Cloud Computing and
The Software Defined Data Center
Agenda

- VMware Focus Areas
- Cloud Business Drivers
- The Cloud Consumption Model
- The Software Defined DataCenter
- vCloud Suite
- VMware Resources
- Next Steps
VMware Focus Areas

Redefine Efficiency and Agility Through the Software-Defined Data Center

Provide Choice Without Sacrificing Security & Control with Hybrid Cloud Computing

Empower the Workforce with Secure Mobility
Cloud Business Drivers

- Cost
- Quality
- Agility
Cloud Business Drivers

- **Increase Business Agility**
  - Enable the business to quickly react to market demands
  - Capture market share

- **Improve IT Efficiency**
  - Improve productivity through self-service and automation
  - Optimize resource utilization

- **Consumerization of IT**
  - Improve customer satisfaction
  - Secure IT relevancy to business

Source: Gartner - The Drivers and Challenges of Private Cloud Computing, Mar 2012
An End-User / Consumer Journey

25 billion
market data messages handled daily put global trading systems under extreme pressure.

15x
User-generated content increased 15x over the past few years.

35 trillion
gigabytes of data by 2020, 44-fold from 2009, from all major forms of analog and digital media – voice, TV, radio, print.

1 billion
Mobile devices expected to ship by 2014 will increase network security risks and threat management.

An IT Journey

Legacy Application Portfolios

SLA Demands

Compliance / Security

Do More with Less

Incompatible, Complex Architecture
CONSUMERIZATION?
SUBVERSION?
Enabling Cloud – A Tale Of Two Trends

Software

Monolithic Applications

Distributed Services

Platform

Loosely Connected, Discrete Resources

Virtualized Fabric Of Resources
What’s happening in the End User environment

Desktop Is Being Pulled Apart by the Cloud Forces
The end of the ‘Corporate LAN’?
Cloud – A New Consumption Model for IT

Self Service

Instantly Provisioned

Pay for Use

Efficient

Scale Up & Down
Markets of One and IT

From desk-bound, one size fits all

To the personal experience, anywhere, any time and on any device
SOFTWARE-DEFINED DATACENTER
X86 Price/Performance

Virtualization for all Apps

Virtualization of all Hardware Components
Past

$10,000
10 weeks

Present

$300
2 minutes
$1,800
5 days, 2 minutes

Enterprise storage
VLAN networks
Firewall, load-balancer
IDS, security, monitoring
Availability
WHAT IF…

The same *principles* that transformed a single layer of the data center and delivered unprecedented value for customers were applied to the entire data center?
Future

VDC

Software-defined Datacenter Services

5 days, 2 minutes

3 minutes
Software-Defined Data Center:
All infrastructure is virtualized and delivered as a service, and the control of this datacenter is entirely driven by software.
Maturity Model – Build your Software Defined DC

1.0  • Standardize / Consolidate
   • Standardization – x86 – 80%
   • Consolidation – Virtualization – 80% / “Virtual First”
   • vCenter is my console (>100 VMs)

2.0  • Optimize / Protect
   • Instrumentation – Optimization – Compliance – Fault Tolerance
   • VC Ops (“Pays for Itself” in driving efficient workload management)
   • SRM (Disaster Recovery Protection)

3.0  • Virtualize Beyond the Server
   • Network / Security Virtualization (vCNS, Nicira)
   • Storage Virtualization (vSAN, Virsto)
   • Transition from VM to vDC
   • vCloud Director Console (Bare Metal Datacenter capability)

4.0  • Automate
   • Orchestration and Automation
   • OS/App/Database provisioning to Bare-Metal vDC
   • Self-Service Provisioning including Workflow and Audit
   • API Automation – Multi-Hypervisor, Web Services, Physical or Virtual

5.0  • Streamline Application Development and Deployment
   • Develop and Deploy Applications to the cloud cost effectively
   • “Pivotal Initiative”

Reduce CAPEX/OPEX Cost/VM and Provision / Time to Manage

Organizations may choose to Automate on Physical to accelerate ROI
THE vCLOUD Suite

MANAGEMENT
- VMware vCenter Operations Management Suite
- VMware vFabric Application Director

CLOUD INFRASTRUCTURE
- VMware vCloud Director
- VMware vCloud Networking and Security
- VMware vCenter Site Recovery Manager

SOFTWARE DEFINED NETWORKING AND SECURITY
- VMware vCloud Networking and Security

SOFTWARE DEFINED STORAGE AND AVAILABILITY
- VMware vCenter Site Recovery Manager

VIRTUALIZATION
- VMware vSphere

VIRTUALIZATION
- VMware vSphere

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- VMware vSphere

EXTENSIBILITY
- VMware vCloud APIs
- VMware vCloud Connector
- VMware vCenter Orchestrator

Physical Infrastructure
(Server, Storage, Network)
Infrastructure Ready For Consumption With Abstraction and Consolidation

- Abstraction of server resources as virtual machines
- Load-balanced usage of available hardware capacity
- High availability and fault tolerance for all servers
- Isolation of workloads
- Mobility to use resources wherever available

vSphere Enterprise Plus

Virtual Infrastructure

- CPU Pool
- Memory Pool
- Storage Pool
- Interconnect Pool

Benefits

- Isolation of workloads
- Mobility to use resources wherever available
### Software-defined Availability

<table>
<thead>
<tr>
<th>IT Problem</th>
<th>VMware Solution</th>
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<tbody>
<tr>
<td>Application failures</td>
<td>vSphere HA</td>
</tr>
<tr>
<td>- Application is absolutely critical to business</td>
<td>Fault Tolerance</td>
</tr>
<tr>
<td></td>
<td>for zero downtime, zero data loss, continuous availability</td>
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<tr>
<td>Application requires DR</td>
<td>Site Recovery</td>
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<tr>
<td></td>
<td>business continuity</td>
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#### vSphere HA
- Native MSCS support*
- App-aware APIs

#### Fault Tolerance
- Hot-Add Capacity
  - 1 vCPU
  - 2 GB
  - 4 vCPU
  - 64 GB

#### Site Recovery
- Storage Replication
Use compute capacity wherever available, regardless of networking boundaries

Benefits

- Flexibility to use resources in datacenter as required
- Across clusters and pods
- Reduced overprovisioning
Virtual Datacenters: Pool Compute, storage, networking, and security services

Elastic: Span vSphere clusters

Extensible: Span VMware-powered public clouds

Lower Capital Expenses from centralized hardware

Faster access to infrastructure

Ease of policy enforcement
VMware’s Approach to Cloud Operations Management

vCenter Operations Management Suite

1. Patented Analytics
   - Self-Learning
   - Dynamic Thresholds
   - Smart Alerts

2. Integrated Approach
   - Performance Data
   - Capacity Consumption
   - Configuration Changes

3. Designed for Cloud
   - Health Model
   - Open and extensible
   - Evolutionary Approach

vSphere
vCenter Server

Server, Storage, Network Monitoring

OS, DB, App Monitoring
Optimizing Storage in the SDDC

- vCloud Automation Center
  - IaaS • PaaS • DaaS

- vCenter Operations Management Suite
  - Perf. • Capacity • Config.

- vSphere/vCenter Orchestrator
  - Virtualized Storage • Network • Comp

- EMC Infrastructure Management
  - Service Assurance Suite
    - Performance, Availability, RCA
  - Storage Resource Mgmt Suite
    - Reporting, Capacity, Config.

- EMC ViPR API
  - Automated Storage Management
  - Global Data Services
  - Control Path
  - Data Path
  - Virtual Storage Arrays
VMware Cloud Management

vCenter Operations Mgmt

vCloud Automation Center

IaaS

PaaS

DaaS

vFabric Application Mgmt

vCloud Director

vCloud Connector

vCloud Networking and Security

vCenter Site Recovery Manager

vSphere

vCloud Suite

IT Business Mgmt

Applications

Web Portals

Dynamic Pre-connection Configuration

Thin laptops tablets desktops

vCloud Service Providers

Other Service Providers

Hyper-visors

Hardware
Intuitive, consumerized and customizable self-service provisioning of IT services and computer resources

- User-specific menus
- Standardized blueprint-based provisioning, zero-touch automation

Dramatically reduce service delivery times from days to minutes

**vCloud Automation Center**

**Benefits**
Policies that Enforce a Business Relevant Cloud

User Centric, Business Relevant

vCloud Automation Center

Shared Infrastructure

Private Virtual

Private Physical

External Cloud

Dev/Test

Production

Desktop

Request

Approval

Provision

Manage

Retire

Archive

SECURITY

POLICIES

MACHINE TEMPLATES

CLOUD BLUEPRINT

COST PROFILE

SERVICE TIERS

SLA

Cloud Administrator

vCloud Automation Center

Deskto
VMware and EMC Management Solution Integration

- EMC focused on monitoring and management at the infrastructure layer, primarily storage and network.
- VMware focused on broad cloud management that covers operations, automation, and business management across the entire stack.
What is the vCloud Suite?

Components of a Complete, Integrated Cloud Infrastructure

+ IT Service Provisioning
+ Cloud-enabled Application Provisioning
+ Automated Operations Management for the Cloud
+ Disaster Recovery Automation
+ Cloud Networking and Security
+ IaaS & Hybrid Cloud Connectivity
+ Virtualization Platform

vCloud Suite

- vCloud Automation Center
- vFabric Application Director
- vCenter Operations Management Suite
- vCenter Site Recovery Manager
- vCloud Networking and Security
- vCloud Director
- vCloud Connector
- vSphere Enterprise+

Sold and licensed exactly as vSphere: per-CPU
VMware Resources
1. Free Online Videos

Visit the VMware Education portal for over 100 instructional videos covering the installation and use of VMware products.
http://vmwarelearning.com/

2. Free eLearning

Visit vmware.com/education to access free elearning courses for BC/DR:

elearning courses
- VMware vCenter Operations Manager Fundamentals

3. VMware Training

VMware Education Services and Authorized Training Centers offer courses that match your learning style, budget and time constraints
www.vmware.com/education

Instructor Led Training
- VMware vCenter™ Operations Manager™: Analyze and Predict
- VMware vSphere®: Optimize & Scale

Excellent course that will assist me with optimization of my virtual environment.
- Systems Administrator
DEFY CONVENTION

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Barcelona
October 14: Partner Day
October 15-17: Conference

EVOLVE FROM THE ORDINARY AND LEAVE THE PITFALLS OF LEGACY COMPUTING BEHIND. THIS IS VMWORLD 2013.
Recommended Next Steps

Download a Free Product Evaluation
https://www.vmware.com/try-VMware/

Try it out in the Hands on Labs (HOL)
http://communities.vmware.com/community/vmtn/resources/how

Join the VMware User Group (VMUG)
http://communities.vmware.com/community/vmtn/vmug

Get the latest from the VMware Community
http://communities.vmware.com/welcome
Thank you.