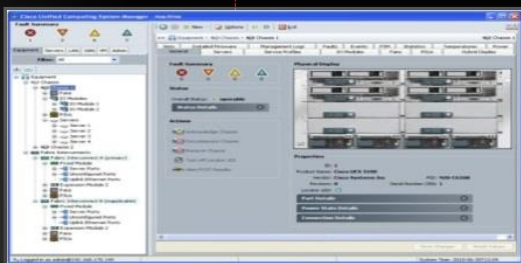
Cisco Management and Automation

INTELLIGENT AUTOMATION FOR CLOUD : Private Cloud, PaaS (DevOps), Hybrid Cloud

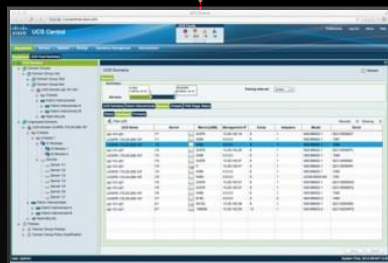
UCS DIRECTOR : Centralized infrastructure control point for data center

UCS CENTRAL

UCS MANAGER



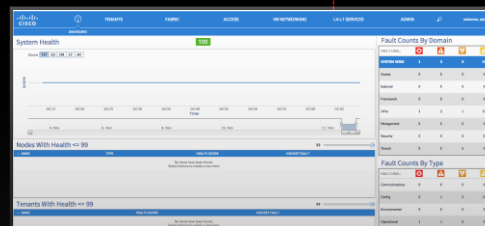
Manages Single UCS and Invicta domain



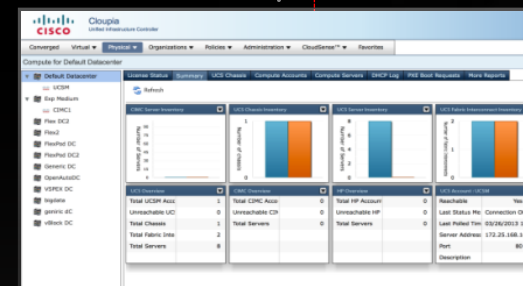
Manages multiple UCS Domains



APIC



Controller for network automation



Manages heterogeneous data centers and converged infrastructure



Delivering Solutions Through the Power of the Ecosystem

Business Apps	Databases	Analytics and Big data	Cloud Apps	Collaboration Applications	Desktop Virtualization			
<p>FLEXPOD</p>		<p>HITACHI</p> <p>HDS UCP</p>	<p>EMC²</p> <p>VSPEX</p>	<p>VBLOCK</p>	<p>Cisco UCS</p>			
				<p>Cisco Nexus</p>				



Cisco Servers with Intel® Xeon® processors



CISCO