snp technologies inc.

Migrate. Innovate. Enable

Unlock the full power of Azure

SNP's Azure VMware Solution

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About SNP

SNP Technologies helps businesses transform with innovative, cloud-based solutions that harness the power of Microsoft Azure. We combine elements from multiple competencies, innovative technology tools and platforms to help clients become more agile.

MICROSOFT ADVANCED SPECIALIZATIONS

- Windows Server and SQL Server Migration to Azure
- Azure Virtual Desktop
- Modernization of Web Applications to Microsoft Azure
- Kubernetes on Microsoft Azure
- Advanced Networking
- Analytics on Azure
- Cloud Security

Microsoft Gold Partner

Gold Security
Gold DevOps
Gold Data Platform
Gold Data Analytics
Gold Cloud Platform
Gold Datacenter
Gold Cloud Productivity
Gold Application Development
Gold Application Integration
Gold Collaboration & Content

ISO Certified in:

- ISO 27001:2013: Information Security Management System
- ISO 20000-1:2018: Service Management System
- ISO 22301:2019: Business Continuity Management System

Microsoft Partner

2021 US PARTNER AWARD WINNER
Business Excellence in Solution Assessments

Microsoft Partner

2019 US PARTNER AWARD WINNER
Intelligent Cloud – OSS on Microsoft Azure Award

Microsoft Partner

2019 PARTNER OF THE YEAR FINALIST
Open-Source Applications & Infrastructure on Azure Award

Microsoft Partner

2018 US SI PARTNER OF THE YEAR WINNER
Solution Innovation on Microsoft Azure Award

Microsoft Partner

2018 PARTNER OF THE YEAR FINALIST
Open-Source Applications & Infrastructure on Azure Award

Driving Innovation & Business Excellence with Microsoft Azure in:

ANALYTICS & AI

- Analytics Appliance Migration
- SQL Server Migration
- Azure AI & ML
- Business Intelligence
- Synapse
- Modern Data Warehouse
- Databricks
- Data Engineering
- OSS DB on Azure
- Cosmos DB Migration

APPS & INFRASTRUCTURE

- **HYBRID CLOUD SOLUTIONS**
- **DEVOPS WITH GITHUB**
- **COMPLIANCE**
  - Information Protection & Governance
  - Advisory Services
  - Insider Risk
- **WINDOWS SERVER & SQL SERVER**
  - Windows & SQL Server Migration to Azure
  - Linux & OSS DB Migration to Azure
- **WINDOWS VIRTUAL DESKTOPS**
  - Citrix Cloud on Azure
  - VMWare on Azure
- **APPLICATION MODERNIZATION**
  - Modernize/New .NET Apps with App Service & Azure SQL DB
- **CLOUD NATIVE APPS WITH AI**
  - Modernize/New Cloud Native Apps with AKS & Azure Cosmos/Postgres DB
- **ENABLE AZURE**
  - Resilient planning & Architecture
  - Cloud Adoption Framework
  - Governance
  - Cost Optimization
  - Business Continuity & Disaster Recovery
- **SECURITY**
  - Threat Protection
  - Cloud Security
  - Network Security

CLOUD MANAGED SERVICES

- CSP Hosting Services
- Support Desk Operations
- Managed Azure infrastructure Operations
- Managed DR & Backup Operations
- Managed Data Operations
- Managed DevOps Services
- Managed Security Operations
- Premium Managed Services
- Optimization Services

Key Focus Areas

Recent Projects

Azure Data, AI & Analytics

- Artificial Intelligence & Machine Learning
- Data Engineering Services
- Database Modernization
- MLOps
- Solution Architecture & Consulting Services
- Business Intelligence & Visualization Services
- Power Bi with Synapse Analytics

- Data Platform in 30 Days
- Data Integration Services
- Enterprise DW Modernization
- Data Integration Services
- ML Model Building & Consulting

- ML Platform Operationalization (MLOps)
- SQL Server Modernization with Azure PaaS
- Power BI Governance
- Power BI Development

Apps & Infrastructure

- Hybrid Cloud
- Hybrid Security Rationalization & Strategy
- Cloud Infrastructure & Management
- Hybrid Cloud Strategy with Azure Arc
- App Innovation
- DevOps & GitOps Solutions
- Open-Source Solutions
- Hybrid Identity
- API Management

- Infrastructure Rationalization & Migration Roadmap design
- Servers Lift & Shift
- OSS & SQL Migration to PaaS
- Citrix Virtual Desktops
- Windows Virtual Desktops
- Hybrid Cloud Framework
- Hybrid Management with Azure Arc
- Compliance Policy as a Code
- Hybrid Security Rationalization

- .NET – Application Modernization with Azure PaaS
- OSS - Application Modernization with Containers & Azure PaaS
- AKS Maturity Model
- Kubernetes & Containers
- Red Hat Cloud Solutions
- DR & Cloud Failover
- Azure Sentinel & SIEM Integration
- Azure Sentinel - Workflow & Connectors development

Azure Managed Services

- CSP Hosting Services
- Support Desk Operations
- Managed Azure Infrastructure Operations
- Managed Disaster Recovery & Backup Operations
- Virtual Desktop Infrastructure –(VDI) Operations

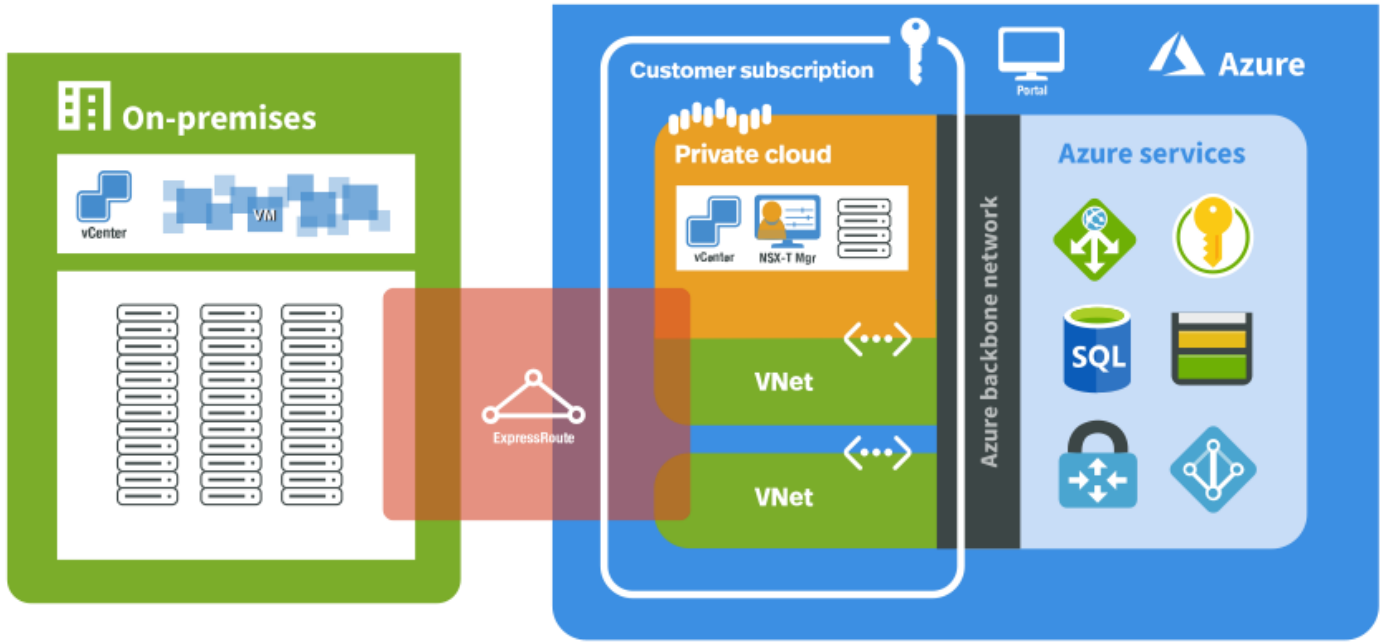
- Managed Data Platform Operations
- Managed DevOps Services
- Managed Security Operations
- Managed VDI Operations (Citrix & Windows VDI)
- Premium Managed Services

Industries We Serve

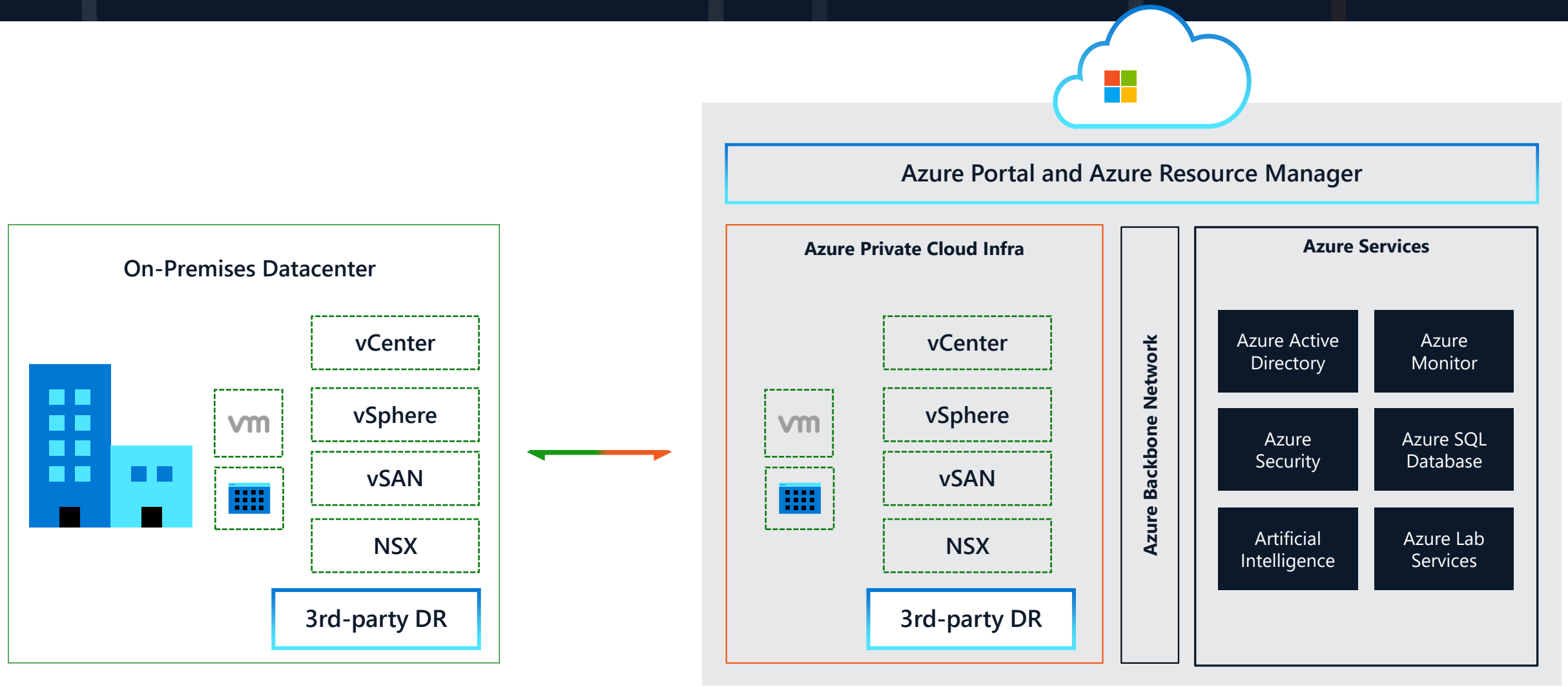
Healthcare | Biotech | Financial Services | Manufacturing | Professional Services | Engineering & Architecture

Introduction on Azure VMWare Solution

- Software Defined Data Center stack as managed service – sold, operated and supported by Microsoft
- AVS is clusters with dedicated bare-metal Azure infrastructure, which will have vCenter Server, vSAN, vSphere, and NSX-T.
- AVS has a requirement of Minimum 3 hosts and can have upto 16 hosts per cluster.
- AVS always has a guarantee of 99.9% available.



AVS Architecture



Advantages and Use Cases of AVS

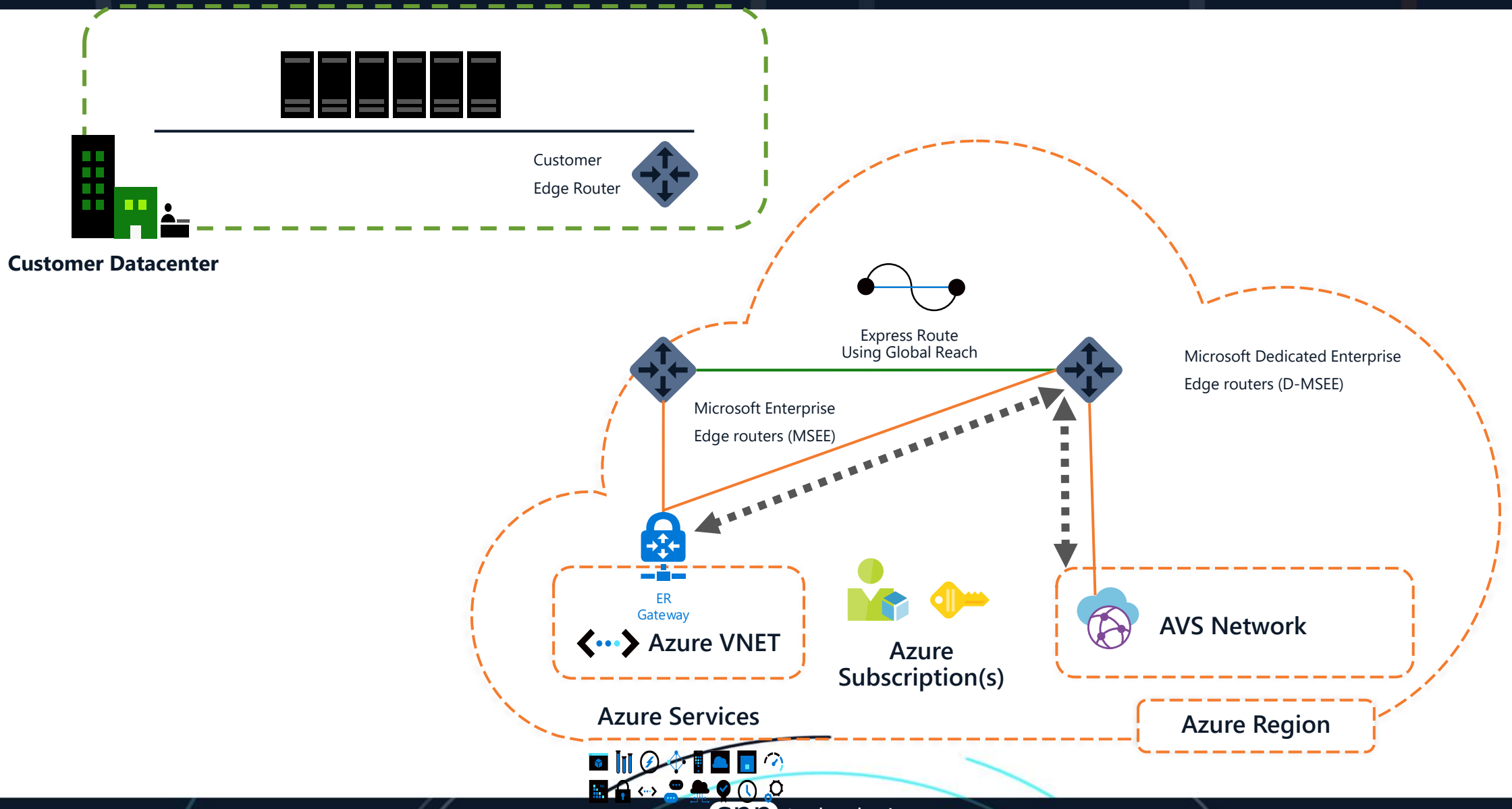
Advantages of AVS

- Gain continuity, scale and fast provisioning for your VMware workloads on global Azure infrastructure
- Leverage existing VMware investments, skills and tools while maintaining operational consistency with familiar technology including vSphere, HCX, NSX-T and vSAN
- Take advantage of Azure as the best cloud for your Microsoft workloads and leverage unmatched price benefits for Windows Server and SQL Server
- Seamless integration to your VMware environment with Azure.

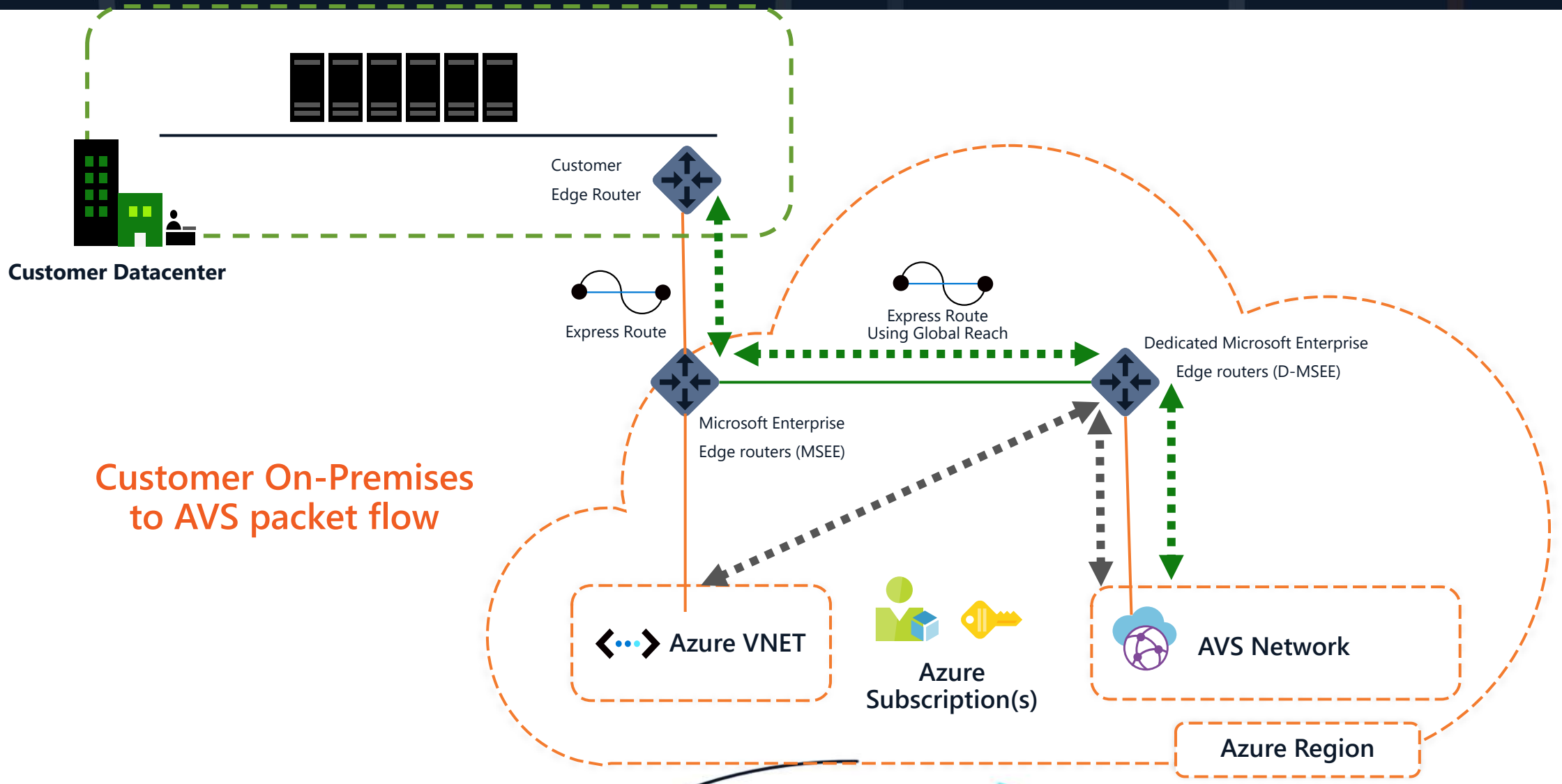
Use-Cases of AVS

- **Datacenter footprint reduction and migration:**
  - Reduce infrastructure footprint via “onetime re-deployment” to Azure in a nondisruptive, automated, and scalable fashion
- **Datacenter expansion:**
  - Can quickly scale out data center capacity on-demand for seasonal, temporary, or regional needs
- **Cloud desktop virtualization:**
  - VDI to burst on-premises virtual desktops to the cloud or protect them against disaster
- **Disaster recovery to the cloud:**
  - On-demand DR site for on-premises data center infrastructure with VMware Site Recovery Manager or partner solutions

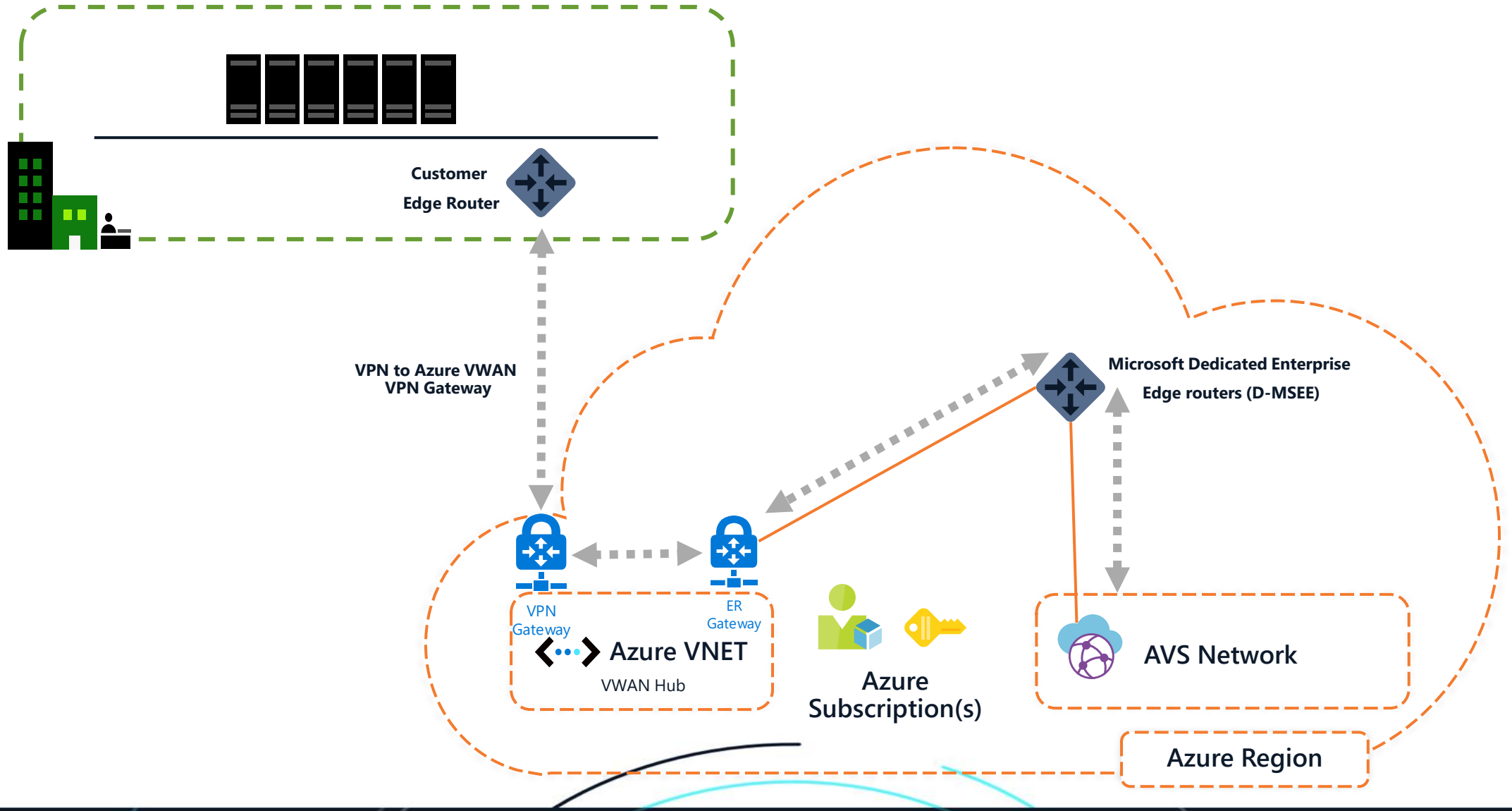
Basic Networking on AVS with Azure ExpressRoute



Networking using Global Reach – Full Interconnectivity



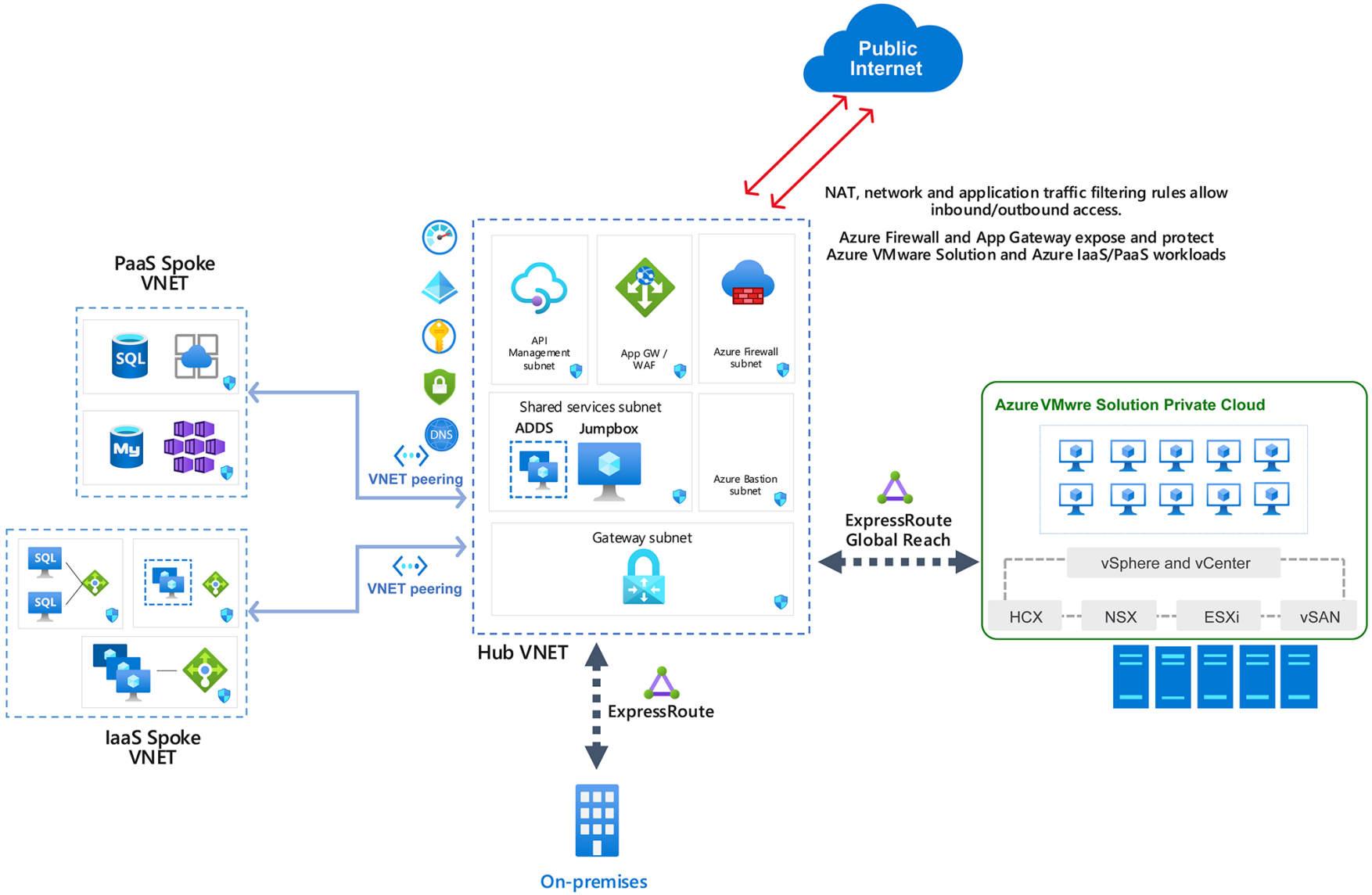
Networking using VPN



AVS Architecture

Architecture of running

AVS in a Hub and Spoke



Storage on AVS

- "VMware vSAN" is the primary storage for AVS VMs
- Based on Hyper Converged architecture – i.e. pools disks from all compute nodes to present a vSphere datastore
- Requires customers to always maintain 25% slack/free space on the cluster to qualify for SLA
- Two-tiered architecture of Cache Disks(NVMe Disks) and Capacity Disks (RAW Disks)
- Each ESXi host has two vSAN disk groups with a capacity tier of 15.2TB and a 3.2-TB NVMe cache tier.
- Key Features are as follows:
  - Encryption – FIPS 140-2 validated native encryption.
  - De-duplication and Compression.
  - Storage Policy Management – Failures to Tolerate, Failure Tolerance Method, IOPS per object
- AVS enables encryption by default on all AVS clusters – provider managed encryption.
- AVS uses highly configurable vSAN but cannot add more disks to nodes.
- Shrinking or moving a few huge storage servers(ex: DB's, Fileservers, Backup Hosts) can address constrained storage in AVS.
- Azure storage integration can be used workloads running in your private cloud.

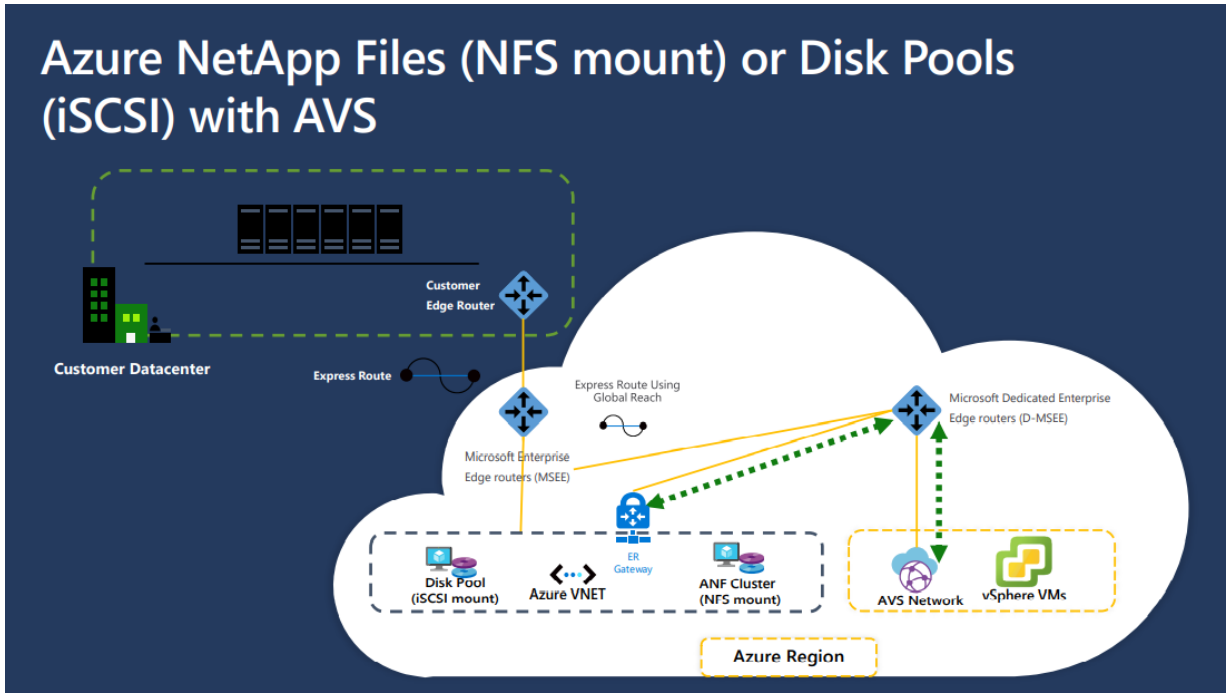
Storage Expansion Capacity for AVS

Azure NetApp Files

- NFS and SMB based protocol to expand File Shares on VMs running on AVS.
- Active Directory Integration(AD DS and Azure AD DS).

Disk Pools to AVS (Preview)

- Persistent block storage to applications and workloads backed by Azure Disks
- Scale up by using disk pools instead of scaling clusters.
- Can expose disk pool as iSCSI target on AVS Host as a datastore.



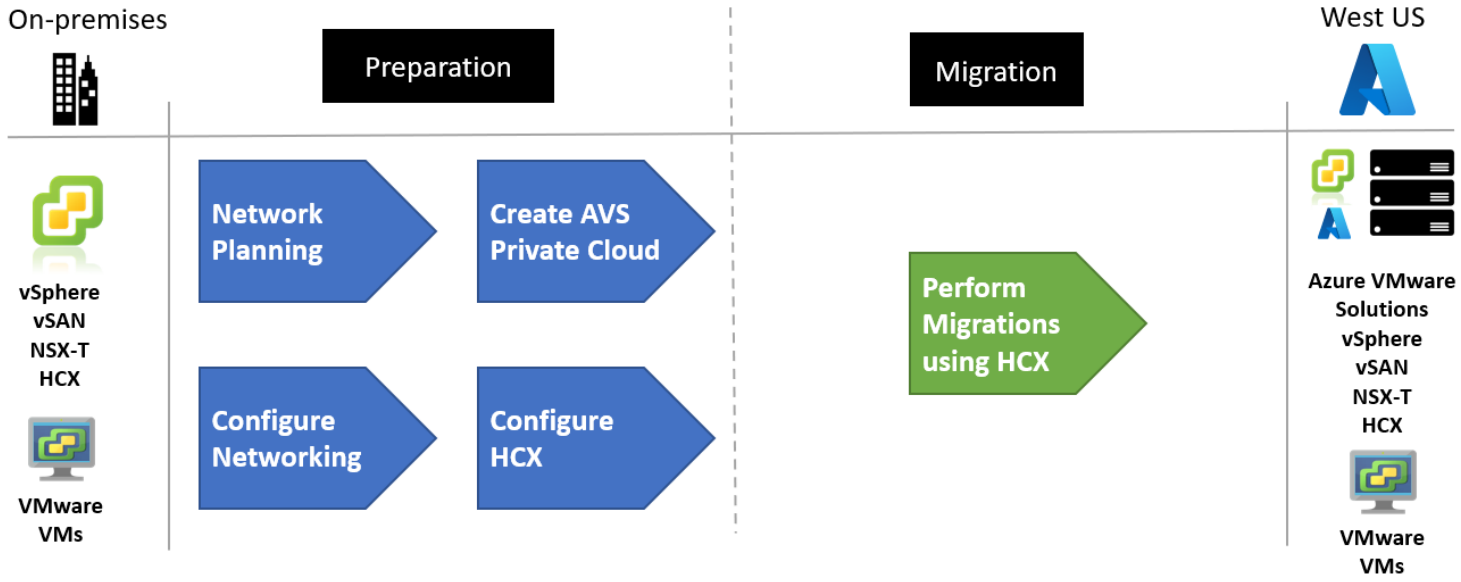
Migration to AVS

Azure Migrate

- Assess and migrate on-premises VMs.
- Run workloads using Azure infrastructure as a service (IaaS).
- Manage VMs with Azure Resource Manager.

VMware Solutions

- Use VMware HCX or vMotion to move on-premises VMs.
- Run native VMware workloads on Azure bare-metal hardware.
- Manage VMs using vSphere.



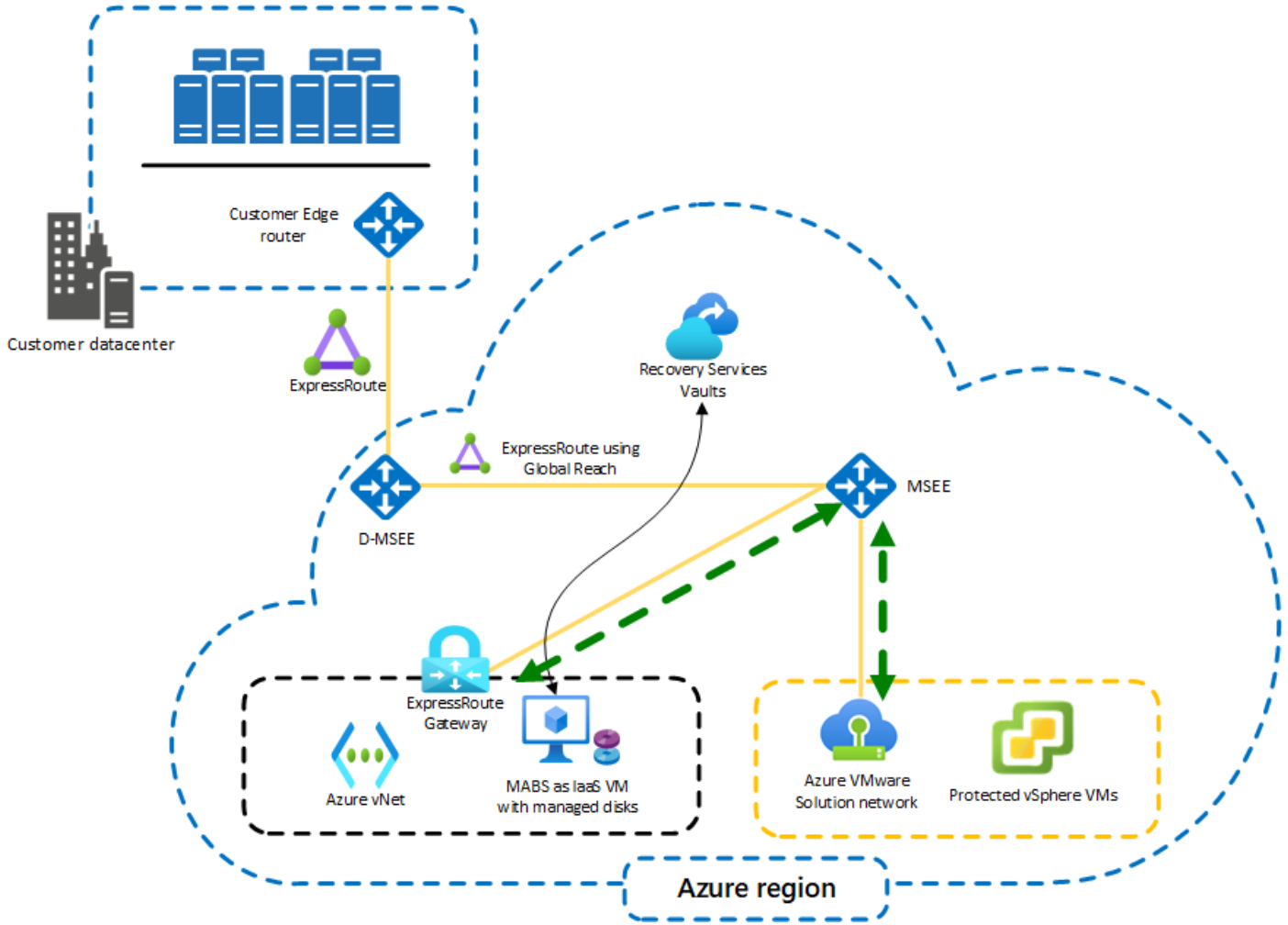
Backup for AVS

AVS Backup using Azure Backup Server

- Can only configure a virtual machine (VM)-level backup

Supported Features:

- Agentless backup
- Cloud-integrated backup
- Detect and protect VMs managed by vCenter
- Folder-level auto protection
- Azure Backup Server continues to protect vMotioned VMs within the cluster
- Recover necessary files faster



Disaster Recovery for AVS

VMWare Solutions

- VMware Site Recovery Manager
- HCX for DR (for Small Scale)

3rd Party Solutions

- Zerto DR
- Jetstream

Azure Native Solution

- Azure Site Recovery

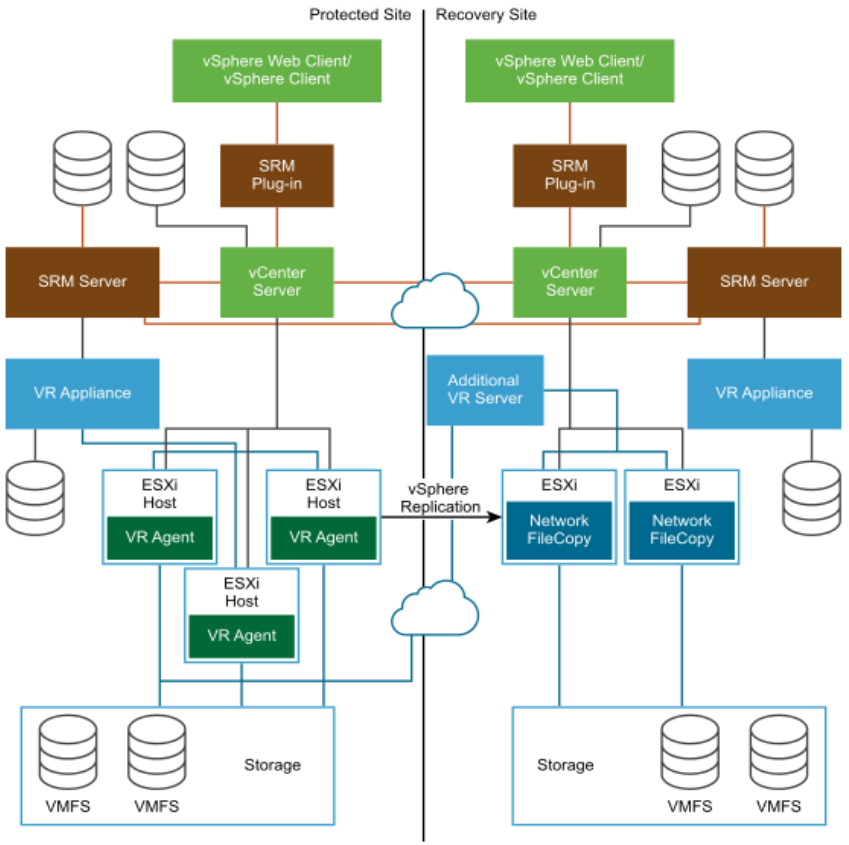
	On-Prem vCenter site → AVS	AVS → AVS	AVS → Azure IaaS
VMware SRM	✓	✓	
VMware HCX for DR	✓	✓	
JetStream DR	✓	✓	
Zerto	✓	✓	✓
Azure Site Recovery			✓

	Low-cost/high RTO option with replication to Azure Blob Storage	Low-cost/Low RTO option with recovery on Azure native IaaS	High-cost/low RTO with replication to live AVS site
JetStream DR	✓		✓
Zerto	✓	✓	✓

Disaster Recovery for AVS

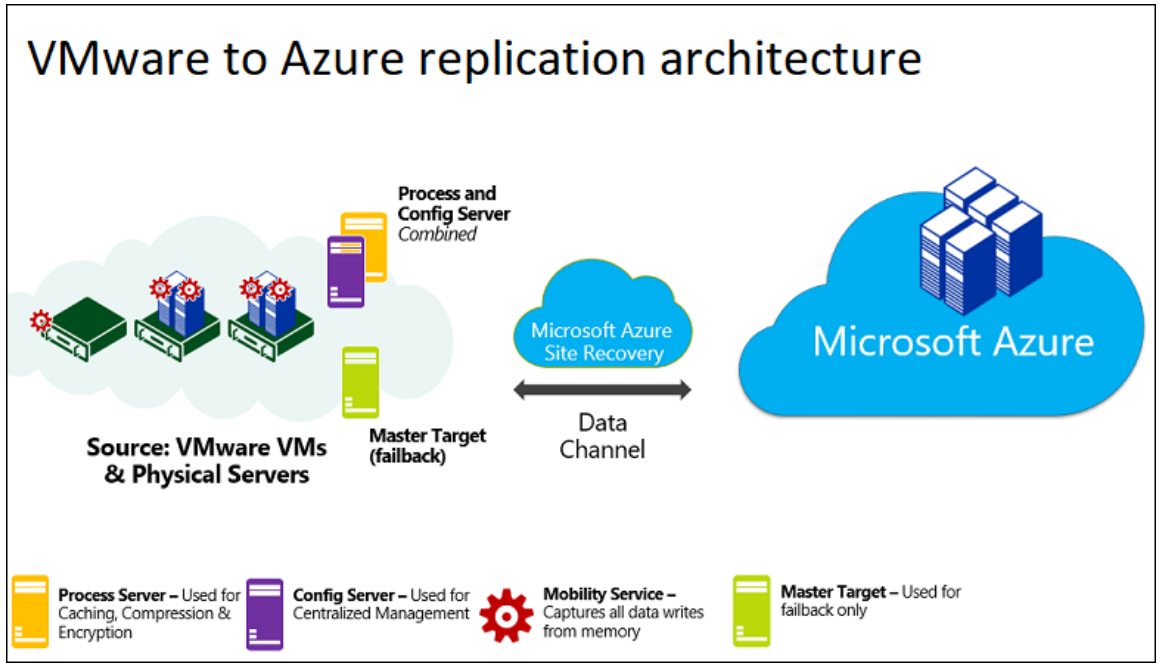
VMware Site Recovery Manager

- SRM for on-prem to AVS Site
- SRM for AVS-to-AVS Secondary Site



Azure Site Recovery

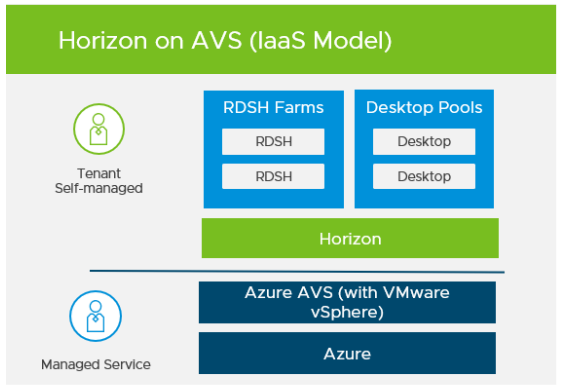
- Uses same setup of ASR for VMware Vm's
- Can do AVS to Azure and Azure to AVS DR scenarios.



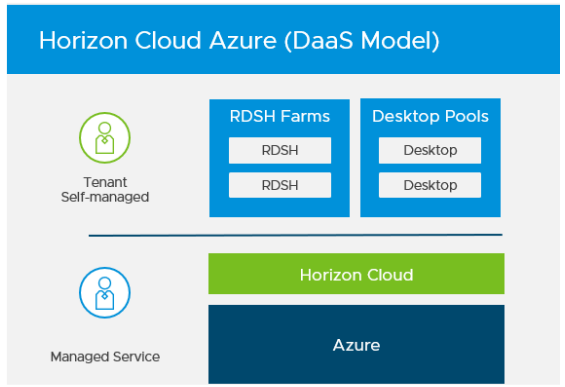
VDI Solutions on AVS

VMware Horizon on AVS

Differences between VMware Horizon on Azure VMware Solution and VMware Horizon Cloud on Azure

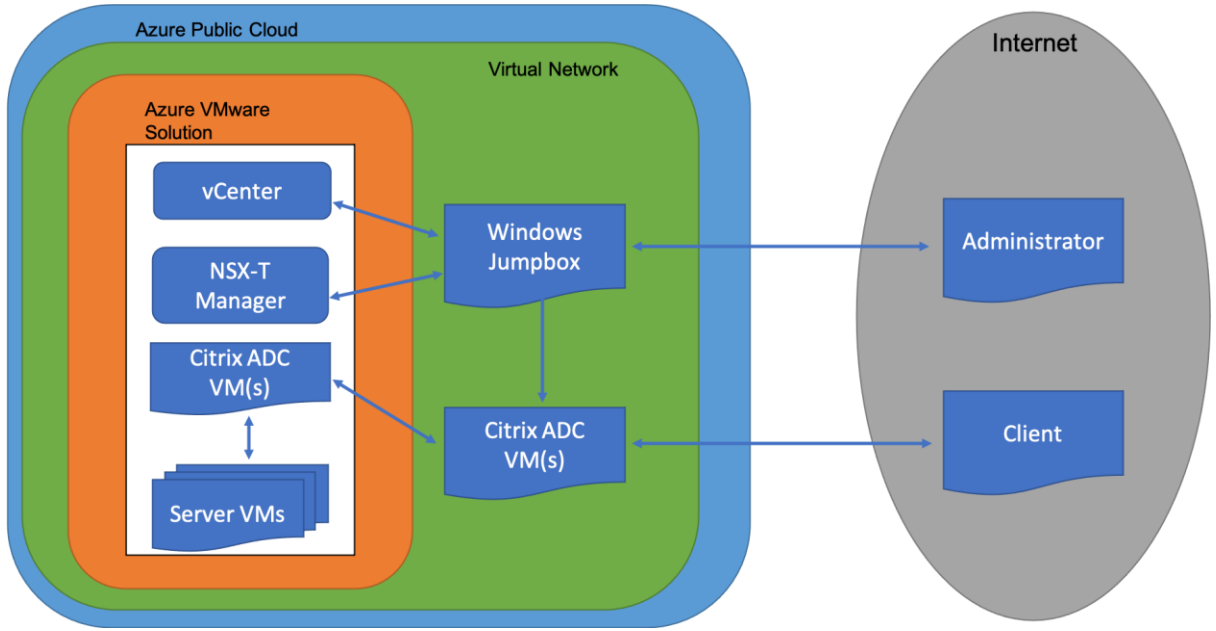


- Customer managed
- VMware SDDC (enables Instant Clone, vMotion, Content Library, etc.)
- Same Horizon architecture and features as on-premises



- DaaS, supports Azure Windows Virtual Desktop
- Uses native Azure instances - no vSphere
- Different architecture as on-premises Horizon

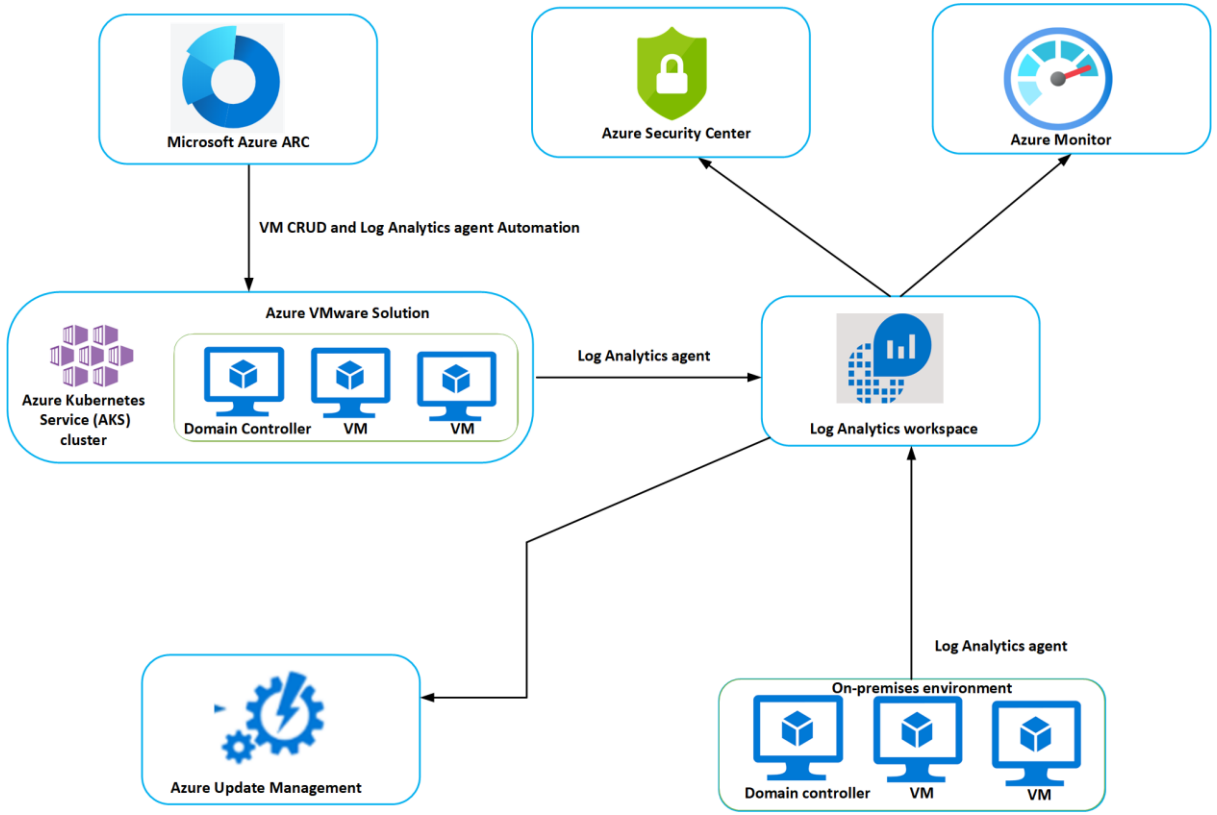
Citrix on AVS



Monitoring for AVS

Monitoring of AVS using Azure Native tools

- Support Azure Monitor for VM's deployed on AVS
- Log collection and performance counter collection using Log analytics
- Integration with Azure ARC for Patch Management, Change Tracking, Guest OS policy management.
- Supports Alerting and mitigations for various performance metrics using Azure Action groups in Azure monitors.
- Security assessments using Microsoft Defender for Cloud



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SNP’s Approach for AVS

Discovery of VMware Environment:

- Collect information about servers running on existing VMWare infrastructure and identify the servers in scope for Azure VMWare Solution migration .
- Perform assessment of identified servers using Azure migrate to plan the Azure VMWare Solution resources like number of hosts & clusters, size of the hosts & clusters and cost to run the solution in Azure
- Perform the dependency mapping analysis to identify the dependencies for the identified servers in scope for migration to prepare the migration groups and batches
- Learn about existing network management strategies for VMWare environment to plan the network design for Azure VMWare Solution
- Learn about the connectivity needs to prepare the hybrid network architecture to enable communication between on-premise VMWare environment and Azure VMWare Solution
- Learn about the existing migration strategy for servers between ESXi cluster to plan the server migration to Azure
- Learn about existing backup and disaster recovery strategy to prepare the backup & disaster recovery for Azure VMWare Solution
- Identify the Azure subscription, region to deploy the Azure VMWare Solution

AVS Planning and Design:

- Prepare dependency mapping report using Azure Migrate and Movere data which consists of:
  - Applications
  - Data infrastructure
  - Operational infrastructure
- Prepare Azure VMWare solution architecture with hosts, clusters representation.
- Design the Network Architecture to connect AVS to other virtual networks in Azure and to connect to on-prem environment.
- Prepare cost metrics for:
  - Azure hosting cost involved for compute and storage based on finalized migration batches.

Solution Setup with Server Migration:

- Deploy Azure VMWare Solution, configure NSX-T and storage policies.
- Connect Azure VMWare Solution with Azure virtual network using Express Route Gateway.
- Connect Azure VMWare Solution with on-premises environment using existing Express Route circuit.
- Install and configure VMWare HCX connector on Azure VMWare Solution and in on-premises VMWare environment to enable workload migration.

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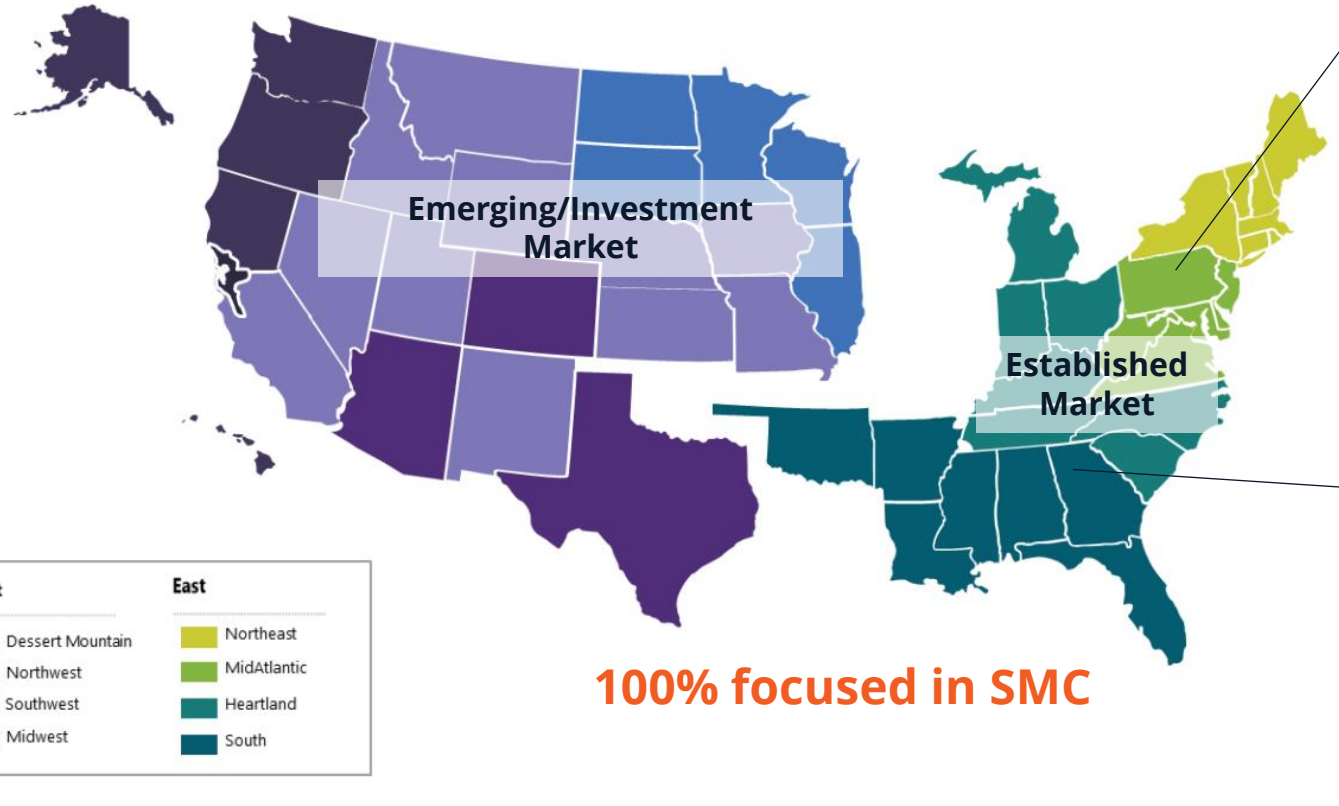

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