Server 2019 – What's New

WI VMUG October 2018

Mike Nelson

Sr. Technology Architect rubrik

@nelmedia

geektweakers.com

http://github.com/nelmediamike

Microsoft MVP, Azure Advisor

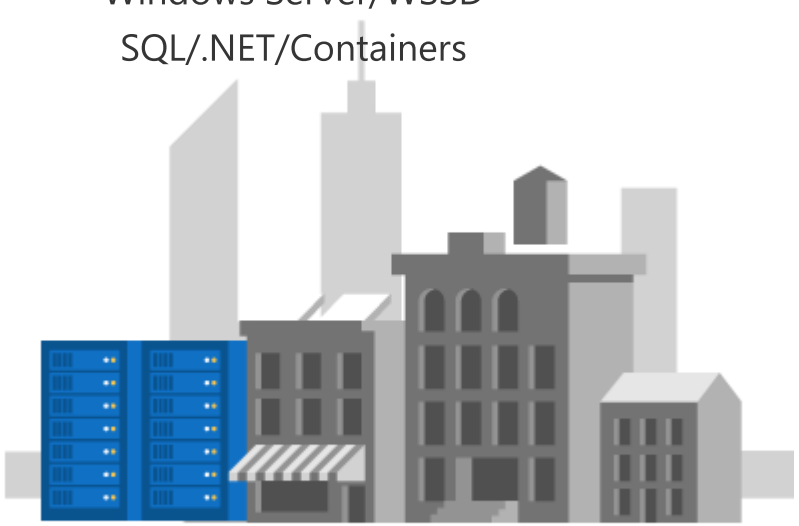
Citrix Technology Professional (CTP)

vExpert since 2012 – Wisconsin VMUG Leader

Microsoft Azure

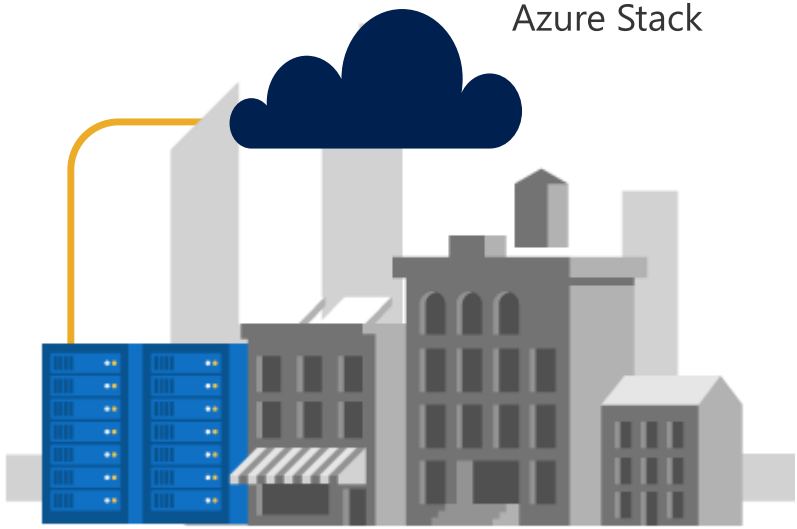
Hybrid Datacenter

Windows Server/WSSD
SQL/.NET/Containers



Hybrid Cloud

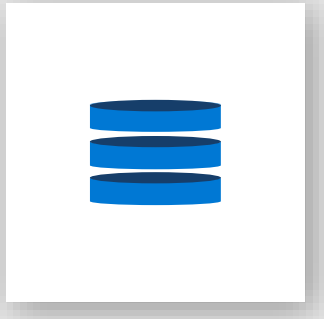
Azure Stack



On-premises

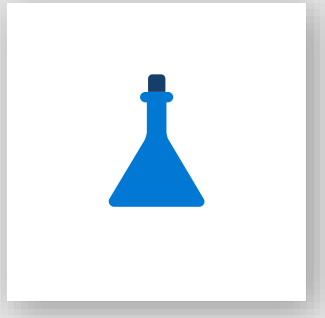
Windows Server 2019

Hybrid datacenter



Hyper-converged infrastructure (HCI)

Enhanced security



Application Innovation

Unique hybrid capabilities with Azure

Extend your datacenter to Azure to maximize existing investments and gain new hybrid capabilities

Azure Backup, Azure Site Recovery, and more

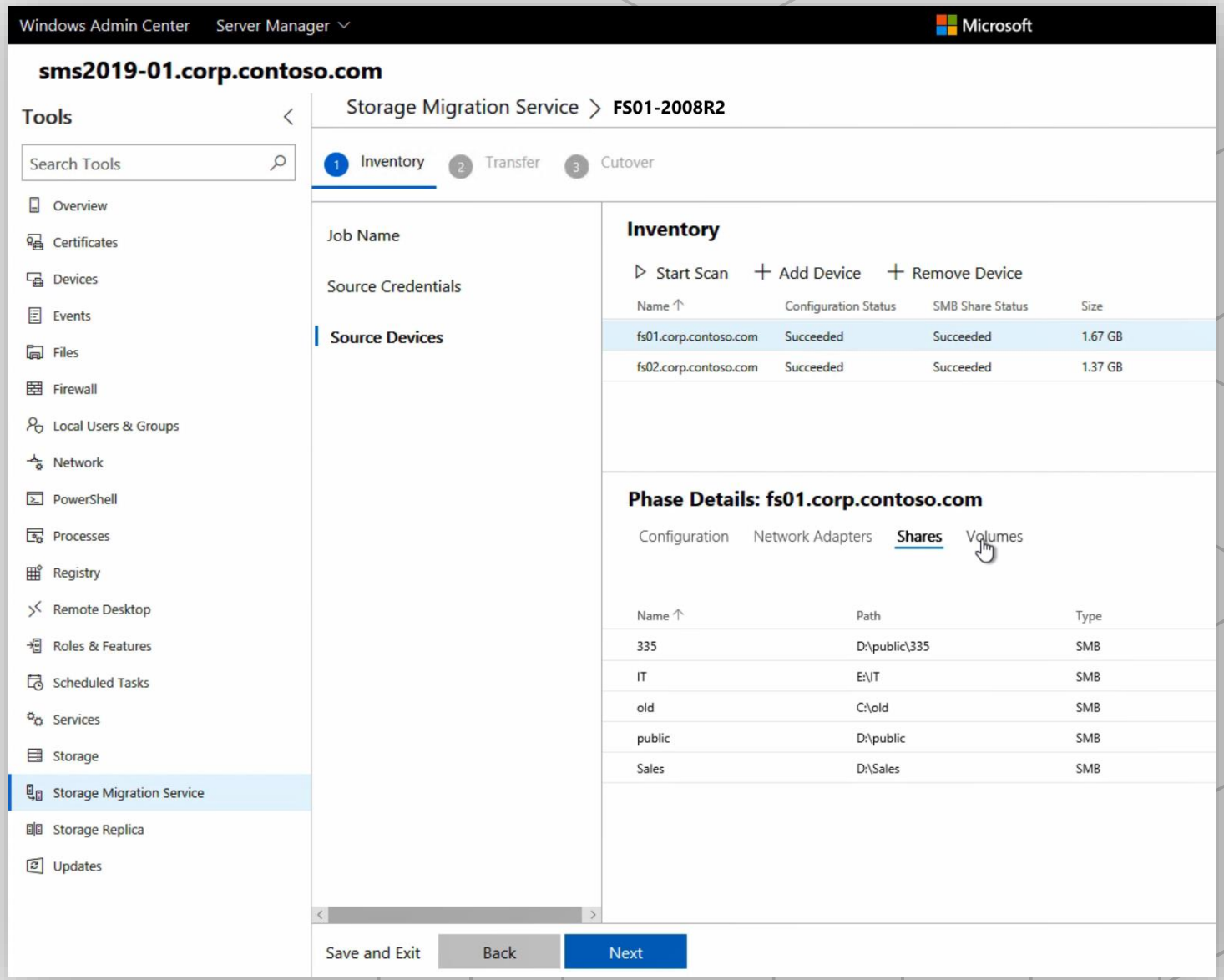
Storage Migration Services

Azure Network Adapter for connection to Azure virtual networks

Windows Admin Center: the hub for hybrid

Windows Admin Center

Over 1.7 Million servers under management!



RDS 2019 and Windows Virtual Desktop

Windows Virtual Desktop ideal if you want…

- Microsoft to manage the brokering platform as a service
- Windows 10 Enterprise multi-session capabilities, free Windows 7 ESU
- Office365 ProPlus capabilities

RDS 2019 ideal if you want…

- full end-to-end control of the desktop virtualization environment
- in-place upgrade of existing Windows Server RDS environment
- to extend current deployments

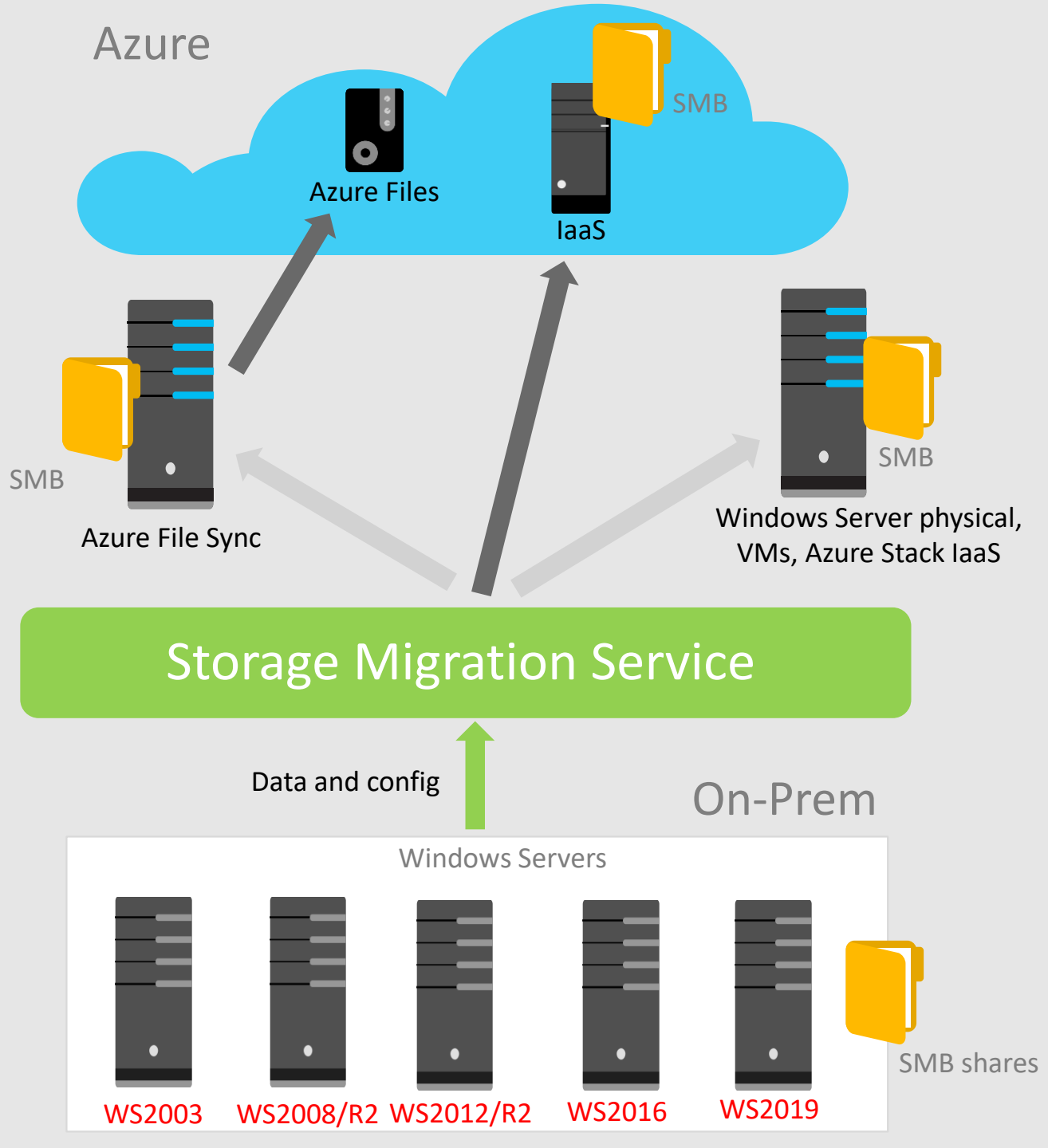
Storage Migration Service Vision

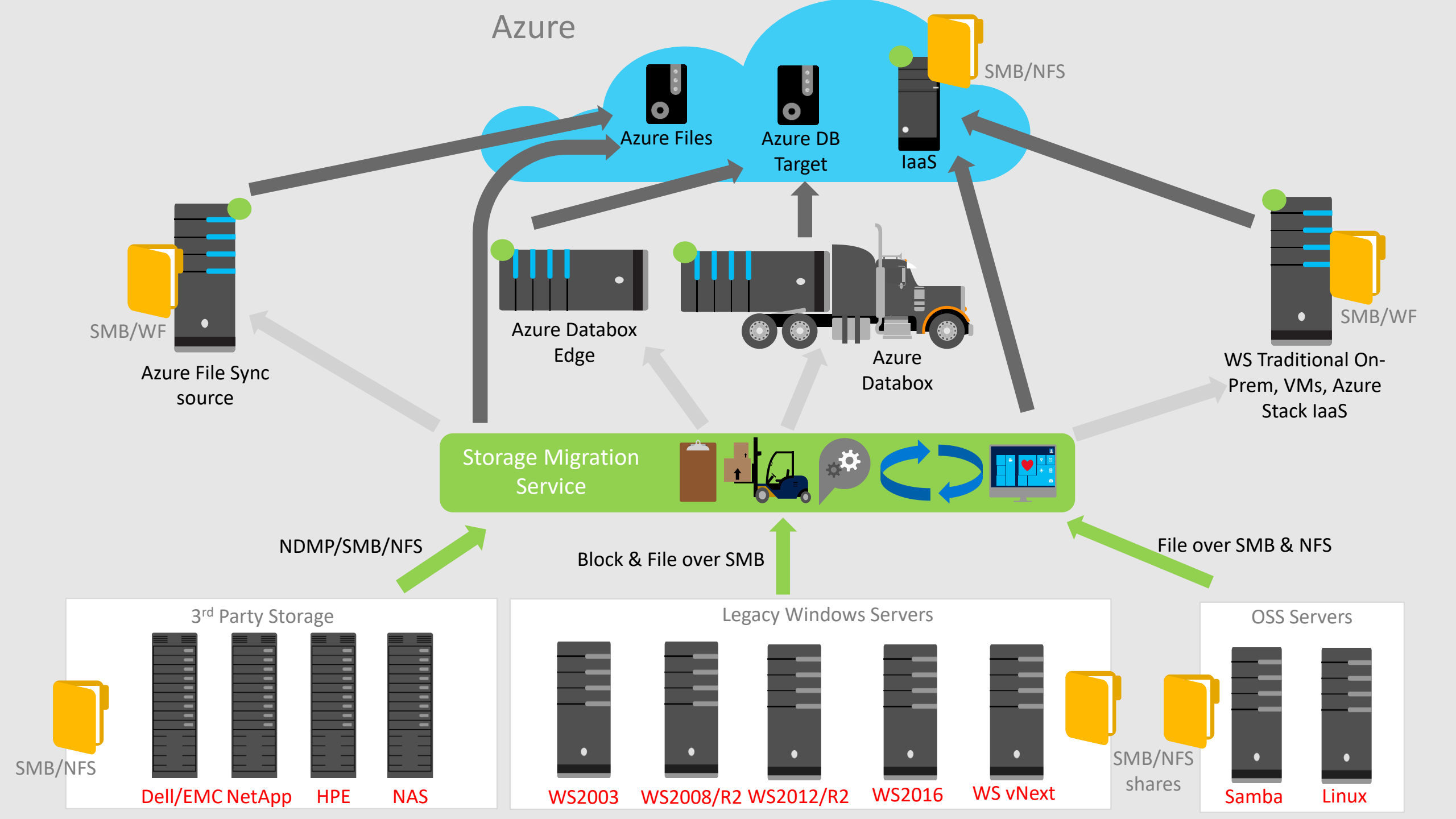
Migrate unstructured data from anywhere into physical, virtual, and IaaS

Fast, consistent, scalable

Takes care of complexity

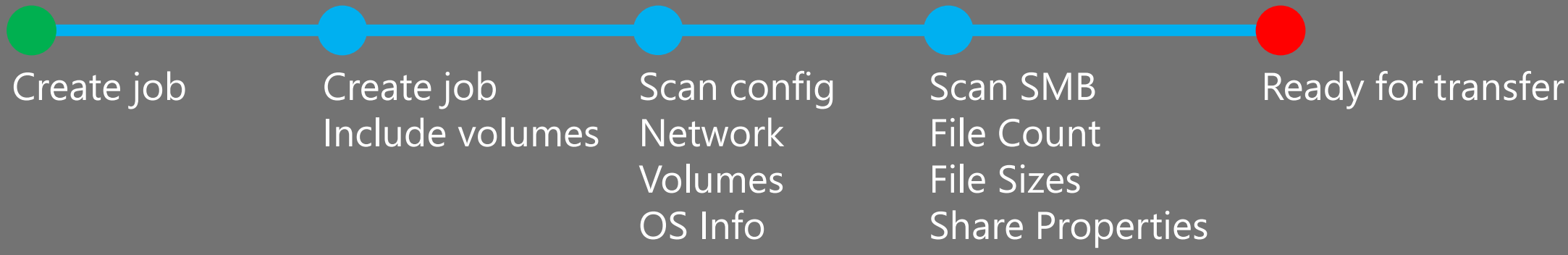
An elegant graphical workflow


Azure
Azure Files
SMB
IaaS
SMB
Azure File Sync
SMB
Windows Server physical,
VMs, Azure Stack IaaS
Storage Migration Service
Data and config
On-Prem
Windows Servers
WS2003
WS2008/R2
WS2012/R2
WS2016
WS2019
SMB shares

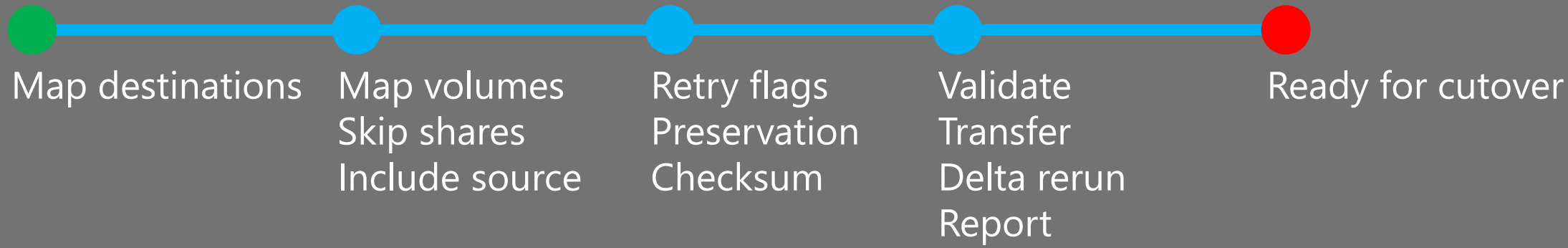

Azure
Azure Files
Azure DB Target
IaaS
SMB/NFS
SMB/WF
Azure File Sync source
Azure Databox Edge
Azure Databox
SMB/WF
WS Traditional On-Prem, VMs, Azure Stack IaaS
Storage Migration Service
NDMP/SMB/NFS
Block & File over SMB
File over SMB & NFS
3rd Party Storage
SMB/NFS
Dell/EMC
NetApp
HPE
NAS
Legacy Windows Servers
WS2003
WS2008/R2
WS2012/R2
WS2016
WS vNext
SMB/NFS shares
OSS Servers
Samba
Linux

Inventory

Passive (no agent)
Run from WS2019 Orchestrator



Transfer


Map destinations
Map volumes
Skip shares
Include source
Retry flags
Preservation
Checksum
Validate
Transfer
Delta rerun
Report
Ready for cutover

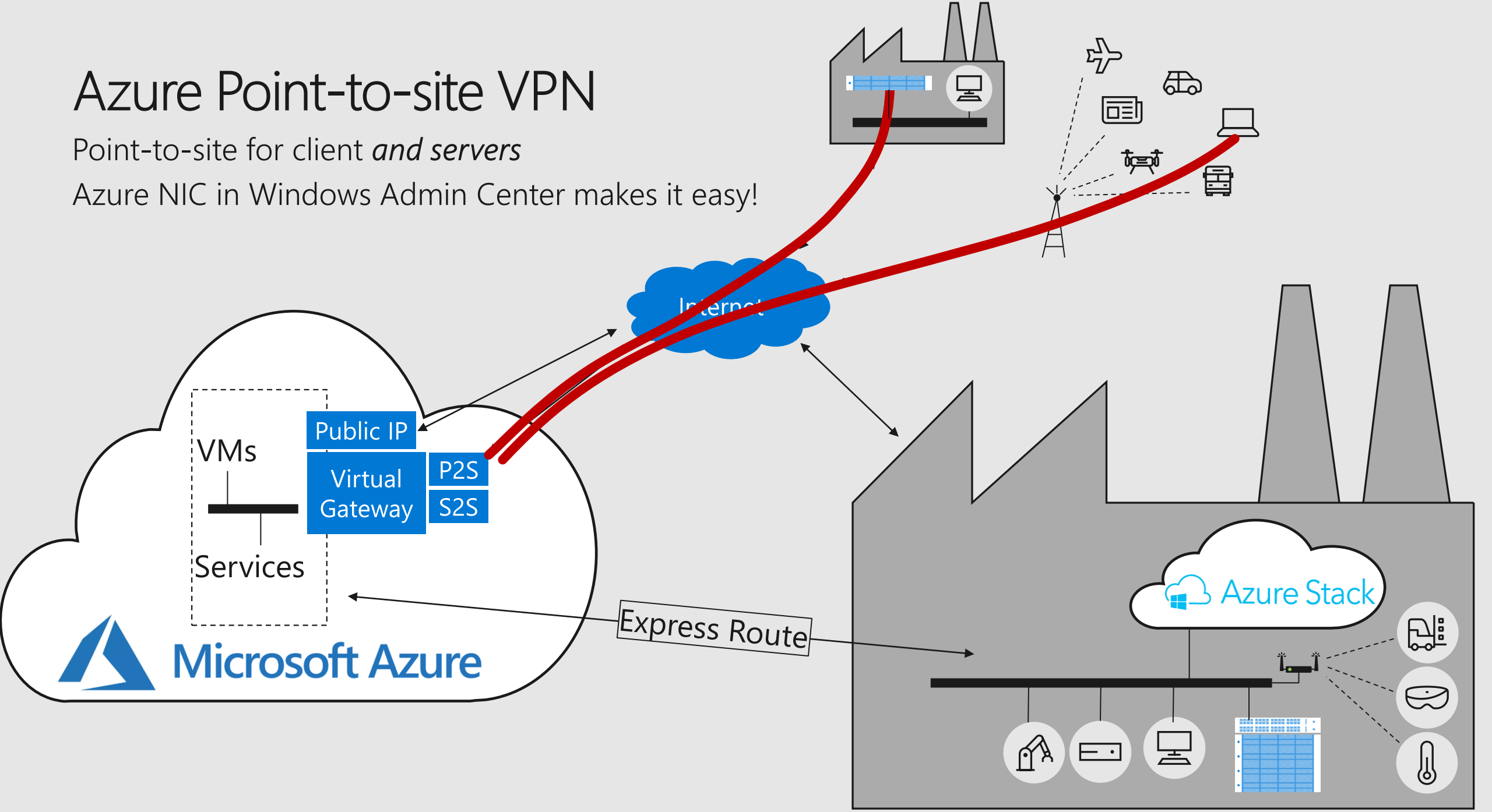
Cutover

Map networks
Set IP
Set new name
Max duration
Validate
Cutover
Job complete

Azure Point-to-site VPN

Point-to-site for client *and servers*

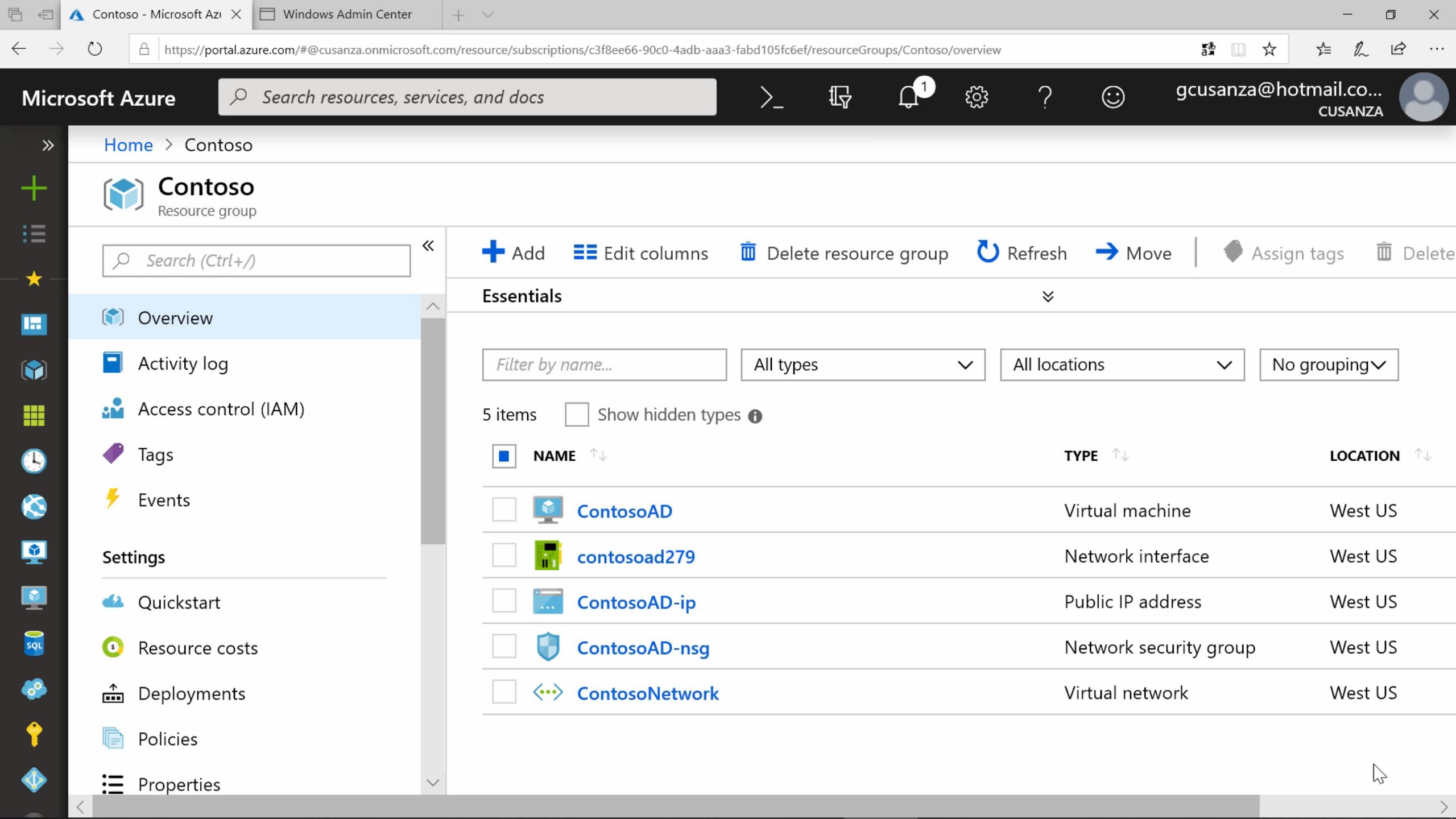
Azure NIC in Windows Admin Center makes it easy!



Azure Network Adapter in Windows Admin Center

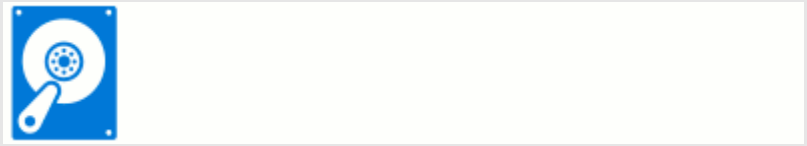
Easy setup for your server to establish a Point-to-site connection to your Azure virtual network.

- Takes care of Azure Virtual Gateway creation
- Handles self-signed certificates, or user generated
- Auto-reconnect is enabled
- Connection is persistent when not logged in


Contoso - Microsoft Azı
Windows Admin Center
https://portal.azure.com/#@cusanza.onmicrosoft.com/resource/subscriptions/c3f8ee66-90c0-4adb-aaa3-fabd105fc6ef/resourceGroups/Contoso/overview
Microsoft Azure
Search resources, services, and docs
gcusanza@hotmail.co...
CUSANZA
Home > Contoso
Contoso
Resource group
Search (Ctrl+/)
Overview
Activity log
Access control (IAM)
Tags
Events
Settings
Quickstart
Resource costs
Deployments
Policies
Properties
Add
Edit columns
Delete resource group
Refresh
Move
Assign tags
Delete
Essentials
Filter by name...
All types
All locations
No grouping
5 items
Show hidden types
NAME
TYPE
LOCATION
ContosoAD
Virtual machine
West US
contosoad279
Network interface
West US
ContosoAD-ip
Public IP address
West US
ContosoAD-nsg
Network security group
West US
ContosoNetwork
Virtual network
West US

How does Deduplication Work in Windows 2019

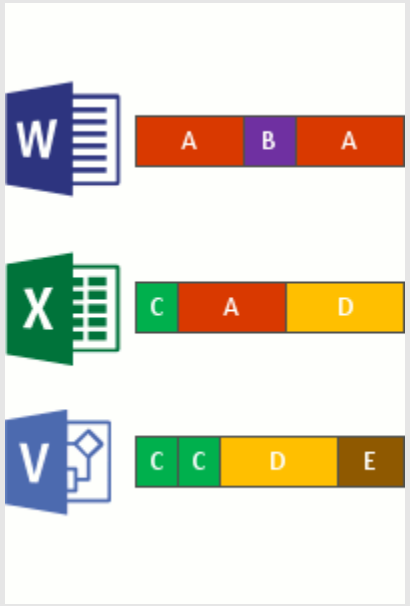
- #1 – Scans the Files system for files meeting the optimization policy



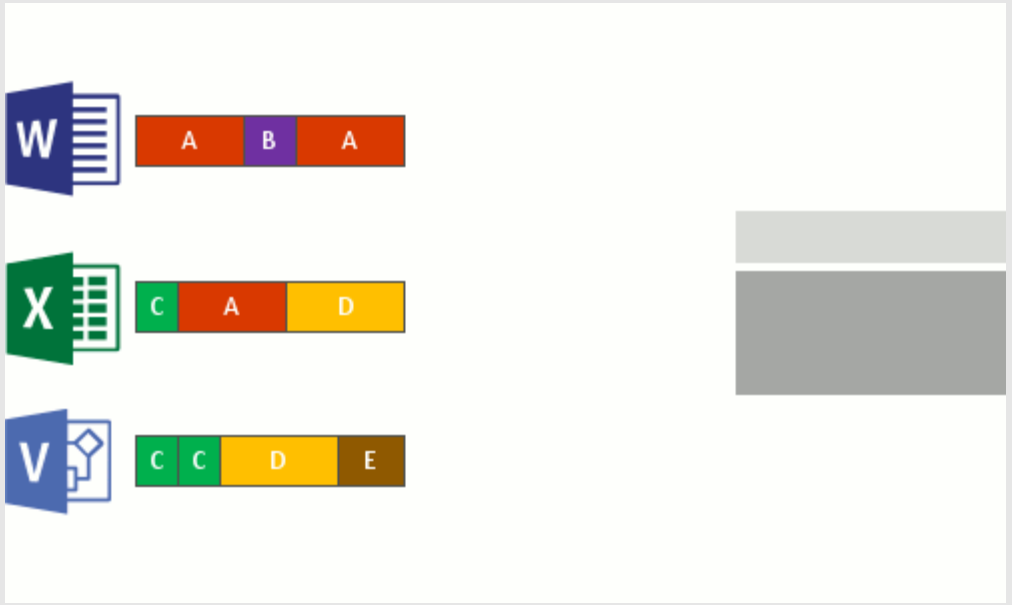
- #2 – Breaks the files into Variable Sized Chunks

How does Deduplication Work in Windows 2019

#3 – Identifies unique chunks



#4 – Places the files in the chunk store and optionally compresses



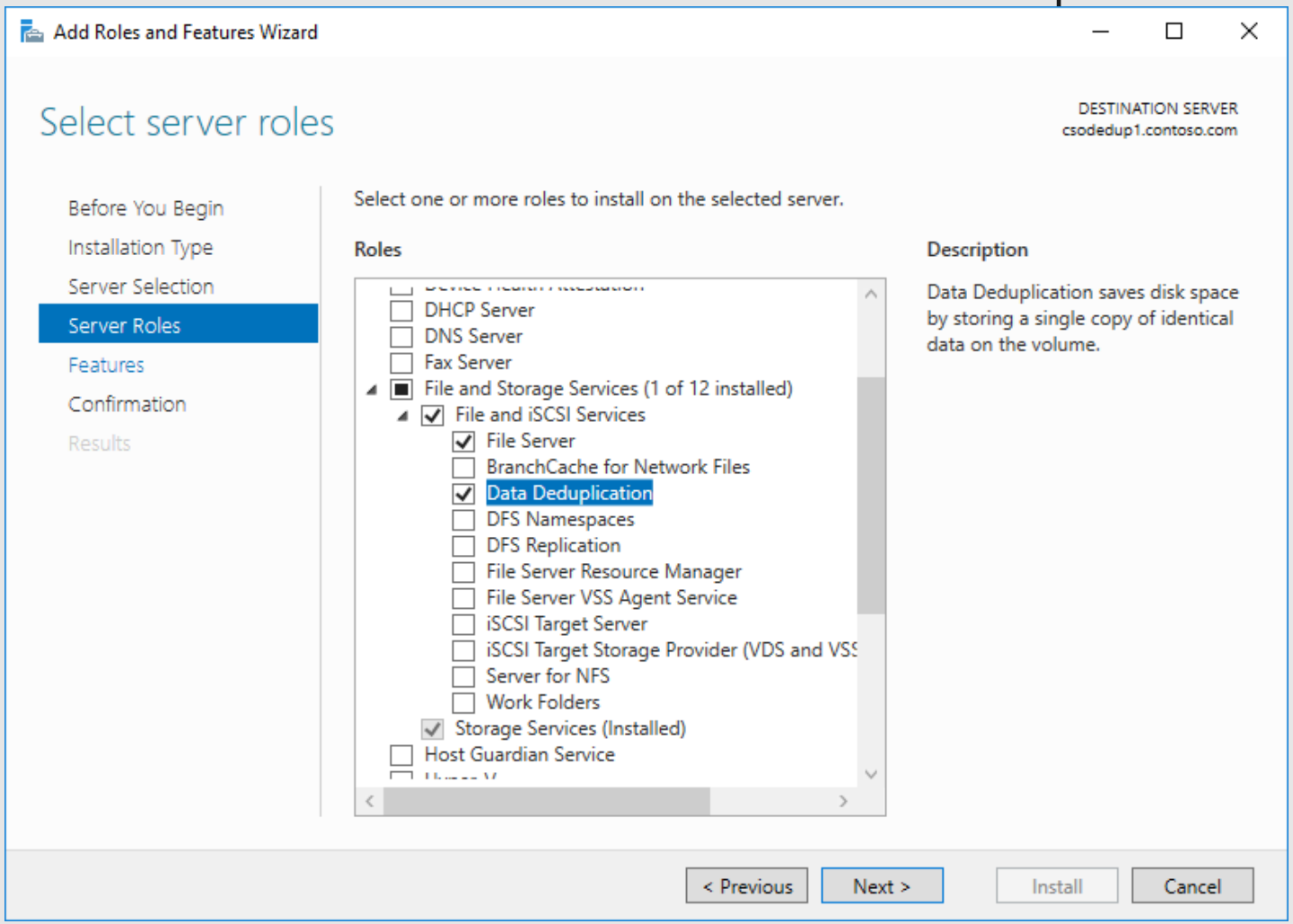
How does Deduplication Work in Windows 2019

#5 – Replace the original file with a reparse point to the chunk store

#6 – Files are read via the Deduplication Filter Driver dedup.sys

Installing Deduplication in Windows Server 2019

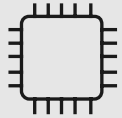
- Install-WindowsFeature -Name FS-Data-Deduplication



Predictive Analytics for the Intelligent Edge

Volume consumption forecasting

Total storage consumption forecasting



CPU capacity forecasting

Network capacity forecasting

System Insights is a platform allows adding new capabilities across future releases.

Insights server

Tools

Search

- Overview
- Certificates
- Devices
- Events
- Files
- Firewall
- Insights
- Local Users & Groups
- Networks
- Processes
- Registry
- Roles & Features
- Services
- Storage
- Storage Replica
- Virtual Machines
- Virtual Switches
- Windows Update

Insights

Invoke | Settings

Capability	State	Status	Description	Last Run
Total storage consumption forecasting	Enabled	OK	Not expected to exceed capacity	5/1/18 3:00 AM
Volume consumption forecasting	Enabled	Alert	One volume expected to exceed capacity in 3 days	5/1/18 3:00 AM
Volume A	-	OK	Not expected to exceed capacity	5/1/18 3:00 AM
Volume B	-	Warning	Expected to exceed capacity in 24 days	5/1/18 3:00 AM
Volume C	-	Alert	Expected to exceed capacity in 3 days	5/1/18 3:00 AM
Volume D	-	OK	Not expected to exceed capacity	5/1/18 3:00 AM
CPU capacity forecasting	Enabled	OK	Not expected to exceed capacity	5/1/18 3:00 AM
Network capacity forecasting	Enabled	OK	Not expected to exceed capacity	5/1/18 3:00 AM

Insights server

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- Virtual Switches
- Windows Update

Insights > Volume consumption forecasting

Invoke | Settings | Manage disk

Overview

Current status	Forecast	Last run	Schedule
Critical alert	**Expected to exceed capacity in 3 days**	5/1/2018 3:00 AM	Every 3 days

Forecast

All | 6 months | 3 months | 1 month

Volume A

Volume B

Volume B expected to exceed capacity in 3 days

View 3 suggested actions

Volume C

Volume C

Volume D

Insights server

Tools

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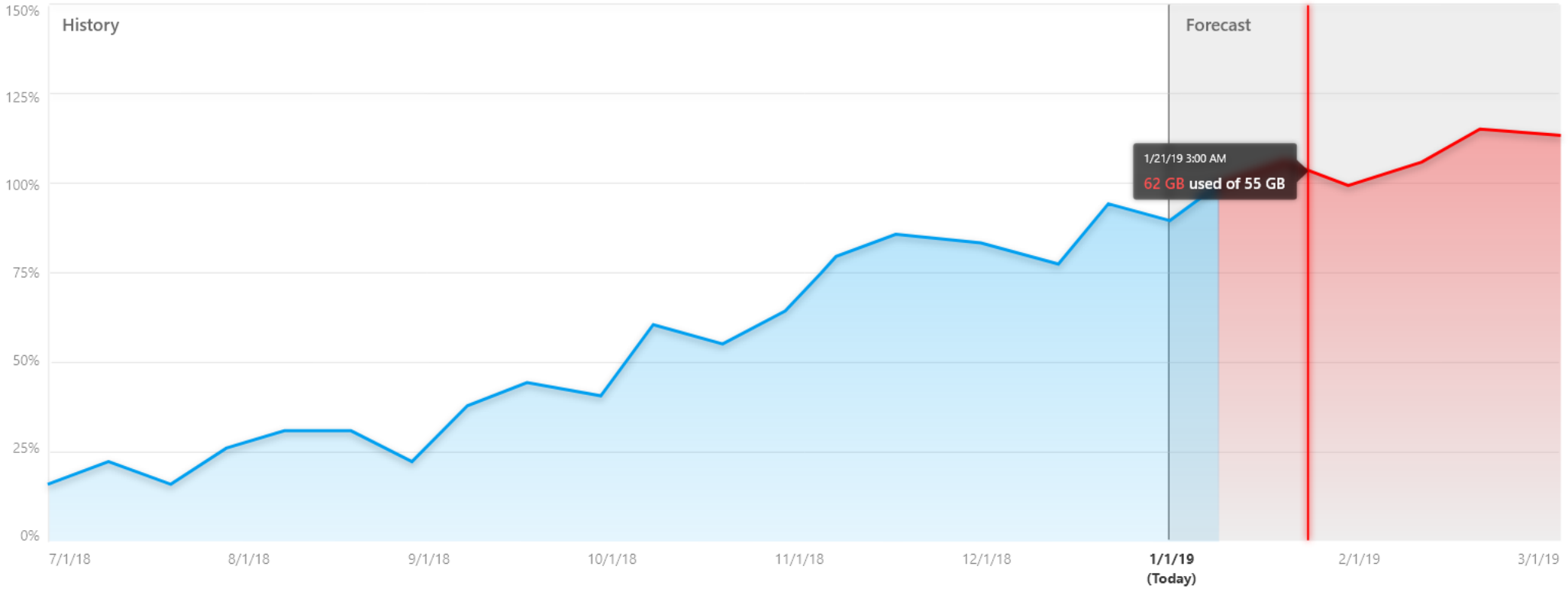
- Registry
- Roles & Features
- Services
- Storage
- Storage Replica
- Virtual Machines
- Virtual Switches
- Windows Update

Volume B forecast

Volume B is expected to exceed storage capacity in 3 days

All | 6 months | 3 months | 1 month



Suggested actions

Extend volume

Brief description of extend volume and how it works in this scenario.

Extend volume

Azure File Sync

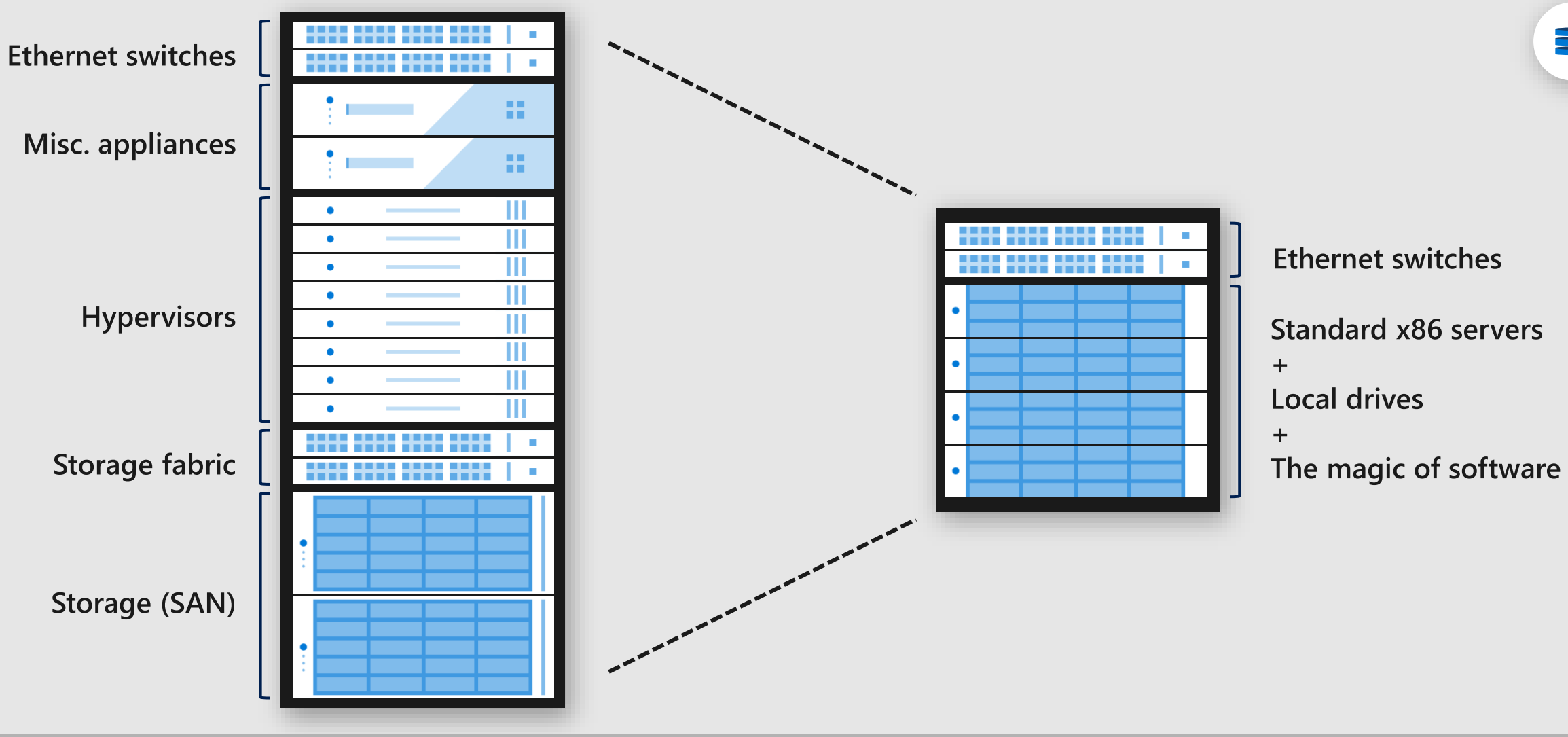
Brief description of Azure File Sync and how it works in this scenario.

Azure File Sync

Disk cleanup

Brief description of disk cleanup and how it works in this scenario.

Disk cleanup


Ethernet switches
Misc. appliances
Hypervisors
Storage fabric
Storage (SAN)
Ethernet switches
Standard x86 servers
+
Local drives
+
The magic of software
Traditional Infrastructure
Hyper-Converged Infrastructure (HCI)

Unprecedented hyper-converged infrastructure

Evolve your datacenter infrastructure to achieve
greater efficiency and security

Windows Admin Center management

Best for two-node HCI at the edge

Industry-leading performance and scale

Storage Class Memory support

Enhanced security capabilities

Elevate your security posture by protecting the datacenter starting with the operating system

Shielded VMs for Linux

Integrated Windows Defender ATP

Exploit Guard

System Guard Runtime

Windows Server 2016

Initial launch of containers

Process and Hyper-V isolation

Docker EE Basic Included at no additional cost

Windows Server, version 1709

Optimized container images for Nano Server and Server Core

Platform level support for Linux containers

Windows Subsystem for Linux

Networking enhancements for overlays and SDN

Windows Server, version 1803

Optimized Server Core image

App compat improvements

Native command line tools—curl.exe, tar.exe and SSH

Enhancements to the Windows Subsystem for Linux

Networking enhancements for greater density and quicker endpoint creation

Improved network security with Calico Open source storage plugins for Kubernetes

Platform functionality required for Kubernetes conformance

Windows Server 2019

Optimized Server Core image

App compat improvements

Enhanced Group Managed Service Account support

Platform functionality for Kubernetes and Microsoft Service Fabric

Performance and density improvements

Platform and open source work on CNI networking plugins such as Calico and Flannel

Enhancements to the Windows Subsystem for Linux

...you will have to wait

Application Innovation

Faster innovation for applications

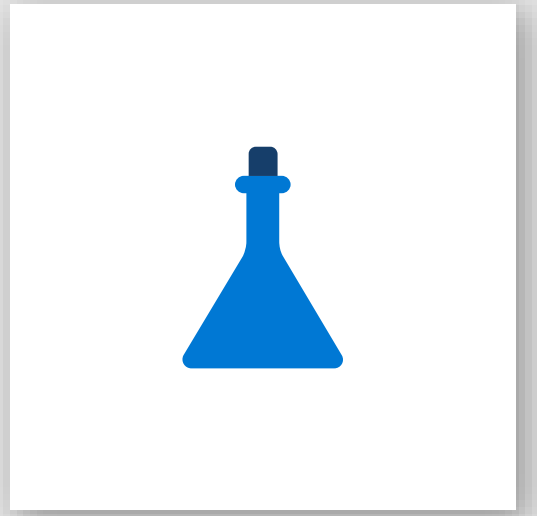
Enable developers and IT pros to create cloud native, modernize their traditional apps using containers and micro-services

Linux Containers on Windows host

Service Fabric & Kubernetes for container orchestration

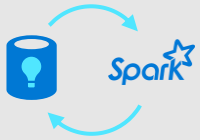
Windows Subsystem for Linux

Optimized Images for Server Core and Nano Server



SQL Server 2019 Preview

1. Harness the power of big data



Big data clusters with scalable compute and storage composed of SQL Server, Spark, and HDFS. Cache data in scale-out data marts.

2. Bring AI to your workloads

A complete AI platform to train and operationalize models in SQL Server ML Services or Spark ML using Azure Data Studio notebooks.

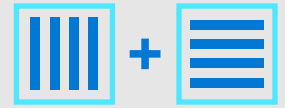
3. Eliminate the need for data movement

Data virtualization allows queries across relational and non-relational data without movement or replication.

4. Explore and interact with visual data

Visual data exploration and interactive analysis using SQL Server BI tools and Power BI Report Server.

5. Run real-time analytics on operational data



In-memory technologies for analytics on operational data using HTAP. Higher concurrency and scale through persistent memory.

6. Automatically tune SQL Server

Intelligent Query Processing improves scaling of queries and Automatic Plan Correction resolves performance problems.

7. Reduce database maintenance and increase business uptime

Greater uptime with more online indexing operations. Now run Always On availability groups on containers using Kubernetes.

8. Boost security and protect data in use

SQL Server enables layers of security including protection of computations in Always Encrypted secure enclaves.

9. Track compliance with sophisticated resources

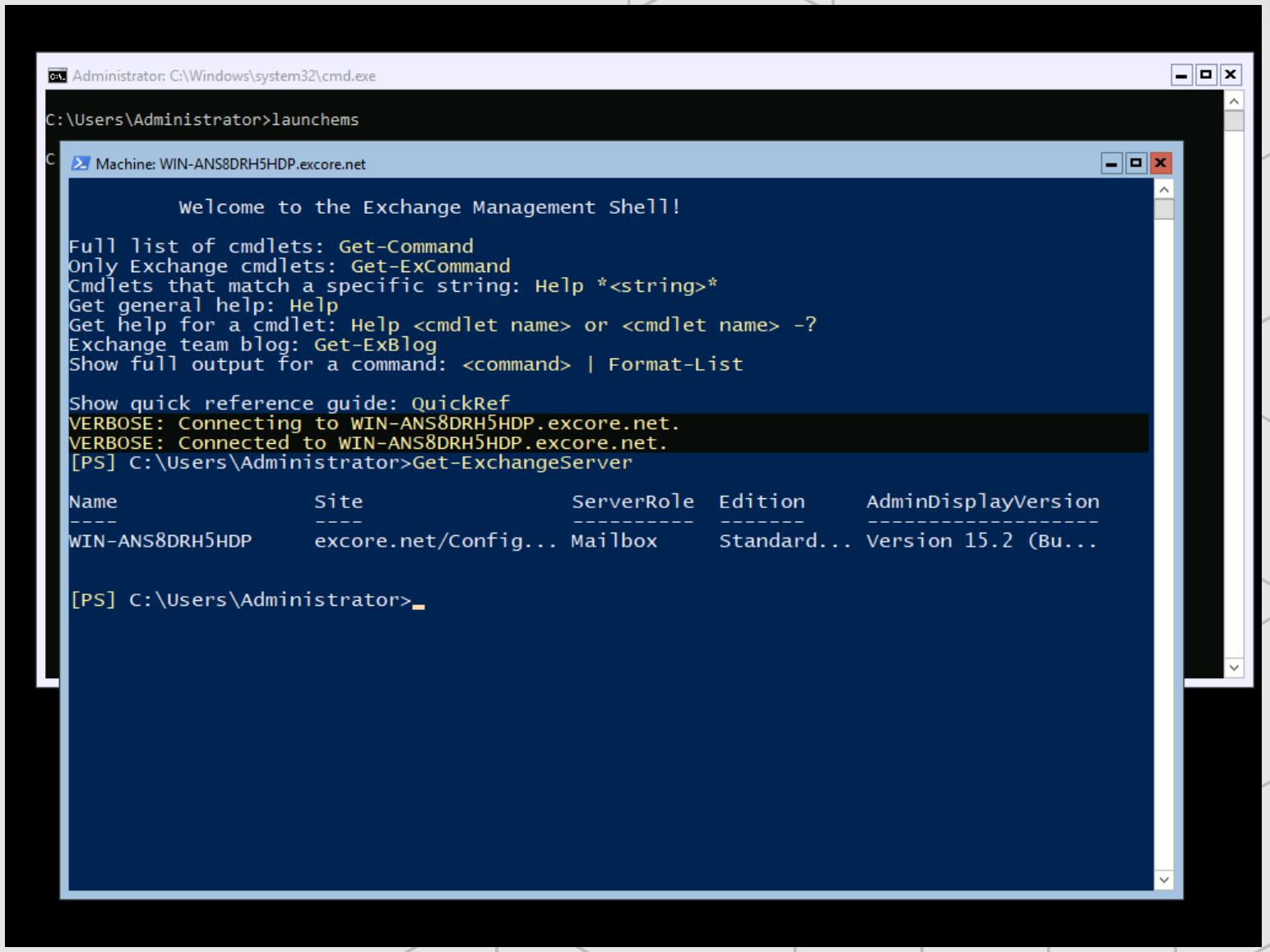
Data Discovery & Classification labeling for GDPR and Vulnerability Assessment tool to track compliance.

10. Optimize with choice and flexibility

Support for your choice of Windows, Linux, and containers. Run Java code on SQL Server and store and analyze graph data.

Exchange Server 2019 Preview

Now supported in Server Core!



System Center 2019

Support Windows Server 2019

Best-in-class Operations

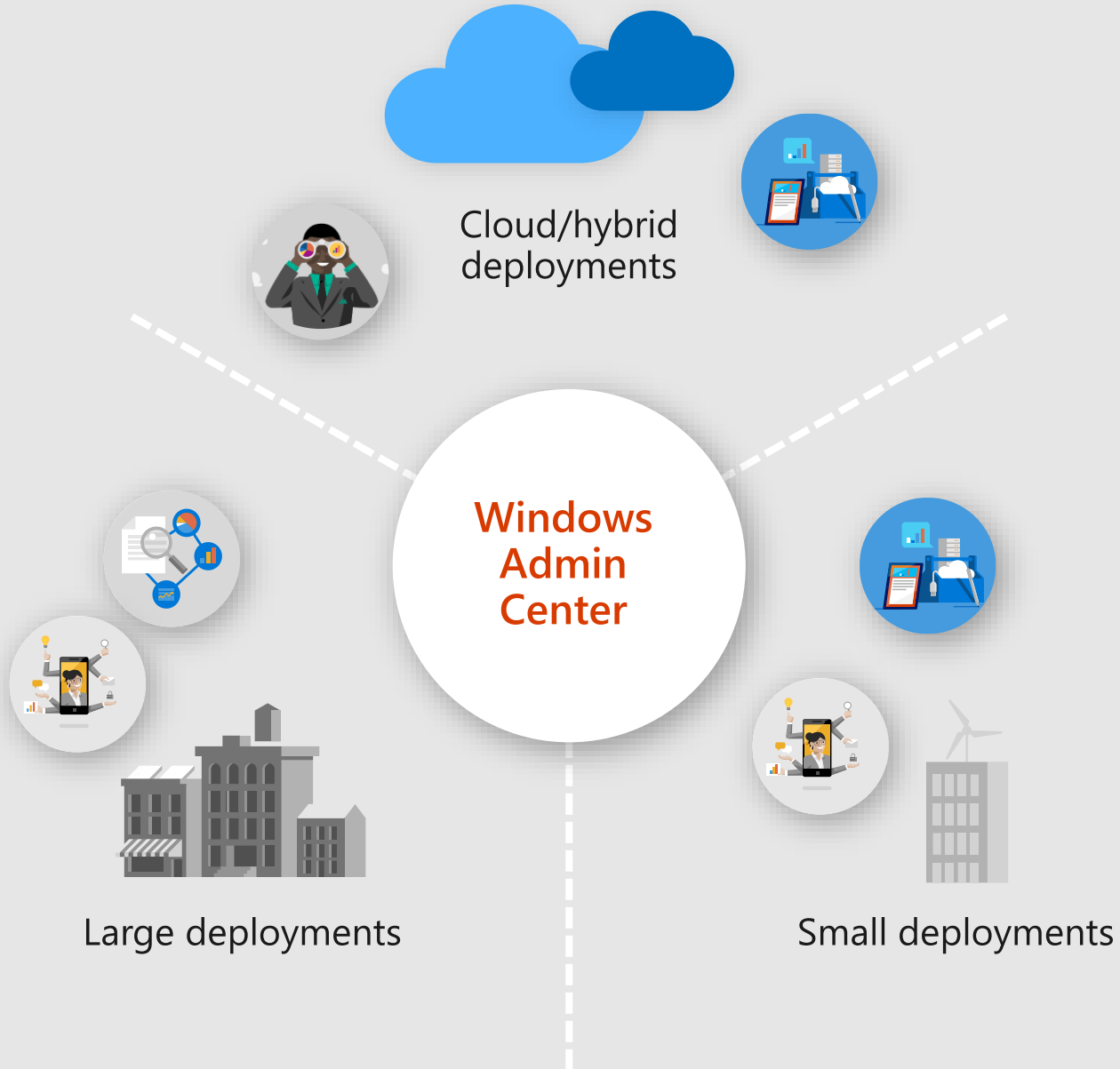
Extensible management to multiple systems

Azure integration

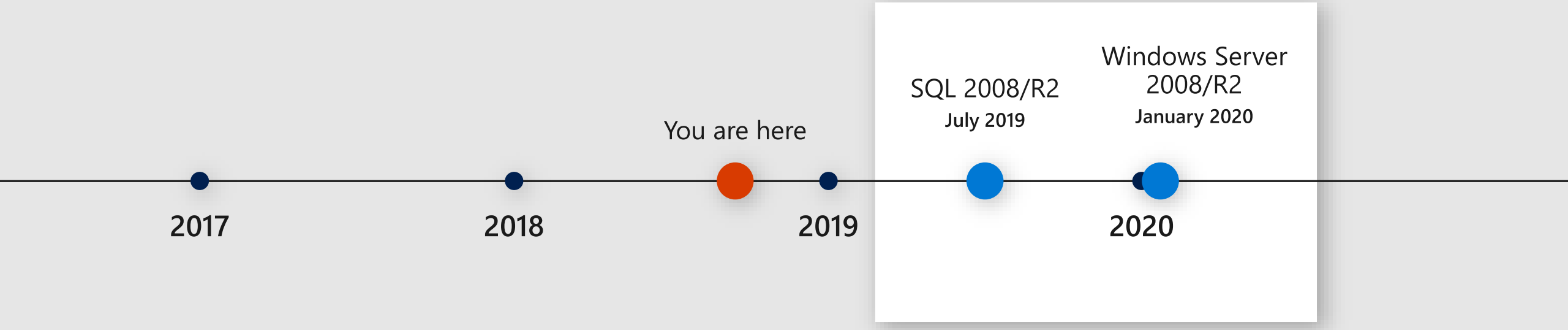
Coming in H1 2019

Windows Admin Center complements existing management solutions

- Azure security and management
- System Center
- Remote Server Administration Tools
- Remote Desktop + in-box tools

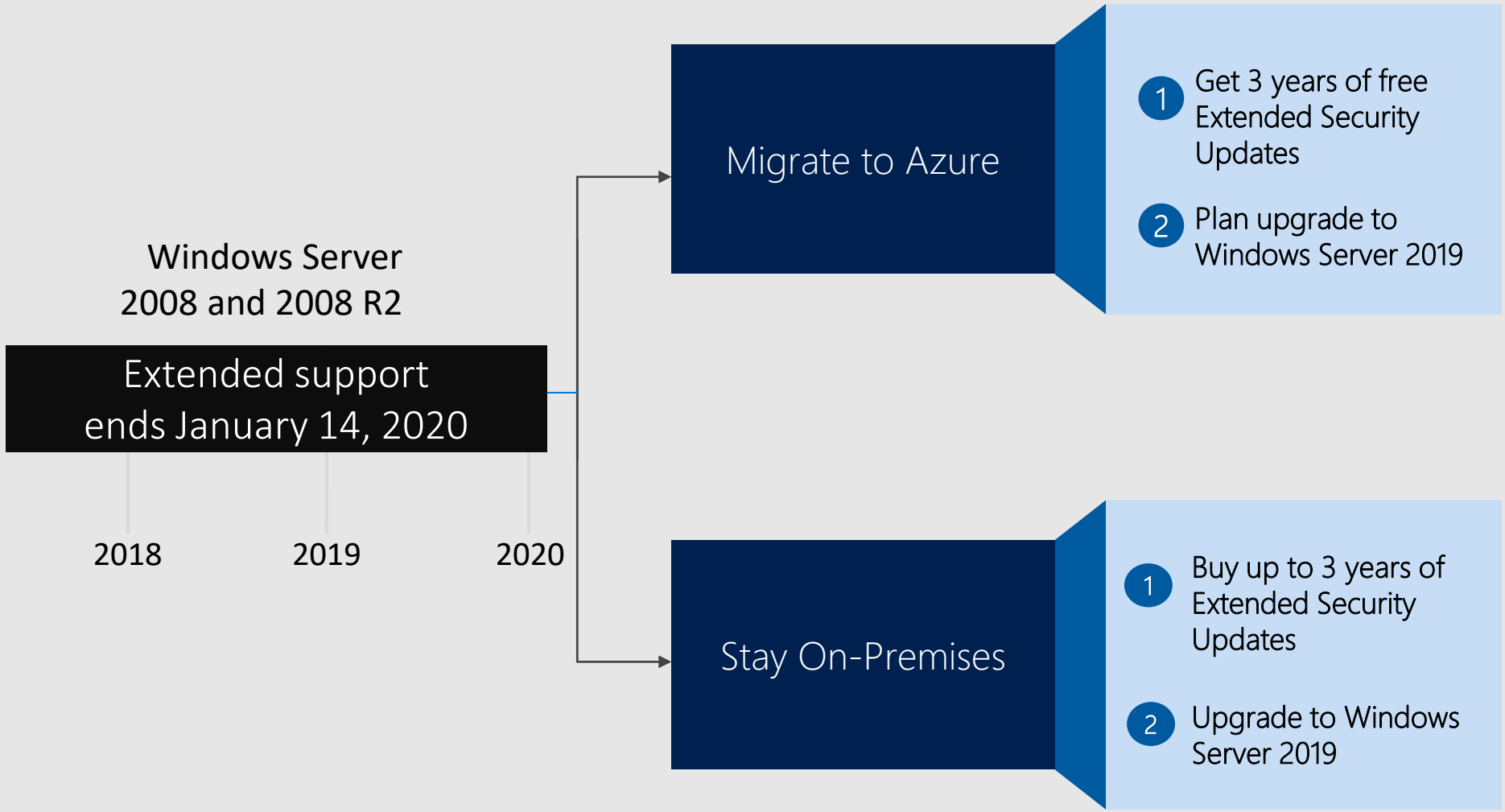


Time to upgrade the platforms



Free on Azure

Customer Options for 2008 End of Support



Pricing

Windows Server 2019 edition	Ideal for	Licensing model	CAL requirements [1]	Pricing Open NL ERP (USD) [3]
Datacenter [2]	Highly virtualized datacenters and cloud environments	Core-based	Windows Server CAL	$6,155
Standard [2]	Physical or minimally virtualized environments	Core-based	Windows Server CAL	$972
Essentials	Small businesses with up to 25 users and 50 devices	Specialty servers (server license)	No CAL required	$501

[1] CALs are required for every user or device accessing a server. See the Product Use Rights for details.

[2] Datacenter and Standard edition pricing is for 16 core licenses.

[3] Pricing is shown in USD and may vary from country to country. Please contact your Microsoft representative for a quote.

Compare to Server 2016
Datacenter = $6,155
Standard = $882

Feature	Standard edition	Datacenter edition
Core Windows Server functionality	●	●
Hybrid Integration	●	●
Hyper-Converged Infrastructure	○	●
OSEs*/Hyper-V containers	2 [*]	Unlimited
Windows Server containers	Unlimited	Unlimited
Host Guardian Service	●	●
Storage Replica	● [**]	●
Shielded virtual machines (VMs)	○	●
Software-defined networking	○	●
Software-defined storage	○	●

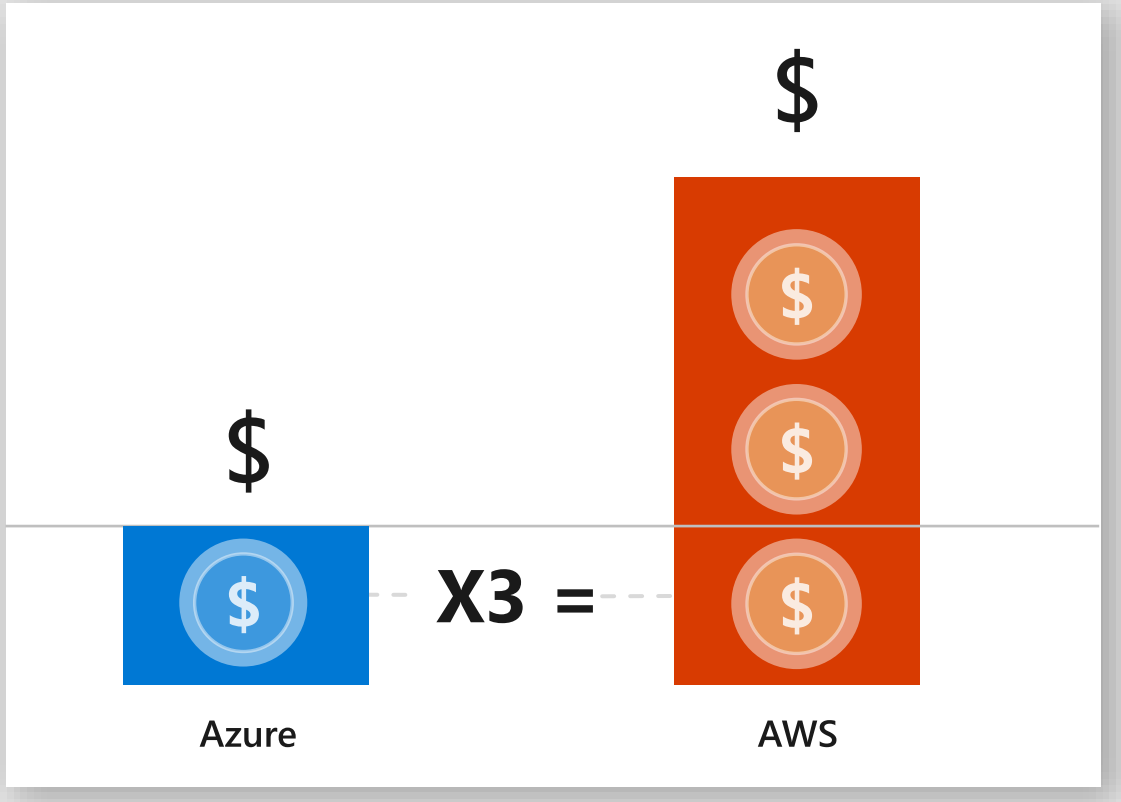
[*] Windows Server Standard Edition license includes permission for two OSEs or VMs

[**] Limited to single volume up to 2TB.

Huge savings for Windows Server and SQL Server on Azure

+ Azure Reserved Instances

+ Azure Hybrid Benefit

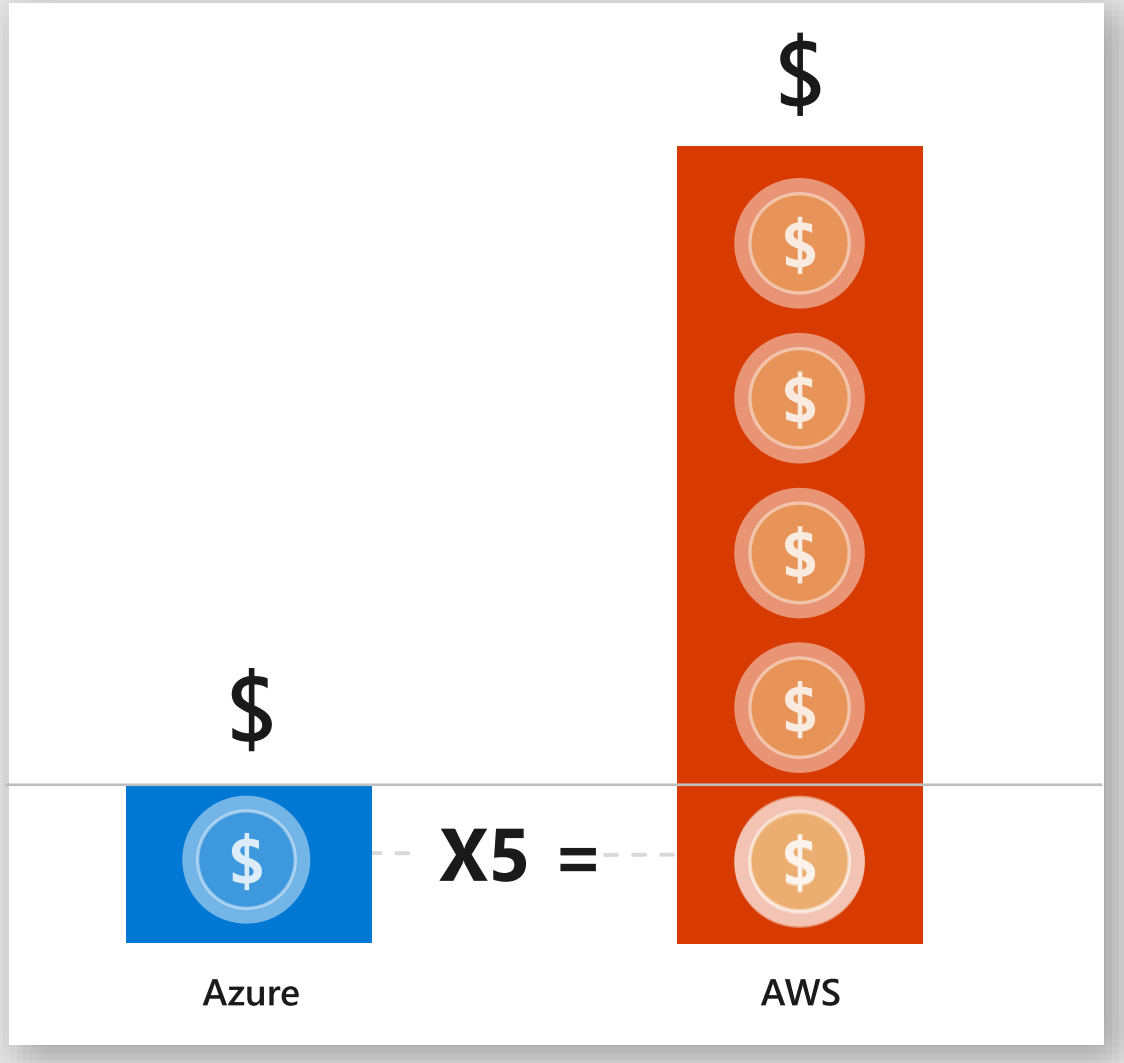


Save MORE for Windows Server and SQL Server 2008/R2 on Azure

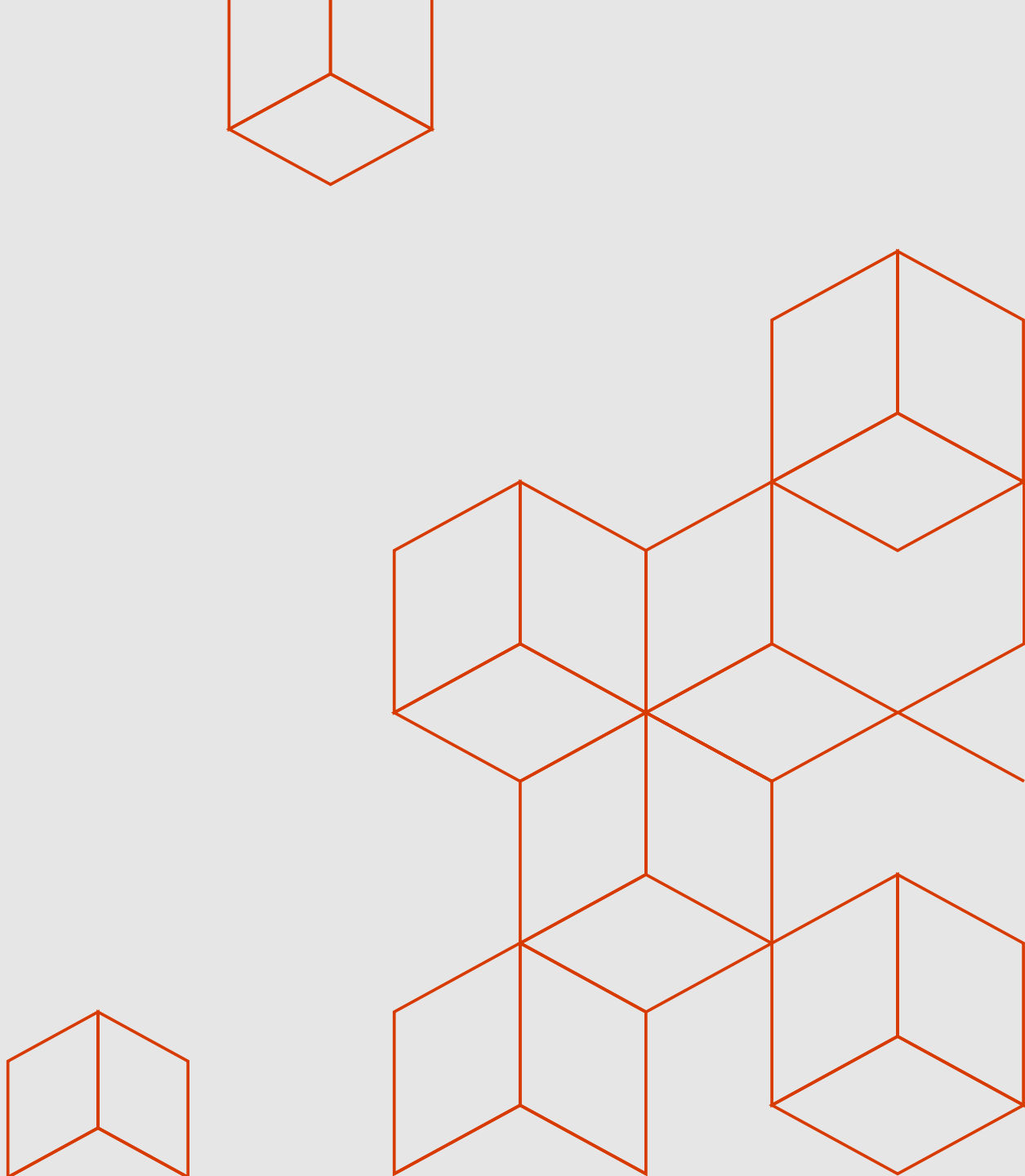
+ Azure Reserved Instances

+ Azure Hybrid Benefit

+ Free Extended Security Updates

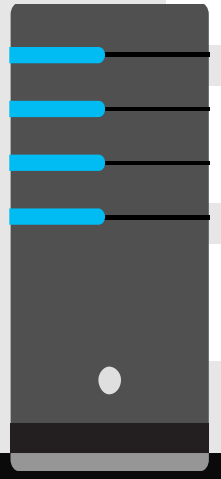


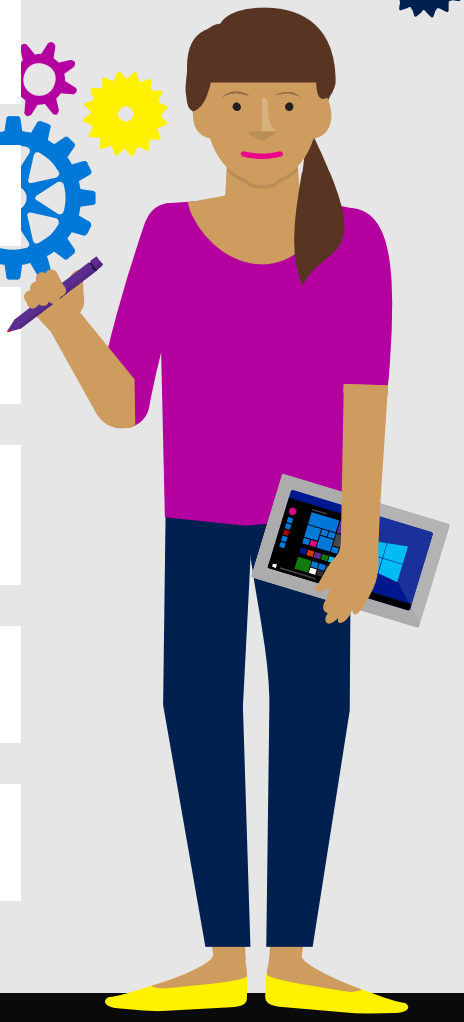
What’s next?



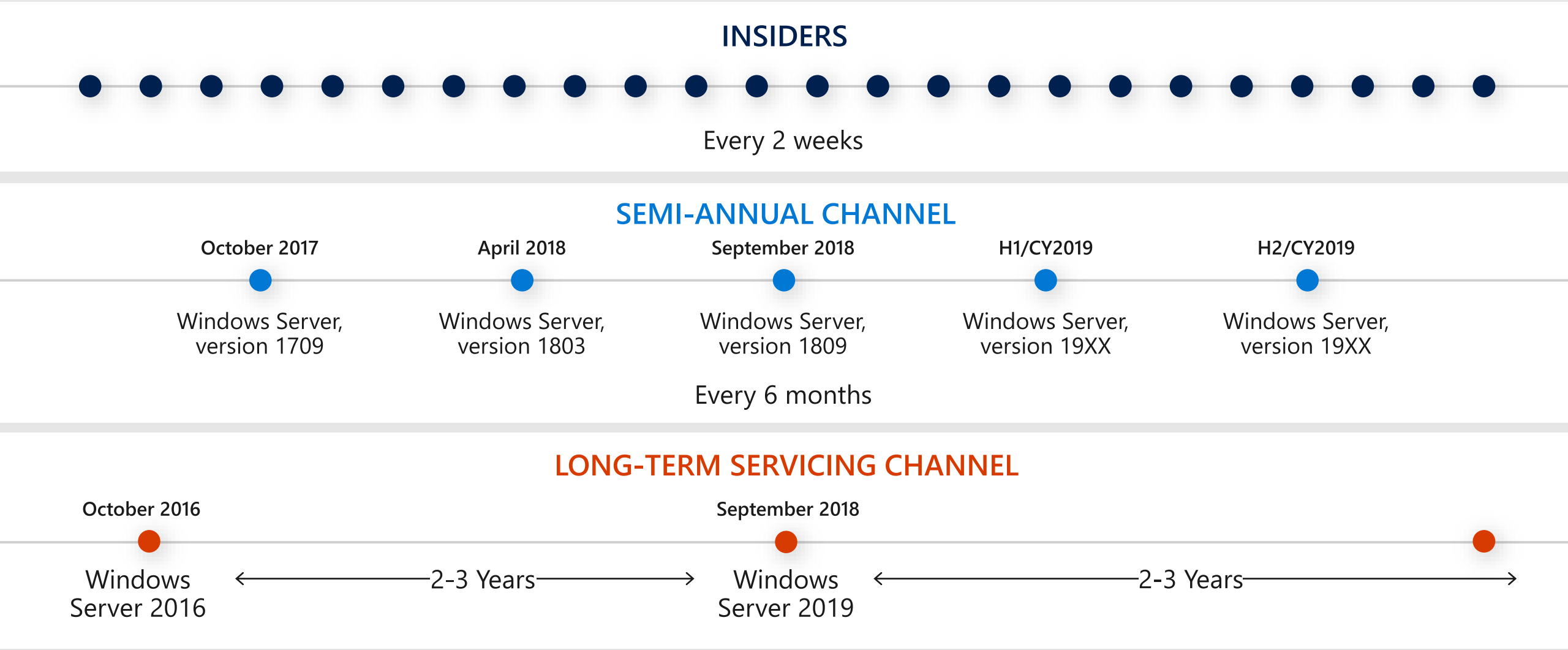
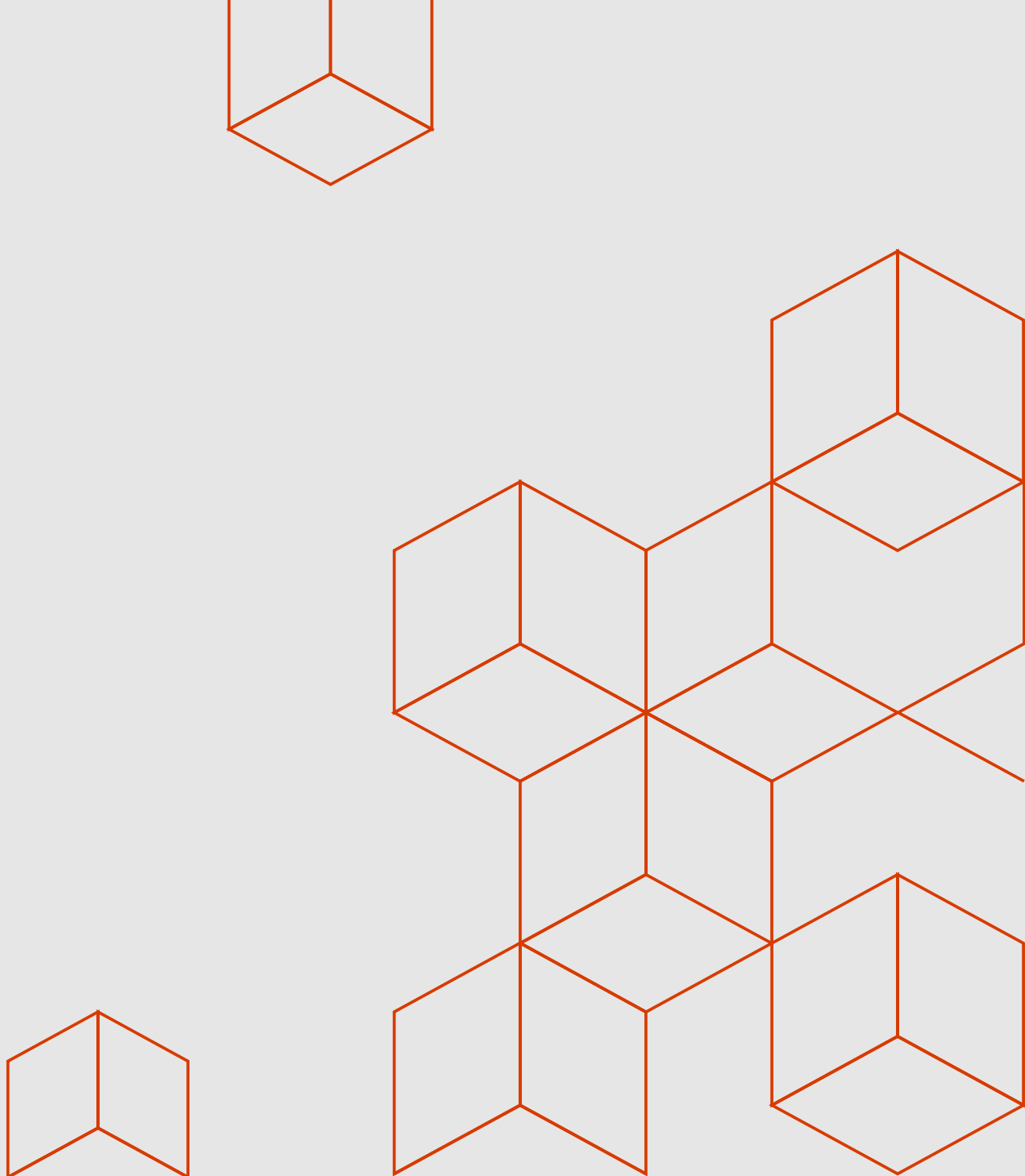
Microsoft

	Long-Term Servicing Channel	Semi-Annual Channel
RECOMMENDED SCENARIOS	**General purpose** file servers, first and third-party workloads, traditional, apps, and other infrastructure roles	Containerized applications, container hosts, and application scenarios benefiting from **faster innovation**
NEW RELEASE	Every **2–3** years	Every **6** months
SUPPORTED FOR	**5** years of Mainstream support **+5** years of Extended support	**18** months
EDITIONS	**All** available Windows Server editions	**Standard** and **Datacenter**
WHO CAN USE	**All** customers through all channels	**Software Assurance** and **Cloud** customers only
INSTALLATION OPTIONS	**Server Core** and **Server with Desktop Experience**	**Server Core** and **Nano Server** container image





Looking forward



Thanks!