



Windows Server

Ken Hyld, PMM Microsoft



Agenda

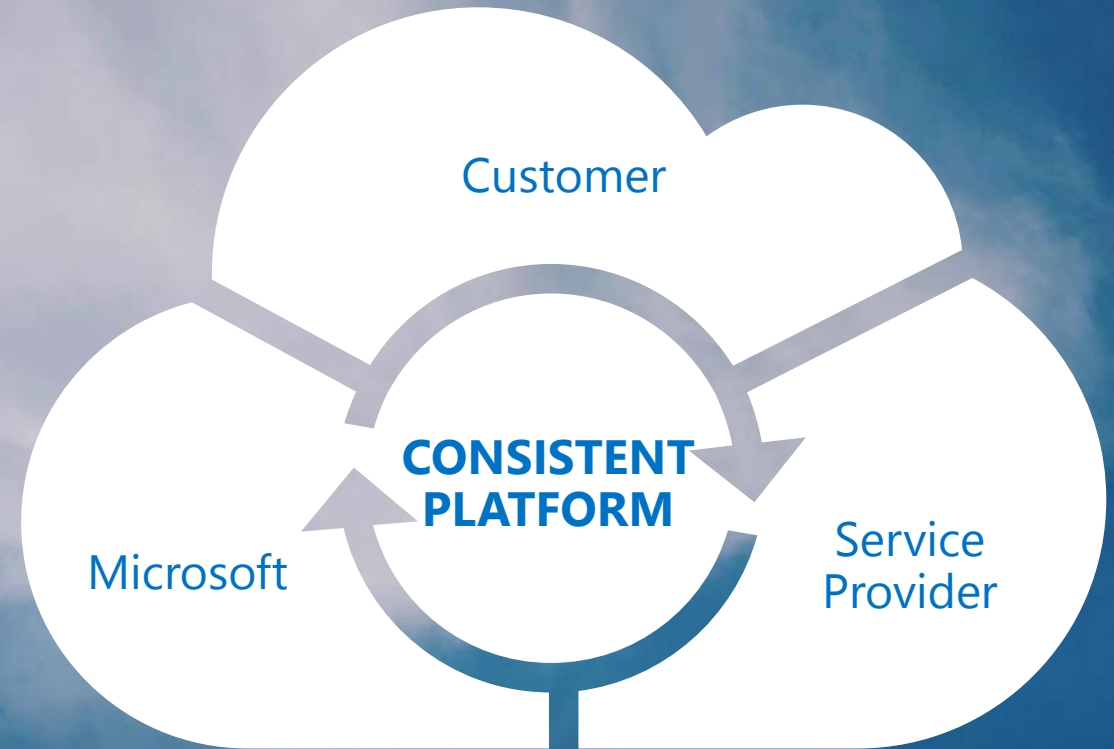
- Ignite
 - <http://channel9.msdn.com/>
- Nano Server
- **SW defined**
 - Network
 - Storage
 - Compute



Cloud OS Vision

Microsoft's vision of the unified platform for modern business

- transform the datacenter
- unlock insights on any data
- empower enterprise mobility
- enable application



Development

Management

Identity

Data

Virtualization



NORTH CROWN THEATER

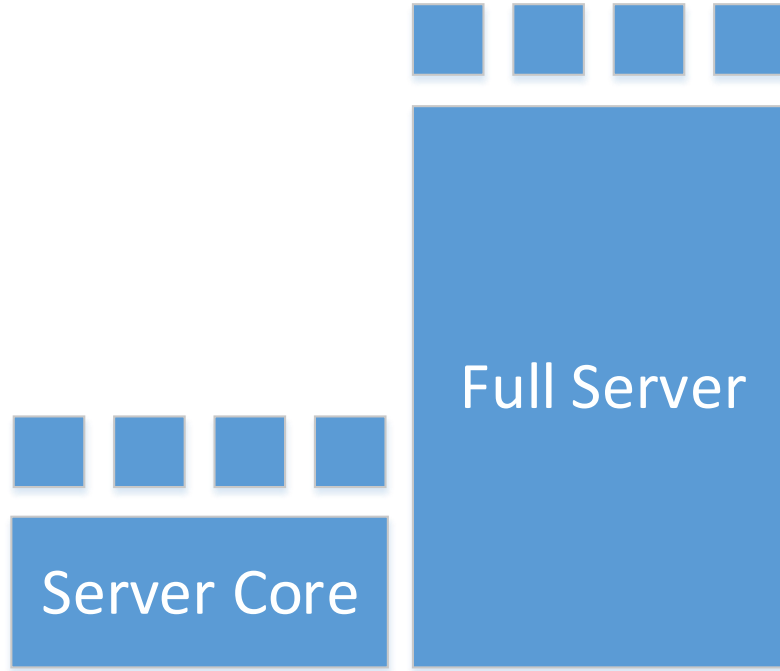
Microsoft Ignite

I want just the components needed to accomplish my goals and nothing more

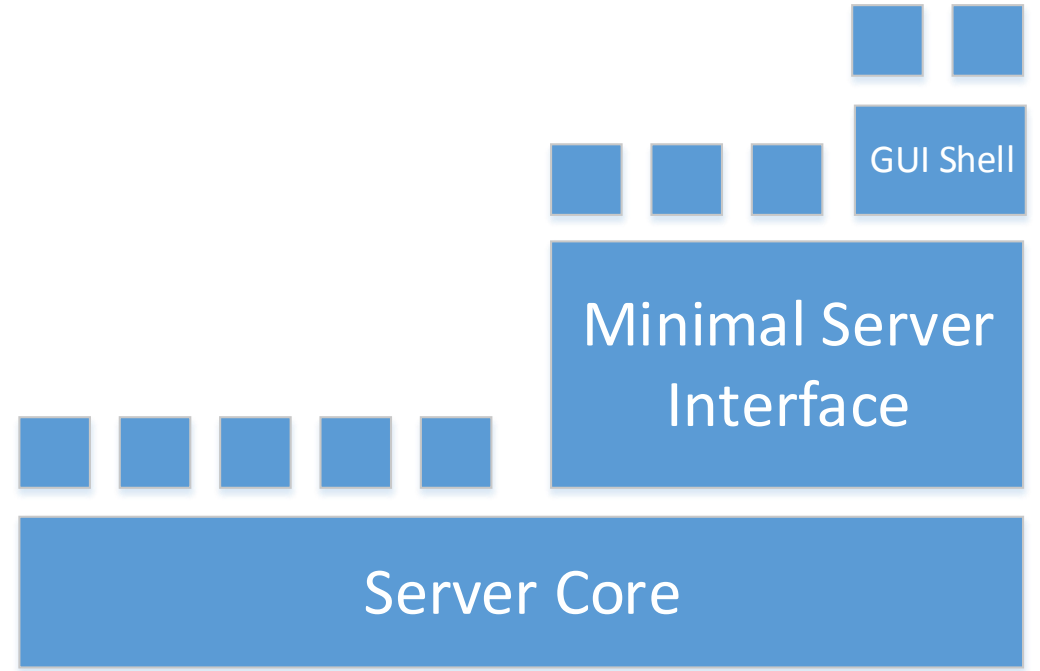
Our Server Journey



Windows NT to
Windows Server
2003



Windows Server 2008
and
Windows Server 2008 R2



Windows Server 2012
and
Windows Server 2012 R2

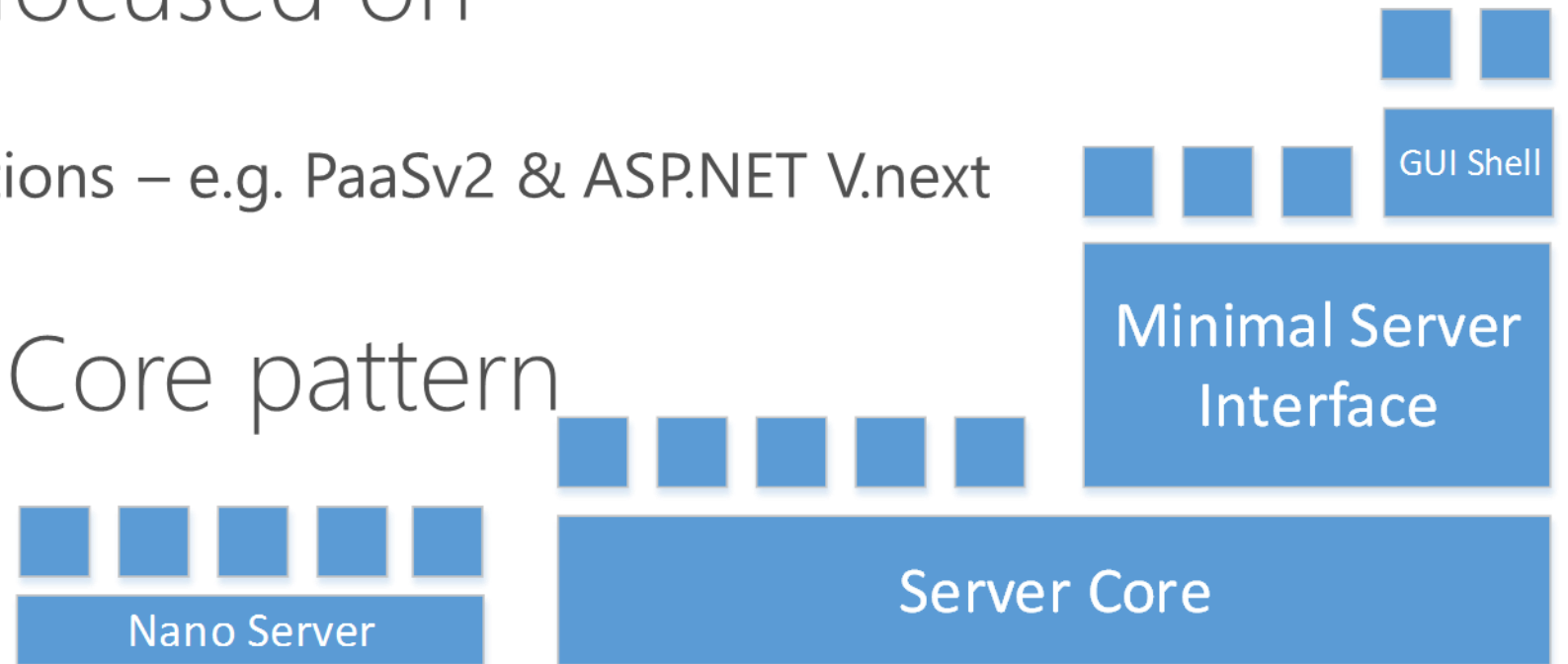
Our Cloud Journey

- Azure
 - Patches and reboots interrupt service delivery
 - (***VERY** large # of servers) * (large OS resource consumption) => COGS
 - Provisioning large host images competes for network resources
- Cloud Platform System (CPS)
 - Cloud-in-box running on 1-4 racks using System Center & Windows Server
 - Setup time needs to be shortened
 - Patches and reboots result in service disruption
 - **Fully loaded CPS would live migrate > 16TB for every host OS patch**
 - Network capacity could have otherwise gone to business uses
 - Reboots: Compute host ~2 minutes / Storage host ~5 minutes

We need server configuration optimized for the
cloud

Nano Server - Next Step in Our Cloud Journey

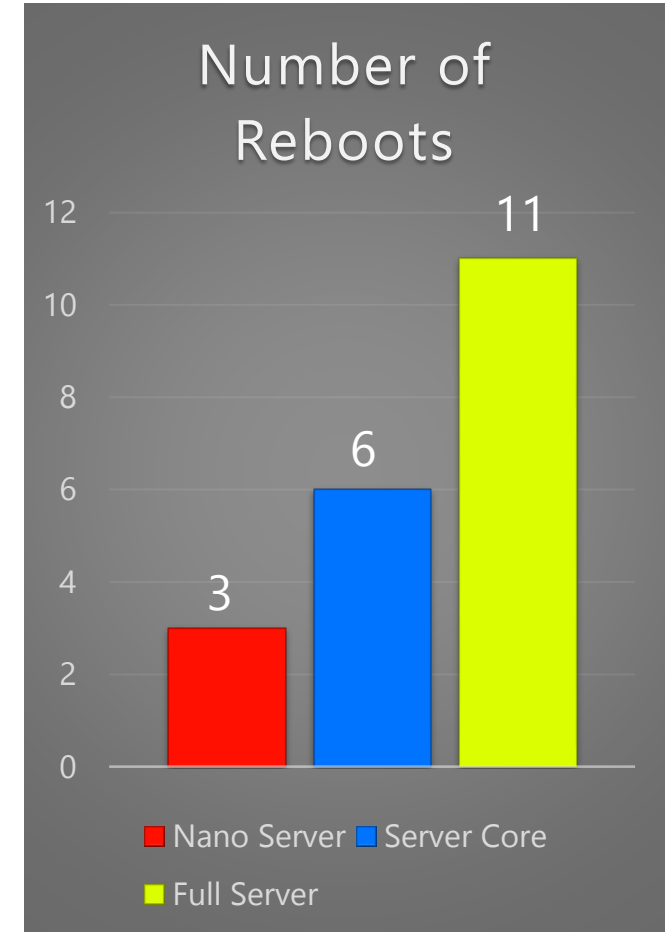
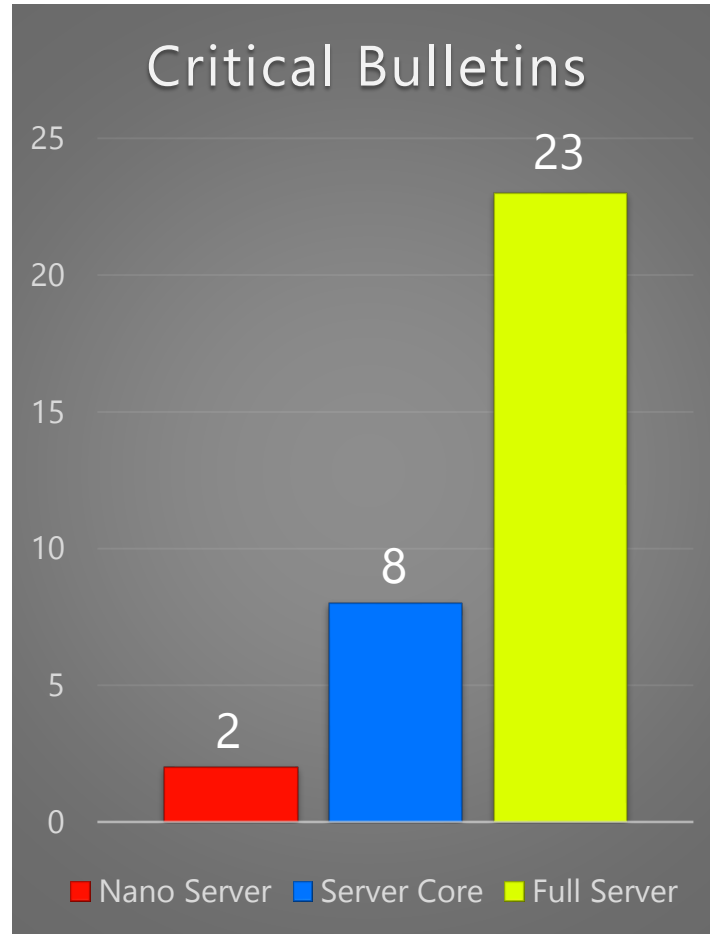
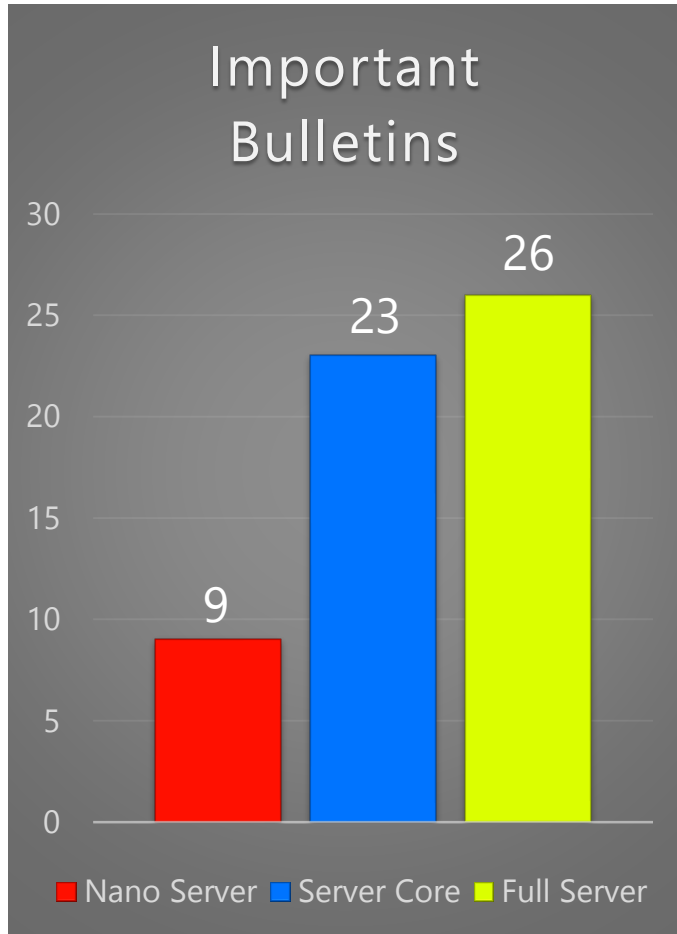
- A new headless deployment option for Windows Server
- Deep refactoring focused on
 - CloudOS infrastructure
 - Born-in-the-cloud applications – e.g. PaaS2 & ASP.NET V.next
 - Containers
- Follow the Server Core pattern



Windows Server v.Next

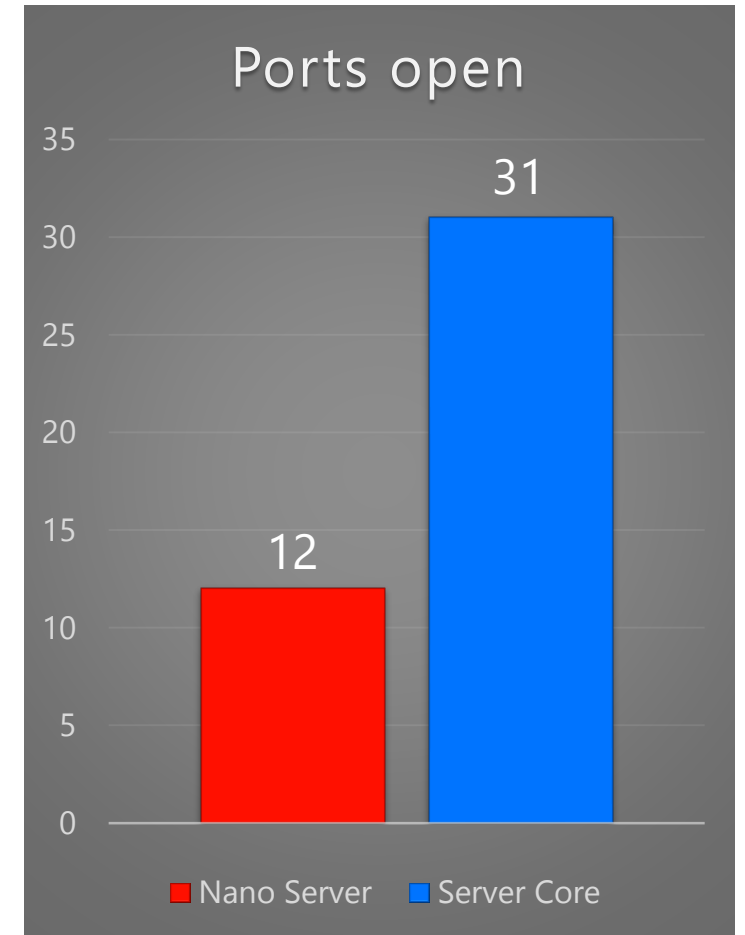
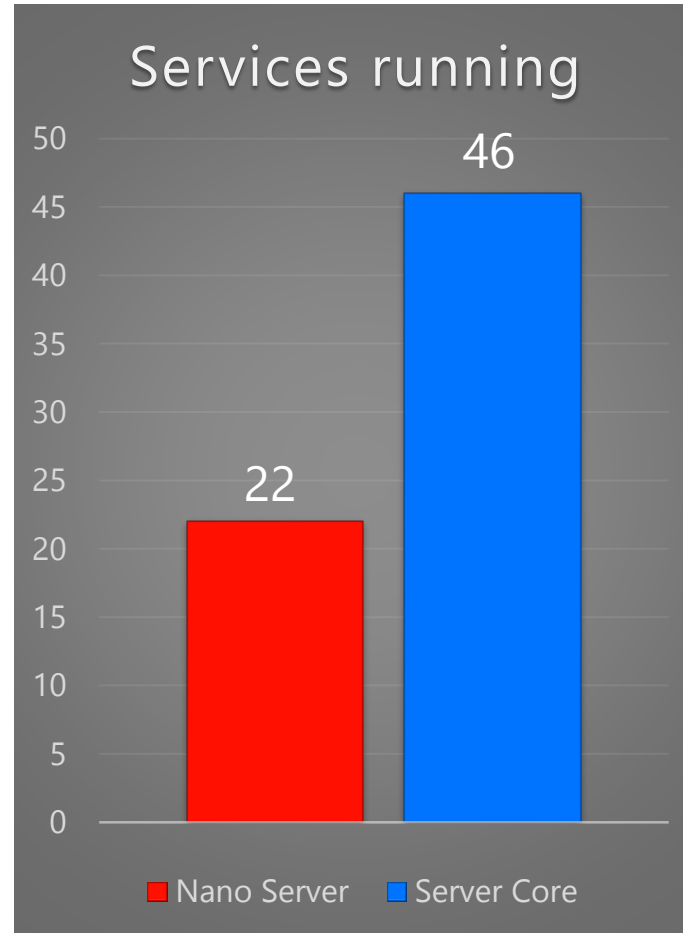
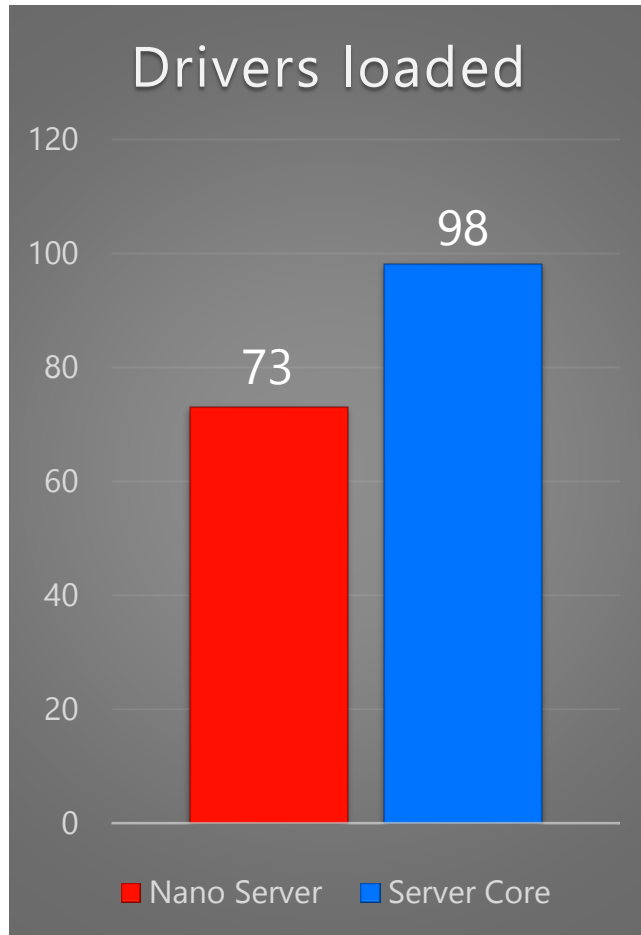
Preliminary Results

Servicing Improvements*

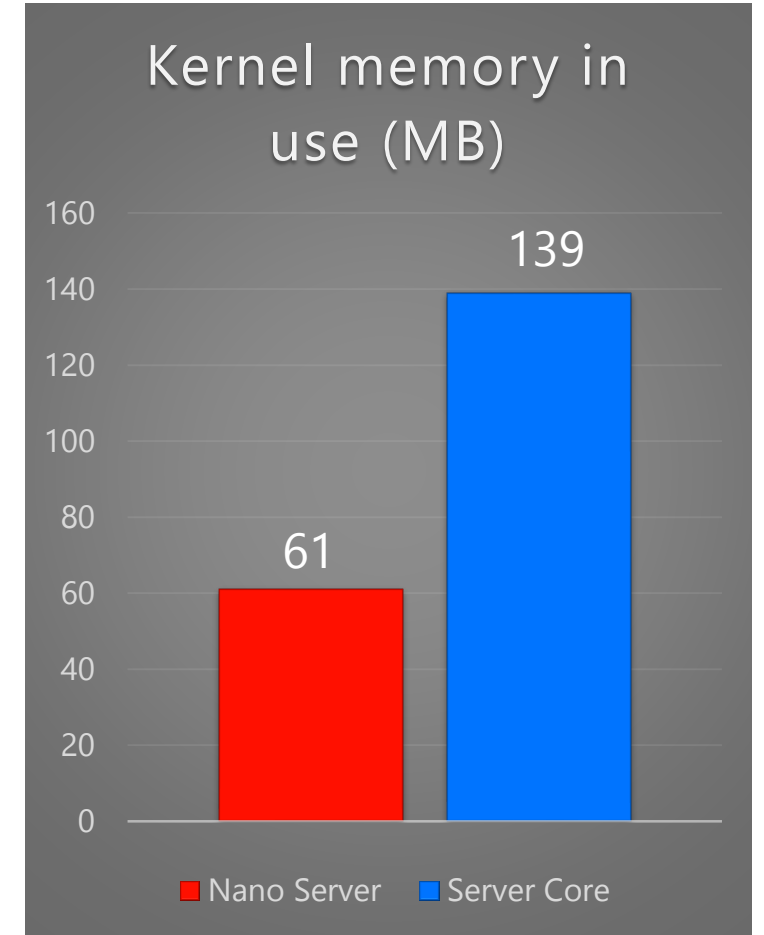
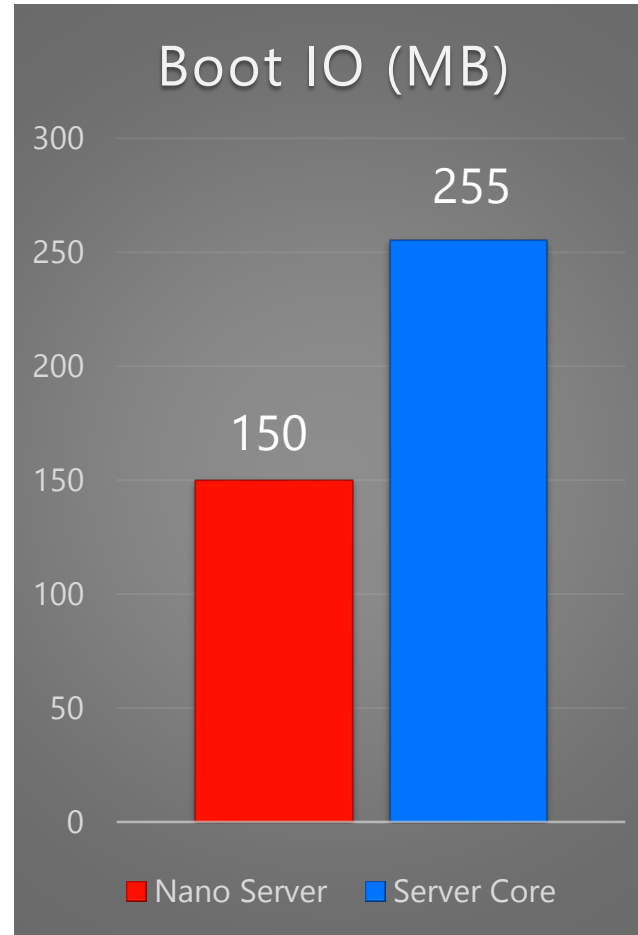
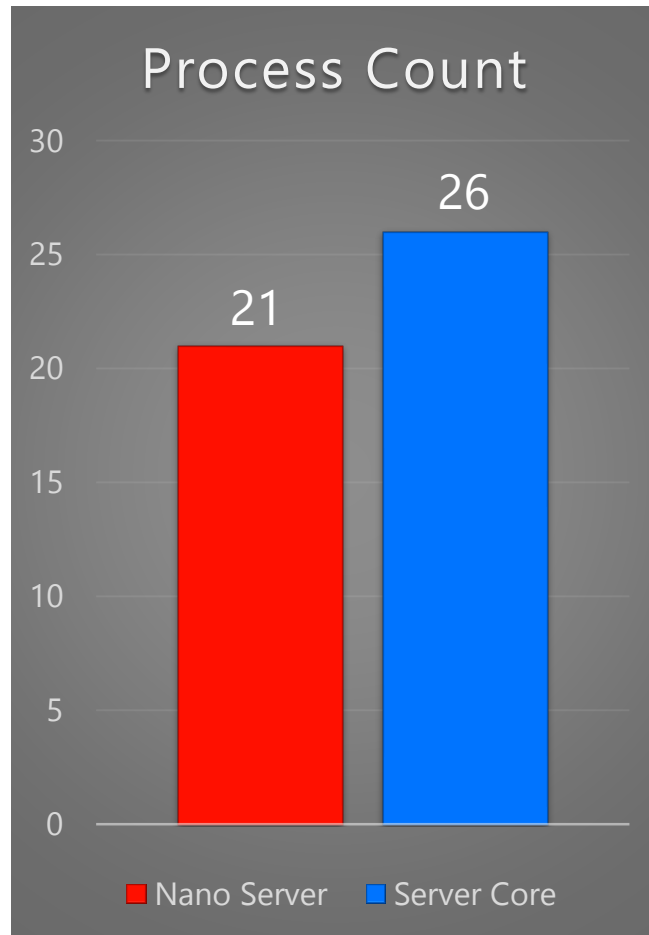


* Analysis based upon 2014 patches

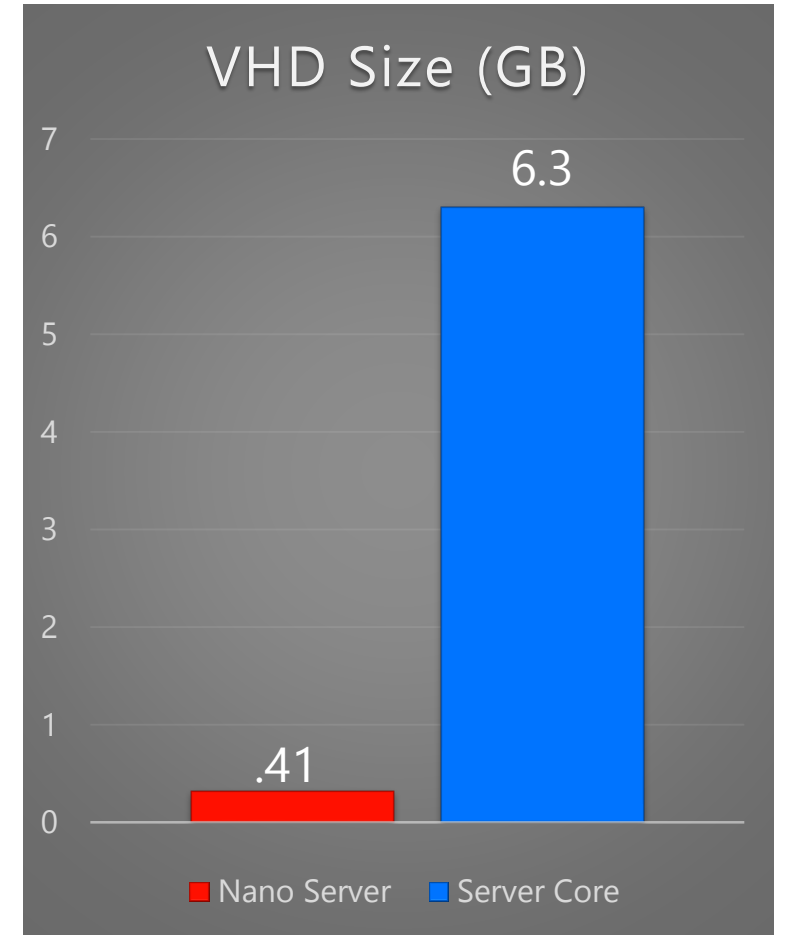
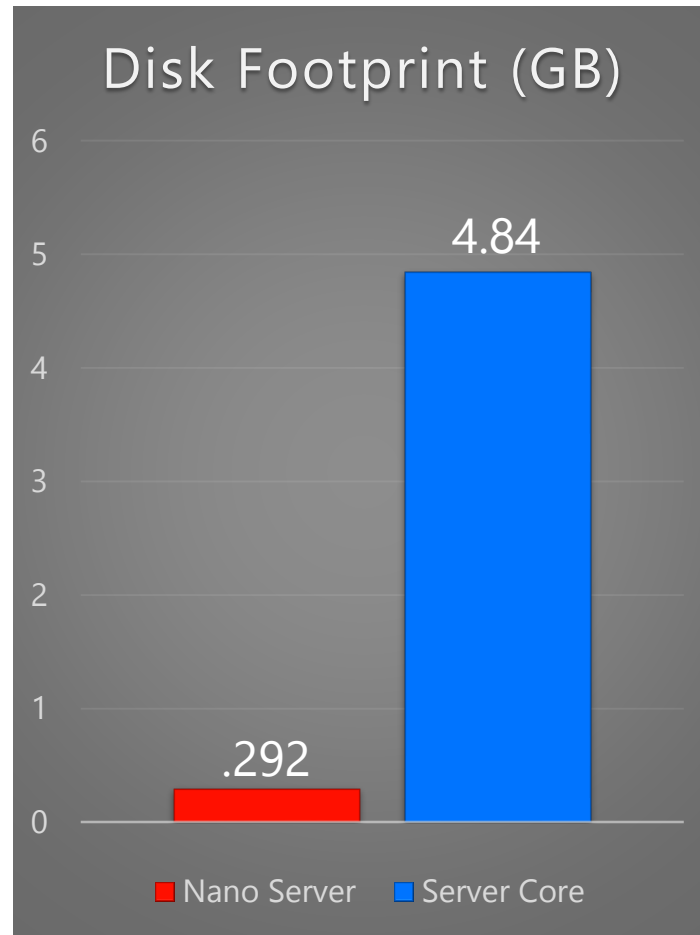
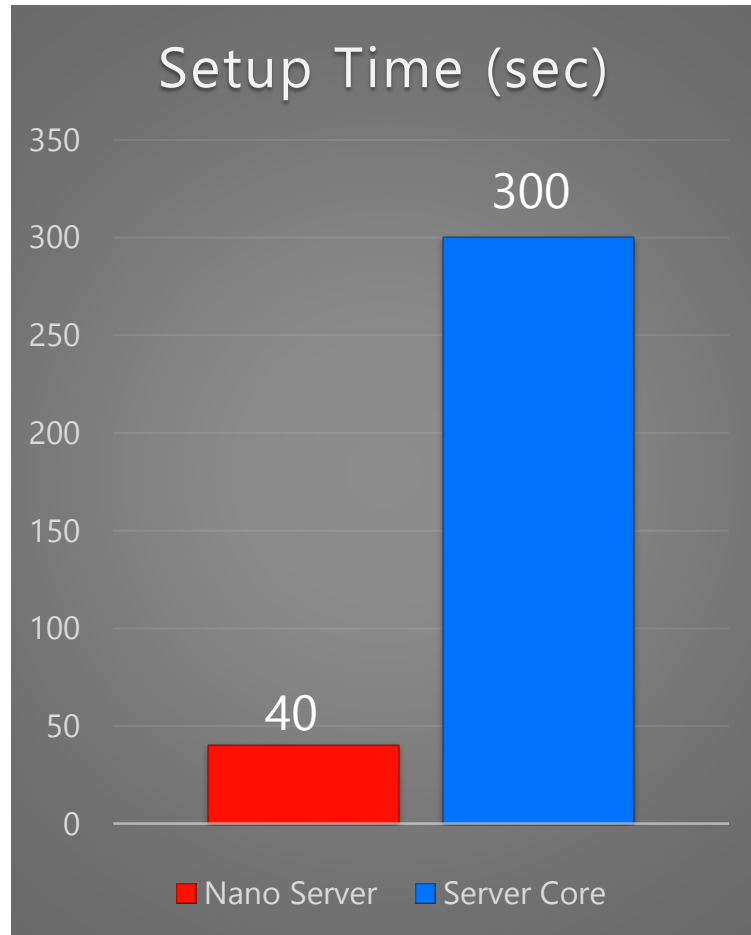
Security Improvements



Resource Utilization Improvements

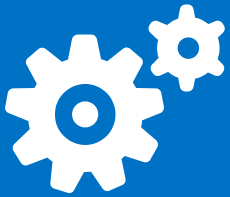


Deployment Improvements



Transform the datacenter

Build a
software-defined
foundation



Microsoft Azure

Automate and
secure your
infrastructure



Windows Server

Extend
to the cloud
on demand

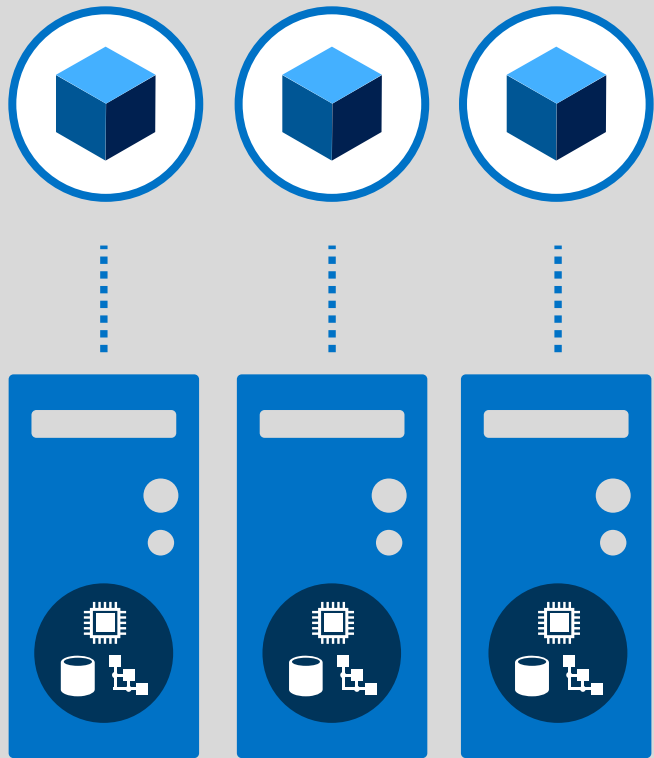


Microsoft System Center

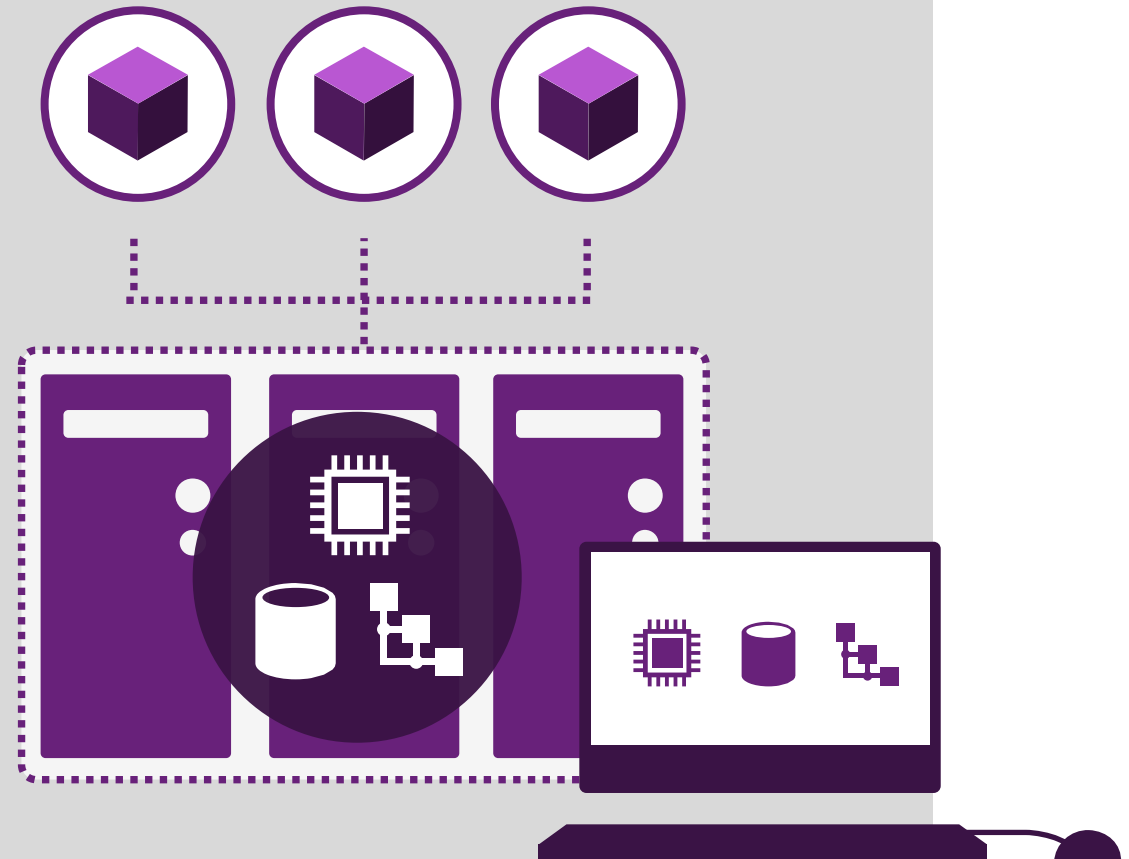


The software-defined datacenter

Highly customized



Standardized, automated



Reimagine compute

Virtual Machines

Scale to your
largest workloads



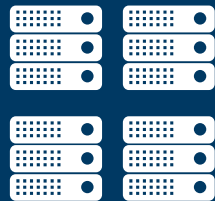
Hosts

Drive up your
consolidation ratio



Clusters

Increase scale per
cluster



Industry-leading scale and performance



Zero-downtime migrations



Open-source integration

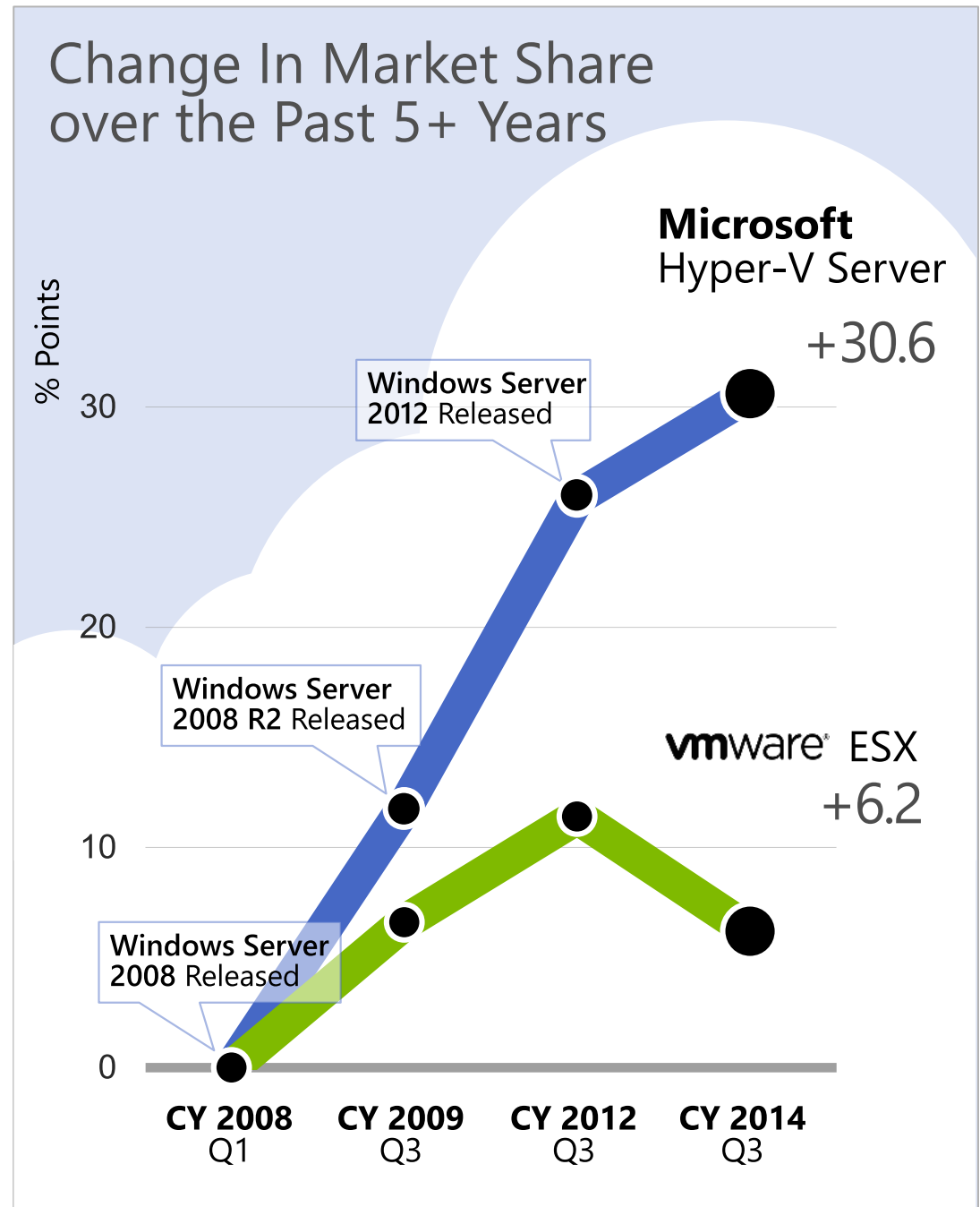


Infrastructure for hardware-based security

Hyper-V: winning virtualization share

x86 Server Virtualization Share for the Past 5+ Years

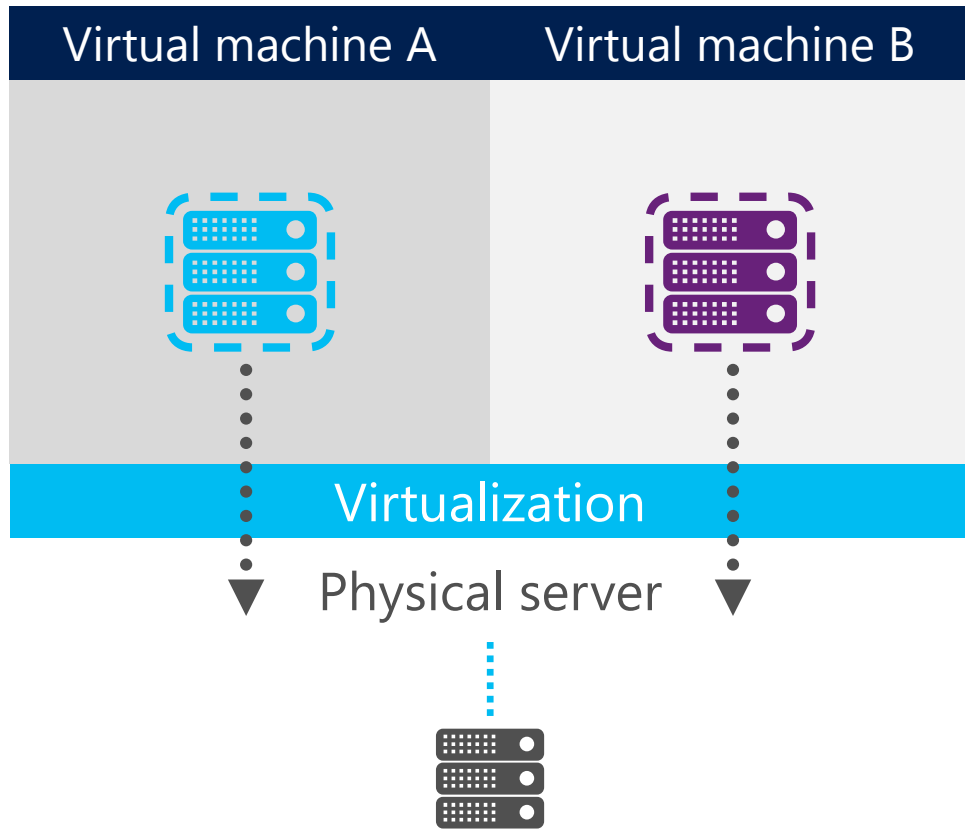
	Q1 CY2008 Windows Server 2008 Released	Q3 CY2009 Windows Server 2008 R2 Released	Q3 CY2012 Windows Server 2012 Released	Q3 CY2014 CURRENT	Change Since Hyper-V Released
Microsoft Hyper-V Server	0.0%	11.8%	25.9%	30.6%	+30.6 Pts
vmware ESX	40.0%	46.6%	51.4%	46.2%	+6.2 Pts



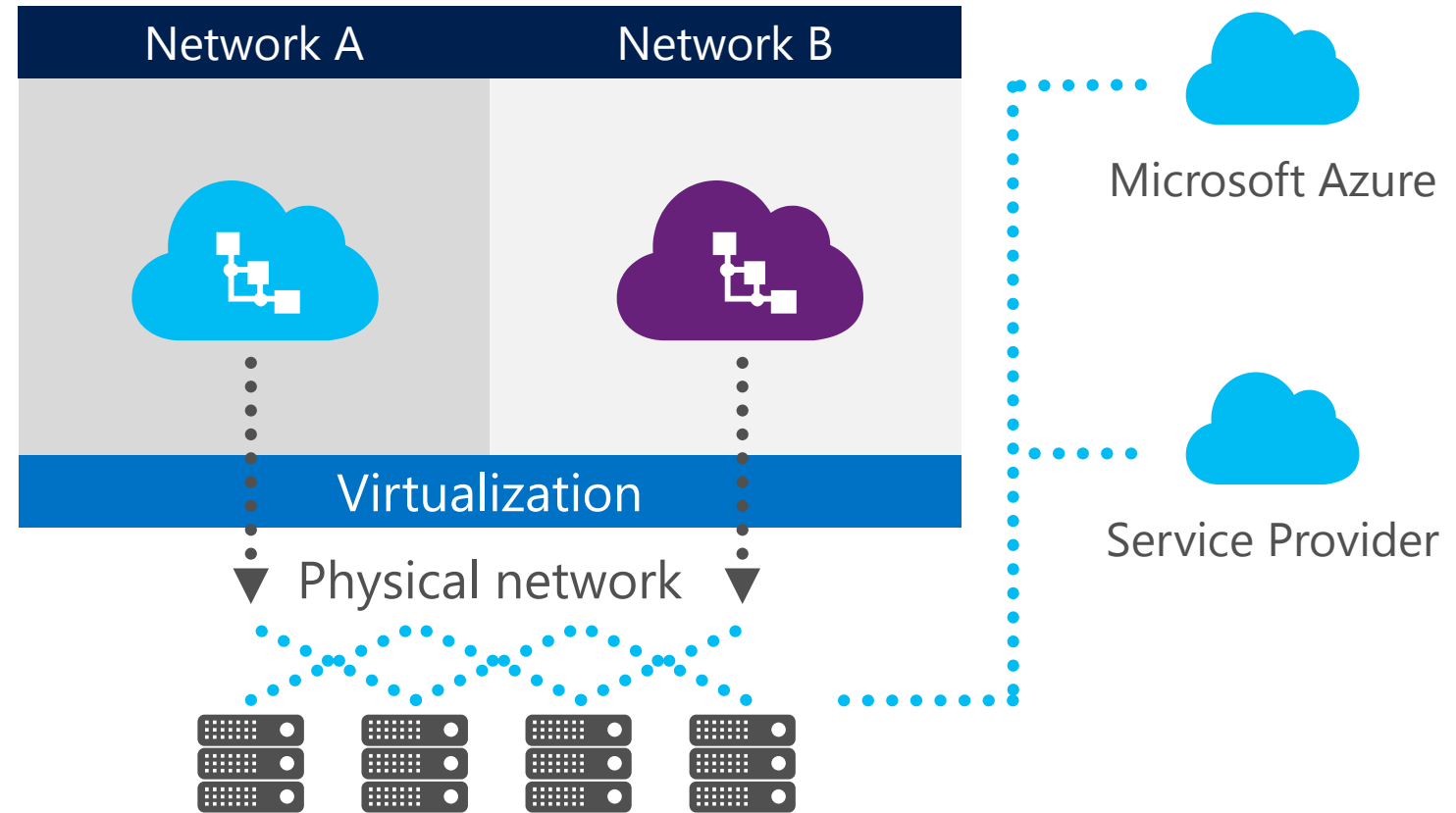
Source: IDC WW Quarterly Server Virtualization Tracker, December 2014. Hyper-V and ESX + vSphere shares based on percent market share among all x86 new hypervisor deployments (nonpaid and paid). x86 hypervisor shipments include those sold on new servers, new nonpaid hypervisor deployments aboard new servers, and new hypervisor sales and nonpaid hypervisor deployments on installed base servers. Share gains for Hyper-V and ESX + vSphere come in part from market share transfers from older products from same vendors.

Reimagine networking

Server virtualization



Network virtualization



SDN – What's in it for me?

WSJ EUROPE WSJ LIVE MARKETWATCH BARRON'S MEMBERSHIP DJX MORE

THE WALL STREET JOURNAL. BUSINESS

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Move Could Cut the Company's Capital Costs by Billions of Dollars

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By THOMAS GRUYTA [CONNECT](#)
Updated Feb. 24, 2014 12:25 p.m. ET

AT&T Inc. is planning to rebuild its sprawling network with less expensive, off-the-shelf equipment controlled by software, a move that could cut its capital costs by billions of dollars and put further pressure on telecom gear makers.

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The shift will mean the second-largest U.S. carrier will buy less specialized equipment from vendors such as [Ericsson](#), [Alcatel-Lucent SA](#) and [Cisco Systems Inc.](#), and instead purchase more generic hardware from a wider variety of producers. That equipment will be tied together with software, making it easier and cheaper to upgrade to new technologies, roll out new services or



Popu

ARTICLES

1 [Opinion: Italy's Economic Suicide Movement](#)

but \$21 billion in capital spending this year. In general, about one-third of spending at U.S. telecom companies goes to network equipment, according to analyst Simon Leopold.

AT&T lowered that spending target to reflect its new network plans, but the company's new program to put "a downward bias" in those costs in the next few years increases as the project is completed across its entire



"What used to take 18 months should take minutes," Mr. Donovan said.

Reimagine storage



Lower cost than traditional storage infrastructure

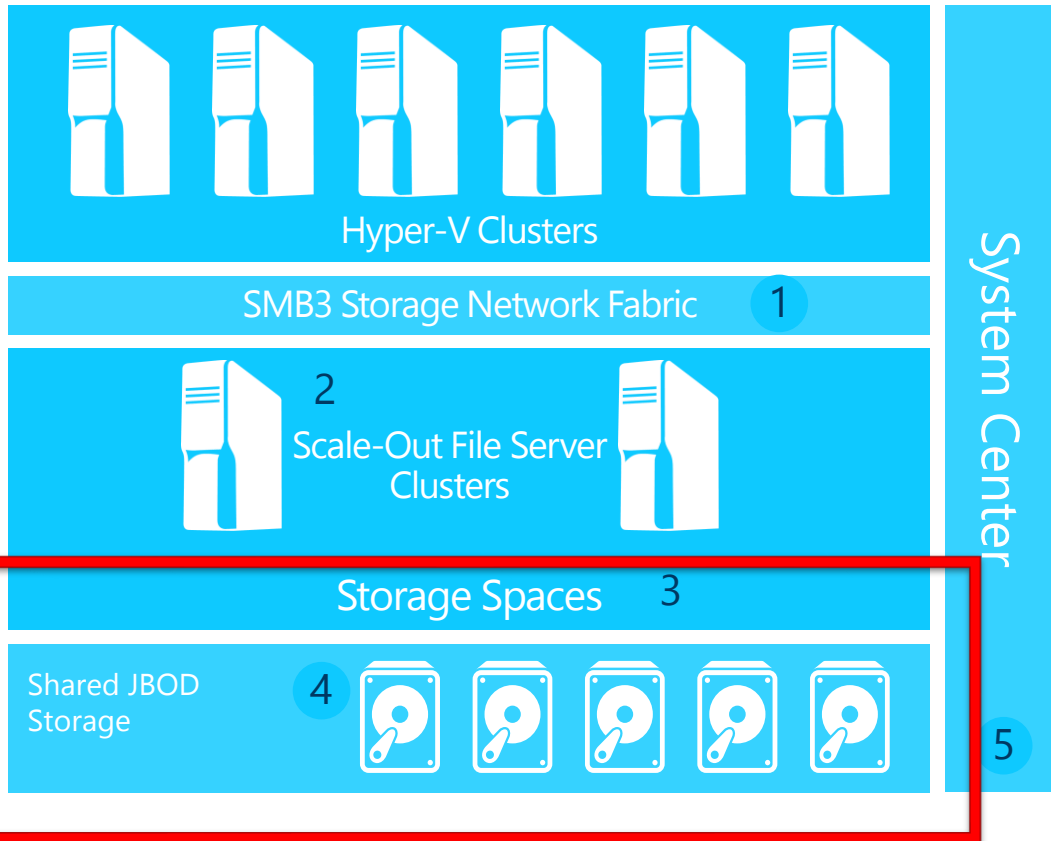


Flexible and easy-to-manage storage



Performance and availability of traditional NAS and SAN infrastructures

Software Defined Storage in Windows Server 2012 R2



Focus of this talk!

Primary application data storage on cost effective, continuously available, high performance SMB3 File Shares backed by Tiered Storage Spaces

1. **Performance, Scale, Fault-Tolerance:**
SMB3 File Storage network
2. **Continuous Availability and Seamless Scale Out:**
File Server Nodes
3. **Reliability, Elasticity, Performance:**
Tiered Storage Spaces
4. **Reduced Cost:** Standard Volume Hardware
5. **Unified Management:** System Center

Storage Spaces Shared Nothing

Enable cloud hardware designs

- Support for servers with local storage
- Support for SATA, SAS and NVMe devices

Scalability

- Scale to larger number of drives in a pool
- Add or remove resources as needed
- Simple storage expansion

Availability

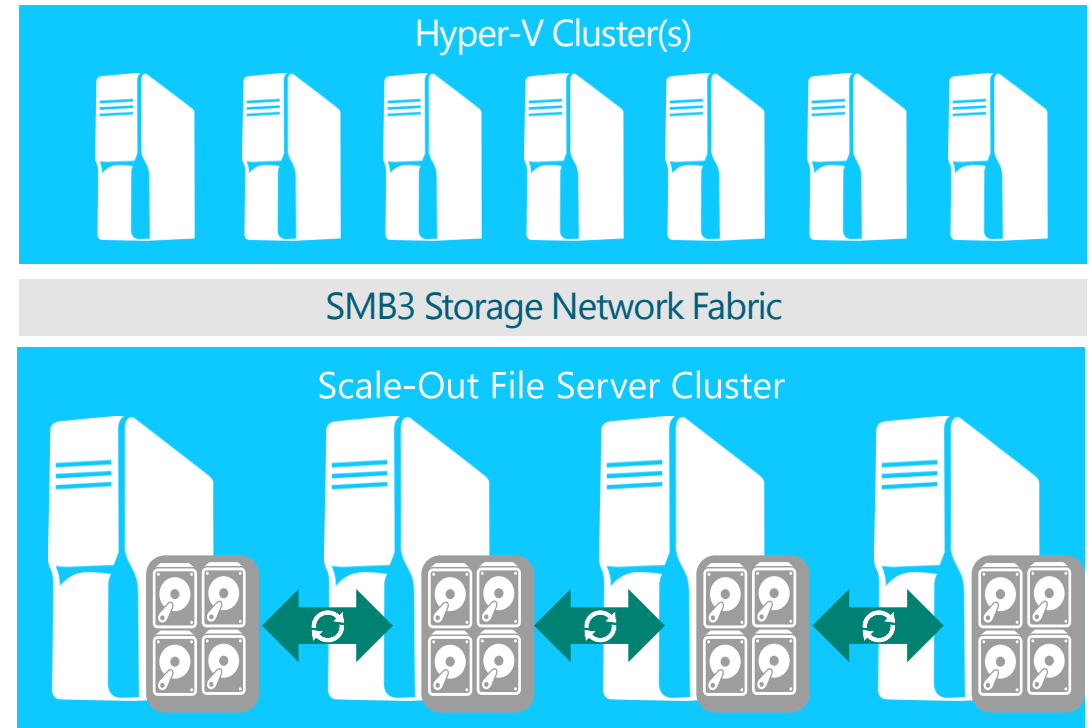
- Resilient to node and disks failures
- Zero downtime servicing and failover

Management

- System Center Virtual Machine Manager
- System Center Operations Manager
- SMAPI / PS

Use cases

- Scoped for disaggregated compute and storage in v1
- Hyper-V storage and replica storage for Service Providers
- Archive storage for Service Providers



Under the hood

Storage Access (Scale-Out File Server)

Remote data access for Hyper-V
Data access resiliency

File System (CSVFS/ReFS)

System-wide data access
Fast VHDX creation, grow and merge

Storage Spaces

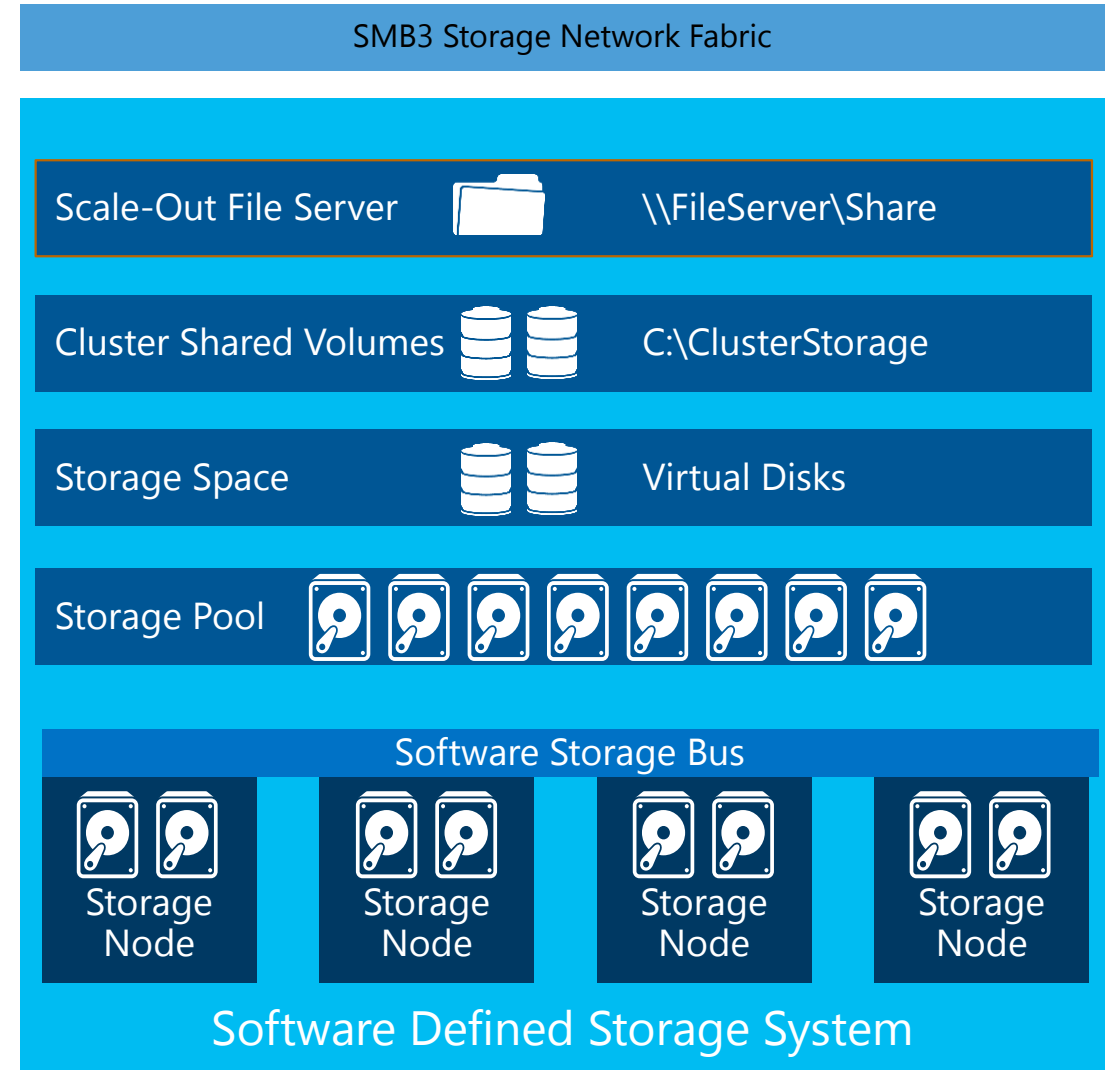
Storage pooling
Virtual disks
Data storage resiliency

Software Storage Bus

Spans all storage nodes
Virtualizes physical disks
Leverages SMB3 and SMB Direct

Storage nodes with internal disks

SATA, NVMe, SAS





Get started today!

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