



Go further, faster®

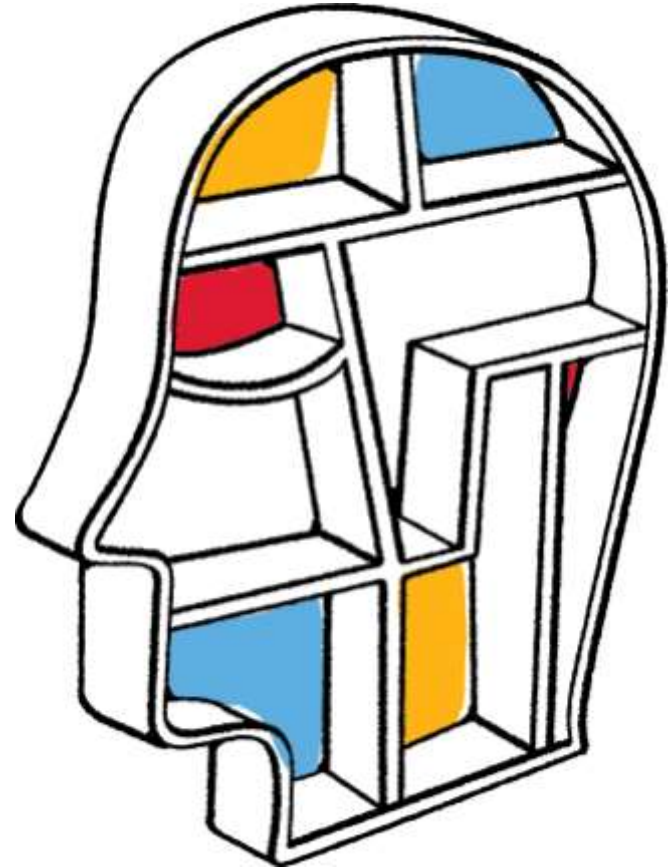
# FlexPod™

## Datacenter Virtualization as a Way for Cost Reduction

Cisco Roadshow 2012

José Martins

NetApp





# Agenda

- Introducing FlexPod
  - One Shared Vision and Journey
- FlexPod
  - The Virtualization Challenge
  - Highly Scalable Unified Data Center Infrastructure
  - Deployment and Support
- Summary

# Data Centers Are at a Critical Juncture



Empowered  
User



Real-Time  
Information

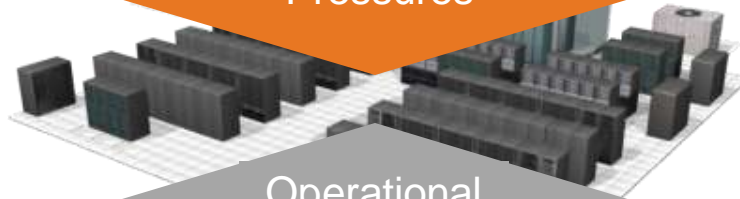


Collaborative  
Applications



Economic  
Uncertainty

New Business  
Pressures



Operational  
Challenges



Energy  
Consumption



Asset  
Utilization

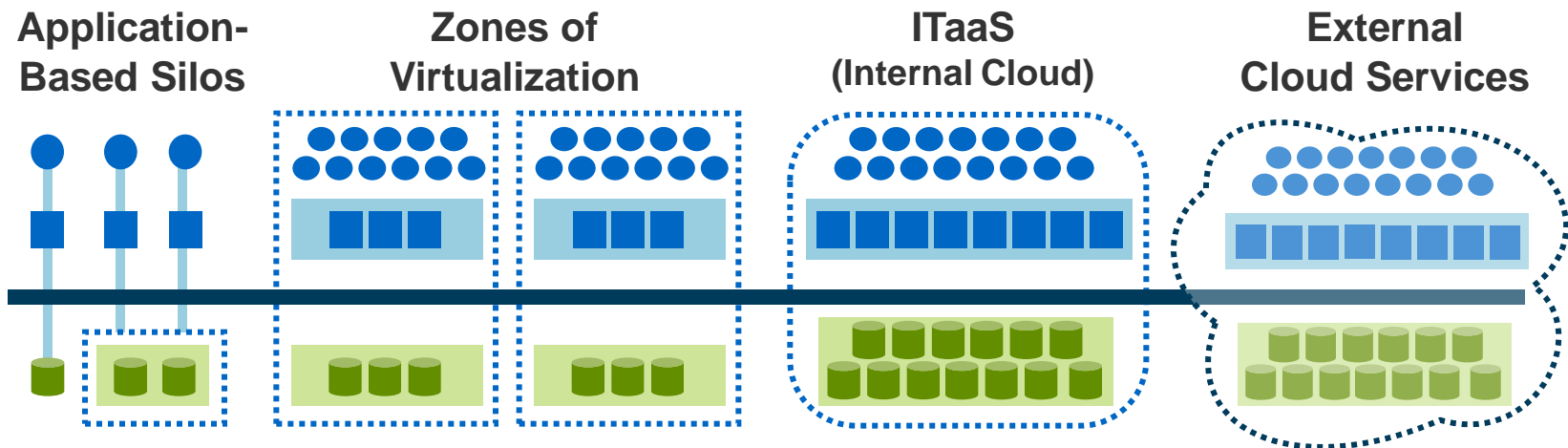


Complex  
Provisioning

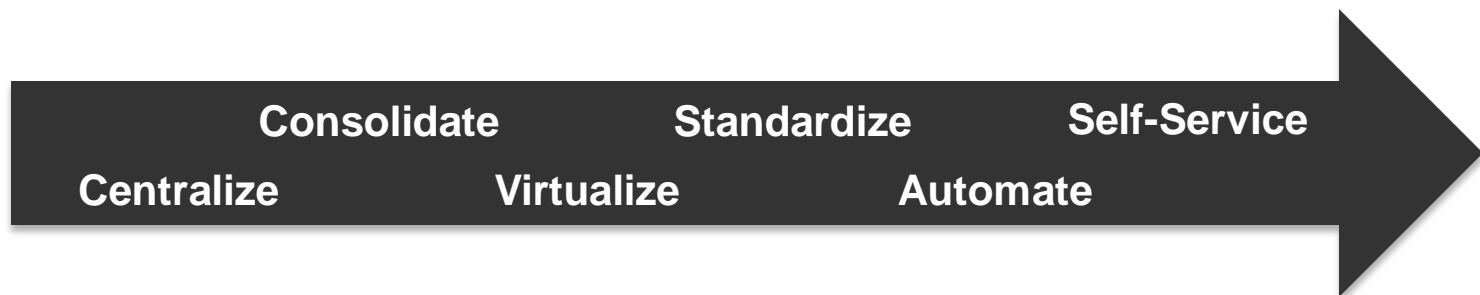


Integrity and  
Availability

# One Shared Vision and Journey

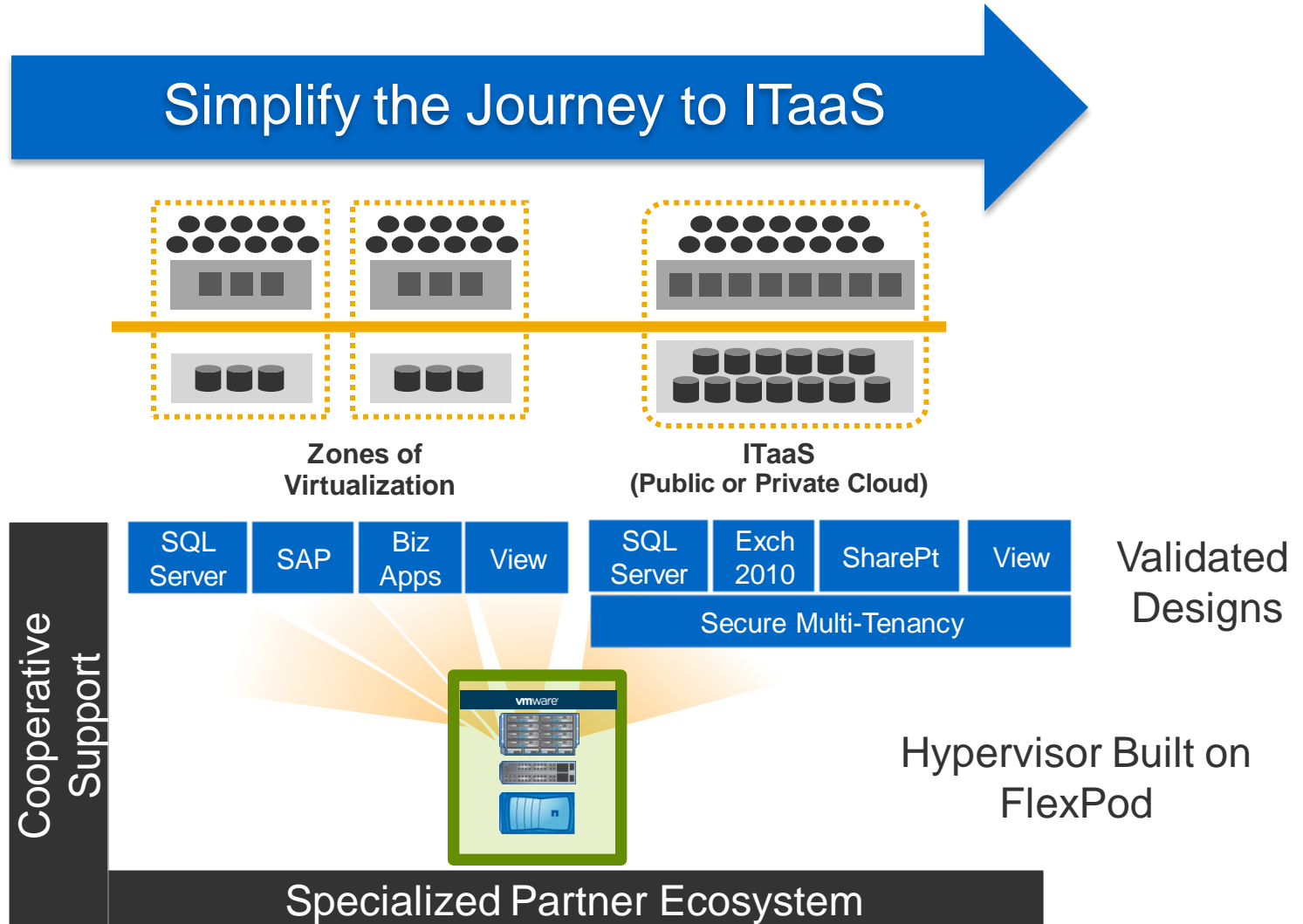


- Cisco and NetApp deliver the proven journey.
- Where are you on this journey?





# VMware vSphere built on FlexPod Overview

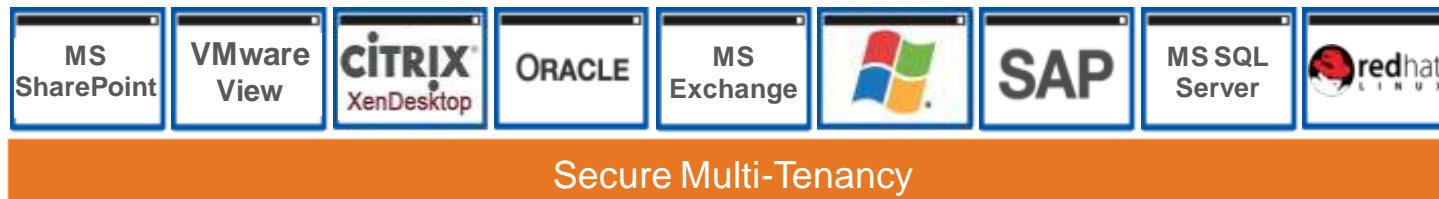




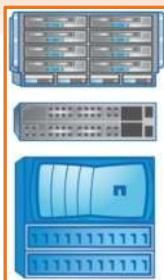
# FlexPod™ Data Center Solutions

## FlexPod™ Data Center Solutions

- VMware® (Exchange, SQL Server, SharePoint, View)
- Citrix XenDesktop
- SAP® Applications
- Microsoft Private Cloud
- Red Hat Enterprise Linux (platform)



Validated workloads



Performance balanced server,  
network and storage components



# Introducing FlexPod

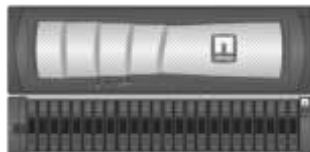
Cisco® UCS B-Series  
Blade Servers and  
UCS Manager



Cisco Nexus®  
Family Switches



NetApp® FAS  
10GE and FCoE



**Shared infrastructure for wide range of  
environments and applications**

## Benefits

- Low-risk standardized shared infrastructure supporting a wide range of environments
- Highest possible data center efficiency
- IT flexibility, providing business agility: scale out or up, but manage resource pools

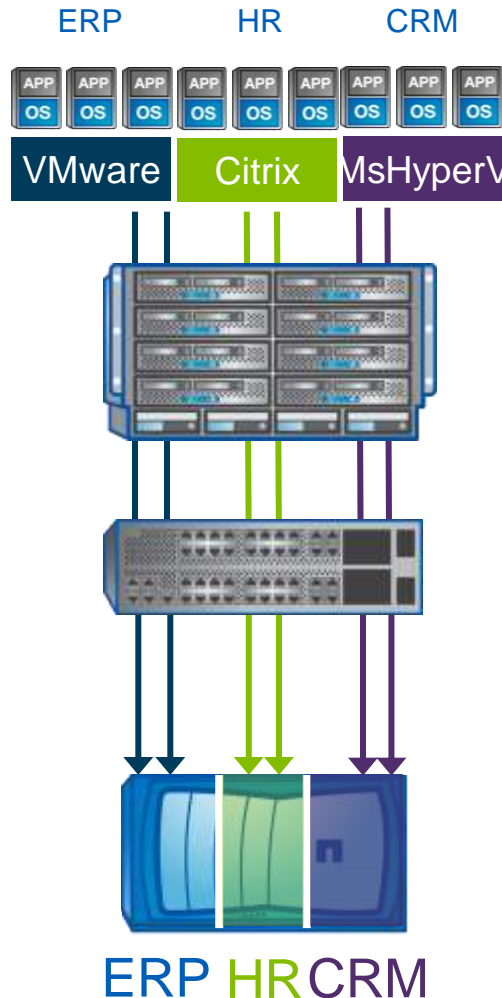
## Features

- Complete data center in a single rack
- Performance-matched stack
- Step-by-step deployment guides
- Solutions guide for multiple environments
- Multiple classes of computing and storage supported in a single FlexPod
- Centralized management: NetApp OnCommand and Cisco® UCS Manager



# Secure Multi-tenancy

*Build on FlexPod to Securely Isolate Shared Resources*



- Industry's only end-to-end solution
- Consistent QoS at each layer
- Manage each resource pool independently
- Reduce risk and cost while boosting IT agility
- Cisco Validated Design

Resource Pool Settings	Platinum Tenant	Gold Tenant	Silver Tenant
Reservation	Reserved	Reserved	No reservation
Limits	Unlimited	Limited	Limited
Shares	High	Medium	Low
Expandable Reservation	Enabled	Disabled	Disabled





# FlexPod™

## IT Accelerating the Business



### Traditional

Service Request

Many Weeks or Months

Design and Size → DC Planning → Procure → Detailed Design → Deploy → Test

X

↔

↔

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X

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Service Available

### With FlexPod

- Reference BoM
- Validated design
- Precise deployment
- Standard test plan

> 50% Faster

DC Planning → Procure → Deploy → Test

Service Available

### Preprovisioned FlexPod

- Rapid deployment of applications
- Shared pools meet most requirements

DC Planning → Procure → Deploy → Test

Service Available

### Benefits

- Agile service delivery
- Higher productivity
- Faster deployment
- Higher quality
- Simpler planning

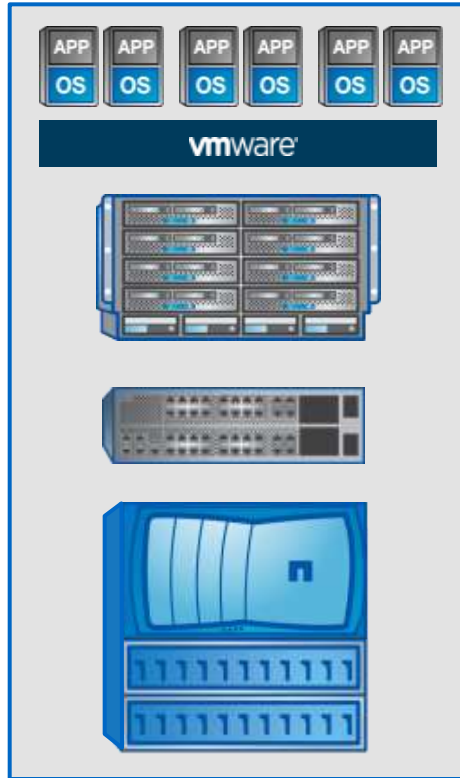


# Centralized Management with FlexPod™

VMware  
vCenter

NetApp  
Storage  
Plug-ins

Cisco UCS  
Manager



VMware® vCenter™

- Automated workflows
- Scalable, extensible platform

Cisco® UCS Platform

- Embedded unified management
- Integrated with VMware vCenter

NetApp OnCommand®

- Manager suite: Automate, analyze, and control
- Integration with VMware vCenter Server
- Enables server administrators to perform storage tasks

## Extensible Open Management

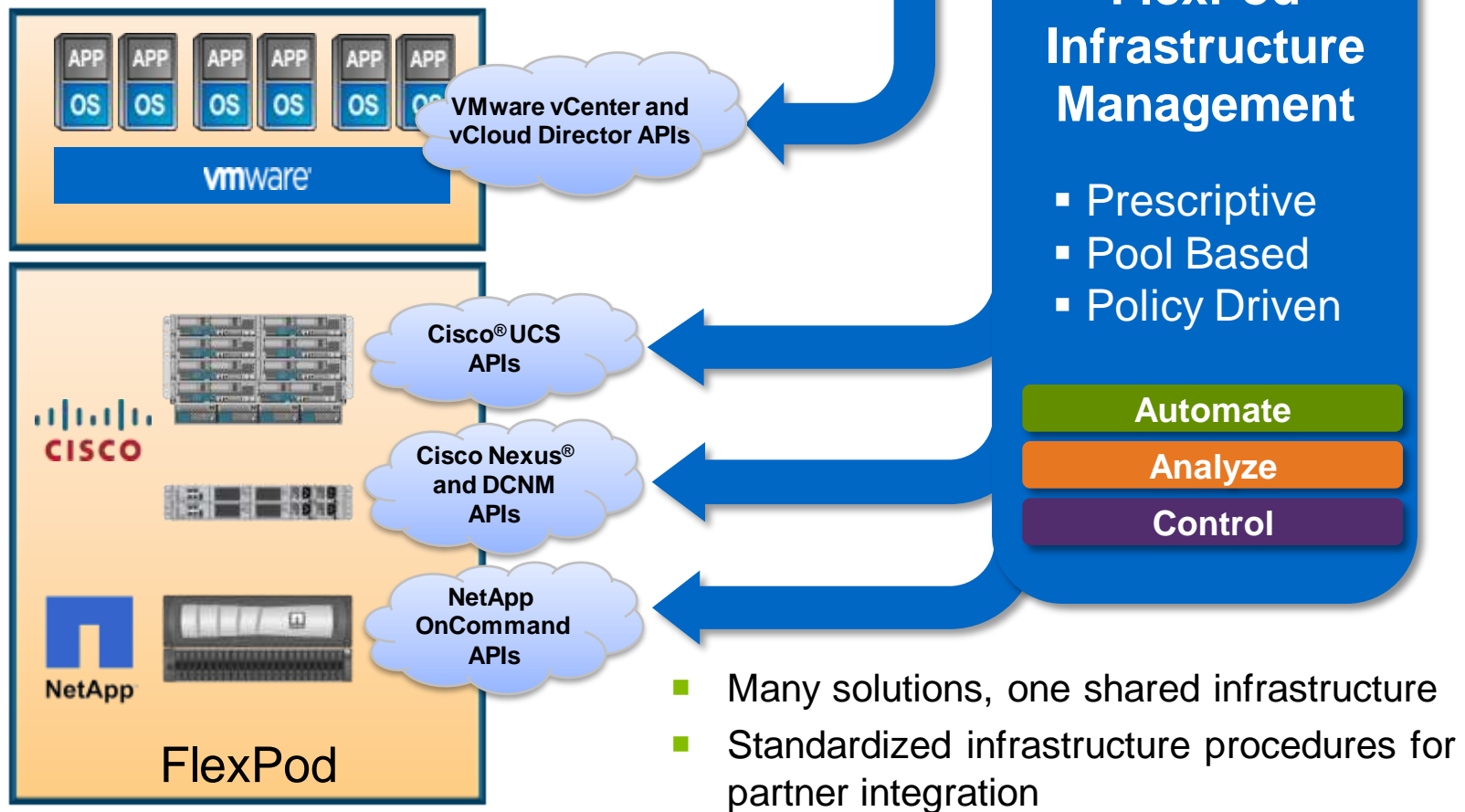




# Solution Orchestration with VMware vSphere built on FlexPod

## Solution Architecture Orchestration

ESMT, VDI, MS Applications, XaaS, Testing and Development, etc.





# Microsoft Private Cloud Built on FlexPod™

Applications



Microsoft



NetApp

**FlexClone®**  
for Rapid  
Provisioning



**ApplianceWatch**  
for Health  
Monitoring



**Data ONTAP™**  
Powershell  
Toolkit for  
Integration  
and Automation



**SnapMirror®** for Disaster Recovery

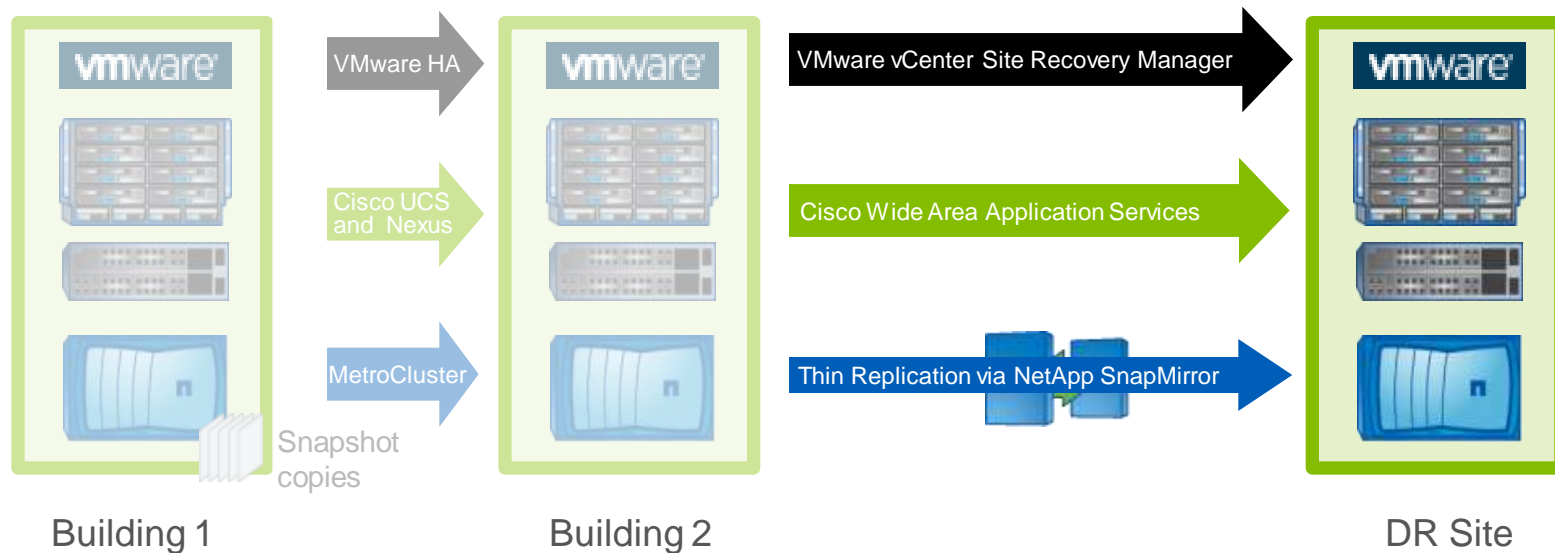
**SnapManager®** Backup & Recovery





NetApp®

# Data Protection Against Any Failure



## Failure

User error:  
Data corruption:  
System or site failure:  
Regional disasters:

## Cisco/NetApp/VMware

Instant backups, end-user recovery  
Instantaneous restores  
Transparent failover  
Recover in minutes

vmware



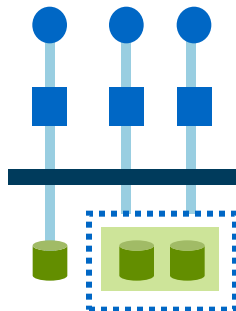
# Scale Capabilities to Fit Your Requirements



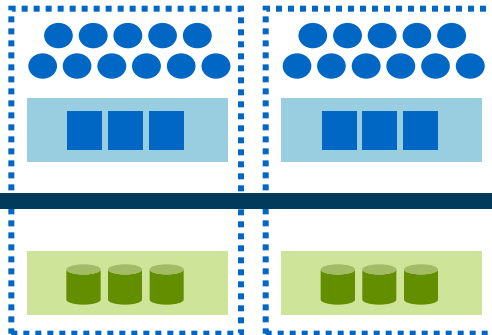
VMware vSphere  
built on FlexPod

Usage metrics and self-service  
Automation and service management\*  
Multi-tenancy and secure separation\*  
Service availability, service assurance, and mobility\*  
Centralized integrated management  
Shared and virtualized infrastructure  
IT efficiency and IT flexibility

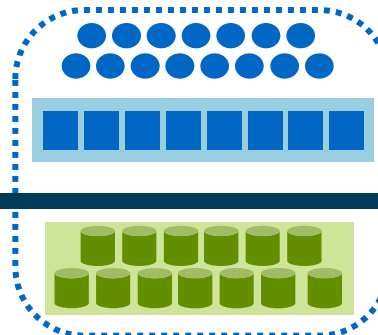
## Application-Based Silos



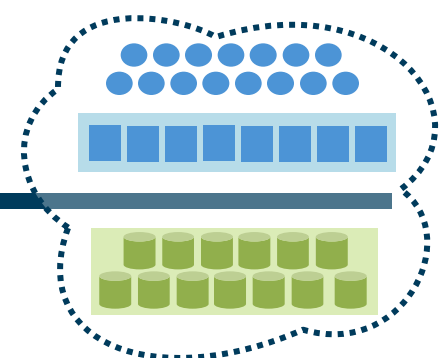
## Zones of Virtualization



## ITaaS (Internal Cloud)



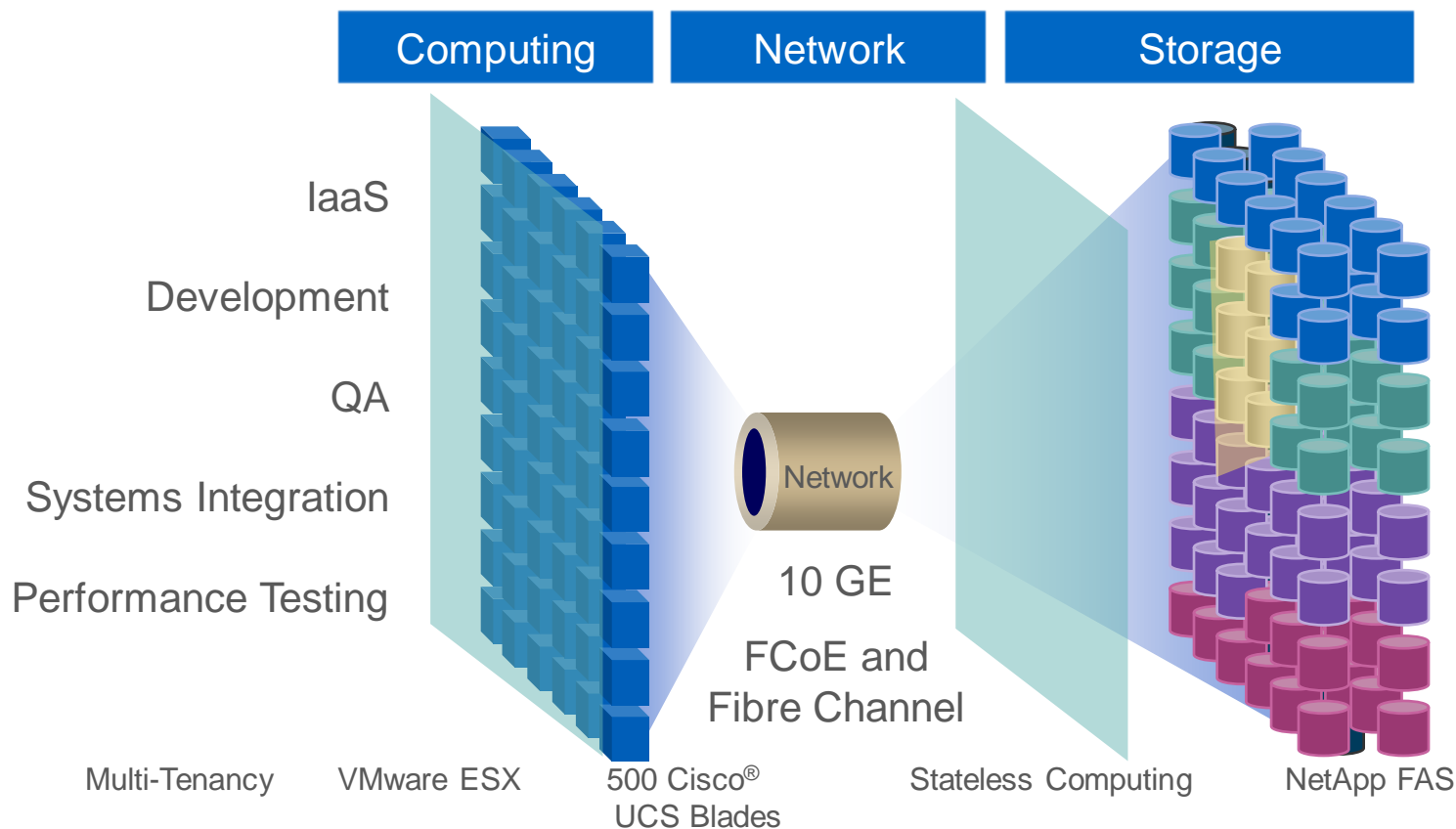
## External Cloud Services



\* IVA Secure Multi-Tenancy Design Pillars



# NetApp Meets Testing and Time-to-Market Goals

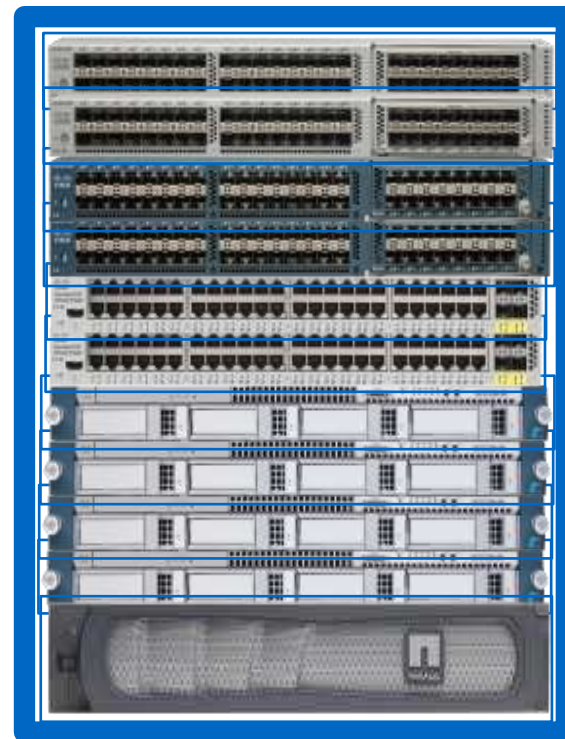


- Deployed 10,000 virtual machines in less than 1 hour
- Achieved 100X the client capacity at the same infrastructure cost
- Implemented 50,000-seat VMware View 4.5 environment for testing



# Entry-level FlexPod Overview

- Natural evolution of the FlexPod Solution
- Enterprise-class FlexPod benefits
  - Flexibility and scalability
  - Efficiency and low TCO
  - Risk reduction and fast time-to-deployment
- Right-sized for smaller workloads
  - Midsize and distributed enterprise
  - Less than ½ the price of prior FlexPod





# Entry-level FlexPod Solution Architecture

Cisco Nexus 5548 Switch

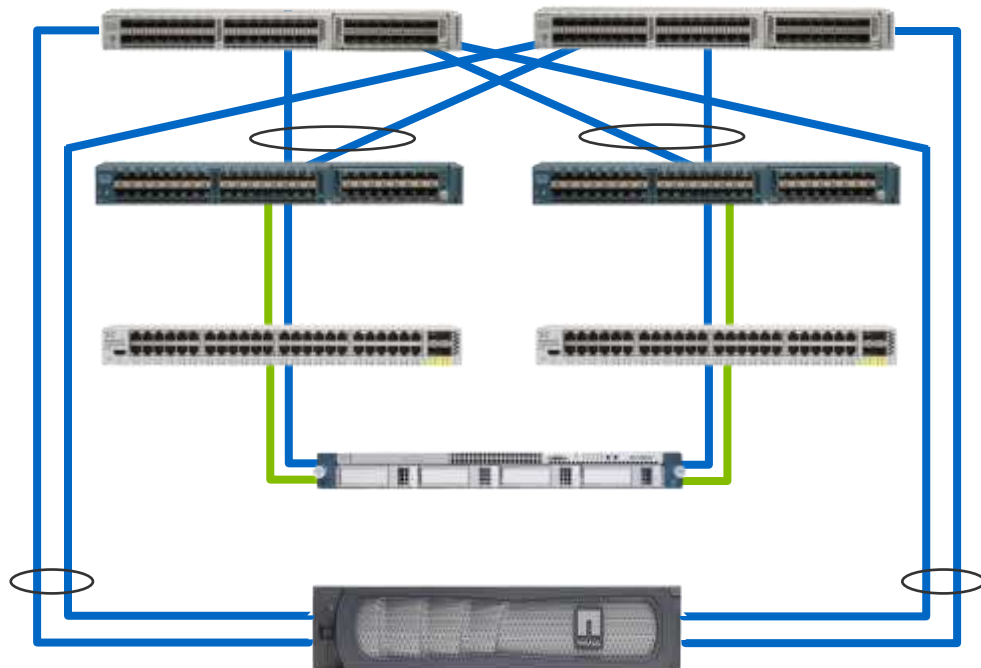
Cisco UCS 6248  
Fabric Interconnect

Cisco Nexus 2232  
Fabric Extender

Cisco UCS C200 Server

NetApp FAS2240 Storage

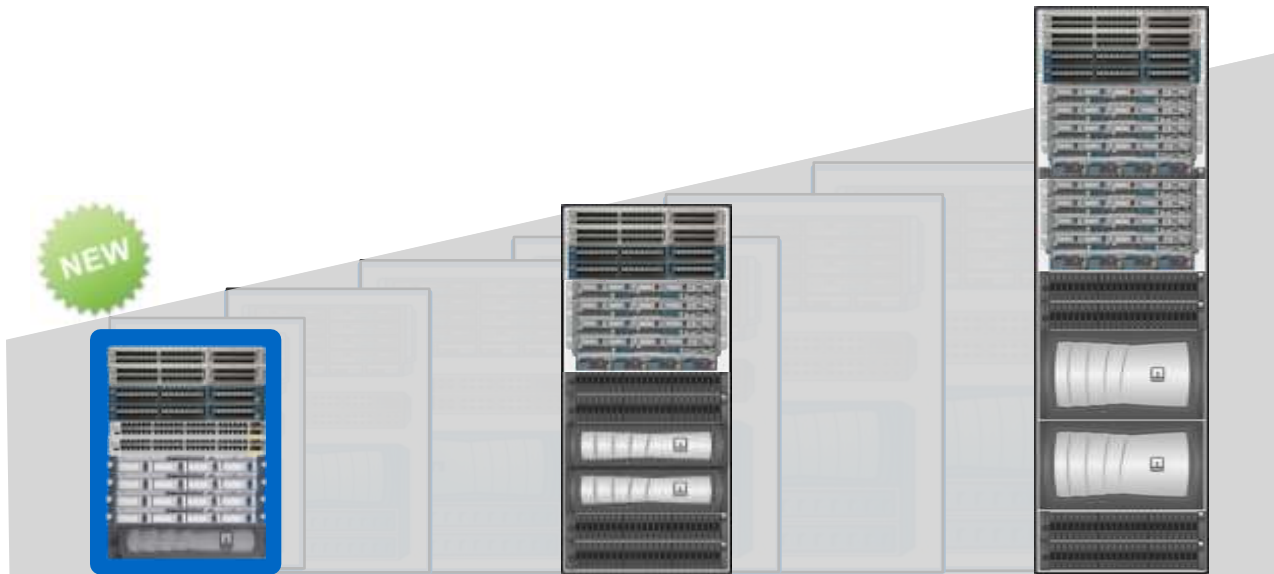
iSCSI, NFS, CIFS



— Data — Management



# The FlexPod Solution Portfolio



**Consistent architecture from entry to large configurations**

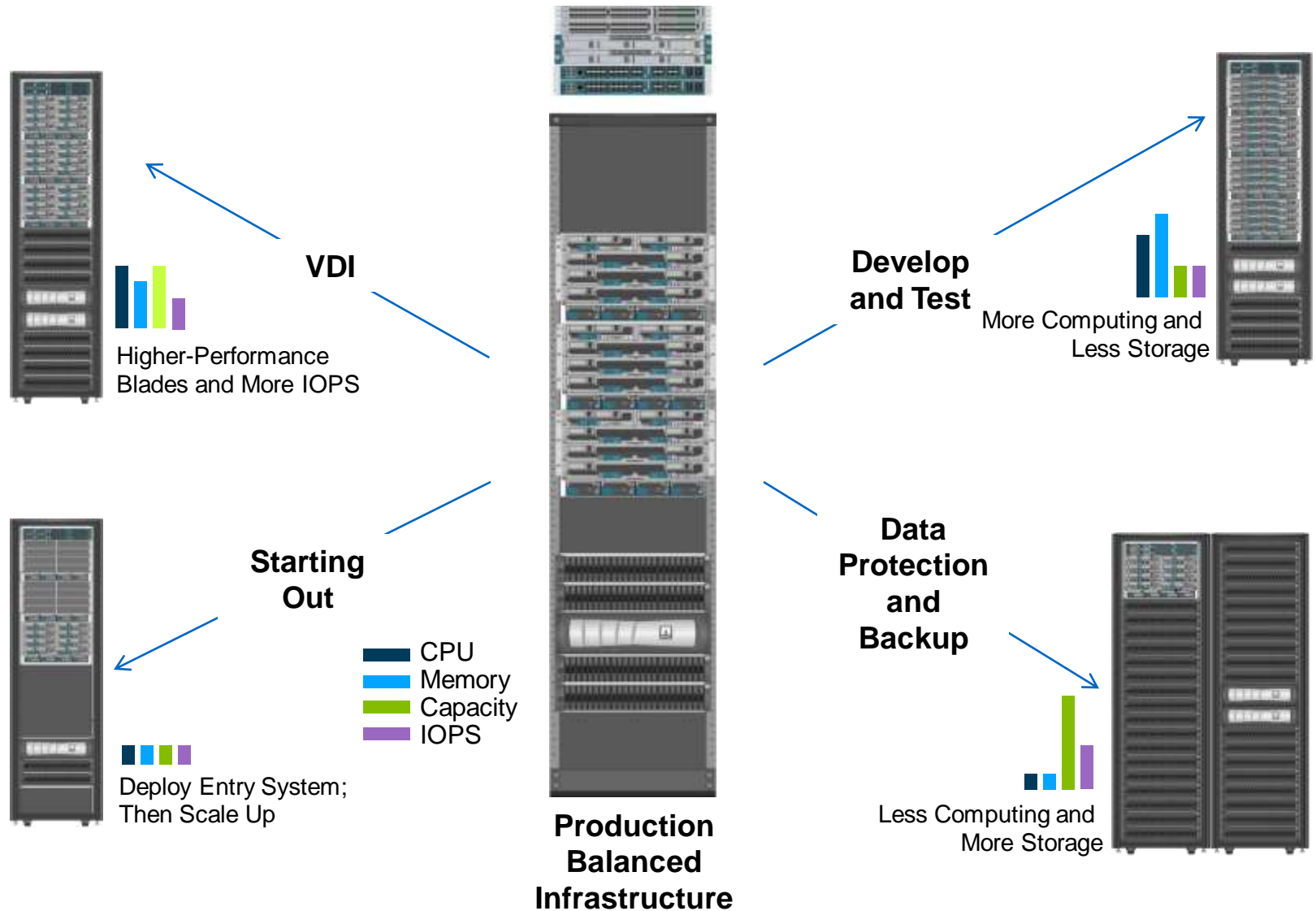
**Scale up or down with ease**

**Common structure for support & management**



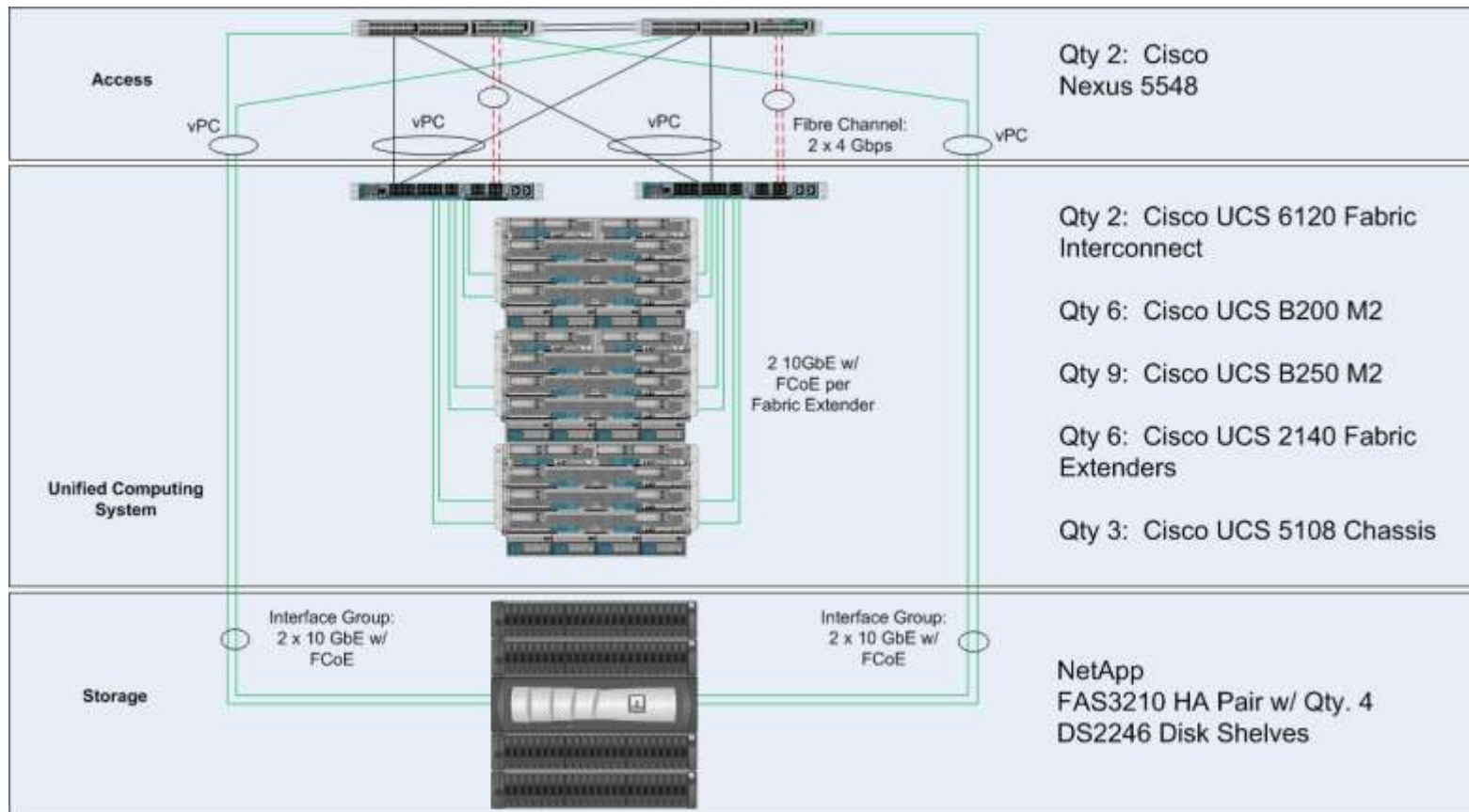
# Flex with Confidence

## Validated Infrastructure





# FlexPod Connectivity

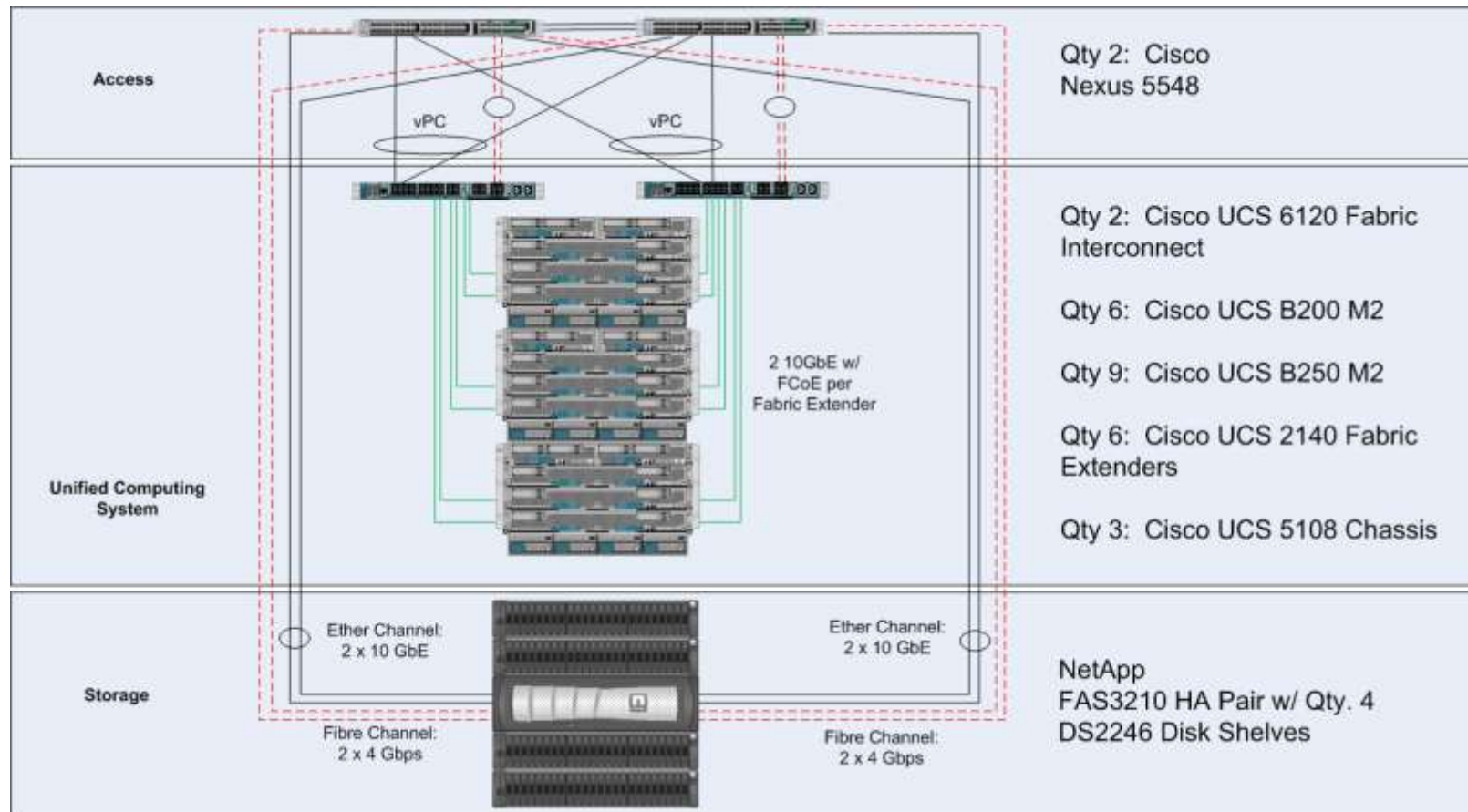


## Network Details:

- 2 X 10 GE Uplinks per Fabric Extender
- 2 X Fabric Extenders per Chassis
- 2 X 10 GE Uplinks per Cisco UCS Manager



# FlexPod Connectivity (Optional FC Boot)



## Network Details:

- 2 X 10 GE Uplinks per Fabric Extender
- 2 X Fabric Extenders per Chassis
- 2 X 10 GE Uplinks per Cisco UCS Manager



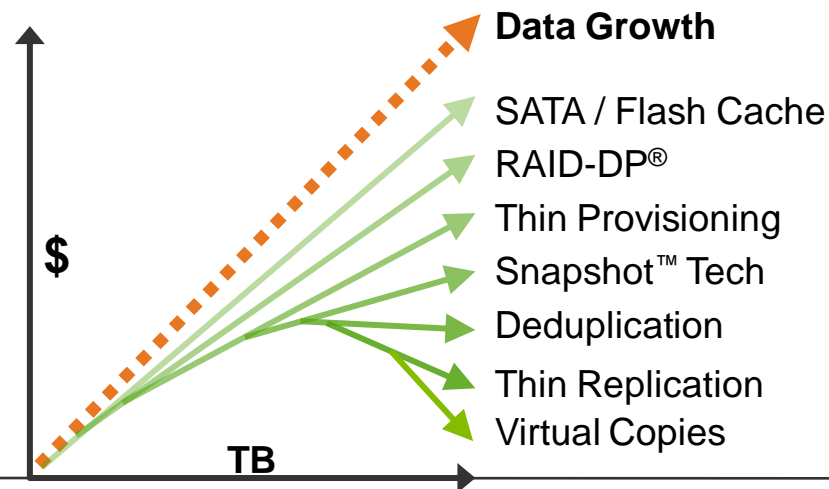
# Winning with Market-Leading Solutions

## NetApp

### We're paving the way....

- Customers are choosing NetApp
  - Winning in new model
  - Gaining market share
  - Beating competition
  - Growth company of scale
- Defining key new criteria to maximize customer value
  - Storage efficiency
  - Unified architecture
  - Scale up and scale out

## Storage Efficiency



## Unified Architecture

- Single architecture for all workloads
- Scale up and scale out
- Intelligent approach to data caching
- Single management suite and integrated data protection



## Summary

- Simplify & Optimize IT
  - One Shared Vision and Journey
- Agility & Lower TCO
- Enterprise IT Features
- Unified Architecture
- Scalable
- Single Architecture & Standards & Best Pract
- Automation & Orchestration
- No Need for Data Migration
- Choice & Flexibility



*Thank you*

