(R)Evolution im Software Defined Datacenter Hyper-Converged Infrastructure

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The Foundation for the Software-Defined Enterprise

VMware Horizon Editions

End User Computing

Virtual Workspace

Applications

Traditional

Modern

SaaS

Compute

Physical

Hardware

Desktop

Mobile

Network

Storage

Virtualized Infrastructure

Abstract & Pool

Compute Abstraction = Server Virtualization

Network Abstraction = Virtual Networking

Storage Abstraction = Software-Defined Storage

Cloud Automation

Cloud Operations

Cloud Business

Private Clouds

Public Clouds

VMware vCloud Suite

Software-Defined Data Center

Virtual Workspace

Hybrid Cloud

VMware & vCloud Data Center Partners

Modern SaaS

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Trad
The Software-Defined Datacenter
Why Software-Defined Data Centers?
Two reasons for Virtualizing

Cost per VM

1. Standardization and pooling
2. Automation & Operations Management

Optimization

30% 35% 40% 45% 50% 55% 60% 65% 70% 75% 80%
Major Benefits Achieved… Much More is Possible!

Past

$10,000
10 weeks

Present

$8,000
2 days

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

Available

+
SDDC = Major Breakthrough in Speed and Agility

Virtual Data Center

VM VM VM VM VM VM
VM VM VM VM VM VM

Software-Defined Data Center Services

5 days

3 minutes
From Virtualization to SDDC – One Destination, Two Paths

- Virtual Networking and Security
- Software-Defined Storage and Availability
- Operations Management

Cloud Service Provisioning

VMware vCloud® Suite

VMware EVO Rail
Transform Storage
Software-Defined Storage (SDS)?
VMware Software-Defined Storage

VMware SDS enables policy-driven, dynamic composition of storage services based on application needs.
Transform Storage with Software Define Storage

Control Plane Integrations
- Self-service consumption of SDS
- SPBM integrations with vCAC, OpenStack, PowerShell

Virtual Volumes
- Extends SDS to SAN/NAS
- Day 0 support announcements from 29 technology partners

VMware Virtual SAN 6.0
- 1500+ Customers
- Best of Interop and TechEd
- VSAN Ready Nodes from all major OEMs
- View Ref. Arch. and bundles

Virtual SAN
Shared Datastore

SAN/NAS

vSphere + VSAN

vSphere + VVOL

Cloud And Management Automation

Storage Policy-Based Mgmt.

SSD

HDD

SSD

HDD

SSD

HDD

SSD

HDD
Virtual Volumes
Management & Integration Framework for External Storage

Overview
- Virtualizes SAN and NAS devices
- Virtual disks are natively represented on arrays
- Enables finer control with VM level storage operations using array-based data services
- Storage Policy-Based Management enables automated consumption at scale

Benefits
- More efficient storage operations at VM level
- Increase capacity utilization
- Eliminate inefficient handoffs between VI and Storage Admin
- Reduced management overhead
VMware Virtual SAN
VMware Virtual SAN Wins Best of TechEd 2014

VMware Virtual SAN

Hypervisor-Converged storage platform

- Software-defined storage software solution.
- Aggregates locally attached storage from each ESXi host in a cluster.
- Flash optimized storage solution.
- VM-Centric data operations and policy driven management principals.
- Resilient design based on a Distributed RAID architecture
  - No single points of failures
- Fully integrated with vSphere.
VMware Virtual SAN

Radically Simple Hypervisor-Converged Storage Software

- Hybrid or ALL Flash storage solution
  - Magnetic disks (HDD)
  - Flash based disks (SSD)
- Storage scale out architecture built into the hypervisor
- Dynamic capacity and performance scalability
- Object based storage architecture
- Interoperable with vSphere and enterprise features:
  - vMotion, DRS, vSphere HA
Virtual SAN 6.0 Enables Both Hybrid or All-Flash Architectures

Hybrid
- SSD, PCIe, Ultra DIMM etc.
- Read cache / Write buffer

All-Flash
- SSD, PCIe, Ultra DIMM etc.
- Write-only buffer

Caching

Data Persistence
- Magnetic Disks
- Flash Devices

30K IOPS/Host
90K IOPS/Host
predictable sub-millisecond latency
Fault Domains

Virtual SAN Cluster

Rack A
Fault Domain A
vmdk
vmdk
witness

Rack B
Fault Domain B
vmdk
witness
vmdk

Rack C
Fault Domain C
vmdk

raid-1
raid-1

VM
VSAN Ready Nodes from HP

Transform Networking
Software-Defined Networking != Network Virtualization
(Its all about your perspective)

NSX Overview Video
Why Network Virtualization

- Provisioning is slow
- Placement is limited
- Mobility is limited
- Hardware dependent
- Operationally intensive

Solution: Virtualize the Network

- Programmatic provisioning
- Place any workload anywhere
- Move any workload anywhere
- Decoupled from hardware
- Operationally efficient
NSX Delivers the Operational Model of a VM for the Network

- Abstracts, pools, automates networking for the SDDC
- Faithful reproduction of L2/3 networking, L4-7 services
- Runs across existing/any networking hardware
- Scale out/distributed switching, routing, firewalling
- Seamless service insertion for application delivery, security, network security partners
VMware NSX – The Platform for Network Virtualization

**Logical Switching** – Layer 2 over Layer 3, decoupled from the physical network

**Logical Routing** – Routing between virtual networks without exiting the software container

**Logical Firewall** – Distributed Firewall, Kernel Integrated, High Performance

**Logical Load Balancer** – Application Load Balancing in software

**Logical VPN** – Site-to-Site & Remote Access VPN in software

**NSX API** – RESTful API for integration into any Cloud Management Platform

**Partner Eco-System**
VMware NSX – Networking & Security Capabilities

Automation & Operations
- API Driven Integration
- Service Composer for Security Workflows
- Server Access Monitoring
- Troubleshooting & Visibility

Rich Networking & Security Services
- Scalable Logical Switching
- Physical to Virtual L2 Bridging
- Dynamic L3 Routing: OSPF, BGP, IS-IS
- Logical Services: Firewall, Identity-based Firewall, Load-balancing, VPN (IPSec, SSL, L2VPN)

Partner Extensibility
- Physical ToR L2 Integration
- Security Services – IDS / IPS, AV, Vulnerability Mgmt
- Network Services – Load Balancers, WAN Optimization
HP Network Solution for VMware NSX
Open, interoperable solution unifying physical and virtual networks

True comprehensive network control for physical and virtual networks

- Accelerates deployments
- Unifies visibility and management
- Enhances operational efficiency
Transform your Datacenter
VMware EVO:RAIL
Hyper-Converged Infrastructure Appliance
One Destination, Three Approaches

Software-Defined Data Center

“Build Your Own”
Converged Infrastructure
Hyper-Converged Infrastructure
Software-Defined Data Center
One Destination, Three Approaches

“Build Your Own”

Converged Infrastructure

Hyper-Converged Infrastructure

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New Family of Hyper-Converged Infrastructure

VMware EVO

Hyper-Converged Infrastructure
Single, integrated solution
Fastest way to build and deploy a Software-Defined Data Center
First Member of EVO Family: EVO:RAIL

Simple deployment in 15 minutes
Design and price predictability
One support call
Designed for approximately 100 VM / 250 Desktops and scales to 800 VM / 2000 Desktops to max 32 Node Cluster!
EVO:RAIL – Faster Time-to-Value

Deploys in Under 15 Minutes*

100 Server VMs
250 Desktop VMs

Non-Disruptive Upgrades

*Source: VMware Internal testing, July 2014
The Design

Four Identical but Independent Physical Nodes
The Design
Each Node Is a Server With Compute, Storage, Network
Zero-Downtime Upgrades

Upgrade Infrastructure Without Application Impacts
Scale-Out

Add EVO:RAIL Appliances to Grow
Great, let’s get started.

You have two choices:
you can either quickly customize my settings or
you can use my out-of-the-box configuration.

What would you like to do?

Customize Me! Just Go!
Configure networking for ESXi hosts

- Starting address for IP pool: 192.168.10.1
- Netmask: 255.255.255.0
- Ending address: 192.168.10.255

Are you finished making changes?

Validate
The validation process completed successfully!

I am ready to build EVO:RAIL. This process may take up to ten minutes to complete. After it starts, the build process cannot be stopped without potential corruption. Please make sure you are happy with your configuration, then click Build Appliance.
Create VM called: My New VM

What size VM do you want?

- **Small**
  - 16 GB
  - 1 Processor

- **Medium**
  - 1 GB
  - 1 Processor

- **Large**
  - 1 Core

Ideal for single purpose very small, simple servers or test machines
HP ConvergedSystem 200-HC EVO:RAIL
HP and VMware are jointly collaborating to extend HP OneView to the EVO:RAIL experience

Pre-configured so you can be up in <15 min
EVO:RAIL Deployment, Configuration, and Management is pre-installed in factory

Managed directly from EVO: RAIL
HP OneView plugins for VMware vCenter extend monitoring and control to the hardware infrastructure

Advanced capabilities for performance & scale
VMware VSAN technology provides storage optimization
EVO:RAIL configuration tools allow automated scaling of clusters
Vielen Dank!