The Journey of Windows Server 2019

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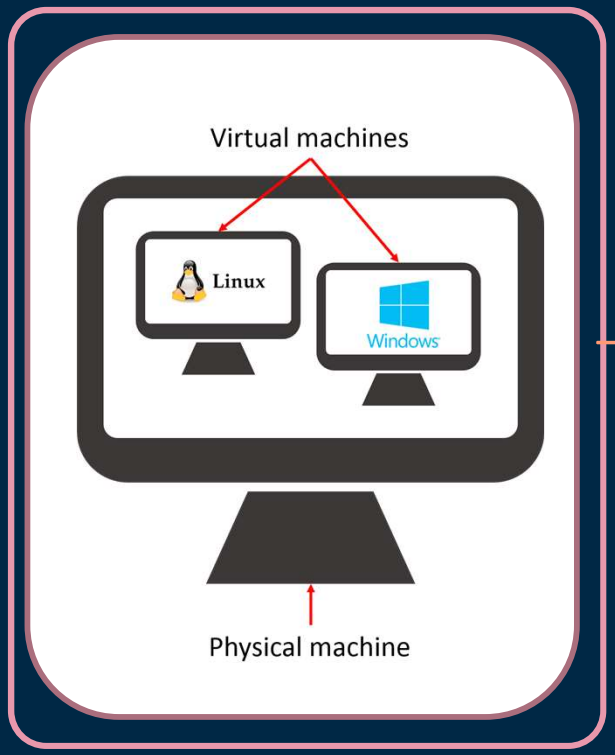
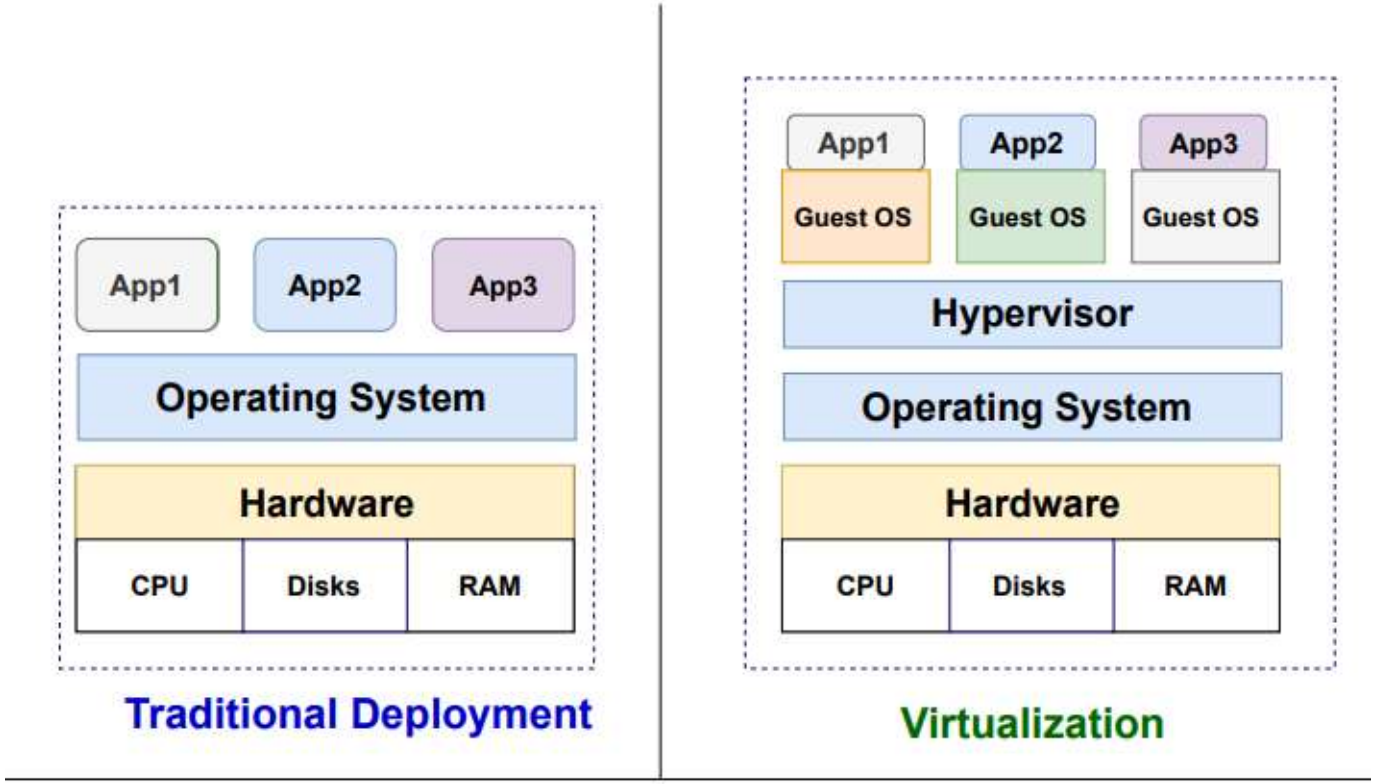
Virtualisasi

Virtualisasi = *"Representasi"*

Network, Server, Workstation



Tradisional VS Virtual



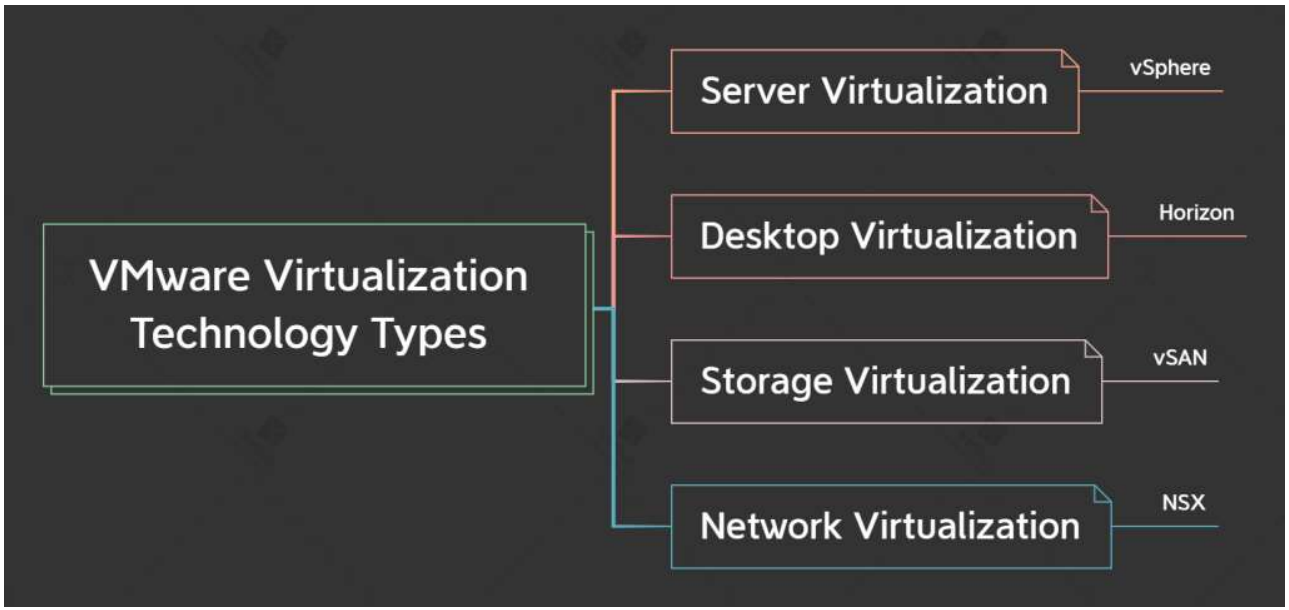
Types Of Virtualization

Virtualization Product

vmware®

Microsoft Hyper-V

CITRIX®



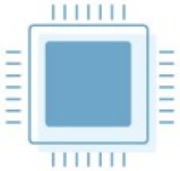
Virtualization Product

Virtualization Product

Virtualization Benefit

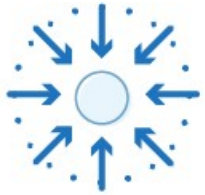
Operational flexibility

Operate separate instances of multiple OS types



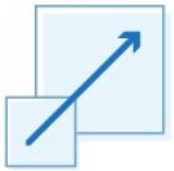
Reducing overhead

Run multiple virtual machines on the same underlying hardware



Centralization

Consolidate systems to simplify management



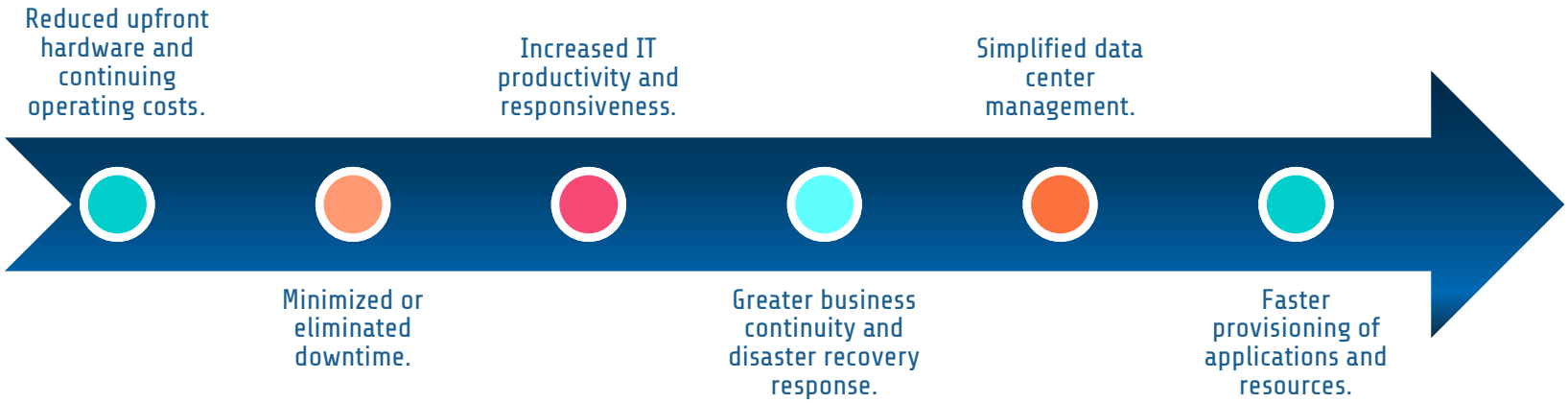
Scalability

Easily scale your virtual environment as your business grows

Disaster recovery

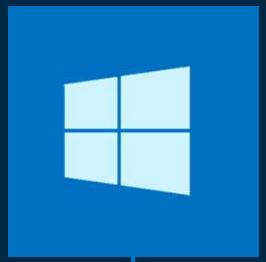
Restore data and system states from VM instances

Virtualization Benefit



Windows Server

Bring new journey in
Technology



Windows Server vs Windows Client

For business continuity	• For personal user purpose
Can give service to client	• Using service from server
Support high end hardware	• Have maximum limitation

Windows Server Release

Windows NT Advanced Server 3.1	First version of Windows Server	32-bit system	Supports newer server hardware
Windows NT Server 3.5	Unix connectivity	Novell Netware connectivity	Ability to use with existing networks
Windows NT Server 3.51	Stability improvements	Support for Windows 95	Remote software license management
Windows NT Server 4.0	Microsoft Internet Information Server	Terminal Server Edition	Same look and feel as Windows 95
Windows Server 2000	Support for Extensible Market Language	Active Server Pages	Integration with Active Directory for user authentication
Windows Server 2003	Updated security features	Ability to define server roles	Inclusion of .NET environment
Windows Server 2003 R2	Active Directory Federation Services	Improved data compression	Security Configuration Wizard
Windows Server 2008	Hyper-Virtualization System	Event Viewer	Server Manager
Windows Server 2008 R2	64-bit environment	Improved group policy implementation	Remote Desktop Services
Windows Server 2012	Support for use in the Cloud	Improved Hyper-V functionality	Inclusion of Essentials edition
Windows Server 2012 R2	Updates to PowerShell	Enhanced functionality for storage	Ability to serve software to mobile devices
Windows Server 2016	Inclusion of Nano Server	Network Controller	Support for using containers
Windows Server 2019	Windows Admin Center	Hyper-converged infrastructure	Advanced Threat Protection

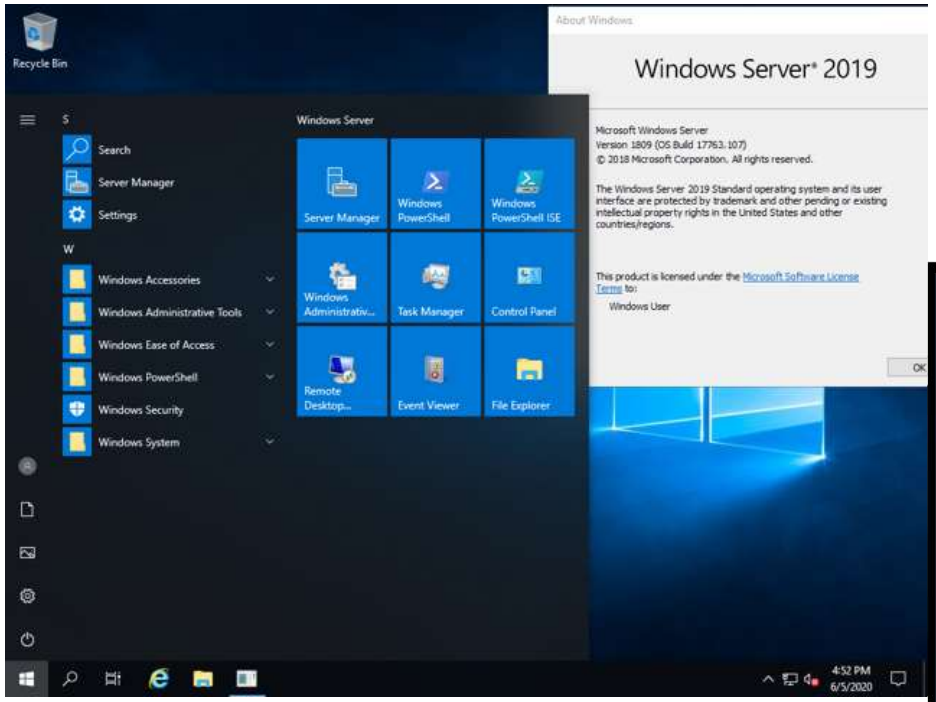
Windows Server 2019 Edition

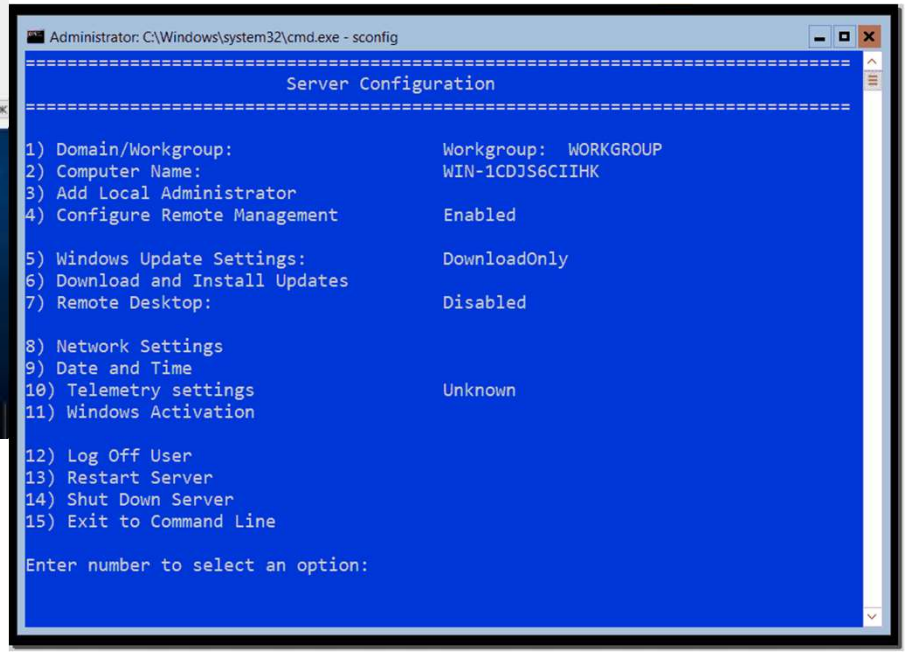
Editions	Description	Licensing model	CAL requirements	Pricing
Windows Server 2019 Datacenter	For highly virtualized datacenters and cloud environments	Core based	WS CAL	$6,155
Windows Server 2019 Standard	For physical or minimally virtualized environments	Core based	WS CAL	$972
Windows Server 2019 Essentials	For small businesses with up to 25 users and 50 devices	Specialty server	No CAL required	$501
Microsoft Hyper-V Server 2019	Free hypervisor download.	N/A	N/A	N/A

Standard vs Datacenter

Locks and Limits	Windows Server 2019 Standard	Windows Server 2019 Datacenter
Maximum number of 64-bit sockets	64	64
Maximum number of cores	Unlimited	Unlimited
Maximum RAM	24 TB	24 TB
Virtualization Guest	2 virtual machines, plus one Hyper-V host per license	unlimited virtual machines, plus one Hyper-V host per license

Desktop Experience vs Server Core





Service Option LTSC vs SAC

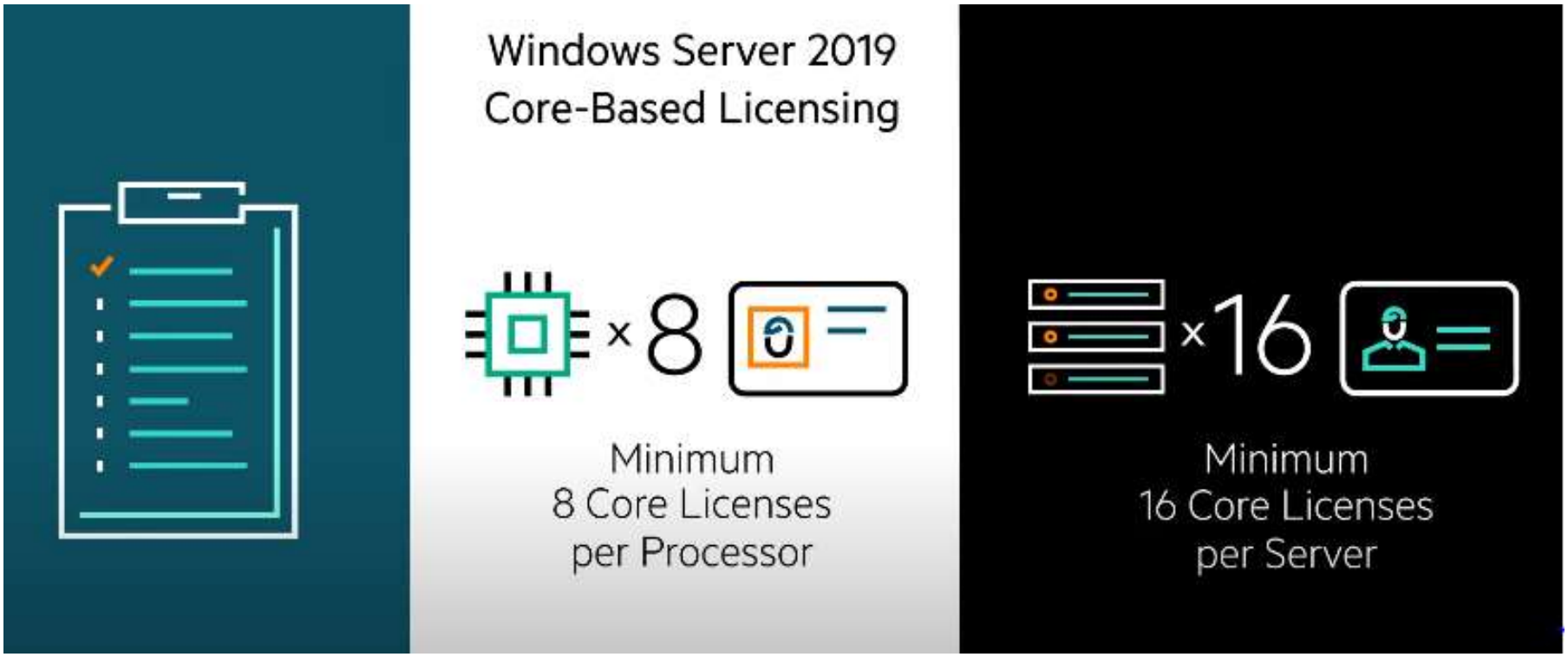
The Long-Term Servicing Channel (LTSC) provides a longer term option focusing on stability,

whereas the Semi-Annual Channel (SAC) provided more frequent releases enabling customers to take advantage of innovation more quickly.

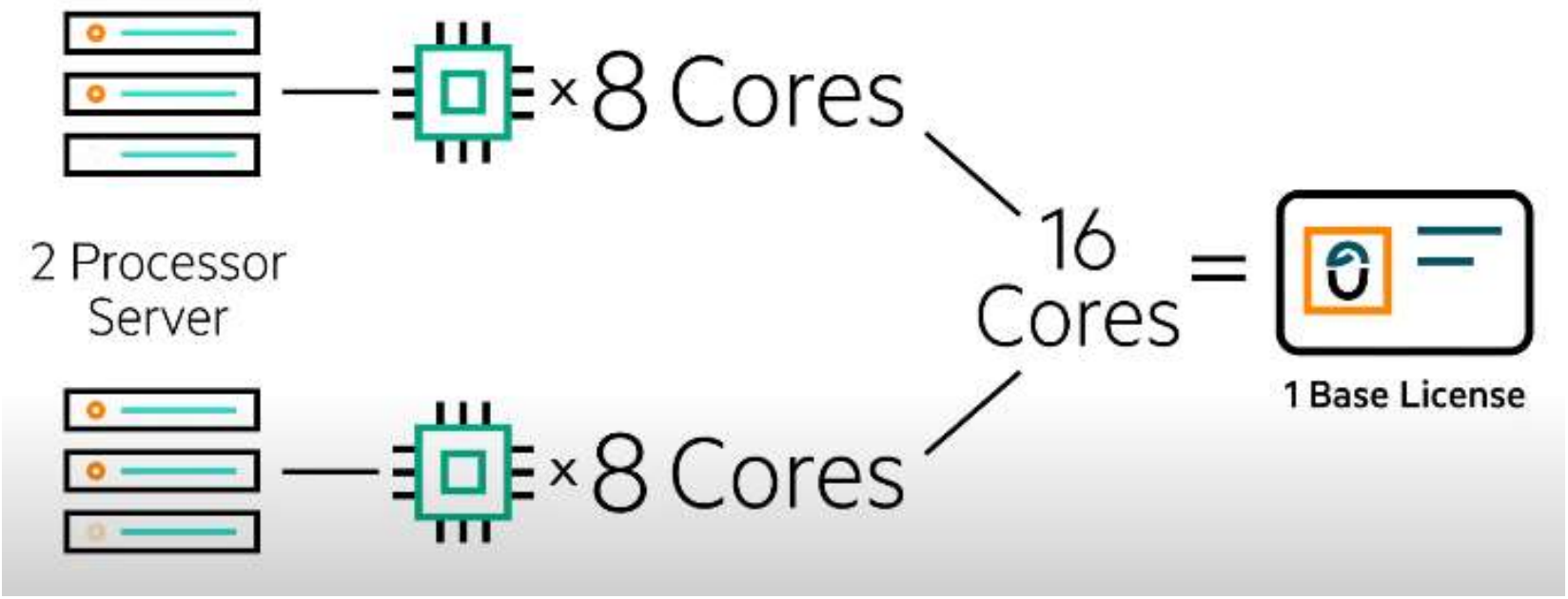
Service Option LTSC vs SAC

Description	Long-Term Servicing Channel (Windows Server 2019)	Semi-Annual Channel (Windows Server)
Recommended scenarios	General purpose file servers, Microsoft and non-Microsoft workloads, traditional apps, infrastructure roles, software-defined Datacenter, and hyper-converged infrastructure	Containerized applications, container hosts, and application scenarios benefiting from faster innovation
New releases	Every 2–3 years	Every 6 months
Support	5 years of mainstream support, plus 5 years of extended support	18 months
Editions	All available Windows Server editions	Standard and Datacenter editions
Who can use it?	All customers through all channels	Software Assurance and cloud customers only
Installation options	Server Core and Server with Desktop Experience	Server Core for container host and image and Nano Server container image

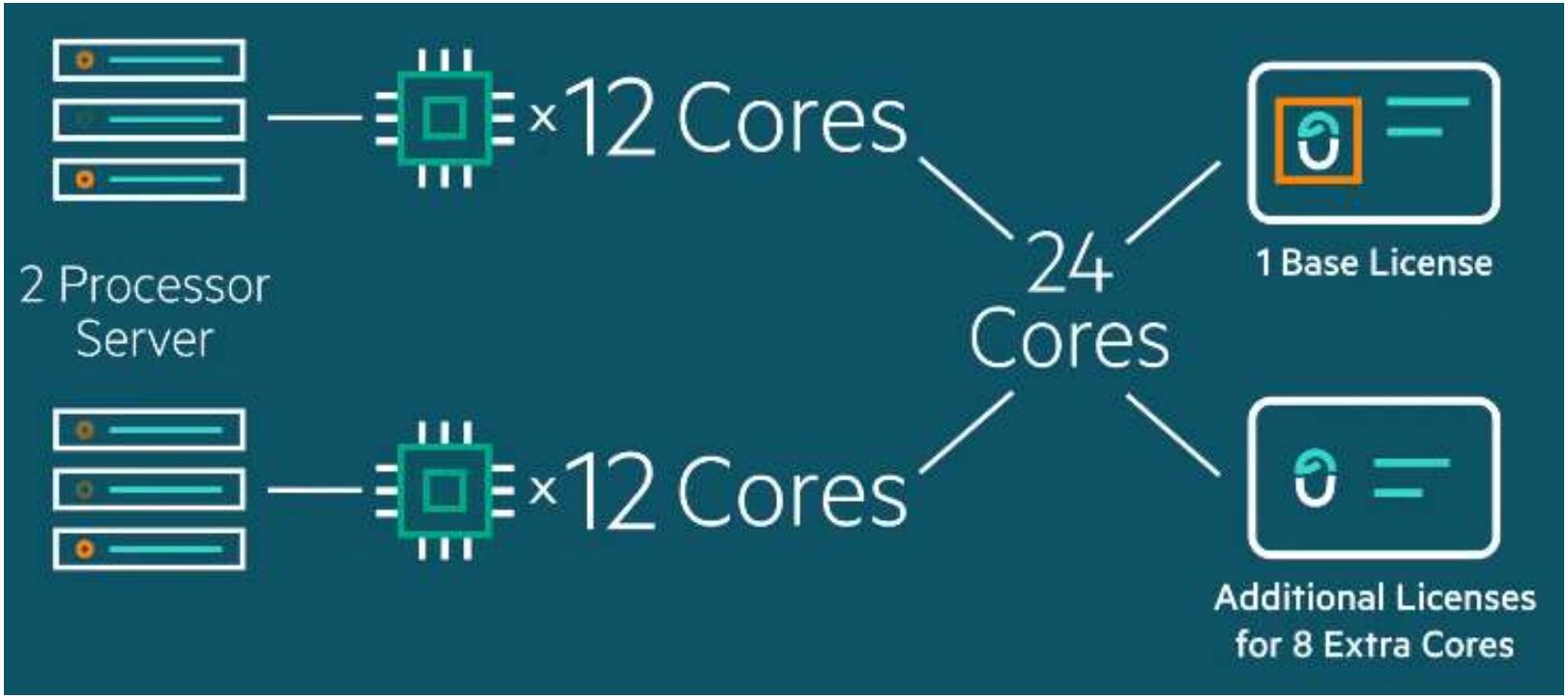
Windows server 2019 Licensing



Use Case



Use Case

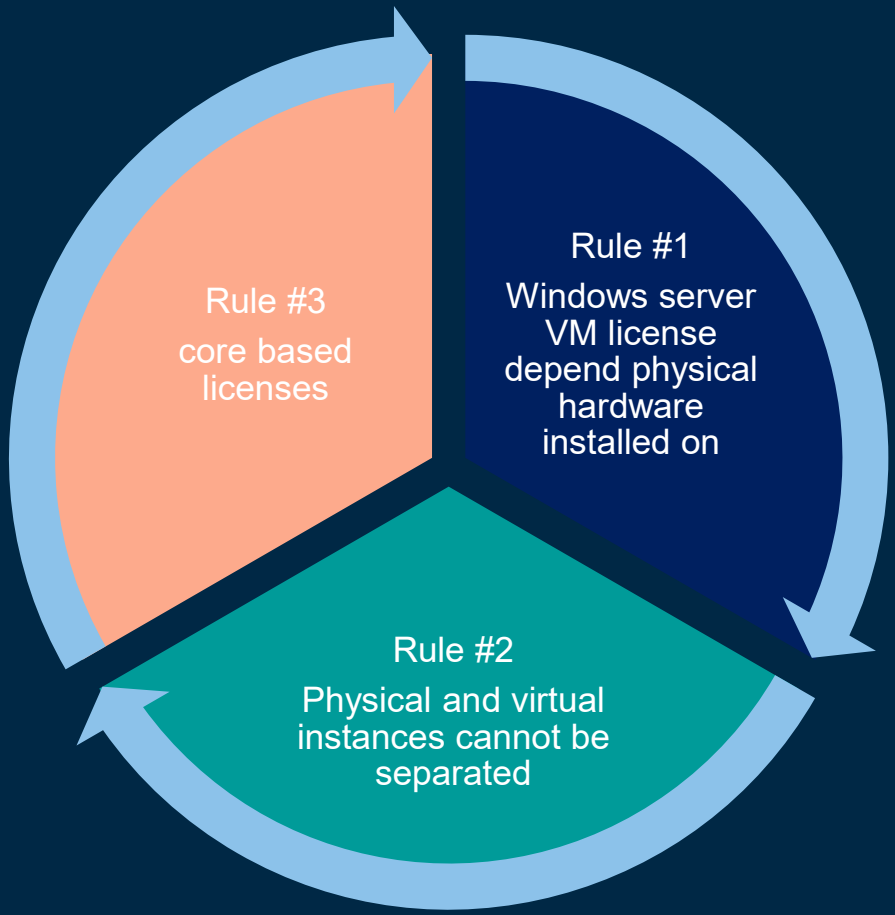

×12 Cores
2 Processor Server
×12 Cores
24 Cores
1 Base License
Additional Licenses for 8 Extra Cores

The Golden Rule(s)

Microsoft

Windows Server

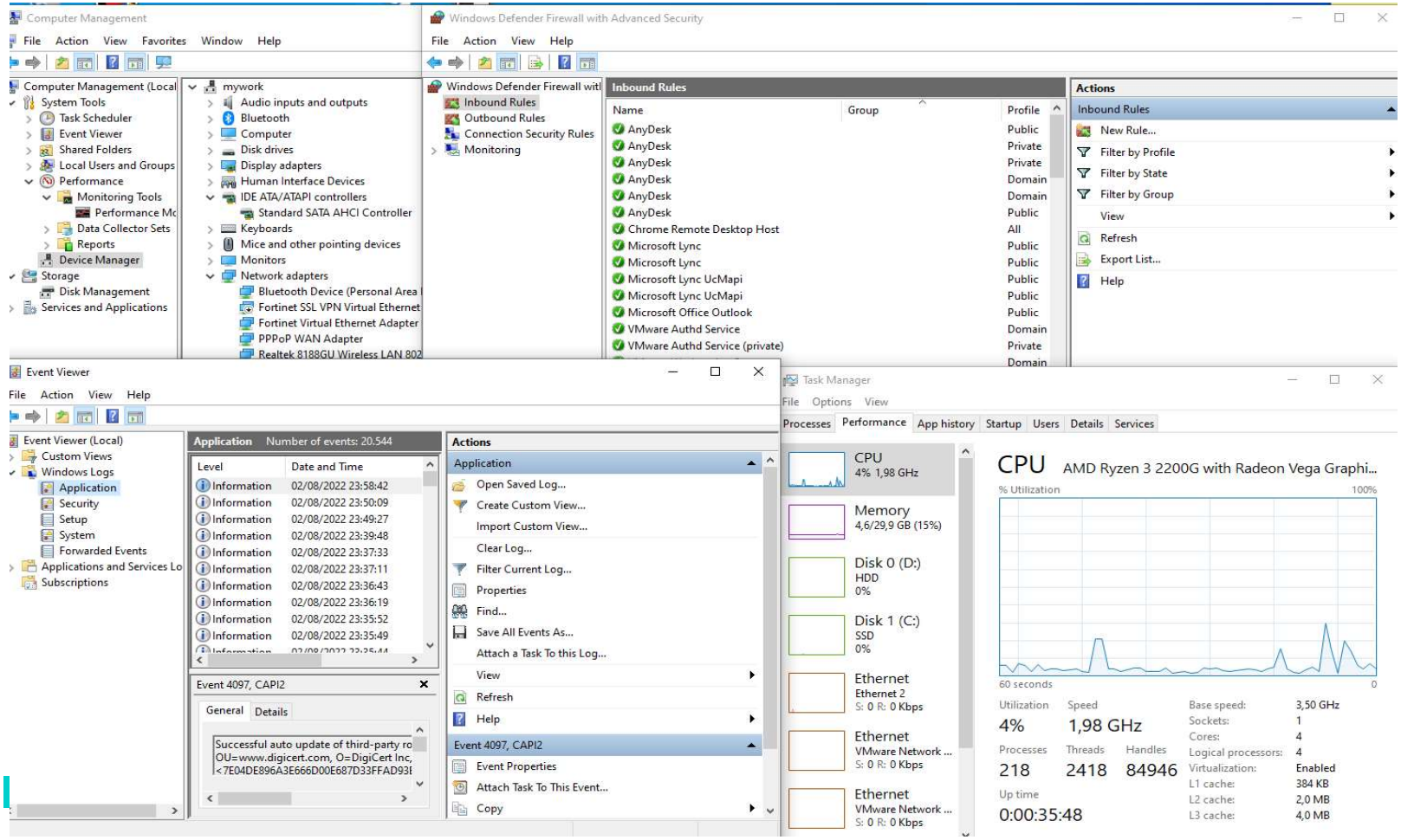
Licensing



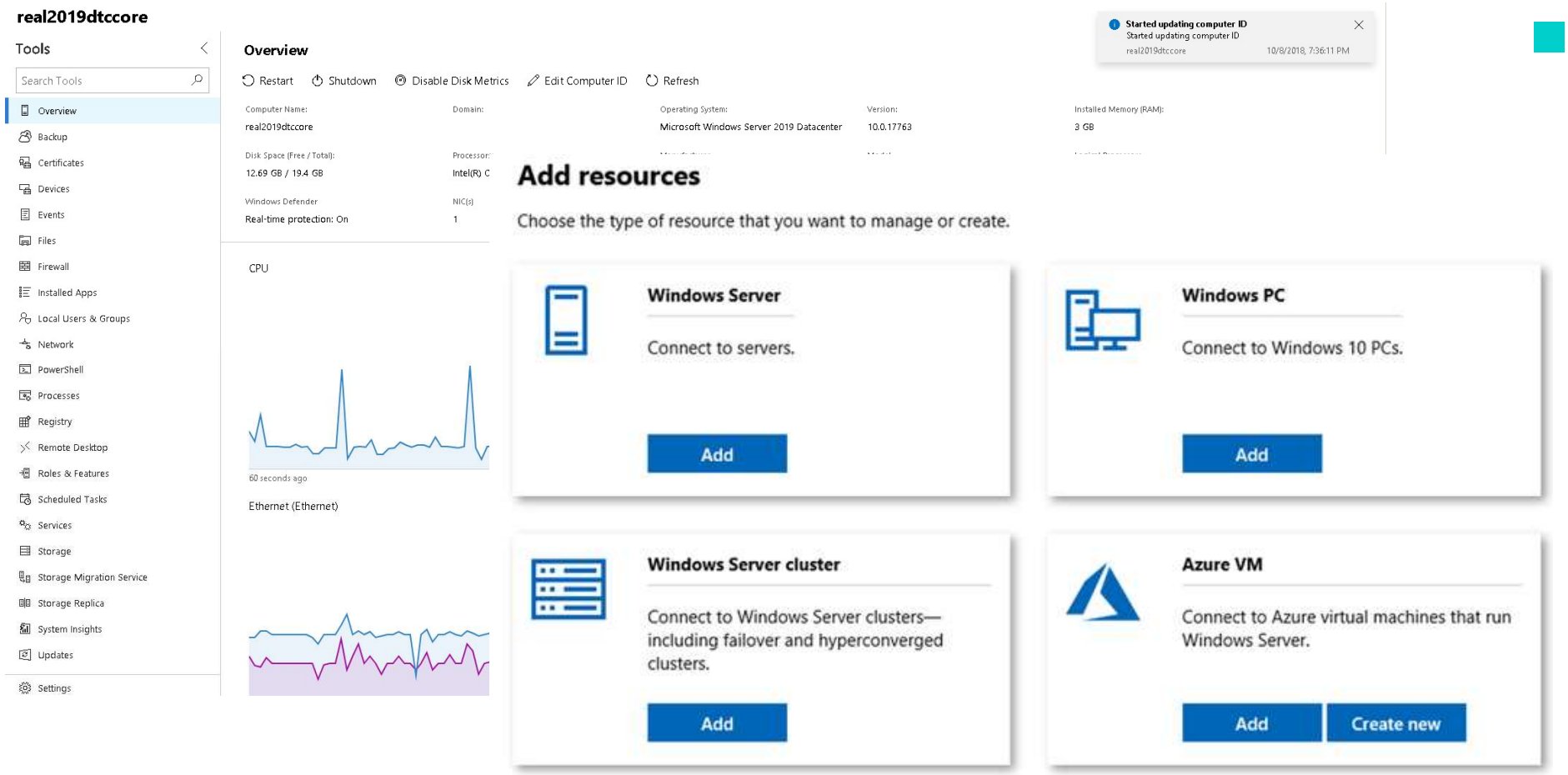
What's New in WS 2019 ?

- Windows admin center
- System insight
- Feature on demand (Server core only)
- Windows defender advance threat protection
- Software define network
- Storage migration service
- Storage space direct
- Storage replica

Windows admin center



Windows admin center



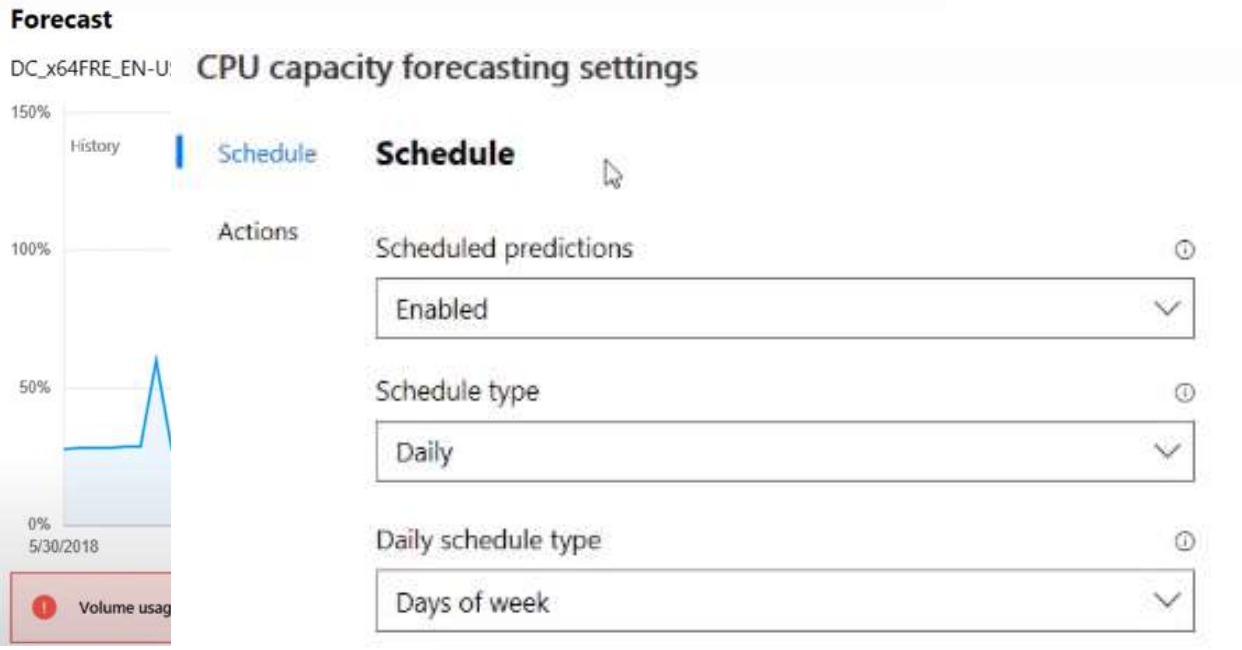
System Insight

CPU capacity forecasting

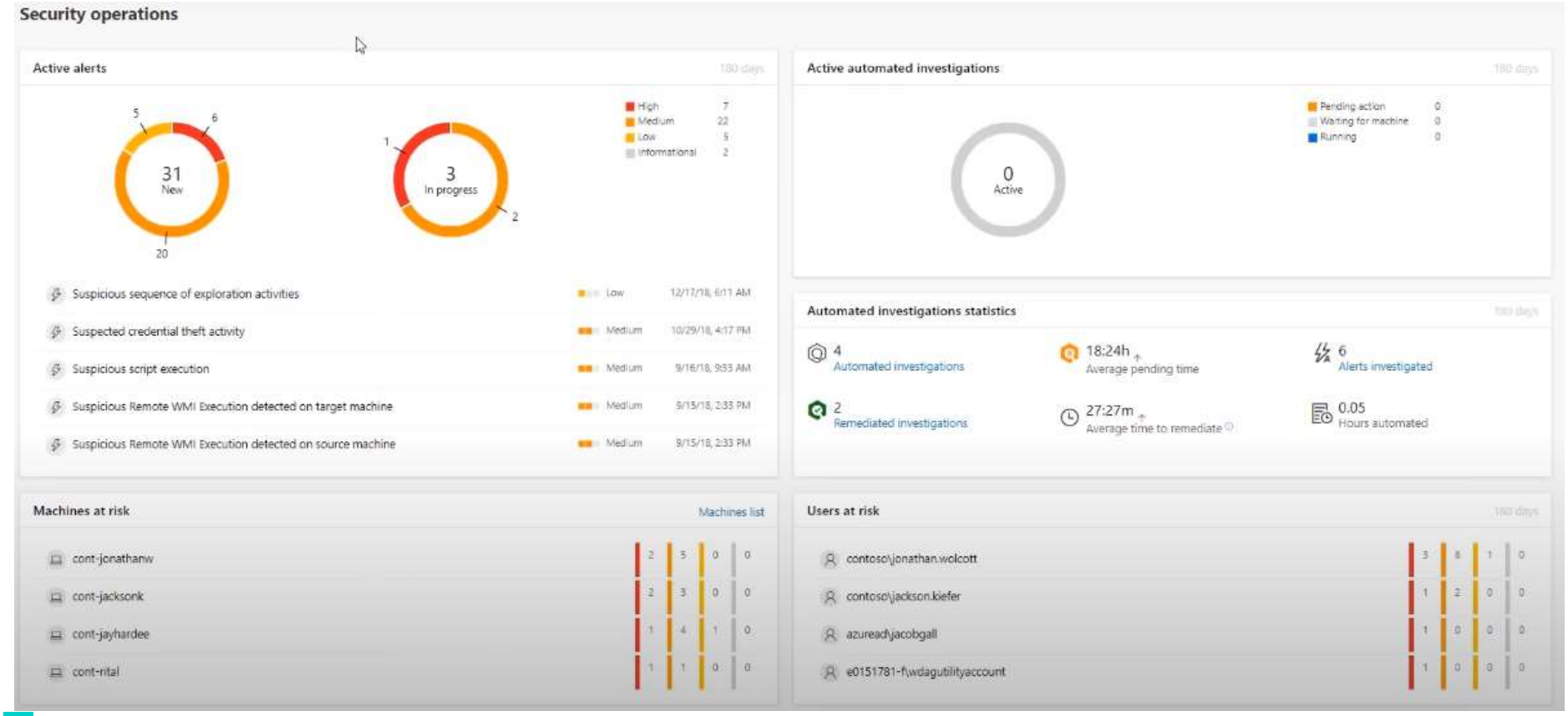
Network capacity forecasting

Total storage consumption forecasting

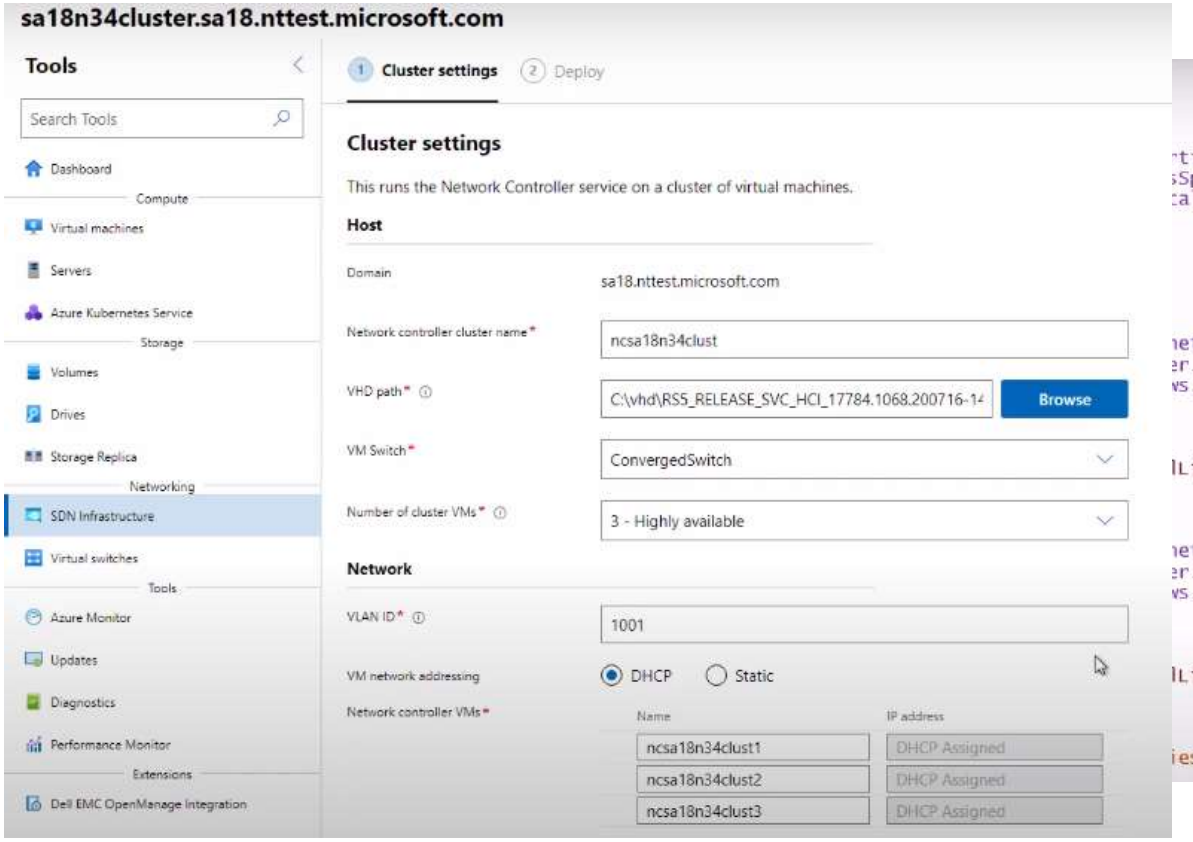
Volume consumption forecasting



Windows Defender 2019



Built-in SDN

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talNetwork

net
er.VirtualSubnetProperties
ws.NetworkController.AccessControlList

lLists/AllowAll"

net
er.VirtualSubnetProperties
ws.NetworkController.AccessControlList

lLists/AllowAll"

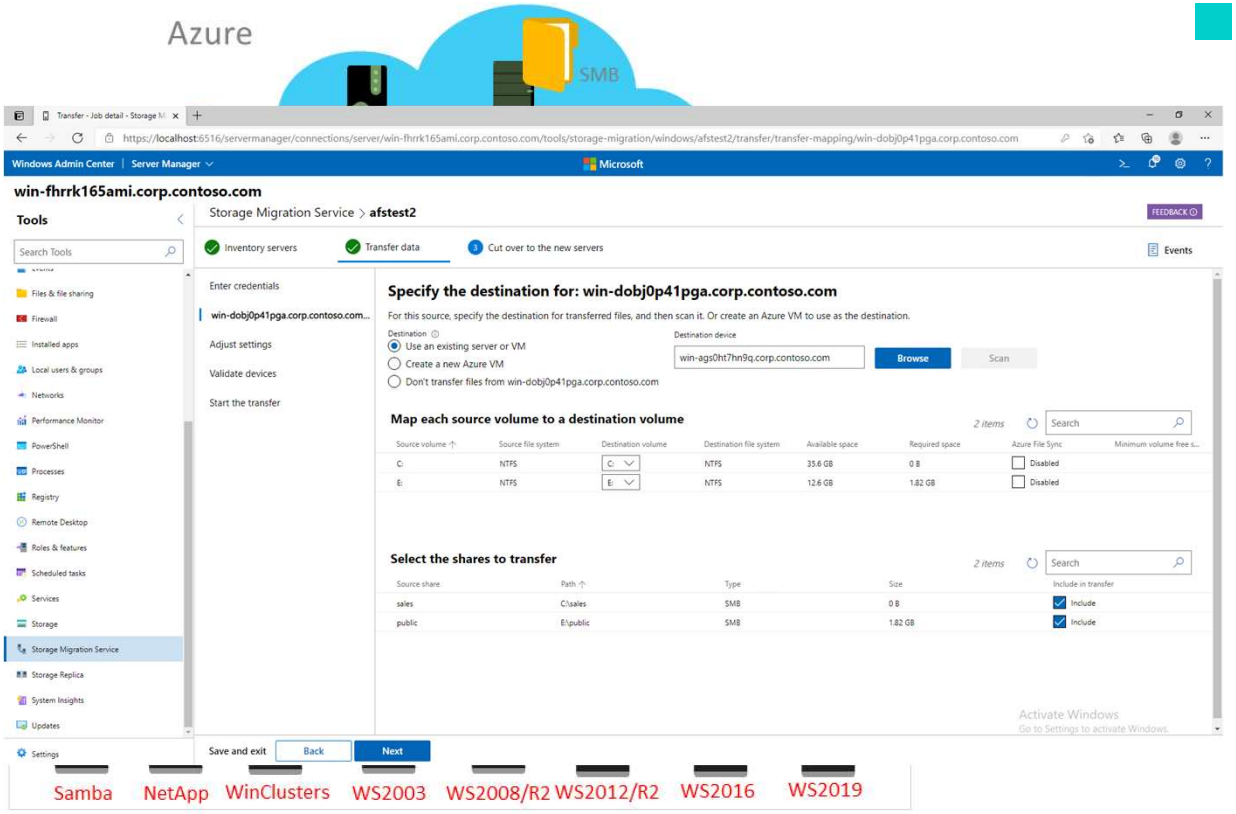
ies -ConnectionUri "https://sa18n22nc.sa18.nttest.microsoft.com" -force
```

Storage Migration Service

Why use Storage Migration Service ?

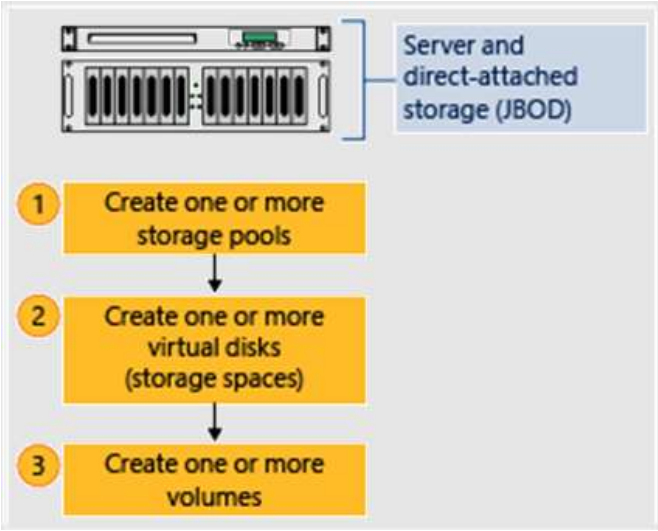
Use Storage Migration Service because you've got a server (or a lot of servers) that you want to migrate to newer hardware or virtual machines. Storage Migration Service is designed to help by doing the following:

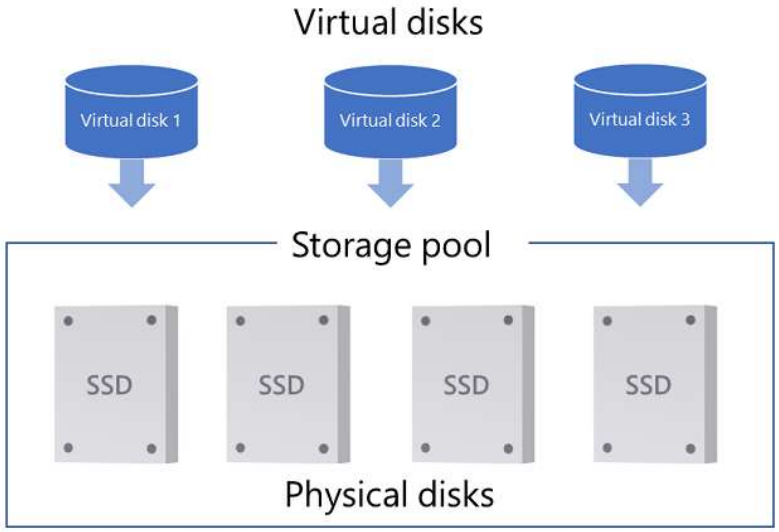
1. Inventory multiple servers and their data
2. Rapidly transfer files, file shares, and security configuration from the source servers
3. Optionally take over the identity of the source servers (also known as cutting over) so that users and apps don't have to change anything to access existing data
4. Manage one or multiple migrations from the Windows Admin Center user interface



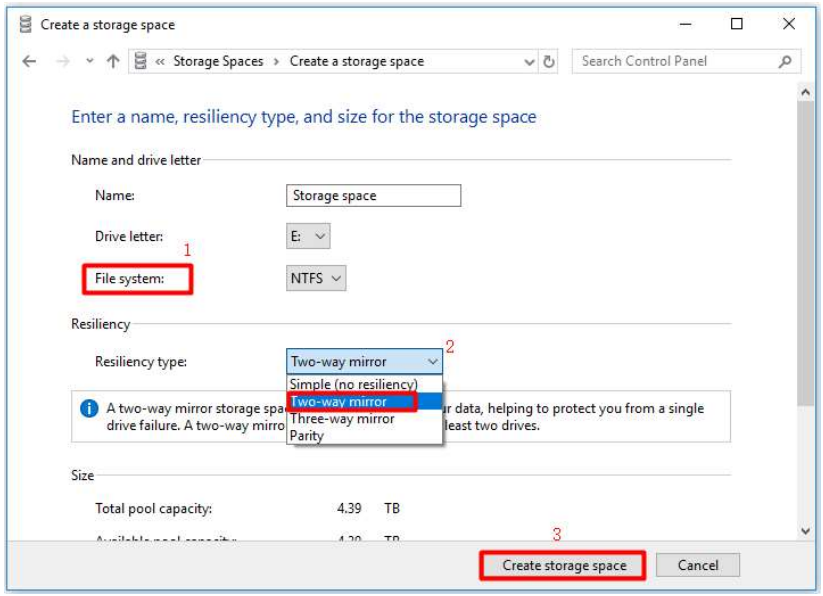
Storage Space

Storage Spaces is a technology in Windows and Windows Server that can help protect your data from drive failures. It is conceptually similar to RAID, implemented in software. You can use Storage Spaces to group three or more drives together into a storage pool and then use capacity from that pool to create Storage Spaces.





Storage Space Resiliency Type



Simple

- Stripes data across physical disks
- Maximizes disk capacity and increases throughput
- No resiliency (does not protect from disk failure)

Mirror

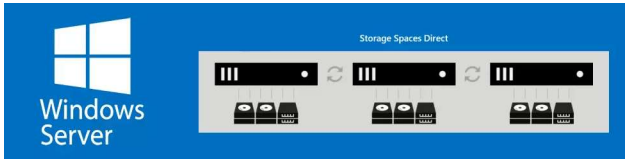
- Stores two or three copies of the data across the set of physical disks
- Increases reliability, but reduces capacity. Duplication occurs with every write. A mirror space also stripes the data across multiple physical drives.
- Greater data throughput

Parity

- Stripes data and parity information across physical disks
- Increases reliability when it is compared to a simple space, but somewhat reduces capacity

Storage Space Direct

While Windows Storage Spaces focused on a single server and its local storage, Storage Spaces Direct is able to pool storage across servers.



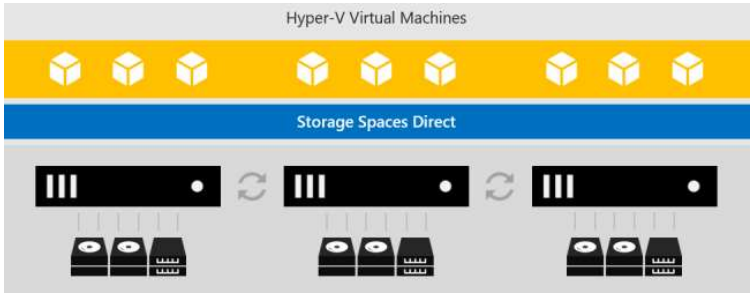
Deployment Option:

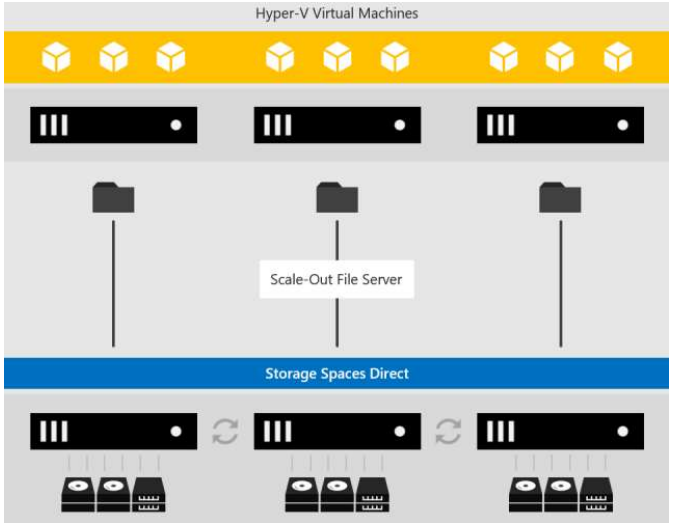
1. ### Hyperconverged deployment

   The hyperconverged deployment option runs Hyper-V virtual machines or SQL Server databases directly on the servers providing the storage—storing their files on the local volumes

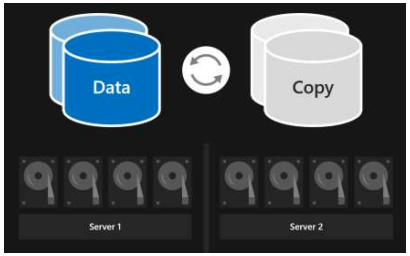
2. ### Converged deployment

   The converged deployment option, also known as 'disaggregated,' layers a Scale-out File Server (SoFS) atop Storage Spaces Direct to provide network-attached storage over SMB3 file shares



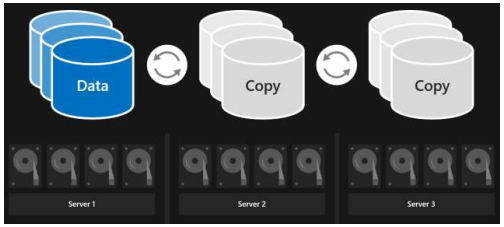


Storage Space Direct Resiliency



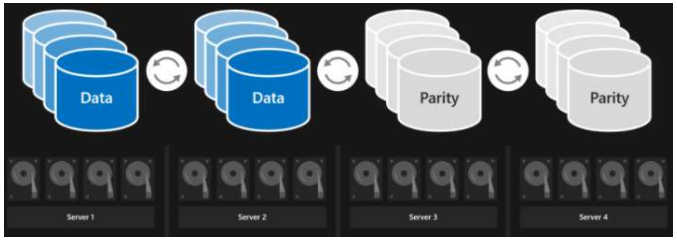
Two-way Mirror

Two-way mirroring writes two copies of everything. Its storage efficiency is 50 percent – to write 1 TB of data, you need at least 2 TB of physical storage capacity



Three-way Mirror

Three-way mirroring writes three copies of everything. Its storage efficiency is 33.3 percent – to write 1 TB of data, you need at least 3 TB of physical storage capacity.



Parity

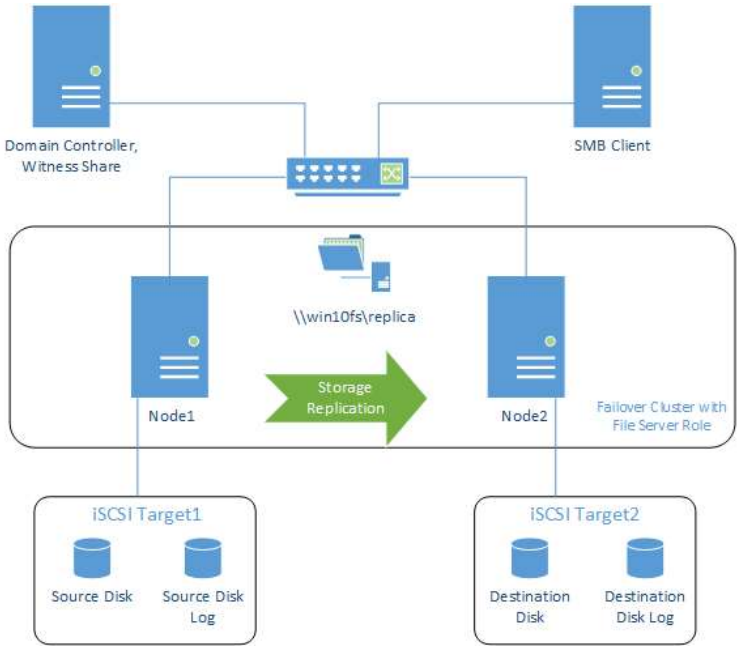
Providing the same fault tolerance as three-way mirroring (i.e. up to two failures at once), but with better storage efficiency. It most closely resembles RAID-6. To use dual parity, you need at least four hardware fault domains – with Storage Spaces Direct, that means four servers. At that scale, the storage efficiency is 50% – to store 2 TB of data, you need 4 TB of physical storage capacity.

Storage Replica

Storage Replica is Windows Server technology that enables replication of volumes between servers or clusters for disaster recovery. It also enables you to create stretch failover clusters that span two sites, with all nodes staying in sync.

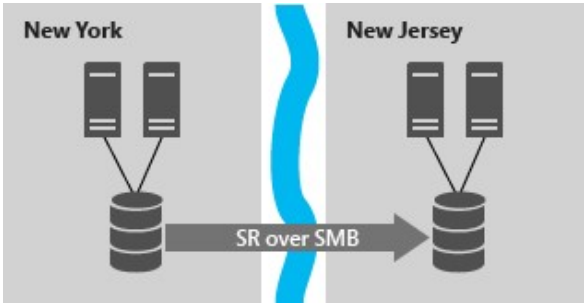
Storage Replica supports synchronous and asynchronous replication:

- Synchronous replication mirrors data within a low-latency network site with crash-consistent volumes to ensure zero data loss at the file-system level during a failure.
- Asynchronous replication mirrors data across sites beyond metropolitan ranges over network links with higher latencies, but without a guarantee that both sites have identical copies of the data at the time of a failure.

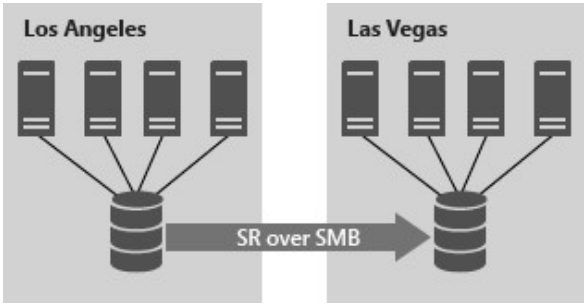


Storage Replica Scenario

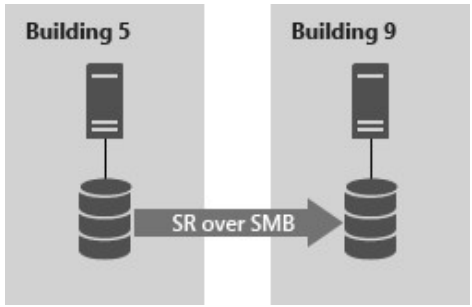
Stretch Cluster



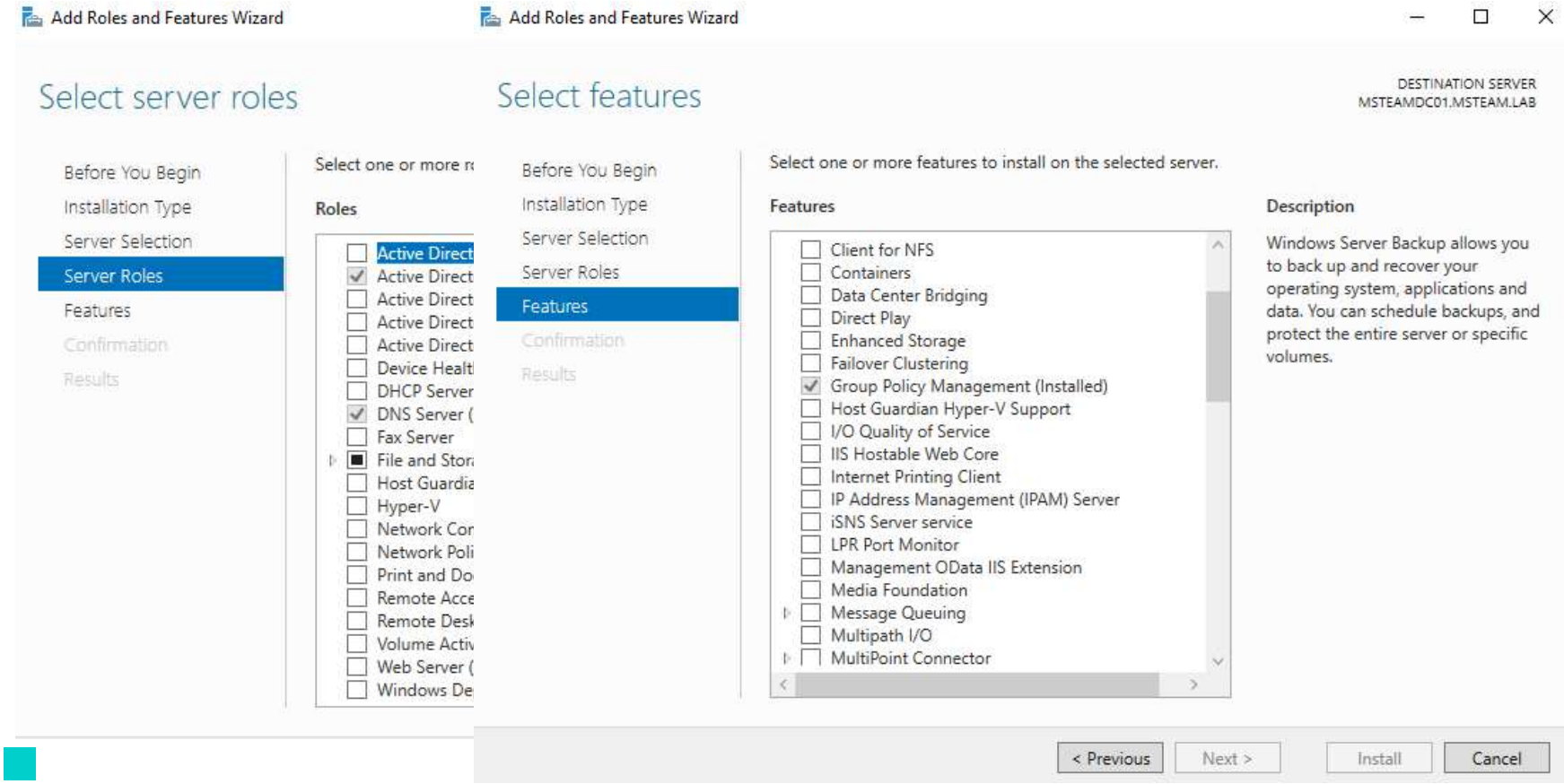
Disaster Recovery



Server to Server



Windows server role and feature



THANKS