Hybrid IT
Migration - Der Weg in die Cloud

Eric Berg
COMPAREX AG

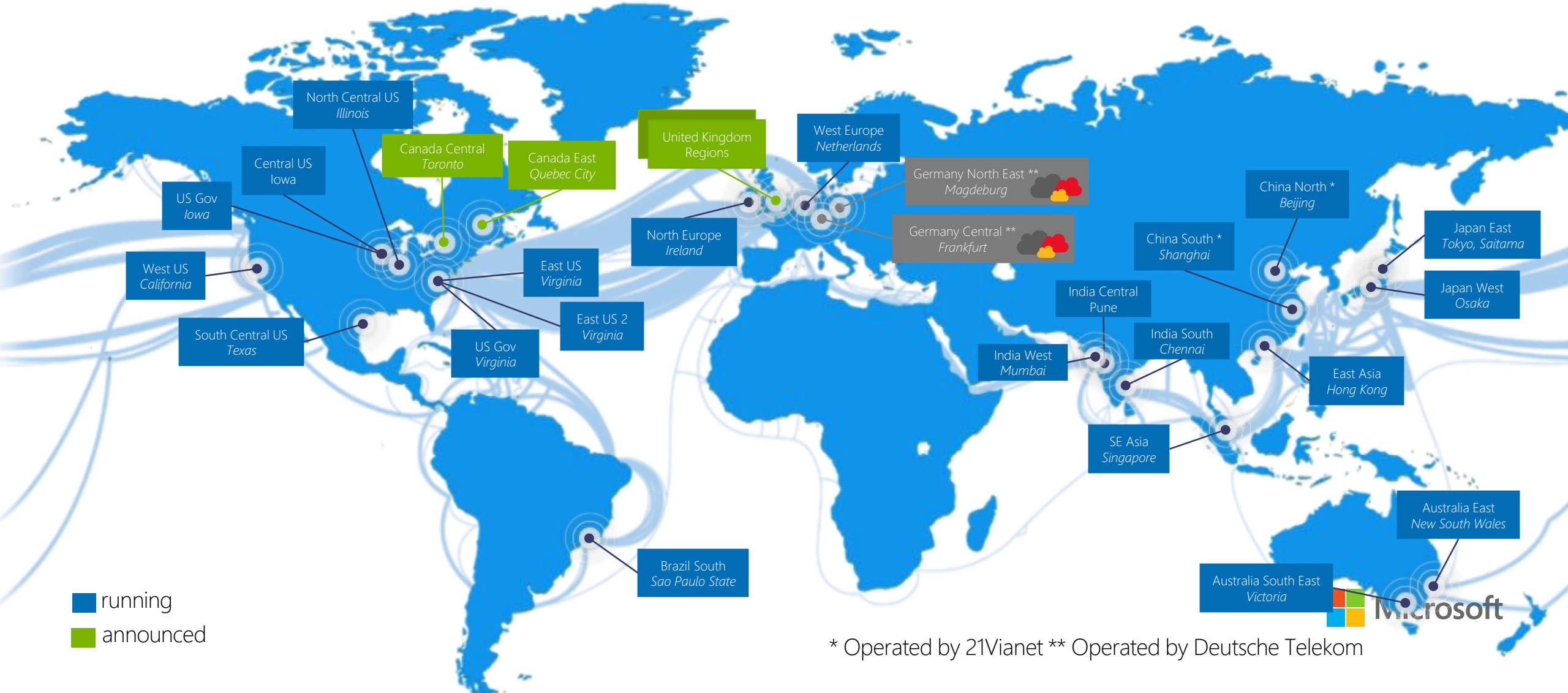
Benedict Berger
Microsoft

Technical Summit 2016

connecting.technologies.

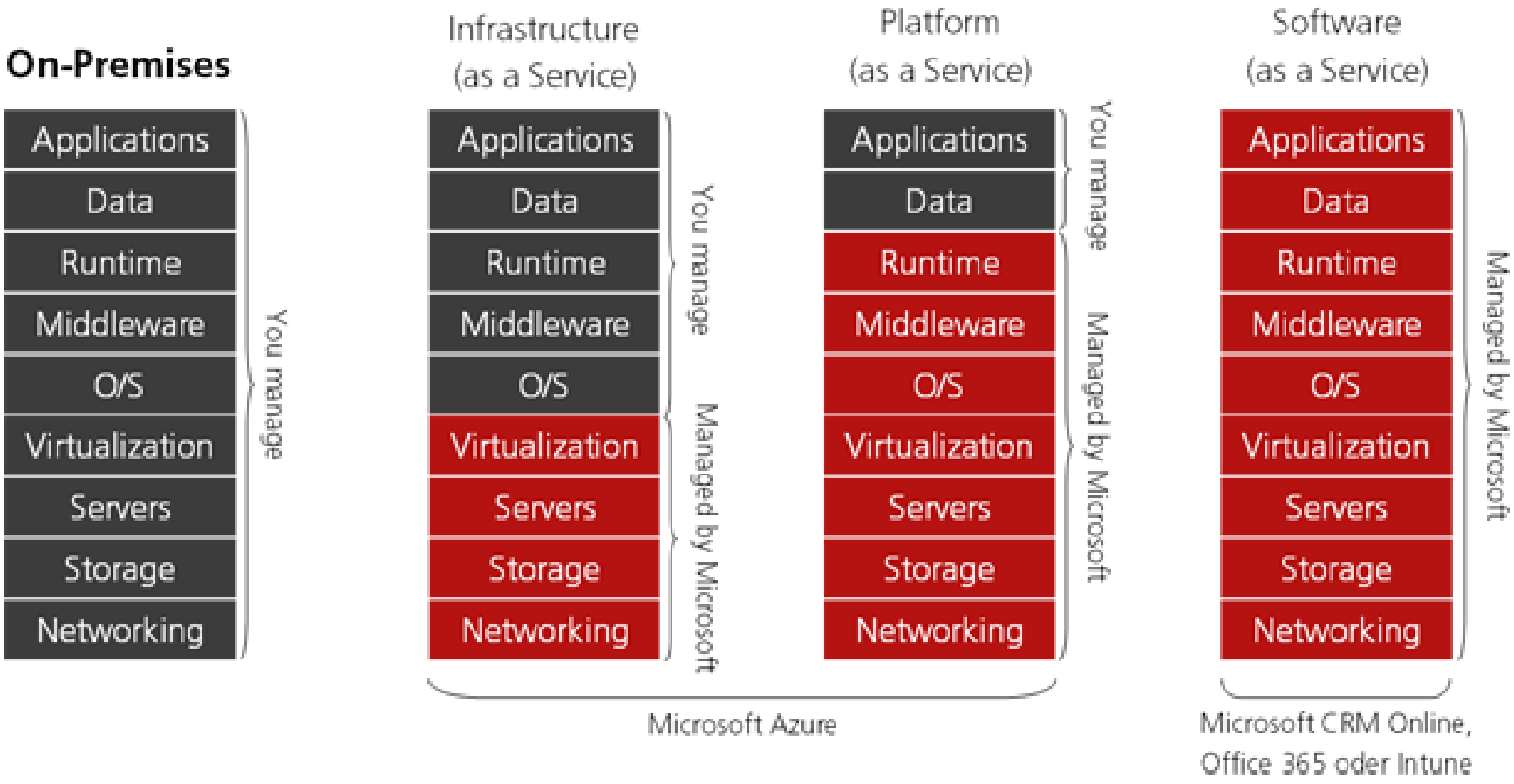
#msts2016

Microsoft Azure - Weltweit



* Operated by 21Vianet ** Operated by Deutsche Telekom

Azure Management



Microsoft

Platform Services

Quelle: Microsoft

Security & Management

- Portal
- Azure Active Directory
- Azure AD B2C
- Multi-Factor Authentication
- Automation
- Scheduler
- Key Vault
- Store/ Marketplace
- VM Image Gallery & VM Depot

Services Compute

- Cloud Services
- Service Fabric
- Batch
- RemoteApp

Integration

- Storage Queues
- BizTalk Services
- Hybrid Connections
- Service Bus

Media & CDN

- Media Services
- Content Delivery Network (CDN)

Web and Mobile

- Web Apps
- API Apps
- Mobile Apps
- Logic Apps
- API Management
- Notification Hubs

Developer Services

- Visual Studio
- Azure SDK
- VS Online
- App Insights

Data

- SQL Database
- Data Warehouse
- DocumentDB
- Redis Cache
- Azure Search
- Storage Tables

Analytics & IoT

- HDInsight
- Machine Learning
- Stream Analytics
- Data Lake
- Data Factory
- Event Hubs
- Data Catalog
- IoT Hub
- Mobile Engagement

Hybrid Operations

- Azure AD Health Monitoring
- AD Privileged Identity Management
- Domain Services
- Backup
- Operational Analytics
- Import/Export
- Azure Site Recovery
- StorSimple

Infrastructure Services

OS/Server Compute

- Virtual Machines
- Container Service

Storage

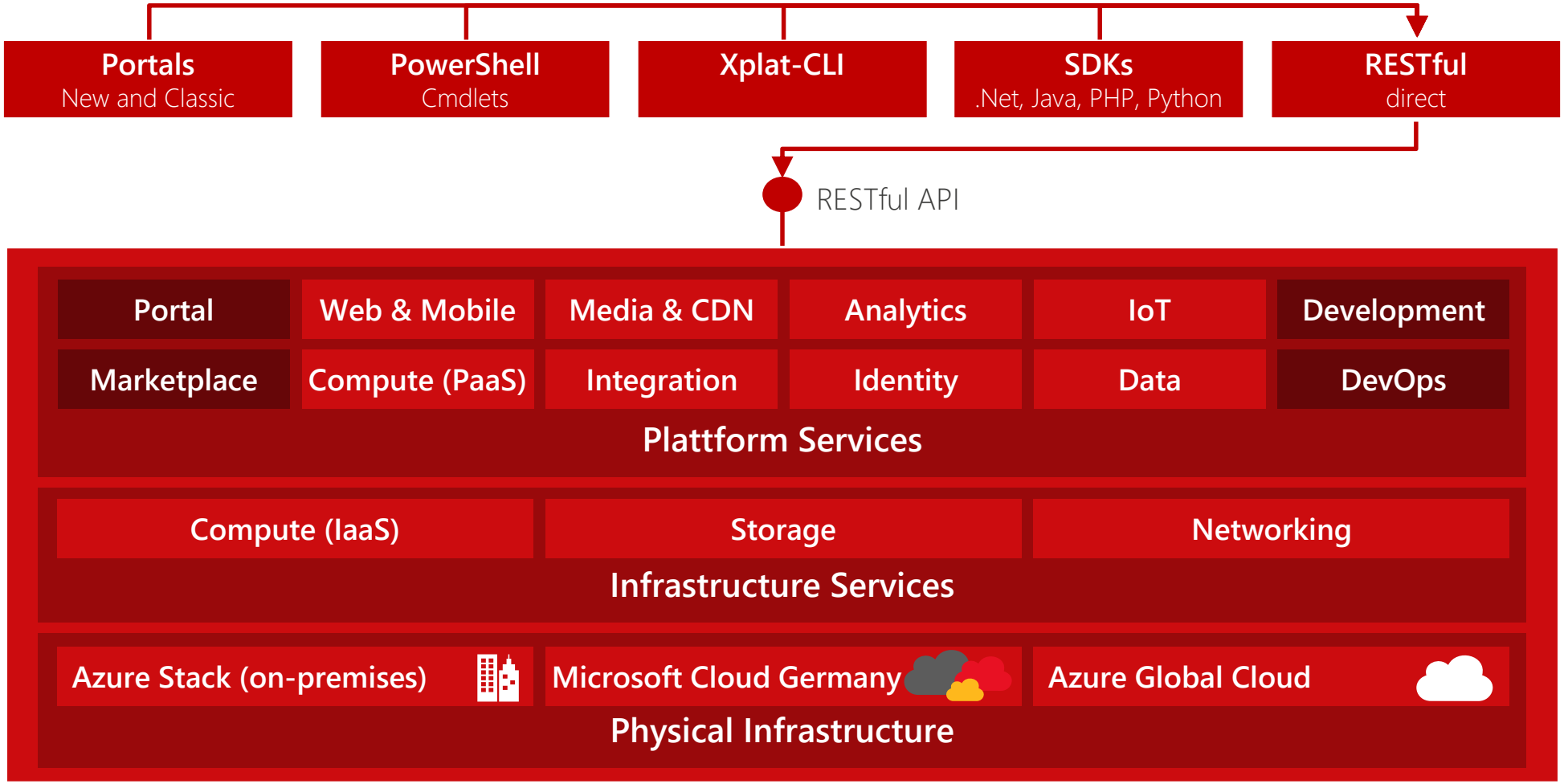
- BLOB Storage
- Azure Files
- Premium Storage

Networking

- Virtual Network
- Load Balancer
- DNS
- Express Route
- Traffic Manager
- VPN Gateway
- App Gateway

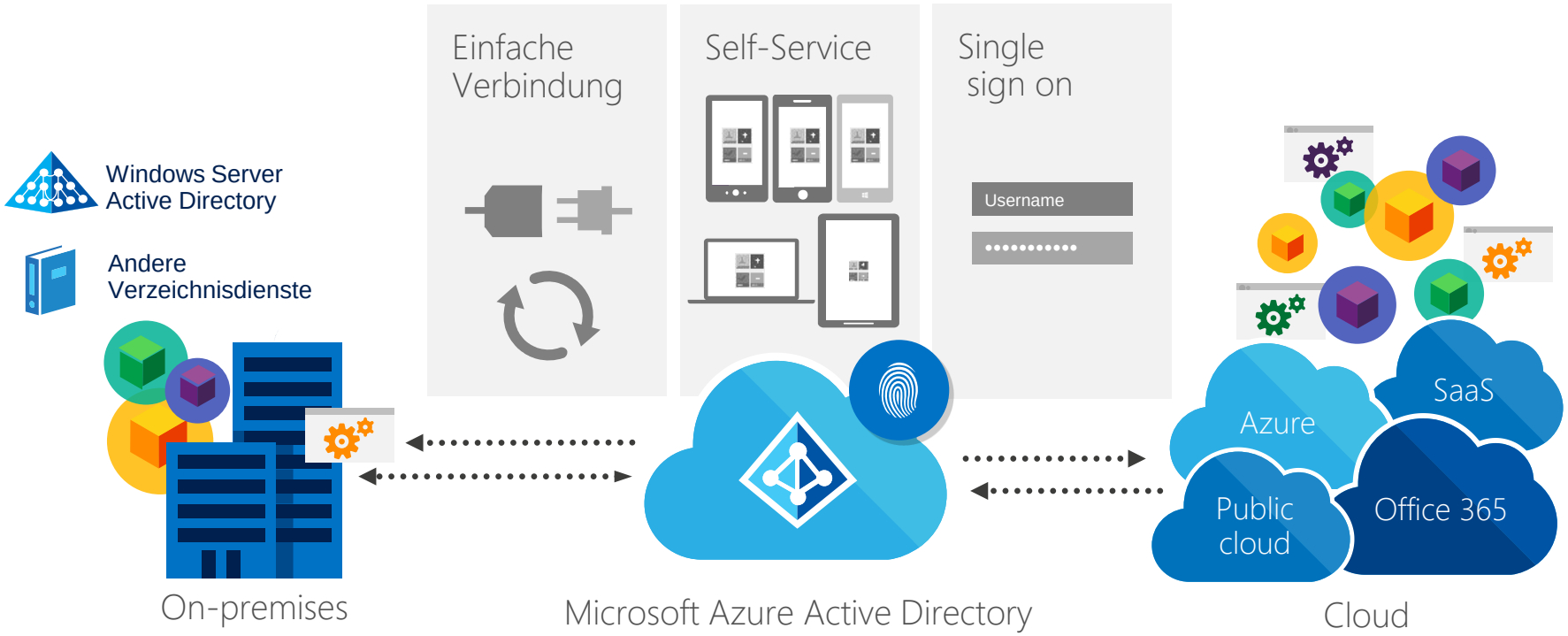
Datacenter Infrastructure (36 Regions, 30 Online)

Microsoft Azure Management



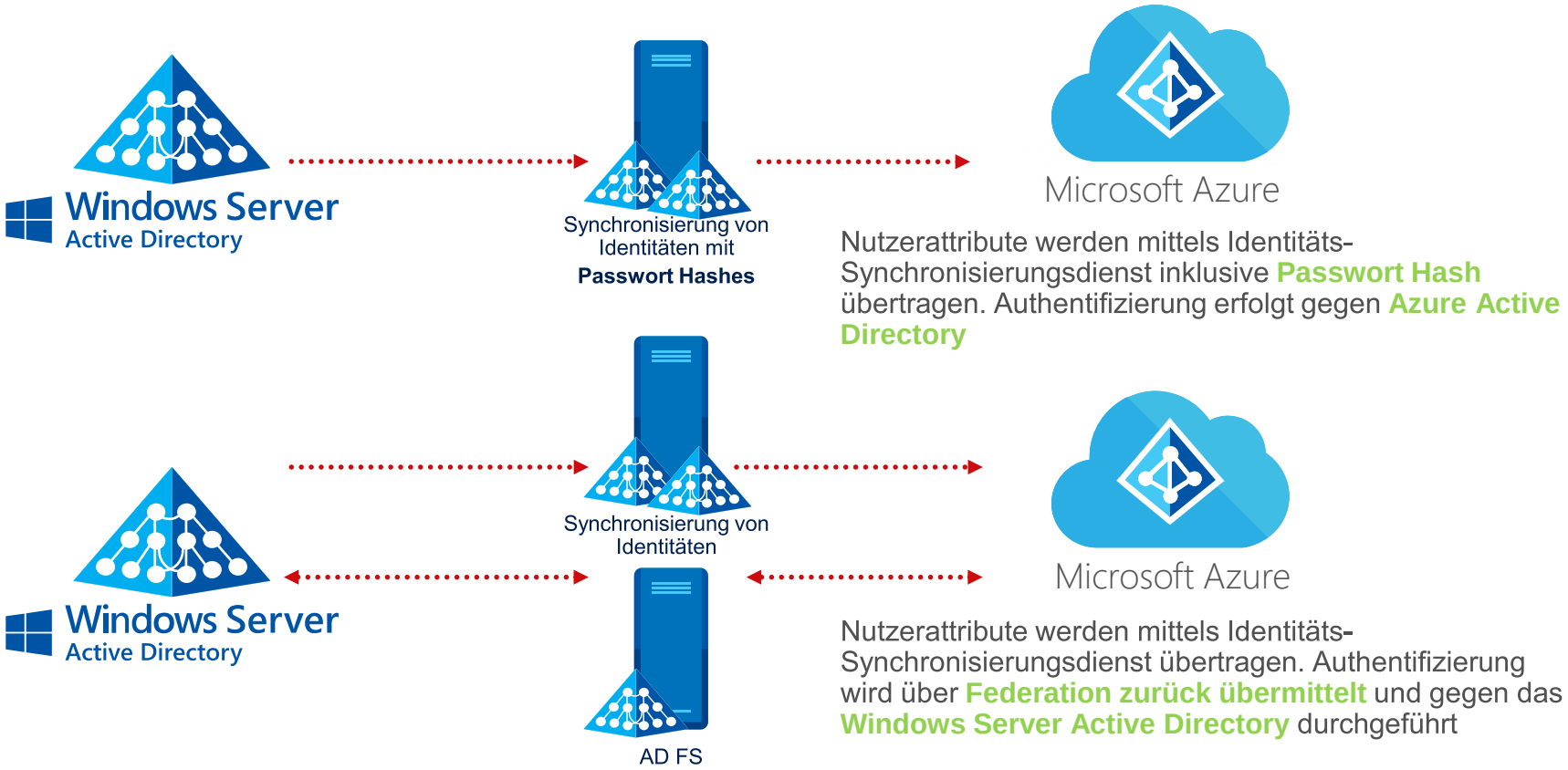
Microsoft

Identitätsverwaltung



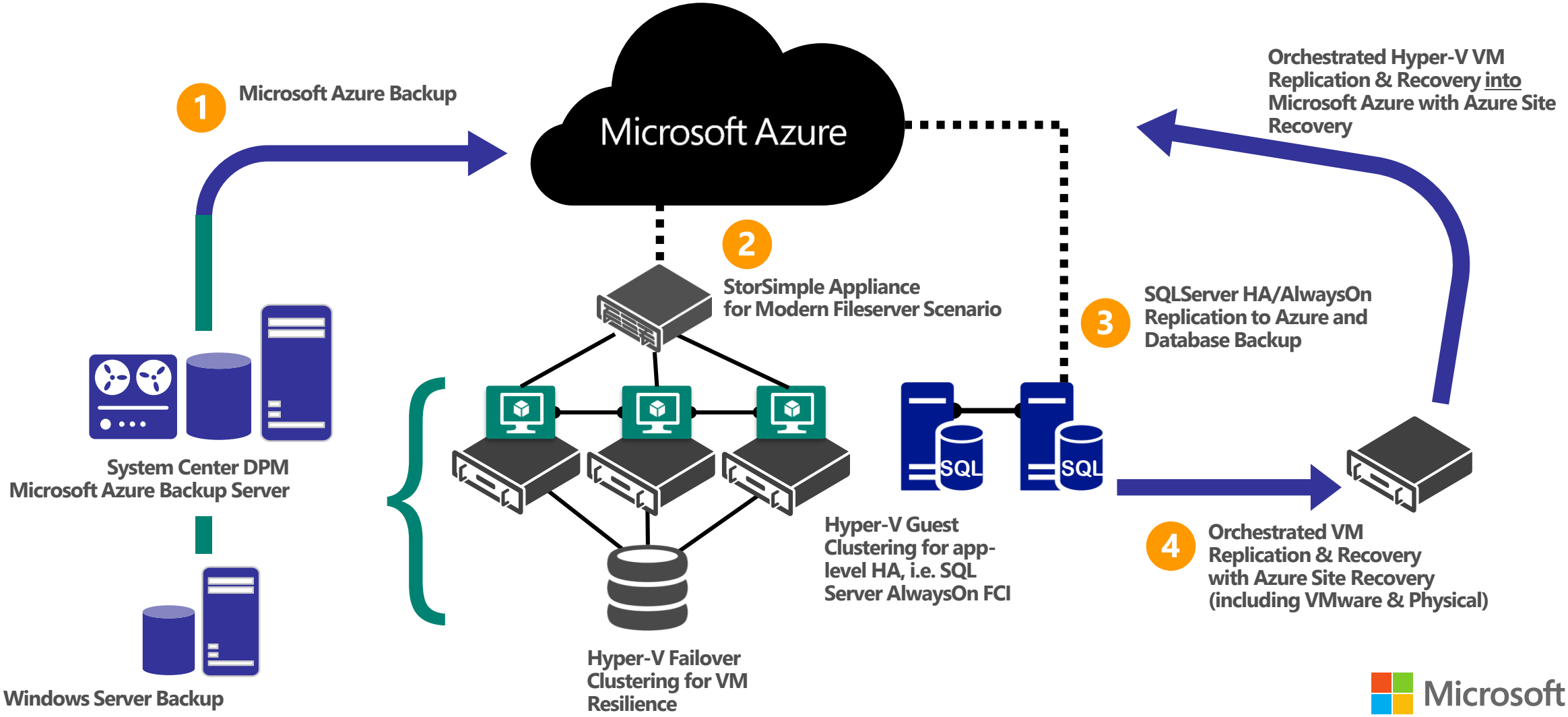
Microsoft

Benutzererfahrung



Microsoft

BCDR Überblick



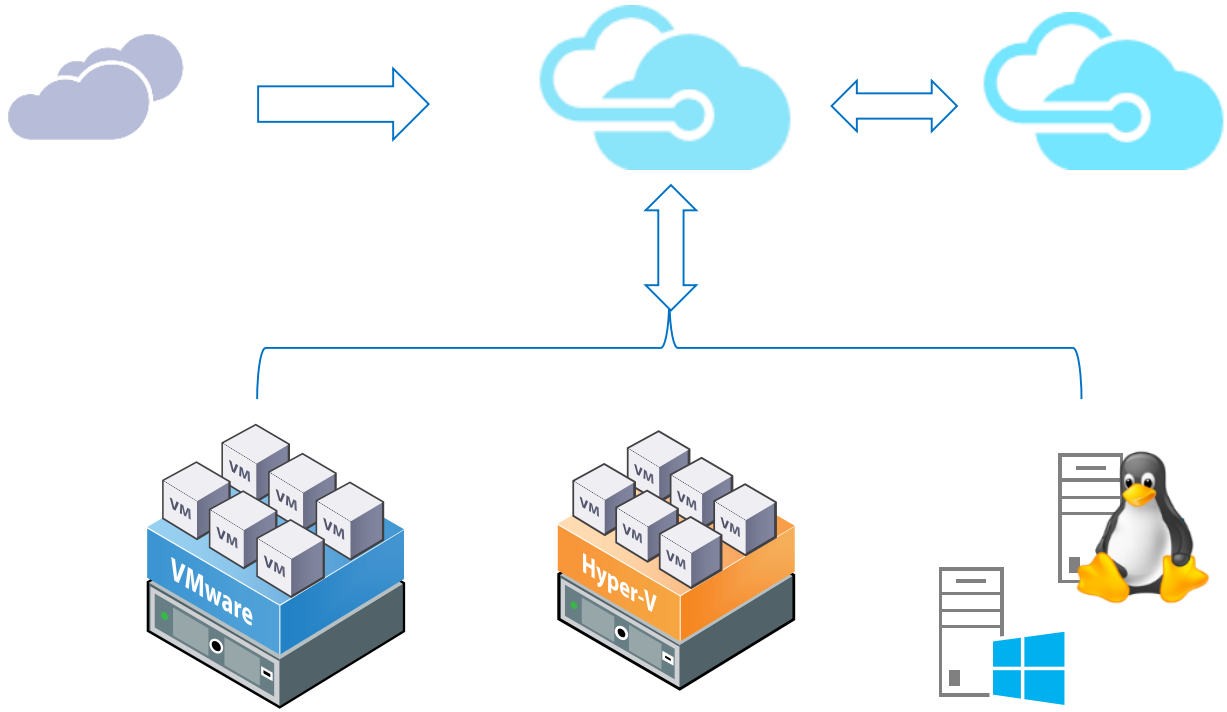
Microsoft

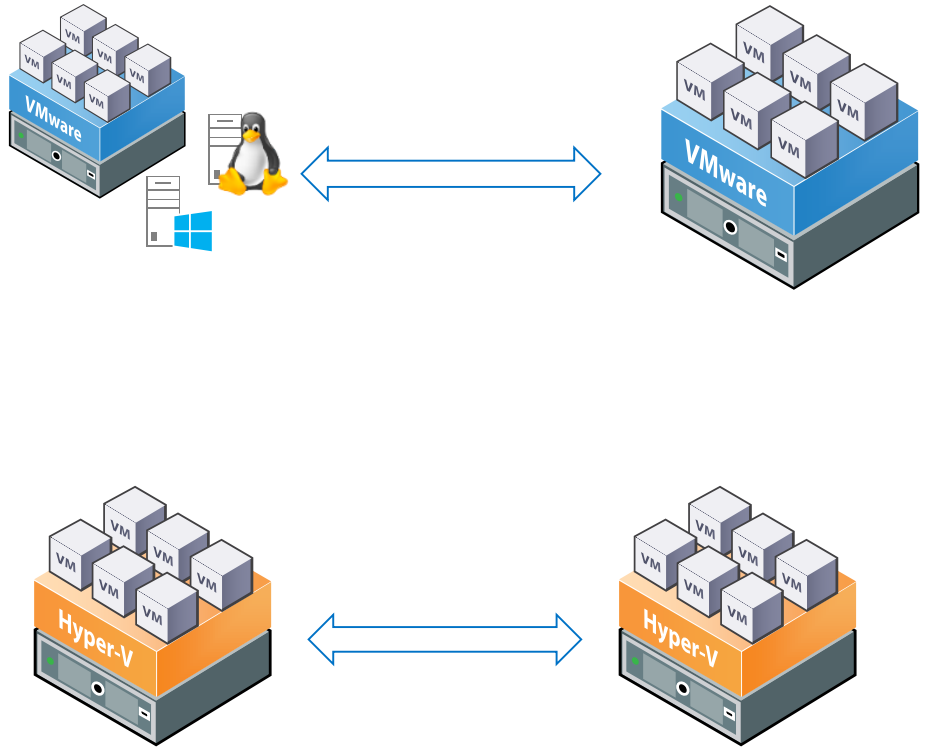
Azure Site Recovery

Site to Azure

Any cloud

Site to site





Windows

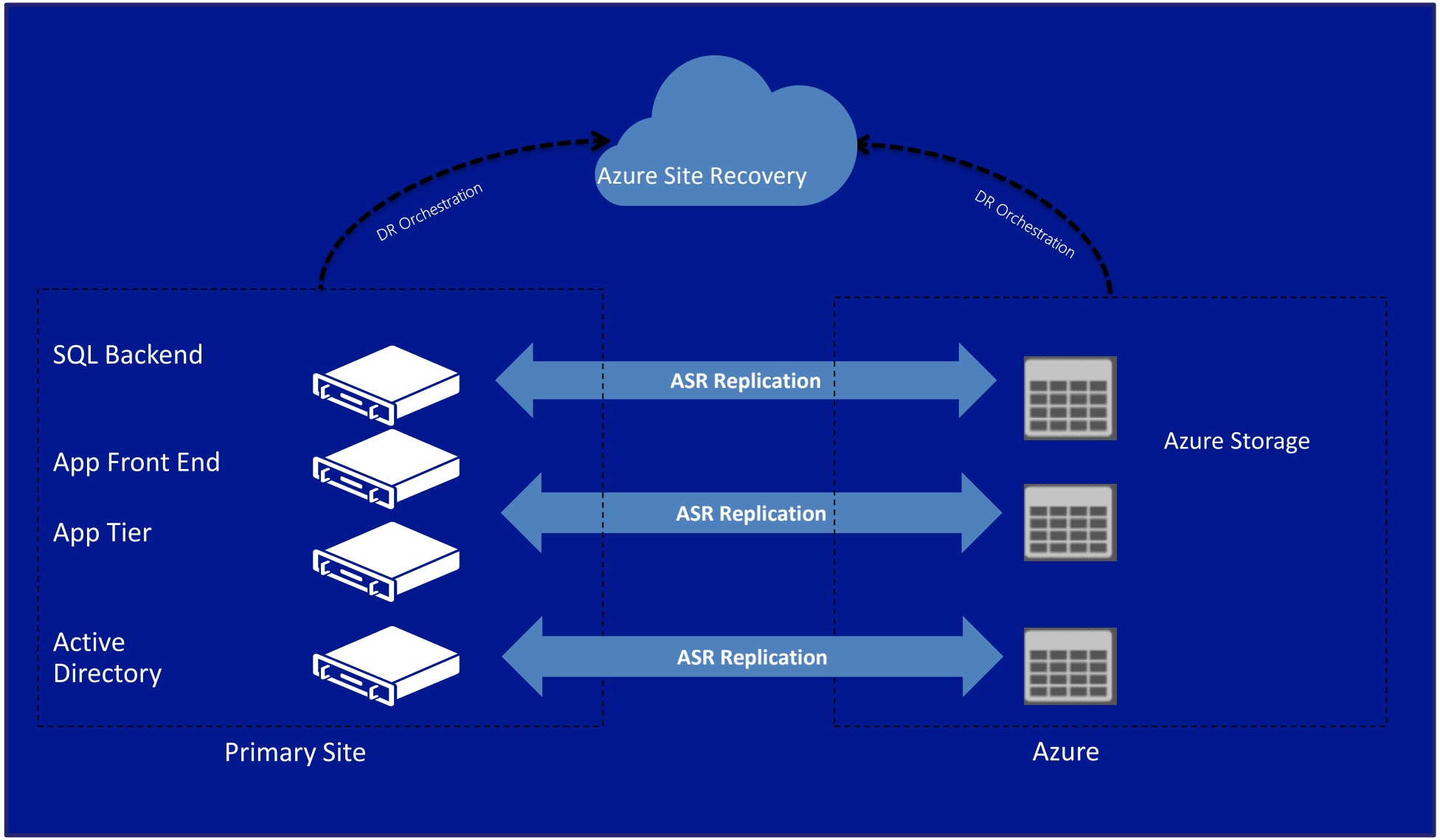
Linux

Planung

- Plan for various types of disasters
- Do not „underestimate“ Users and Admins

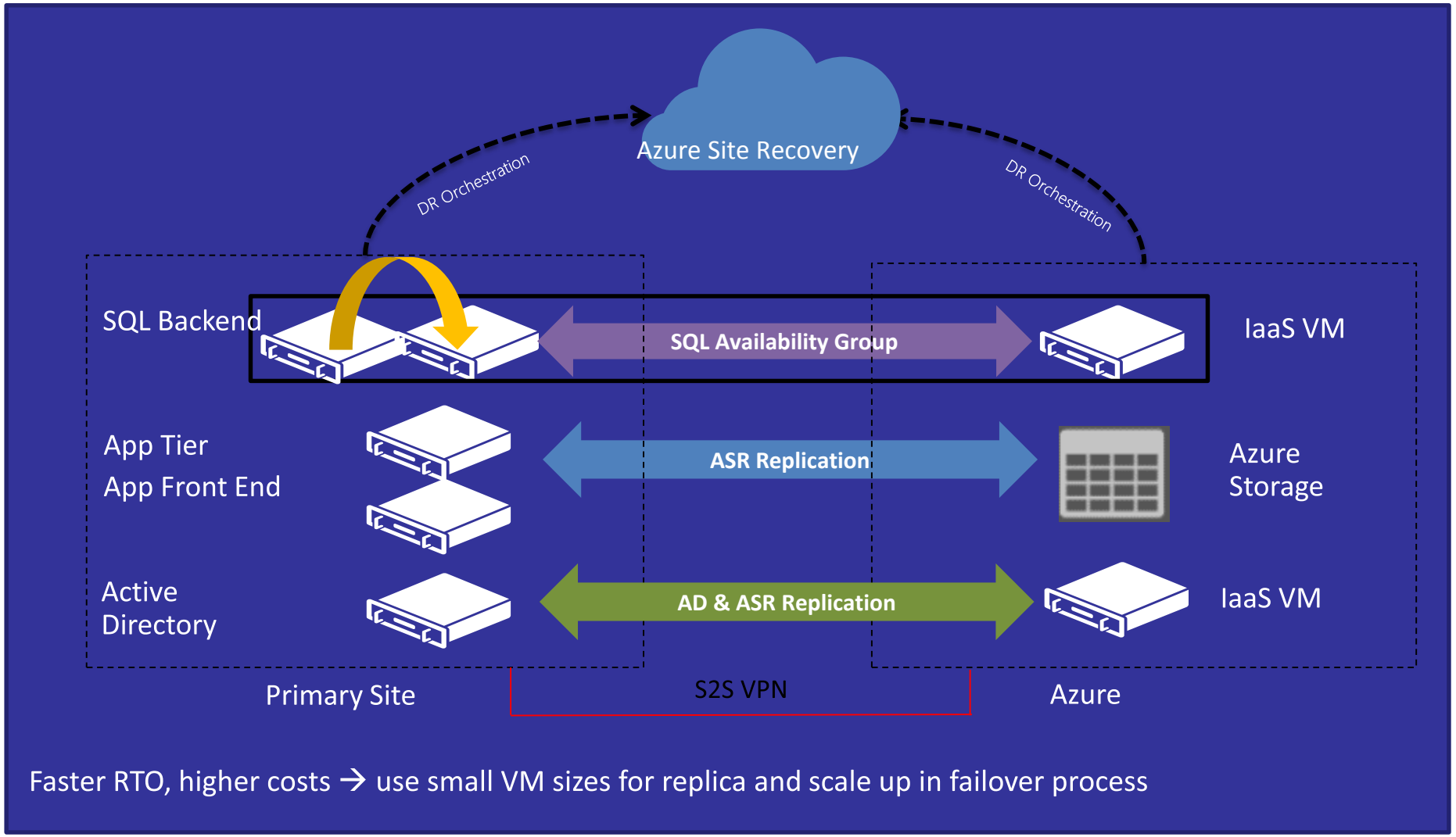
Microsoft

Wahl der Replikationsmethode



Microsoft

Wahl der Replikationsmethode



Faster RTO, higher costs → use small VM sizes for replica and scale up in failover process

Microsoft

Capacity Planning

ASR Capacity Planner

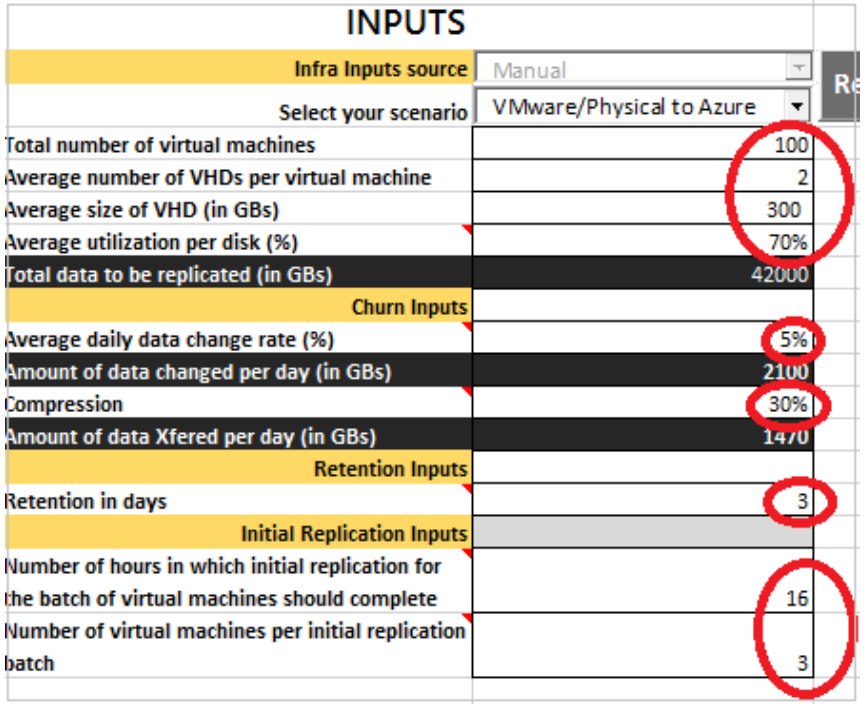
- https://azure.microsoft.com/en-us/documentation/articles/site-recovery-capacity-planner/

Hyper-V Replica Capacity Planner

- https://azure.microsoft.com/en-us/documentation/articles/site-recovery-capacity-planning-for-hyper-v-replication/

vSphere Replication Capacity Planning Appliance

- https://labs.vmware.com/flings/vsphere-replication-capacity-planning-appliance



INPUTS	
Infra Inputs source	Manual
Select your scenario	VMware/Physical to Azure
Total number of virtual machines	100
Average number of VHDs per virtual machine	2
Average size of VHD (in GBs)	300
Average utilization per disk (%)	70%
Total data to be replicated (in GBs)	42000
Churn Inputs	
Average daily data change rate (%)	5%
Amount of data changed per day (in GBs)	2100
Compression	30%
Amount of data Xfered per day (in GBs)	1470
Retention Inputs	
Retention in days	3
Initial Replication Inputs	
Number of hours in which initial replication for the batch of virtual machines should complete	16
Number of virtual machines per initial replication batch	3

Microsoft

Deployment Modell

Azure Site Recovery aktuell in beiden Modellen (ASM/ARM) verfügbar

Keine neuen Recovery Vaults anlegen (ASM, altes Portal)

Neue ASR Ressourcen nur in ARM (neues Portal)

Verbesserungen werden in ASM nicht mehr eingehen

Microsoft

Storage

Standard Storage Accounts:

- 40 replizierte Disks pro Storage Account

Premium Storage Accounts:

- Standard Account für Logging Daten anlegen

Wahl zwischen GRS und LRS Storage

- LRS bevorzugt

VMware: Datastore Zugriff für Credentials

Laufwerke mit Temp- oder Pagefiles ausschließen

Microsoft

Storage – Azure Limits überwinden

1TB !=1TB

- max 1023GB als Disk Größe für OS und Daten Disks
- Bis zu 63 Daten Disks mit je 1TB → Stripe!

Reicht nicht? Applikationsbasierte Replikation

Setzen der SAN Policy = online all

- https://support.microsoft.com/en-us/kb/3031135
- Hyper-V/VMM only

Azure Subscription Limits (# Storage Accounts, Cores, etc.)

- Quota Erhöhung via Support Ticket wenn nötig

Microsoft

Network

Falsche Firewall-Konfigurationen Platz #2 (nach Planungsfehlern)

Richtig machen:

- URL Filter:

*.accesscontrol.windows.net
*.backup.windowsazure.com
*.hypervrecoverymanager.windowsazure.com
*.store.core.windows.net
*.blob.core.windows.net
https://www.msftncsi.com/ncsi.txt
time.windows.com
time.nist.gov
https://dev.mysql.com/get/archives/mysql-5.5/mysql-5.5.37-win32.msi (vmware only)

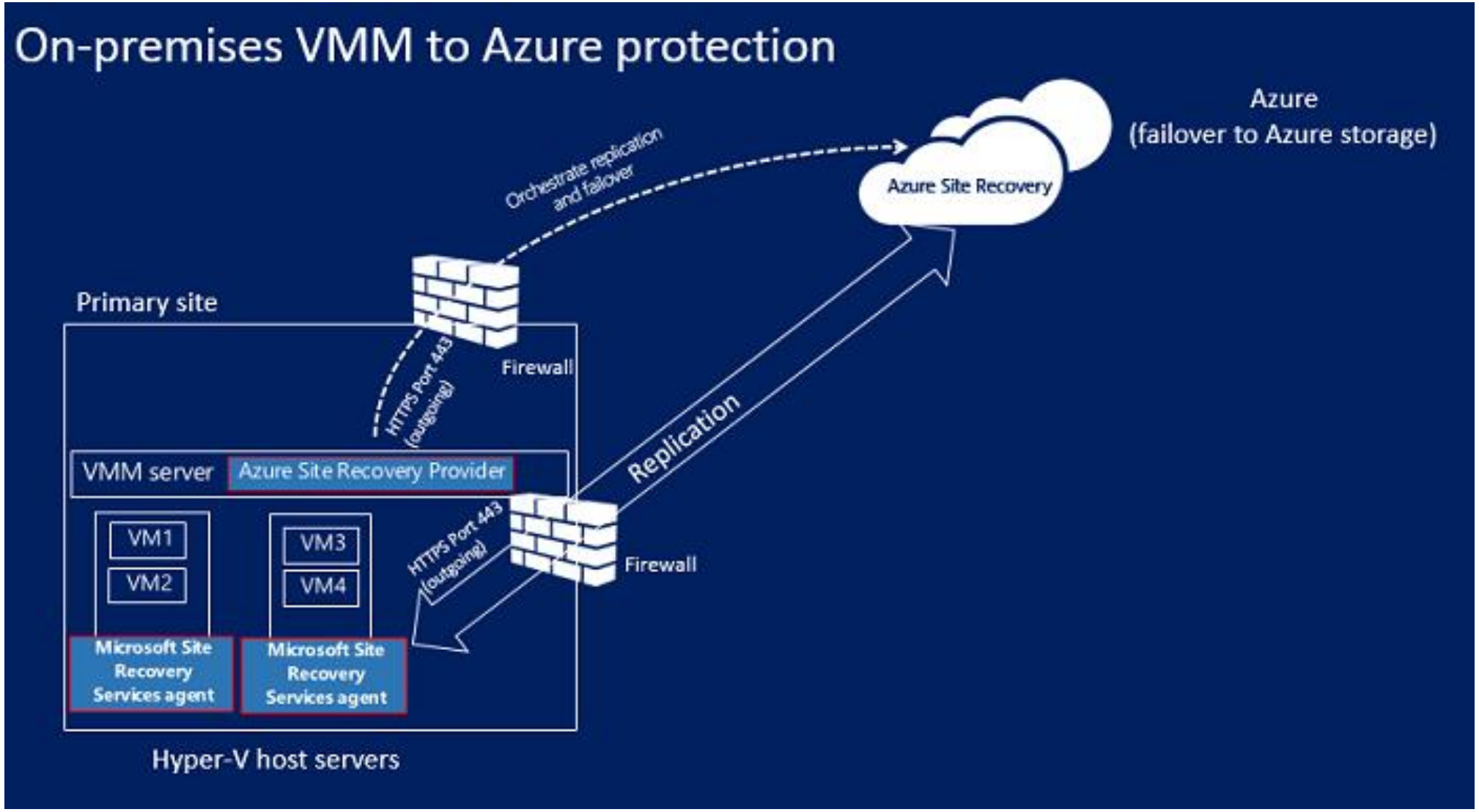
Microsoft

Network

- To get it done the right way:
  - IP Filter:
    - nein
    - Azure IP Ranges
      - https://www.microsoft.com/en-us/download/details.aspx?id=41653
    - Dynamische Regeln mit aktuellen IP Range Listen
  - Bandbreiten Richtlinien
    - Verwendung des MARS Agent
    - Updates nicht vergessen

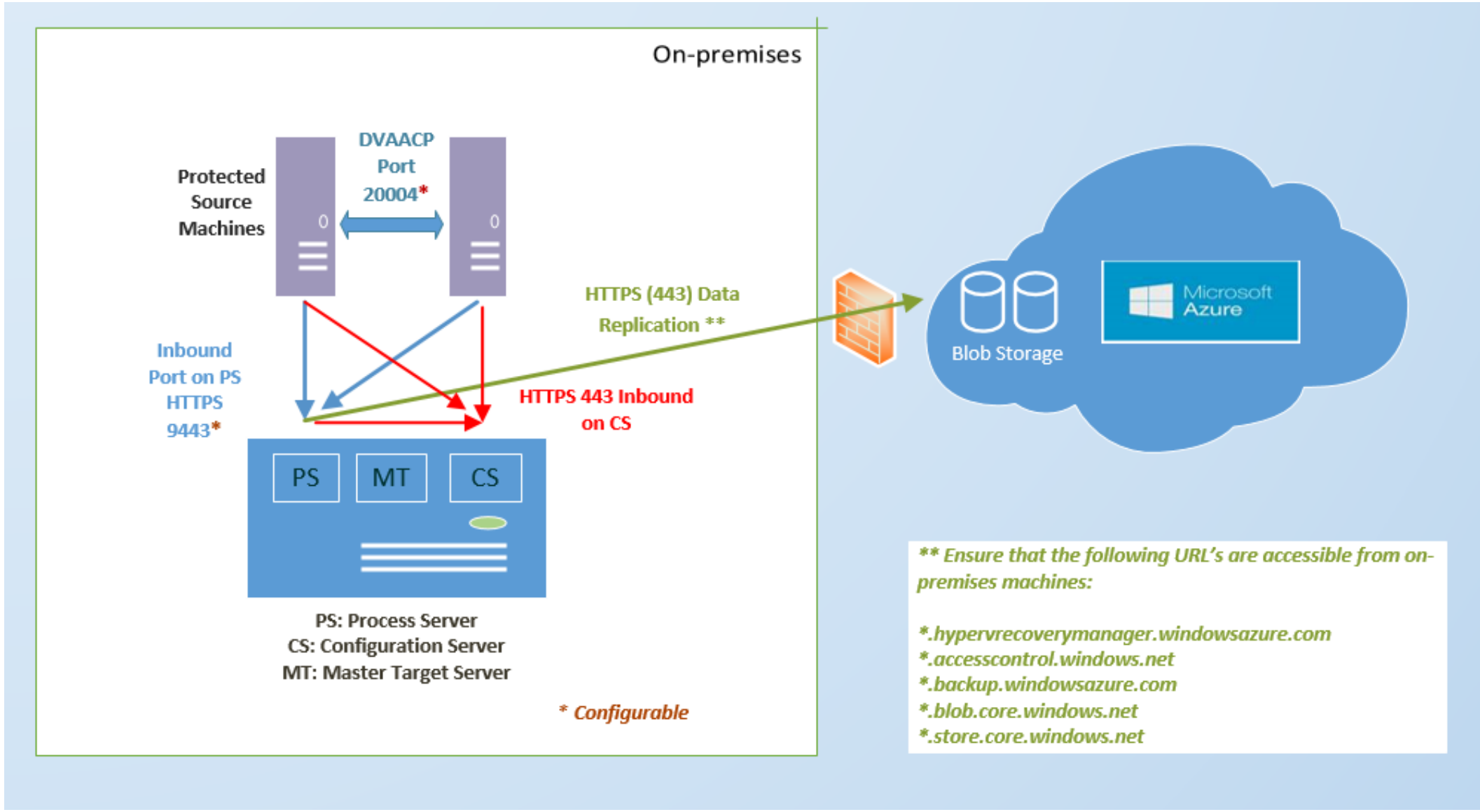
Microsoft

Netzwerk - Hyper-V



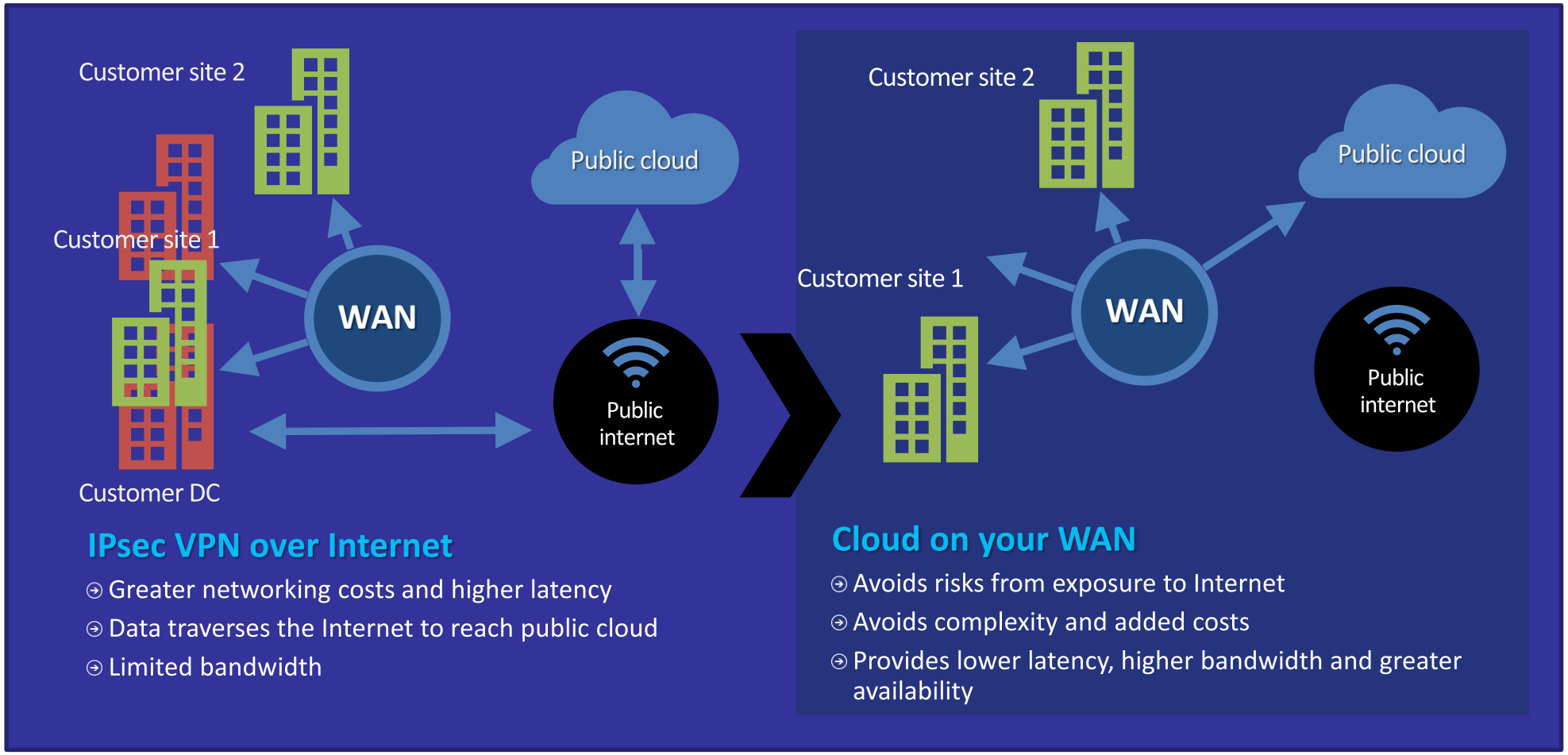
Microsoft

Netzwerk - VMware



Microsoft

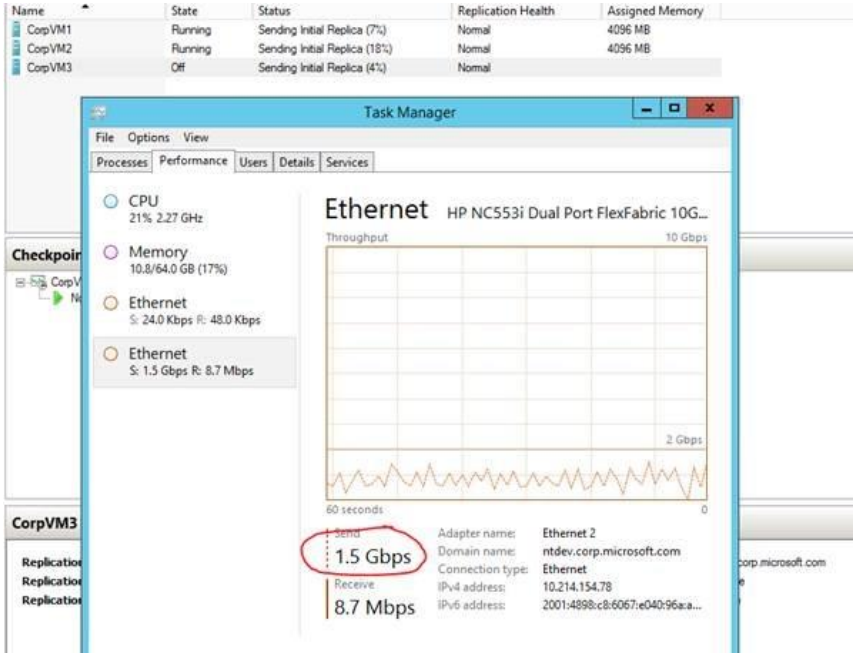
ExpressRoute

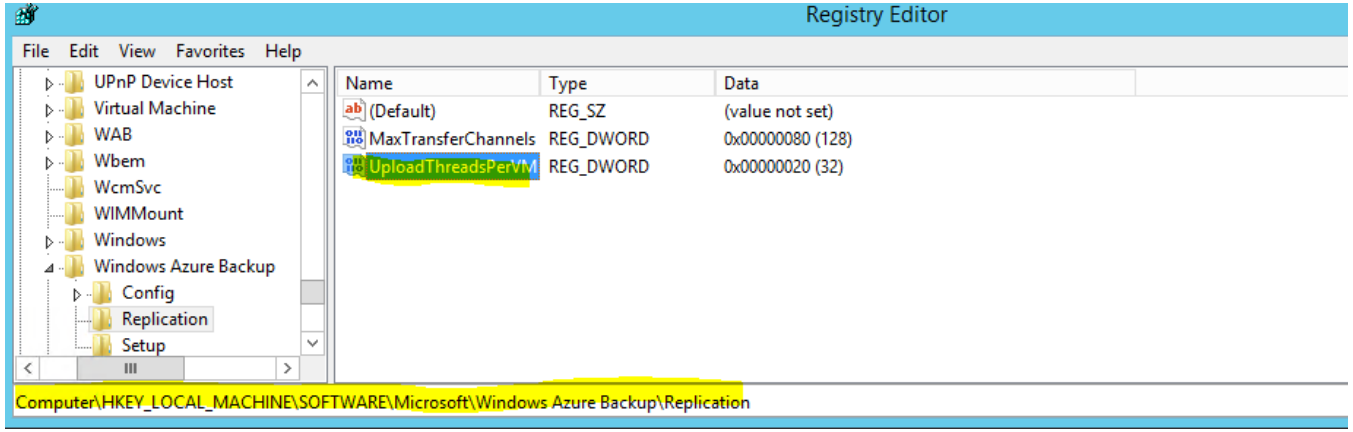


Microsoft

Performance Tuning

https://blogs.technet.microsoft.com/virtualization/2014/07/20/express route-asr-efficient-dr-solution/





Microsoft

Performance Tuning

Verwendung von Server Side Encryption

Verschlüsselte Storage Accounts

Generation 1 VMs müssen nicht konvertiert werden→ schneller

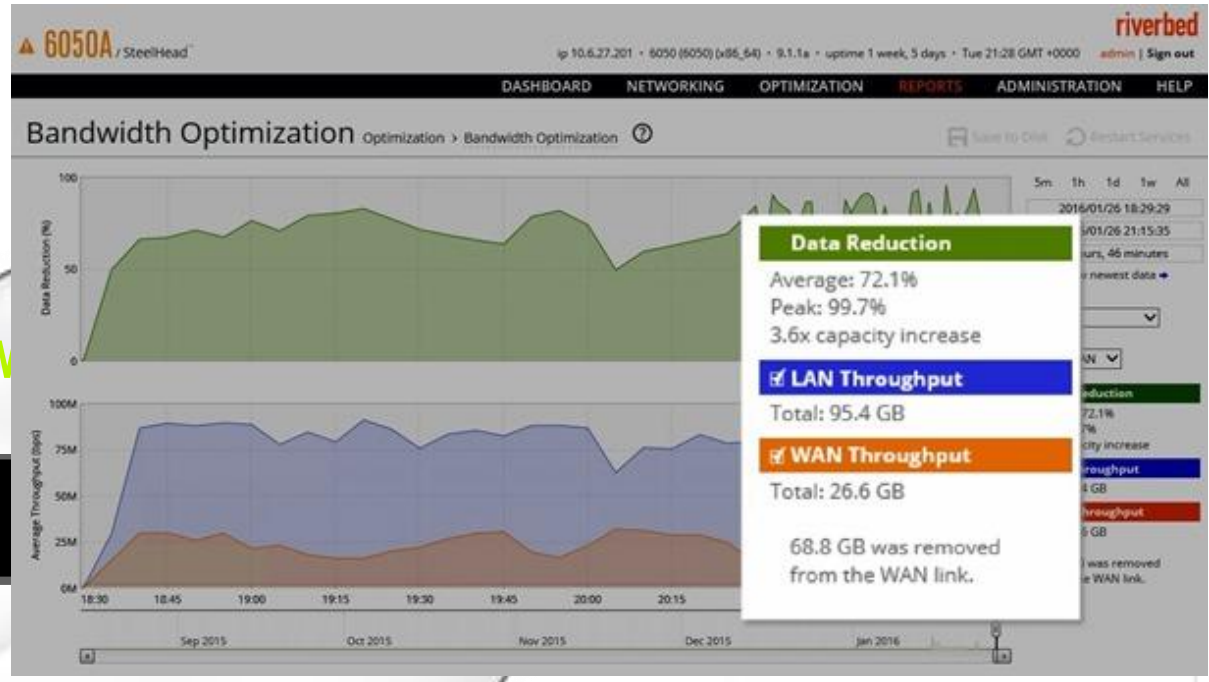
Premium Storage mit Hyper-V? Abwarten oder oderr Szenario für physische Hosts verwenden → kommt

Azure Automation in Recovery Plänen

- Hier kein Multi-Faktor Auth nutzen!

Microsoft

WAN Optimizer



208.4 GB was removed from the WAN link.

SteelHead™

SteelHead CX
Azure VM

INTERNET BANDWIDTH

CORPORATE DATA CENTER

SCVMM 2012 R2 Cloud

LAN

SteelHead™

Further Reading

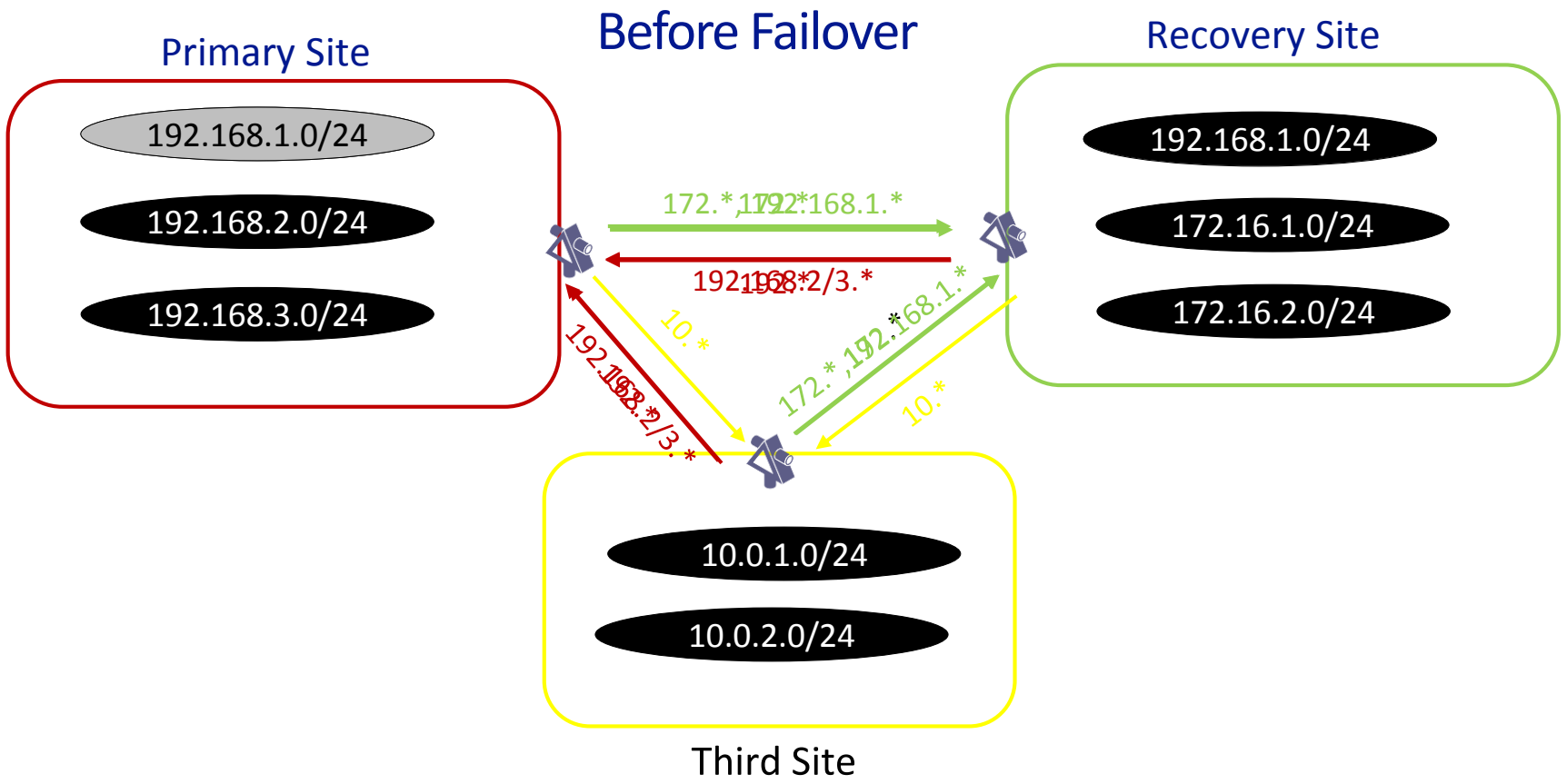
https://azure.microsoft.com/en-us/blog/azure-site-recovery-wan-optimization-with-riverbed/

Microsoft

Vorgehen bzgl. IPs

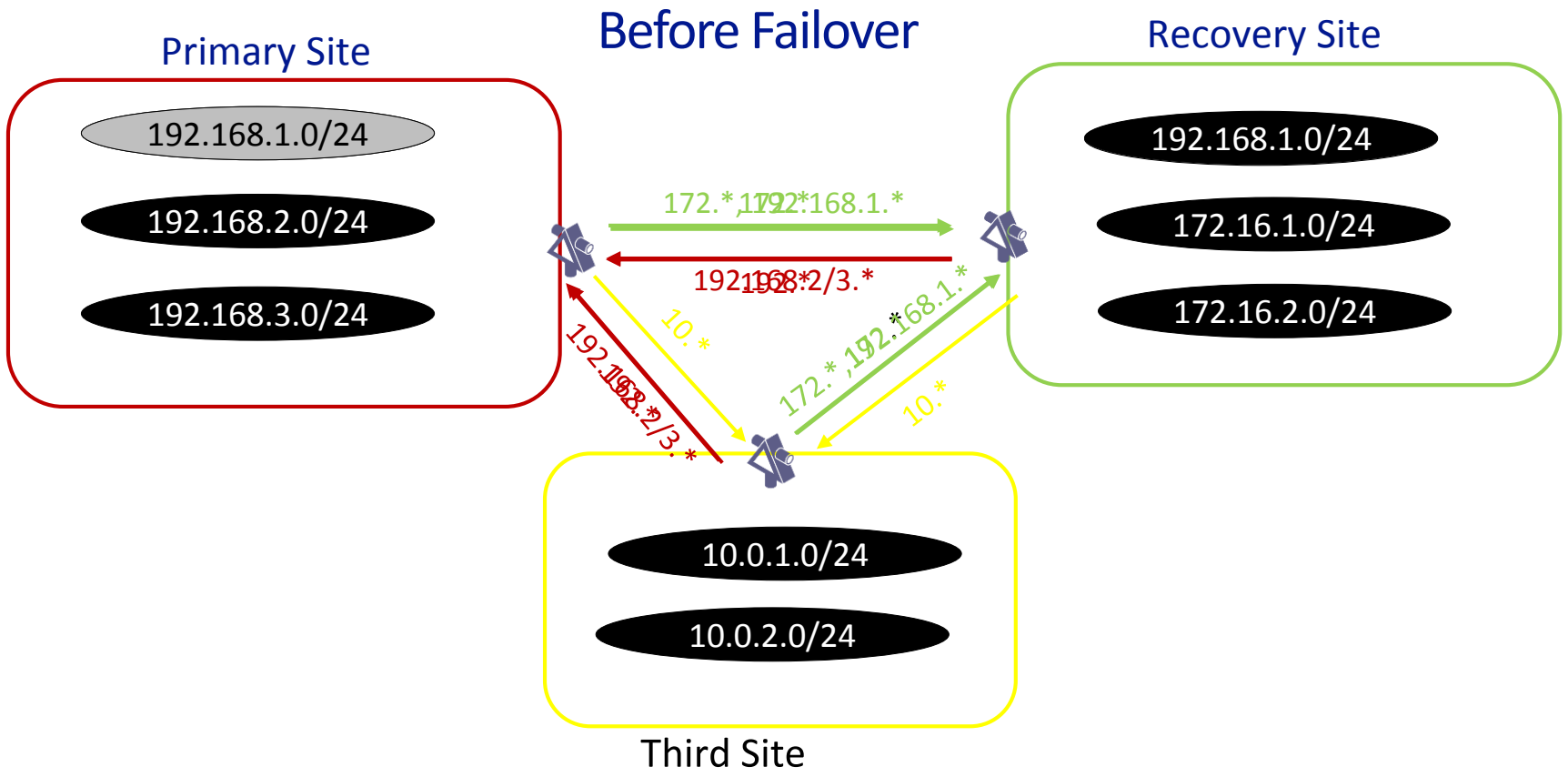
Microsoft

Different IP



Microsoft

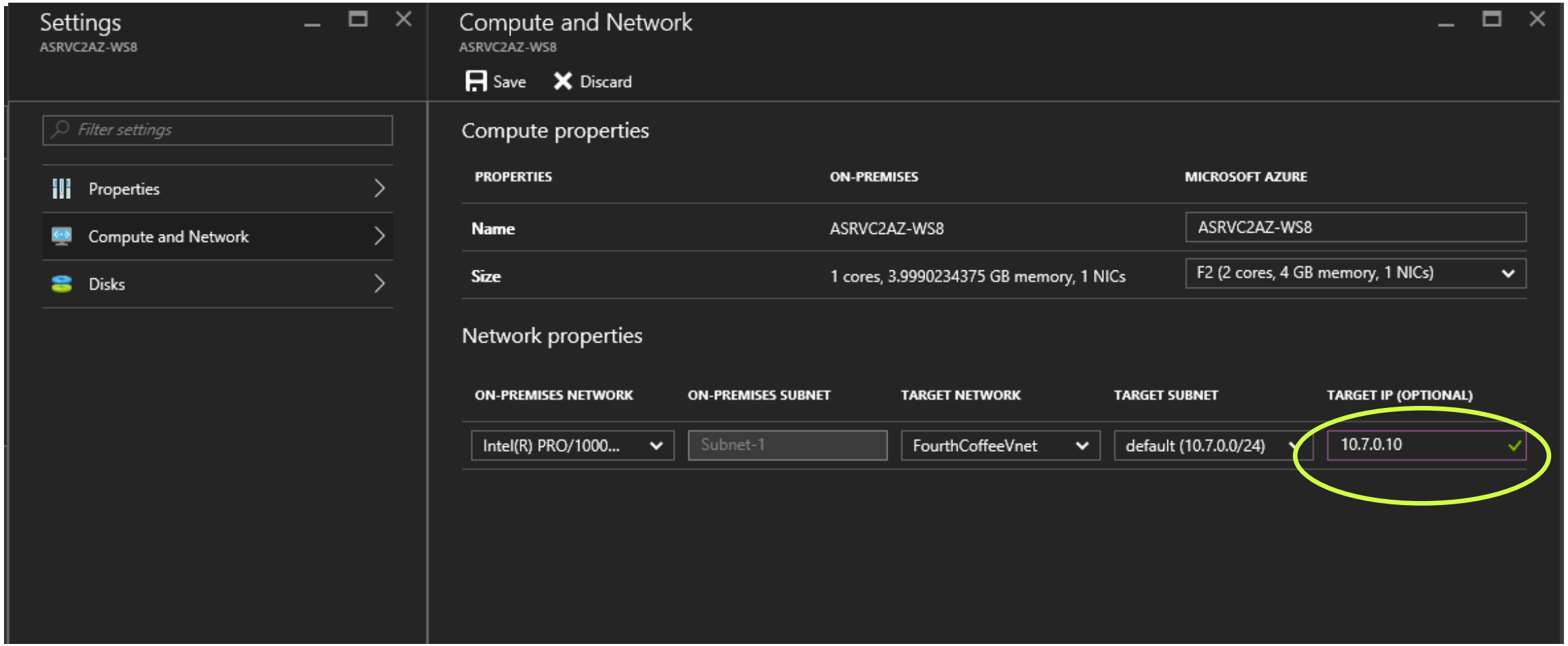
Retain IP – Subnet Failover



Third Site

Microsoft

Retaining IP when failing over to Azure



Microsoft

External IP Addresses?

Azure Traffic Manager

- DNS based reroute of public domains to disaster site

Microsoft

DNS Entries

contoso.com CNAME contoso.trafficmanager.net

contoso.trafficmanager.net – Type : Failover

- site1.contoso.com
- site2.contoso.com

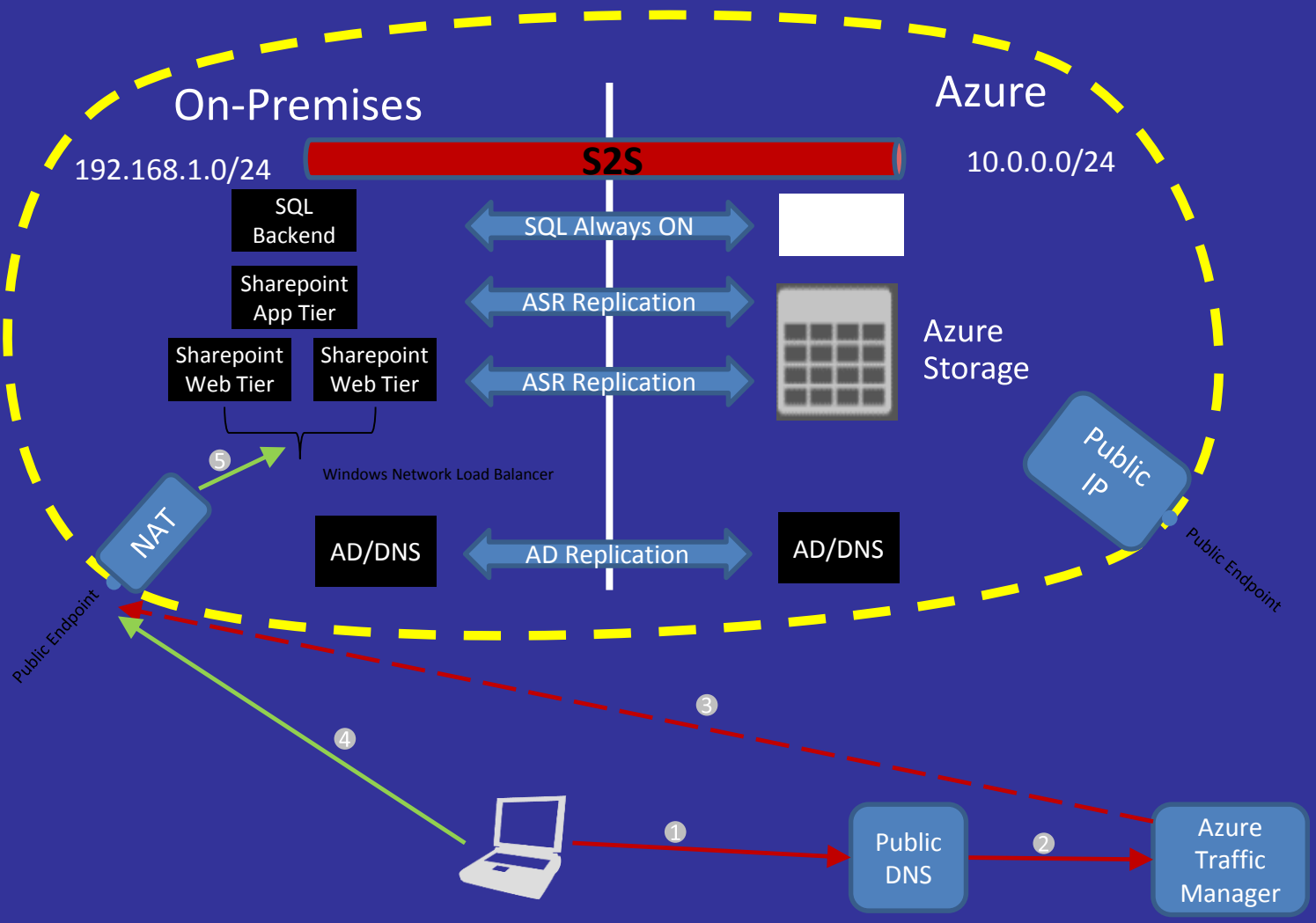
site1.contoso.com A 160.220.220.10

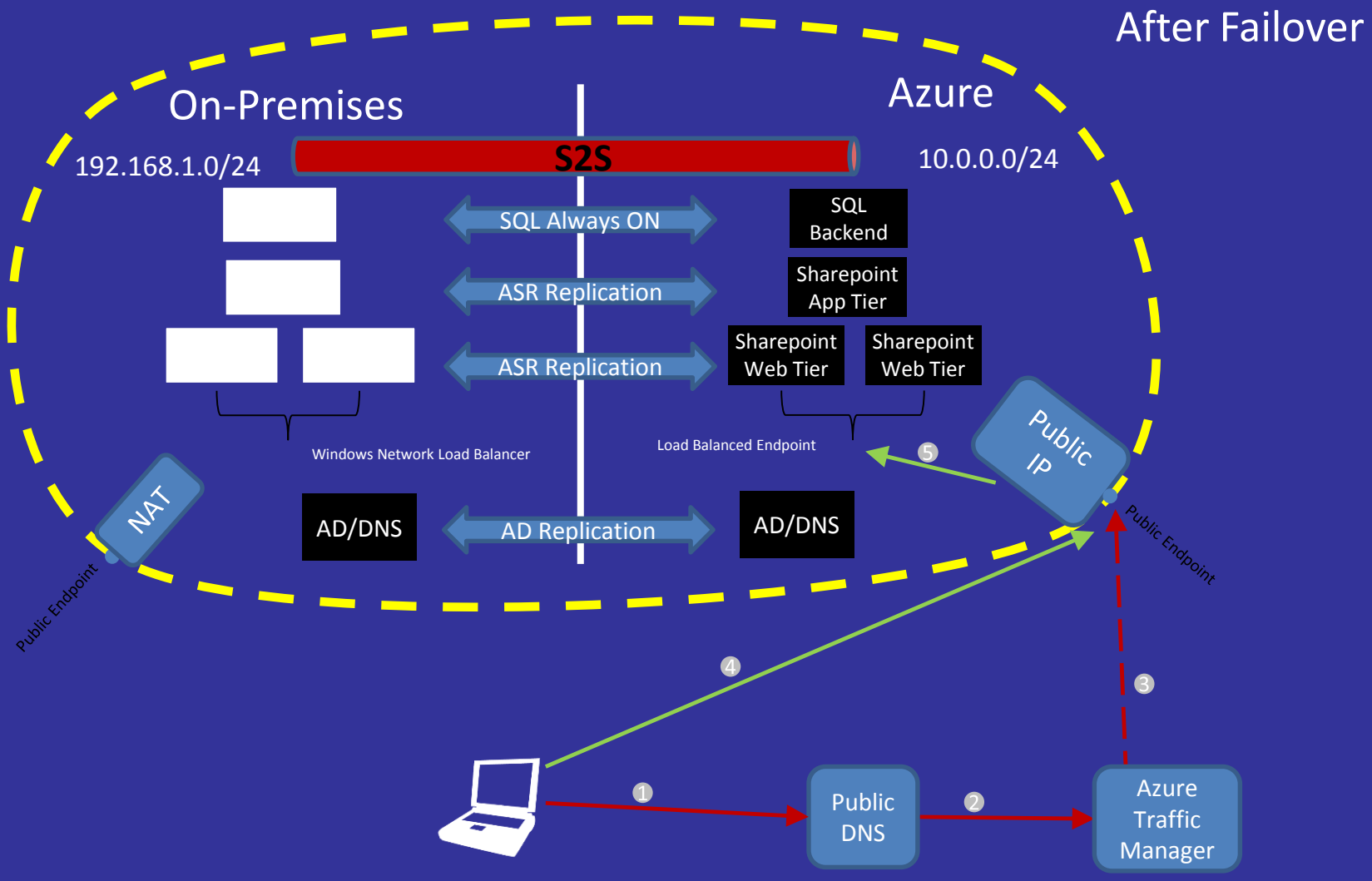
site2.contoso.com A 170.210.210.20

- Further Read:

Microsoft

Before Failover




After Failover
On-Premises
Azure
192.168.1.0/24
S2S
10.0.0.0/24
SQL Always ON
SQL Backend
ASR Replication
Sharepoint App Tier
ASR Replication
Sharepoint Web Tier
Sharepoint Web Tier
Windows Network Load Balancer
Load Balanced Endpoint
5
Public IP
NAT
AD/DNS
AD Replication
AD/DNS
Public Endpoint
Public Endpoint
4
3
1
Public DNS
2
Azure Traffic Manager

Workload Support

Active Directory | IIS | RDS/VDI | File Server

Microsoft

Backup

ASR ist keine Backup Lösung!

Alte Recovery Points aufheben

Absichern der Management Server mit Azure Backup (SCVMM / Configuration Server)

- Original Datenbank für schnellen Failback benötigt

Microsoft

Failover

Automate single Click Recovery plans

Include manual failover action in recovery plan (big red buzzer)

Repeat Testfailover until it's running

Use PowerShell to redeploy

Microsoft

Leverage the possibilities

Use ASR for Migration

Use ASR for Dev/Test

Utilize OMS subscription

Microsoft

Vielen Dank

Microsoft