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ReadyNAS for VMware

Preface

+ Target Audience
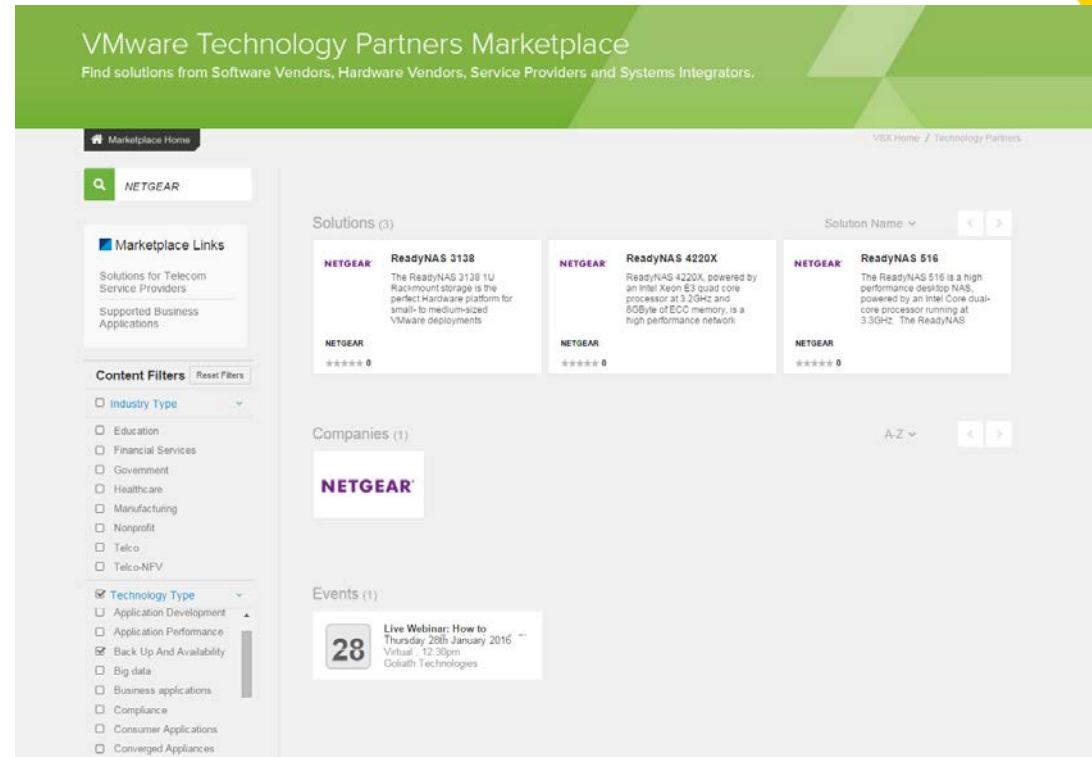
- NETGEAR Sales and Representatives

+ Content

- A technology and market "primer" for virtualization and VMware

- Buzz words and key concepts

  - Refer to VMware education for in-depth virtualization and VMware tutorial

- Advantages of ReadyNAS in the world of virtualization and VMware

+ Objectives

- Be acquainted with virtualization and VMware technologies
- Be confident in engaging with customers in a conversation about virtualization network and ReadyNAS's positioning in the new virtual world

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ReadyNAS VMware Certification

- VMware Certified

- Next Steps
  - Update product page
  - Update A+ page
  - Update data sheet

- Certification
  - vSphere ESXi 6.0

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ReadyNAS Certified for vSphere 6.0

Main Pitch

+ Available Models

- All new Intel processor based ReadyNAS Rackmount, Desktop products

+ Advantages of vSphere 6.0

- Support for 128 vCPUs and 4TB of RAM

- vNUMA Enhancements
  - Virtual Non-Uniformed Memory Architecture

- Improved ESXi account and password management
  - ESXi is the bare metal hypervisor from VMware

- WDDM 1.1 GDI Acceleration
  - Windows Display Driver Model, Graphics Display Interface

- Enhanced Microsoft clustering support

Fun facts that people don't need to know anymore
- ESX stand for Elastic Sky X, "i" stands for integrated
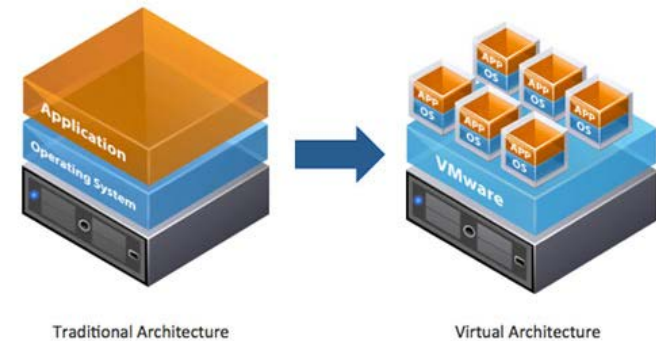
Buzz words
- Opposite to bare metal hypervisor is hosted hypervisor
- Hosted hypervisor is installed on top of an existing operating system.
- Bare metal hypervisor is installed on the hardware itself, requiring no OS.
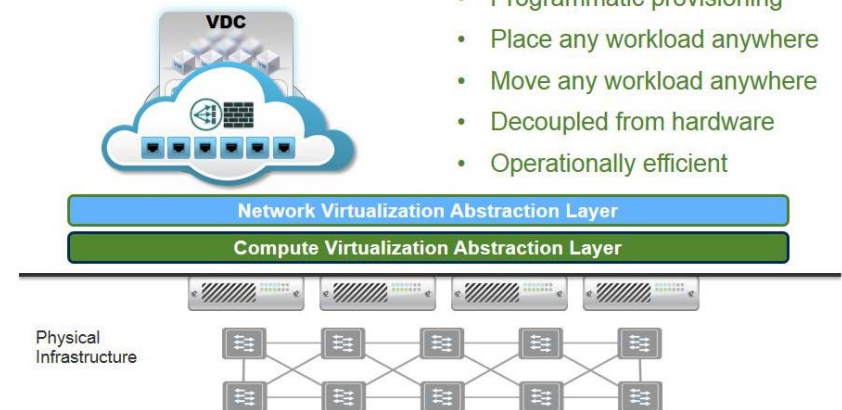
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What Is Virtualization?

+ Multiple machines running on the same machine

+ Expand the virtualization concept

- Servers can be virtualized

- Networking equipment can be virtualized, i.e., same hardware can run different network protocols and stacks

- Storage can be virtualized, i.e., same storage box can be SAN, NAS, DAS, running NFS, SAMBA, AFS, etc. all at the same time, in modules

Buzz words:
- VM (virtual machine)
- Bare-metal vs. Hosted Virtualization

Traditional Architecture   Virtual Architecture

Software Defined Data Center

- Programmatic provisioning
- Place any workload anywhere
- Move any workload anywhere
- Decoupled from hardware
- Operationally efficient

Network Virtualization Abstraction Layer

Compute Virtualization Abstraction Layer

Physical Infrastructure

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Why Virtualization?

+ Scalable architecture

- Hardware layer abstraction and independence

Buzz words:
- SDN (Software Defined Network)
- SDDC (Software Defined Data Center)
- Hypervisor

+ Higher utilization and energy efficiency

- Multiple OS and apps running on one or across multiple compute nodes, maximize CPU bandwidth

- Unified network fabric, maximize network infrastructure and bandwidth utilization

- Virtualized storage nodes, maximum capacity utilization

+ High availability and fault tolerant designs

- Dynamic and no-down time installation, backup, recovery

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Why VMware?

+ One of the leaders in virtualization applications
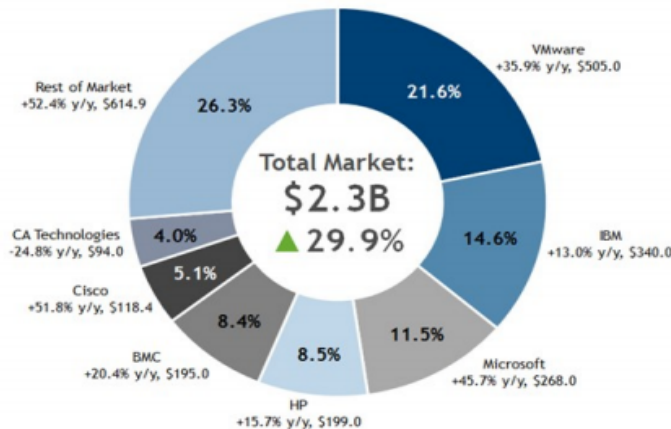
- Cloud computing

- Data center

Worldwide Cloud Systems Management Software Market Shares, 2014: Year of Hybrid Cloud

Mary Johnston Turner

IDC MARKET SHARE FIGURE

FIGURE 1

Worldwide Cloud Systems Management Software 2014 Share Snapshot

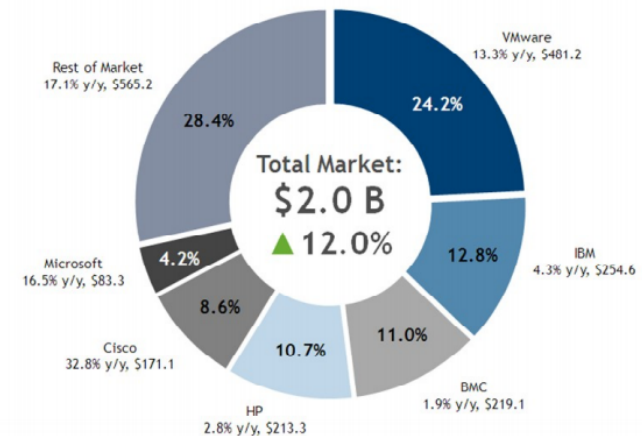Note: 2014 Share (%), Growth (%), and Revenue ($M)

Source: IDC, 2015

Worldwide Datacenter Automation Software Market Shares, 2014: Year of Cloud and DevOps

Mary Johnston Turner

IDC MARKET SHARE FIGURE

FIGURE 1

Worldwide Datacenter Automation Software 2014 Share Snapshot

Note: 2014 Share (%), Growth (%), and Revenue ($M)

Source: IDC, 2015

Buzz words, other leading VMs
- Microsoft Hyper-V
- Citrix Xen
- Red Hat Enterprise Virtualization (RHEV), KVM
- Oracle VM VirtualBox

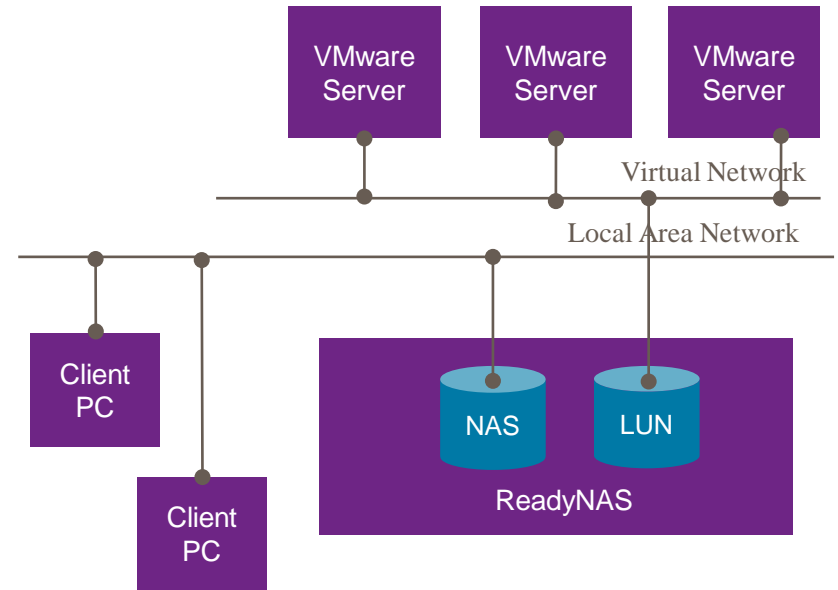NETGEAR®

Why ReadyNAS?

+ Multi-purposes

- Create a LUN volume for VM as a direct iSCSI drive

- Separate NAS volume for file server

+ Parallel and Flexible Systems for IT Admin

- ReadyNAS offers
  - BTRFS: an advanced and reliable file system
  - ReadyNAS Replicate for the NAS volume
  - ReadyCLOUD
    - For small businesses who do not need ADS

+ Built-in 10GbE New Model

- New Model has 1x or 2x 10GbE + 2-4x GbE
  - 10GbE port for VMware storage traffic
  - 10GbE port for NAS storage traffic
  - GbE for NAS management
  - Additional 3x GbE ports for redundancy

VMware Server

VMware Server

VMware Server

Virtual Network

Local Area Network

Client PC

Client PC

NAS

LUN

ReadyNAS

If the VMware traffic is of the upmost priority, the 2x 10GbE could be used for redundant VMware traffic

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Concepts to Know…
Conversations to Avoid for Now…

+ VAAI

- Definition: vStorage API for Array Integration is an application program interface (API) framework from VMware that enables certain storage tasks, such as thin provisioning, to be offloaded from the VMware server virtualization hardware to the storage array

- Potential benefit: allows the VMware server to run faster

- Synology and QNAP claim support in certain models

- NETGEAR's position

  - We are qualifying ReadyNAS for VAAI compatibility, no schedule commitment yet
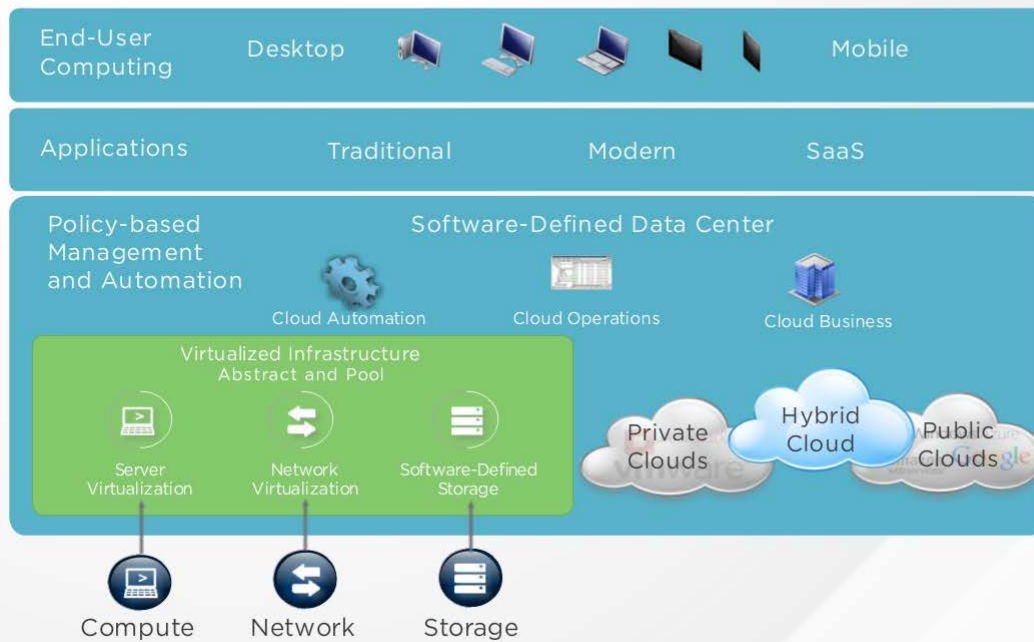
+ VVol (vSphere Virtual Volumes)

- An integration and management framework delivering a new operational model for external storage. It is comprised of a control plane using Storage Policy-Based Management, and a data plane using SASA APIs for external storage and vSphere APIs for IO Filtering for in-hypervisor software data service

- NETGEAR's position

  - We are evaluating the development plan and schedule

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Summary

+ Virtualization is the new world order

+ VMware is the undeniable leader in virtualization
  - See a VMware account, see an opportunity

+ 10GbE is essential to VMware
  - vMotion requires very fast data throughput

+ NETGEAR switches, with VLAN support, are VMware compatible
  - Strategic sale against Synology and QNAP
  - Check with Laurent and Bradley for specific switch models

+ Every VMware certified ReadyNAS is a winning solution for the customer
  - High quality design and manufacturing
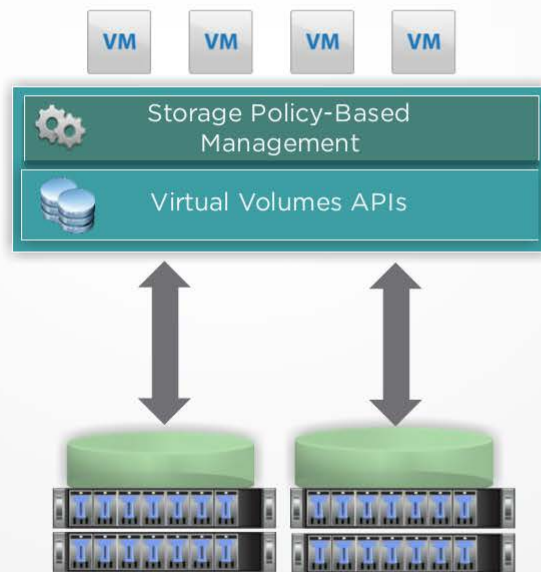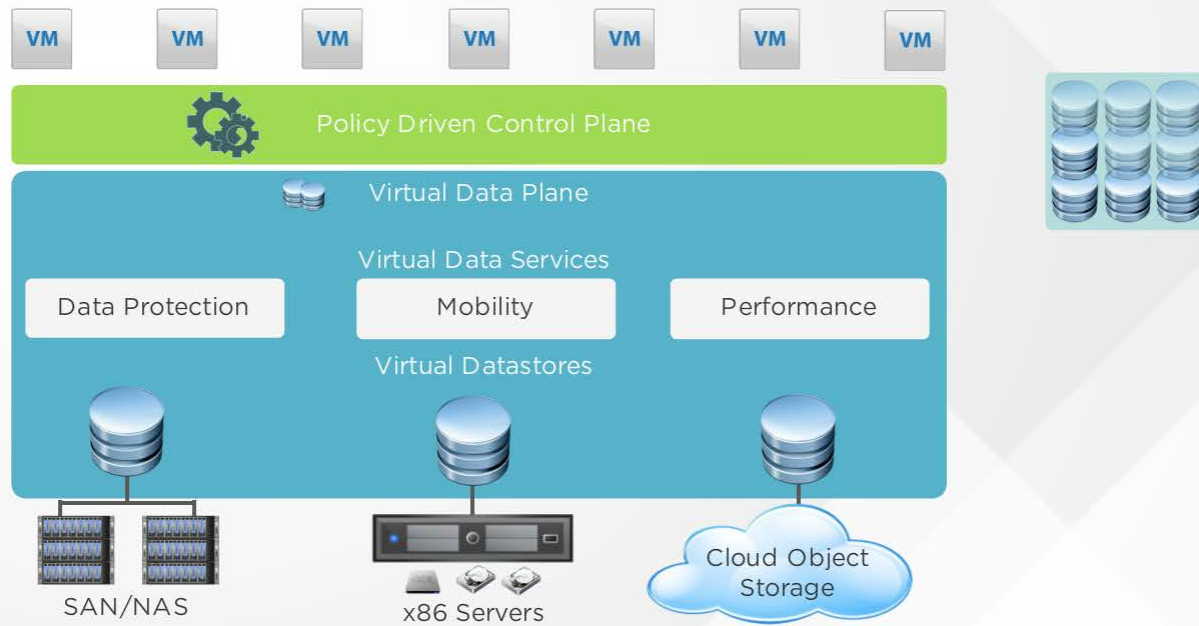 - 5 years of hardware warranty, with Next Business Day Replacement

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References

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Storage Virtualization

VM VM VM VM

Storage Policy-Based Management

Virtual Volumes APIs

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- SDS transforms storage in virtualized environments by aligning it with application demands.

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Storage Virtualization

VM VM VM VM VM VM VM

Policy Driven Control Plane

Virtual Data Plane

Virtual Data Services

| Data Protection | Mobility | Performance |

Virtual Datastores

SAN/NAS

x86 Servers

Cloud Object Storage

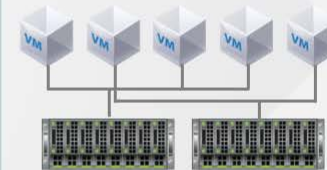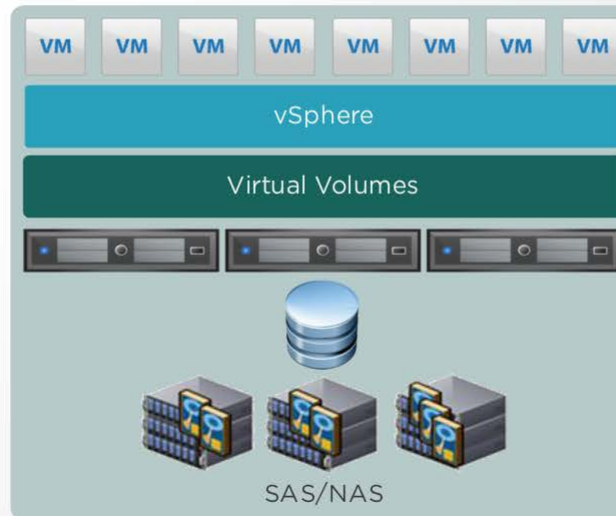**vm**ware

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VMware Virtual Volumes

Storage Policy-Based Management (SPBM) provides dynamic resource allocation and management of storage-related services.
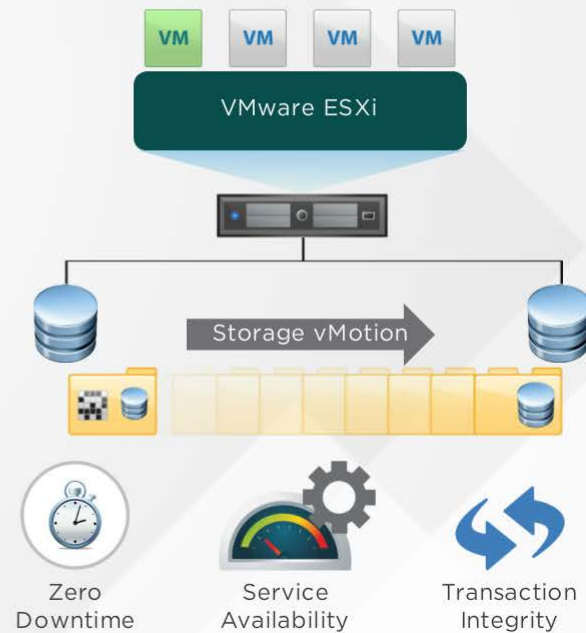
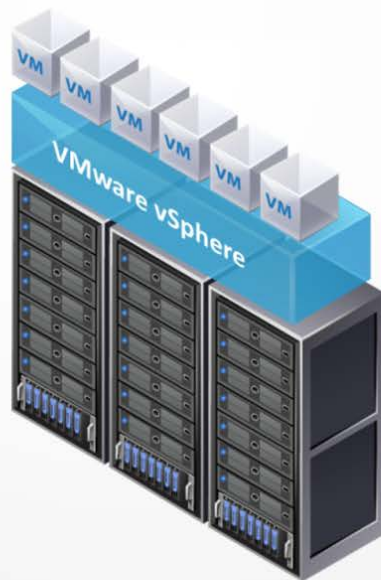**NETGEAR**

vSphere Storage vMotion

Storage vMotion:

- Migrates a virtual machine and its disk files from one data store to another while the virtual machine is running.

- Performs a virtual machine migration with zero downtime.

- Provides continuous service availability and complete transaction integrity.

VM | VM | VM | VM

VMware ESXi

Storage vMotion

| Zero Downtime | Service Availability | Transaction Integrity |

vmware

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New Platform Features

- Increased vSphere host configuration maximums

- Virtual hardware upgrades

- Improved ESXi account and password management

- Auditability of ESXi admin actions

- Enhanced Microsoft clustering support

- NVIDIA GRID vGPU for 3D and 2D hardware rendering

vmware

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Increased vSphere 6.0 Maximums

	vSphere 5.5	vSphere 6	
Hosts per Cluster	32	64	2x
VMs per Cluster	4,000	8,000	2x
CPUs per Host	320	480	1.5x
RAM per Host	4TB	12TB[1]	3x
VMs per Host	512	2,048	4x
Virtual CPUs per VM	64	128	2x
Virtual RAM per VM	1TB	4TB	4x

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