



Azure VMware Solution



Agenda



AVS Overview



Key Features



Compute & Storage



Migration



Networking



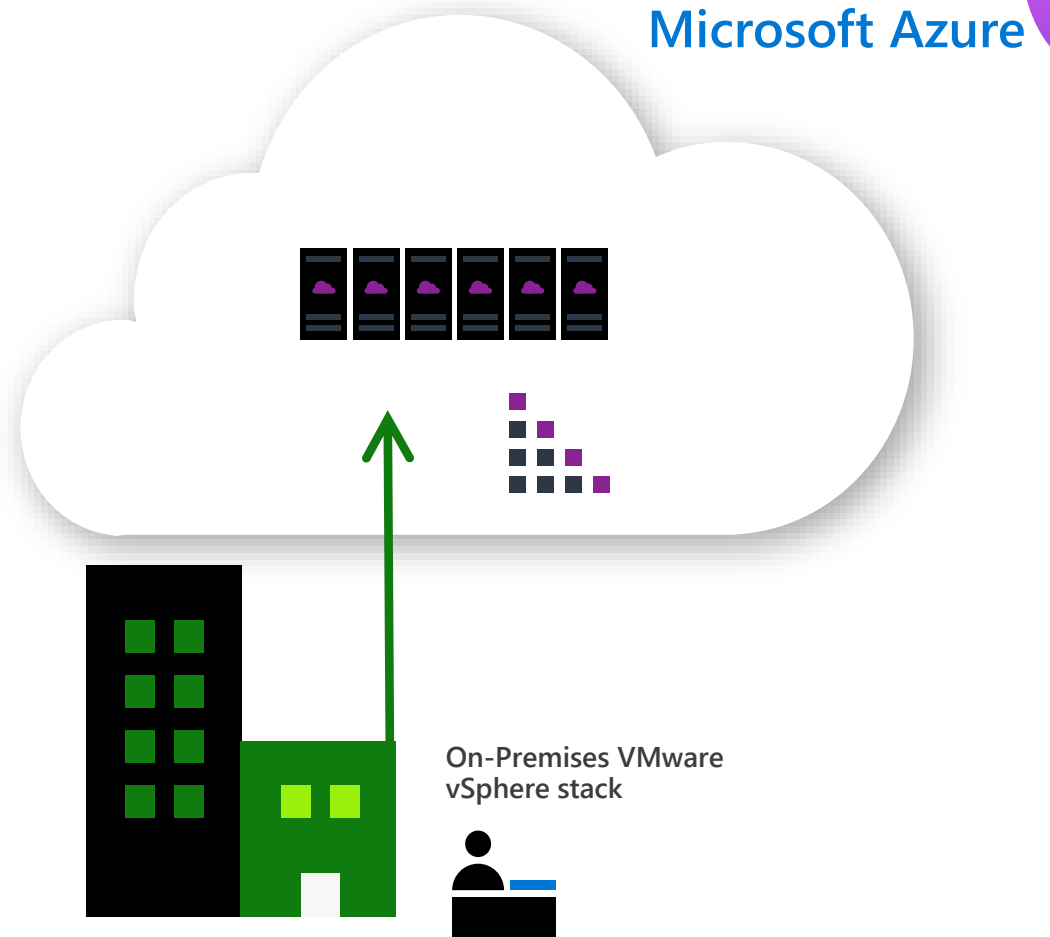
Backup & DR

Azure VMware Solution



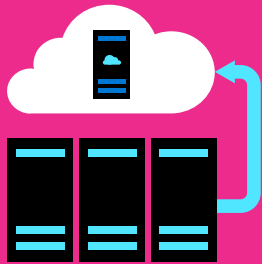
Azure VMware Solution

- It is a comprehensive VMware environment on dedicated Azure infrastructure. Built by Microsoft.
- It runs your VMware workloads natively on Azure, supported and operated by Microsoft.
- It allows you to manage, and secure applications across VMware environments and Microsoft Azure with a consistent operating framework.

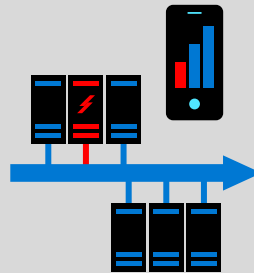


Top Customer AVS Scenarios

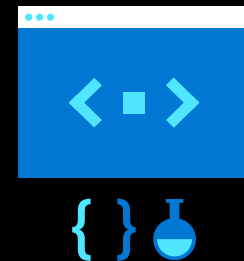
Datacenter footprint expansion,
reduction, or retirement



Disaster recovery
& business continuity



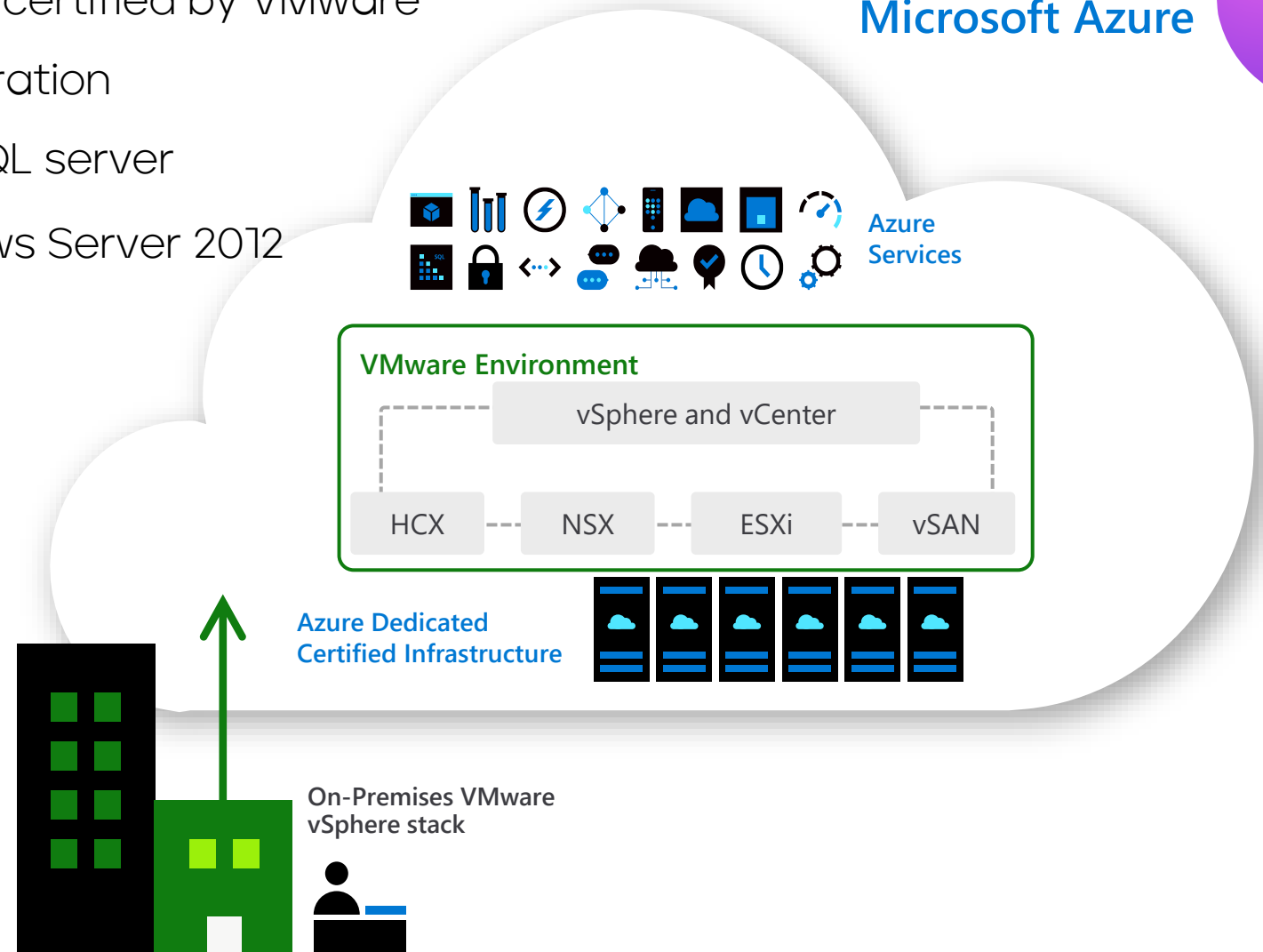
Application Enhancement
modernization



Key features

- Microsoft [first party Azure service](#), cloud certified by VMware
- Seamless [Azure experience](#), native integration
- [Azure Hybrid Benefit](#) for Windows and SQL server
- Free [extend security updates](#) for Windows Server 2012
- [Single Point of Support](#)
- Latest [VMware technology updates](#)
- [HCX Enterprise Edition](#) available
- High performance [Dedicated hosts](#)
- Unified [licensing and consumption](#)
- [Simplified NSX Interface](#)

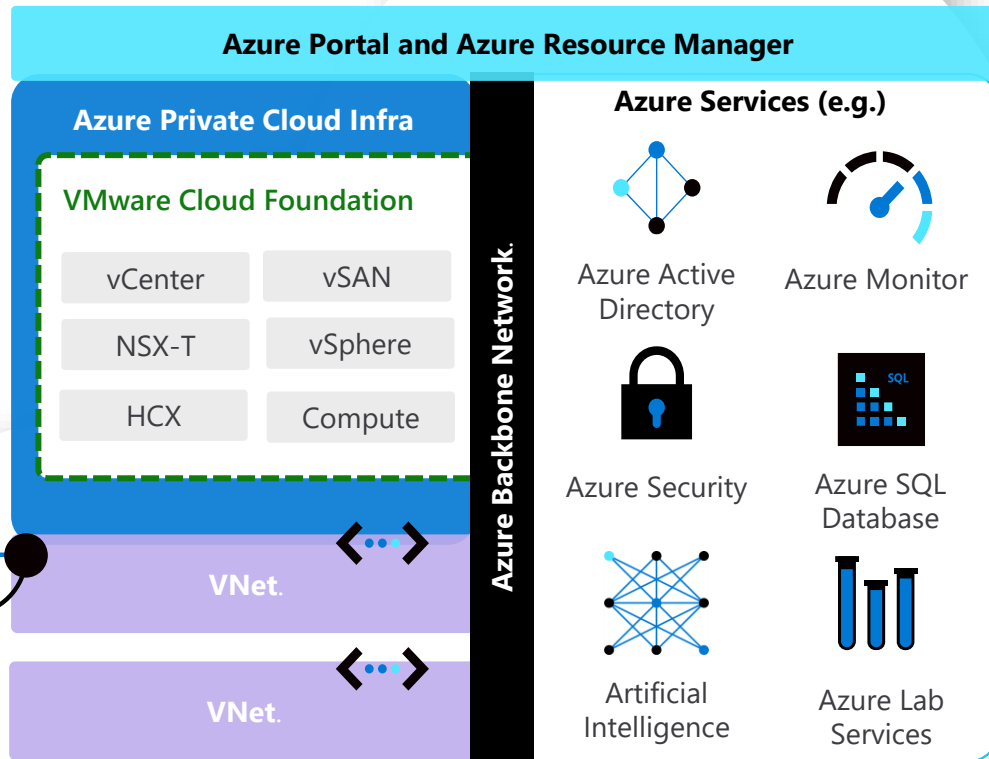
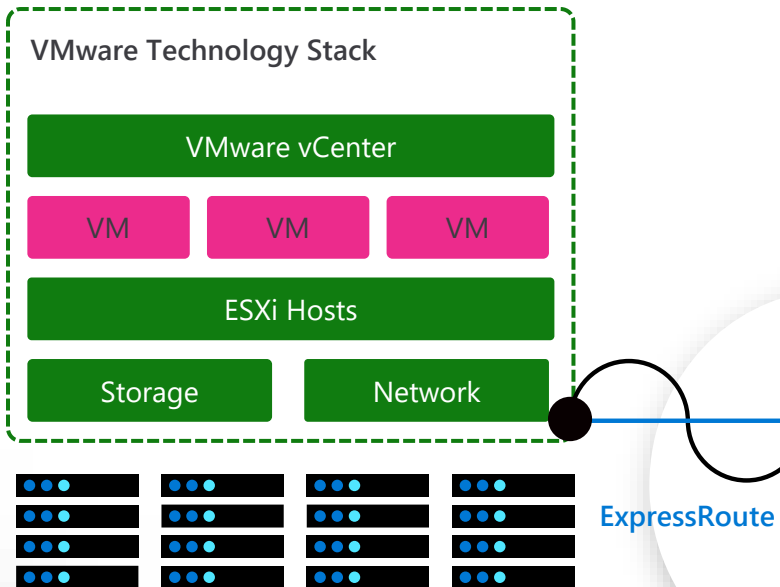
Microsoft Azure



Azure VMware Solution – Run VMware natively on Azure

Microsoft Azure

On Premises Datacenter



Azure VMware Solution Software and Hardware Package

Software Specifications

ESXi 6.7U3 Enterprise Plus
vCenter 6.7U3 Standard
vSAN 6.7 Enterprise
NSX-T 2.5 Advanced
HCX R139 Advanced



*HCX Enterprise Now Available



Hardware Specifications

Model – AV36 (36 cores)
CPU– Intel Xeon Gold 6140 2.3 GHz
Memory – 576 GB
Storage vSAN Caching – 2 × 1.6 TB
NVMe
Storage vSAN Capacity – 8 × 1.92 TB
SSD
Network – 2 × Mellanox ConnectX– 2 Lx
Dual Port 25 GbE



Hourly PAYG billing monthly currently

1-year or 3-year Reserved Instance

Requires min 3 nodes, single nodes added as required

HCX Enterprise is available as a monthly add-on

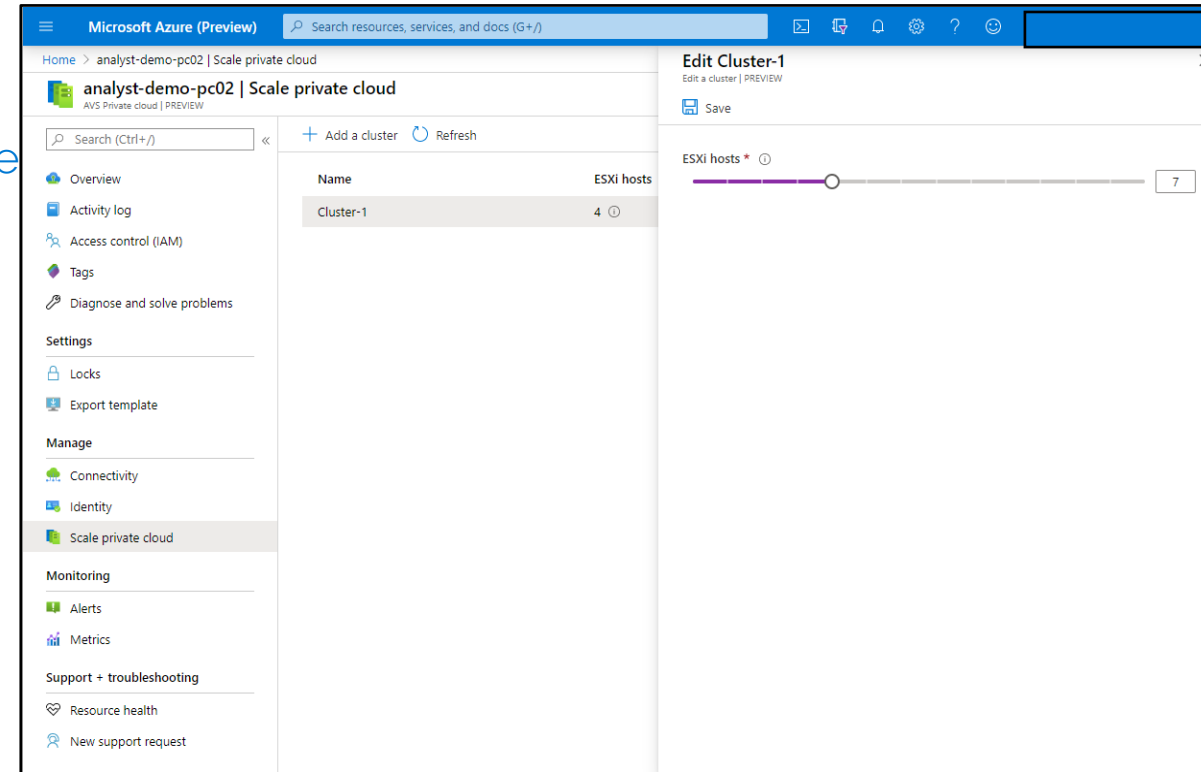
Seamless management for Azure infrastructure resources

Easily scale infrastructure as your business needs it through the Azure Portal.

Add new nodes as required to increase compute and storage during peak times. And delete nodes seasonally when infrastructure demands are lower.

Add and delete new clusters as required:

- Min 3 nodes per cluster
- Max 16 nodes in a vSphere cluster
- Max 64 nodes to an Azure Private Cloud instance



Targeted Compliance Certifications at General Availability

Global, Regional, Industry and US Government
certified compliance standards available at
general availability

More underdevelopment and aligned to regional
rollout of Azure VMware Solution



ISO
27001



ISO
27018



ISO
27017



ISO
22301



GDPR
Compliant



SOC 1
Type 2



SOC 2
Type 2



HIPAA
/HITECH
Act



PCI DSS
Level 1



High
DOD-IL4

Application High Availability with AVS

Failure Mode	Protection Available?
Disk Failure Protection	✓
Fan Failure Protection	✓
NIC Failure Protection	✓
Host Power Failure Protection	✓
ESXi Host Failure Protection	✓
VM Failure Protection	✓
Switch Port Failure Protection	✓
Switch Failure Protection	✓
Rack Failure Protection	✓
Datacenter Failure Protection	✓
Regional Failure Protection	✓

Modern well managed [Azure Infrastructure](#) designed for end-to-end High Availability

No single Point of failure, [built in redundancy](#)

[Robust infrastructure](#) you can have trust and confidence in

Microsoft support – single point of contact

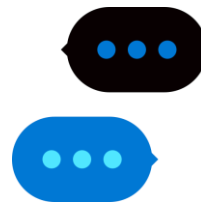
Azure VMware Solution is validated, supported, and certified by VMware and Microsoft.



Problem Management

Microsoft is first contact and will make decision based on problem type.

Azure-related issues are addressed by Microsoft.



When VMware support is required

Microsoft coordinates with VMware for product-specific support.

Microsoft continues to be central point to resolution.

Built with
VMware,
delivered by
Microsoft

VMware cloud
verified



Delivery Approach per AVS environment

Discovery & update Azure & On-Premises configurations

Source discovery

Validate Pre-requisites

- Determine AVS sizing
- Capacity allocation
- Connectivity (ER Global reach)
- Azure Landing Zone
- AVS LZA

Design & Build Azure VMware Solution

Design AVS end-state

Plan firewall & network

vSphere & NSX
Configs

HCX Setup

- Site Pair & Service Mesh

Migrations

Pilot (test) migration

Migrate VMs in waves

- Cutover

Post migration
activities

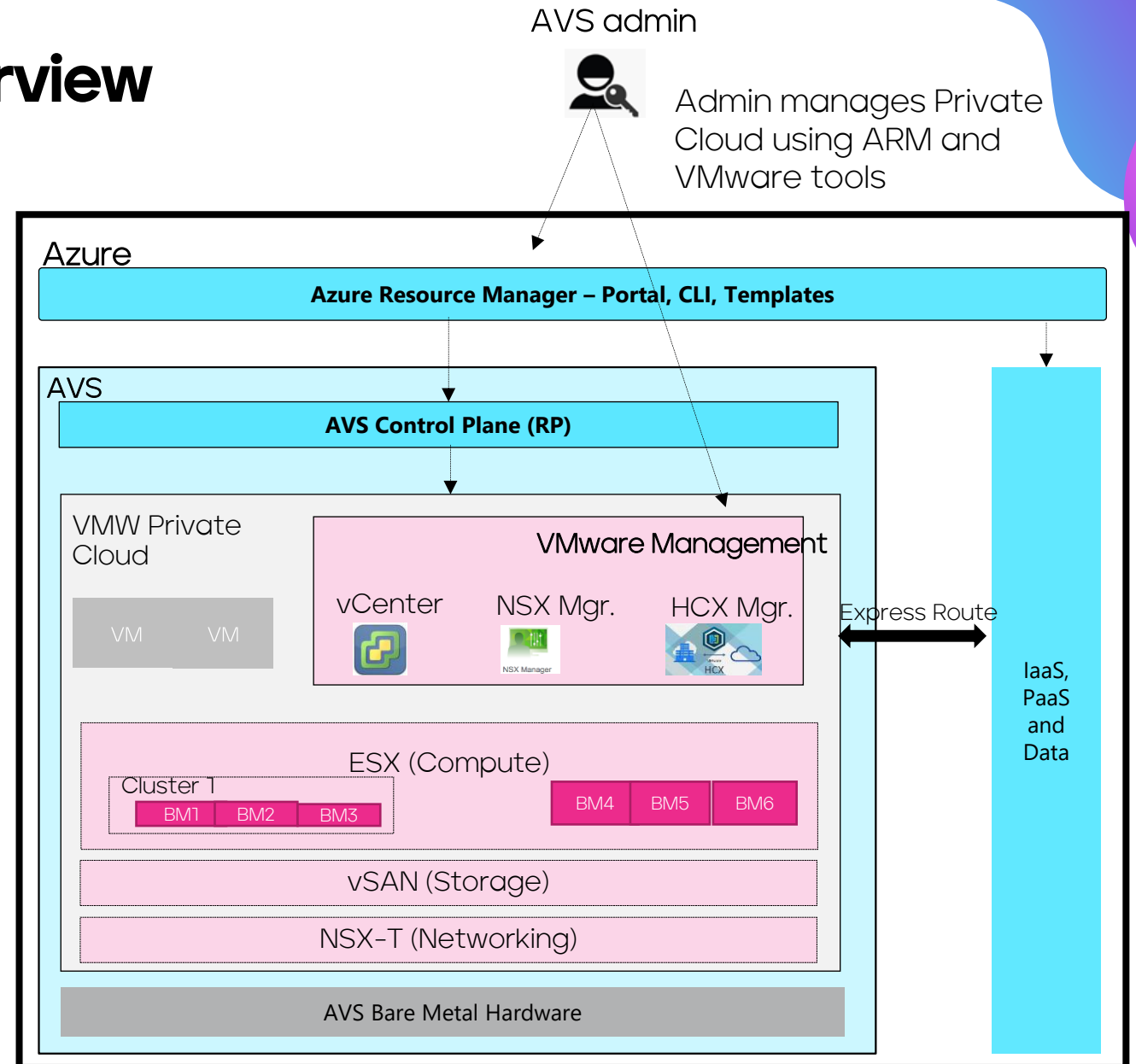
- Validate workloads
- Day 2-operations

5-8 Weeks per environment

Compute & Storage

Azure VMware Solutions Overview

- Enables an Azure admin to use ARM to provision and scale a VMware Private Cloud (PC)
- Every PC has its own local vCenter, NSX-T and HCX Manager
- PC can optionally be connected to Azure IaaS/PaaS and Data via an internal AVS managed Express Route
- Support for multiple vSphere clusters per Private Cloud & scale up/down of a cluster
- PC can optionally be connected to customer's on-premise infrastructure via VPN or Global Reach
- AVS manages Deployment, Monitoring, Repair, Upgrades, Billing and Compliance for the Private Cloud



AVS Compute Overview

- AVS SLA – 99.9% availability for
 - “VMW Management VMs”
 - “All VMW VMs”
 - Customers required to maintain required configurations to qualify for AVS SLA – e.g. maintain free vSAN space, right vSAN policy
- AVS Maintenance
 - “AVS Control Plane” and “VMware SDDC” update triggers– major/minor releases and patch updates
 - Cadence – quarter updates (patch and major/minor) initially. Monthly patch updates over time.
 - Private Cloud Upgrade coordinated with customers pro-active SRs
 - SLA regulations don’t apply during planned maintenance
- Key Post GA Features
 - Placement Policy – ability to define VM-Host affinity, VM-VM affinity and anti-affinity policy, disable DRS vMotion, ..
 - Custom Core Counts – ability to define active CPUs on any node in the cluster
 - Terraform based AVS operations – private cloud and cluster operations

AVS vCenter IAM

- No vCenter administrator access to AVS tenant admin
- AVS implements custom vCenter role called "CloudAdmin" with permissions required for tenant operations
- Ability to configure vCenter with remote Active Directory users and groups
- Customer's Active Directory could be running either on-prem, customer's Azure vNET or on AVS

The screenshot displays the AVS vCenter Identity console interface. The left sidebar contains a navigation menu with sections: Settings (Locks, Export template), Manage (Connectivity, Identity, Scale private cloud), and Monitoring (Alerts, Metrics). The 'Identity' section is highlighted with a red circle labeled '1'. The main content area shows the 'Identity Sources' tab, with a red circle labeled '2' over the 'Identity Sources' header. Below this is a table with columns 'LDAP group' and 'Primary server'. The right panel is titled 'Add a new Identity source' (marked with a red circle labeled '3') and is in 'PREVIEW' mode. It contains several form fields: 'LDAP group *', 'Base DN for users *', 'Base DN for groups *', 'Domain name *', 'Domain alias *', 'Username *', 'Password *', 'Primary server URL *', and 'Secondary server URL'. Each field has a red asterisk and an information icon. At the bottom, there is a checkbox labeled 'Protect LDAP communication using SSL certificate (LDAPS)'.

AVS vSAN Overview

- "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
- Two-tiered architecture
 - Cache Disks and Capacity Disks
 - AVS uses 3.2-TB NVMe for Cache and 15.36 TB Raw for Capacity drives
- vSAN Key Features
 - 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

The screenshot displays the vSAN Datastore configuration interface. On the left, a tree view shows the hierarchy: 10.245.0.2 > SDDC-Datacenter > ma-ds-52f59962-ace817fc-b7a4-5d1... > vsanDatastore. The main panel is titled 'vsanDatastore' and includes tabs for Summary, Monitor, Configure (selected), Permissions, Files, Hosts, and VMs. A 'More' dropdown menu is open, showing options: Alarm Definitions, Scheduled Tasks, General (selected), and Hardware Acceleration. The 'Properties' section shows Name: vsanDatastore and Type: vsan. The 'Capacity' section provides a summary: Total Capacity 41.92 TB, Provisioned Space 17.33 TB, and Free Space 25.11 TB. The 'Datastore Capabilities' section shows Storage I/O Control as 'Not supported'. The 'Default Storage Policy' section shows the policy as 'vSAN Default Storage Policy'. The 'Improved Virtual Disk Home Storage Policy' section shows the home object policy as '--'.

Capacity	
Total Capacity	41.92 TB
Provisioned Space	17.33 TB
Free Space	25.11 TB

Datastore Capabilities	
> Storage I/O Control	Not supported

Default Storage Policy	
Policy	vSAN Default Storage Policy

Improved Virtual Disk Home Storage Policy	
Home object policy	--

Azure VMware Solution – Shared responsibility Matrix

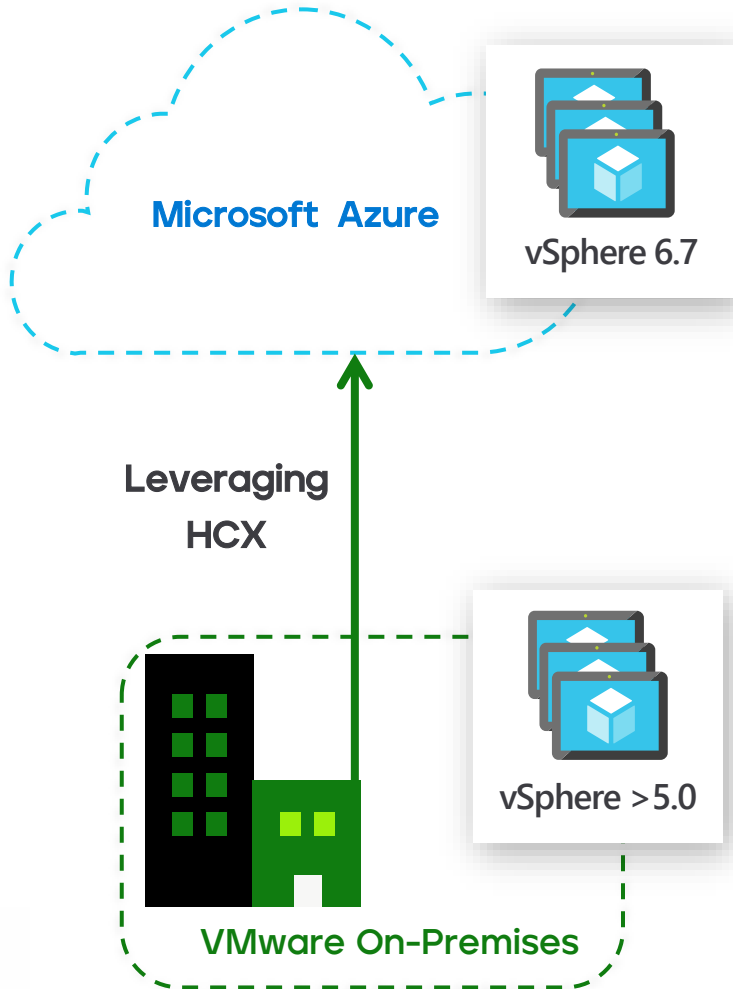
Control boundaries

	Physical Infrastructure	Physical Security	Azure/AVS Portal	Hardware Failures	ESXi Host	Host Patching	NSX-T	Identity Management	vCenter	VSAN	Guest OS	Applications	Virtual Machines
Deployment													
Life-Cycle													
Configuration													

- Microsoft Responsibility
- Customer Responsibility

Migration

Using VMware HCX for Migration to Azure VMware Solution



- Large scale [bulk migration](#) using HCX
- [Replication Assisted vMotion](#)
- Any [vSphere to vSphere](#) migration
- [vSphere version upgrade](#): vSphere 5.0+ to any current vSphere version
- [HCX for site pairing](#) and DR
- [Parallel VM migration](#) threads
- [No change in IP](#), no NAT
- [Secure proxy](#) for vMotion and replication traffic

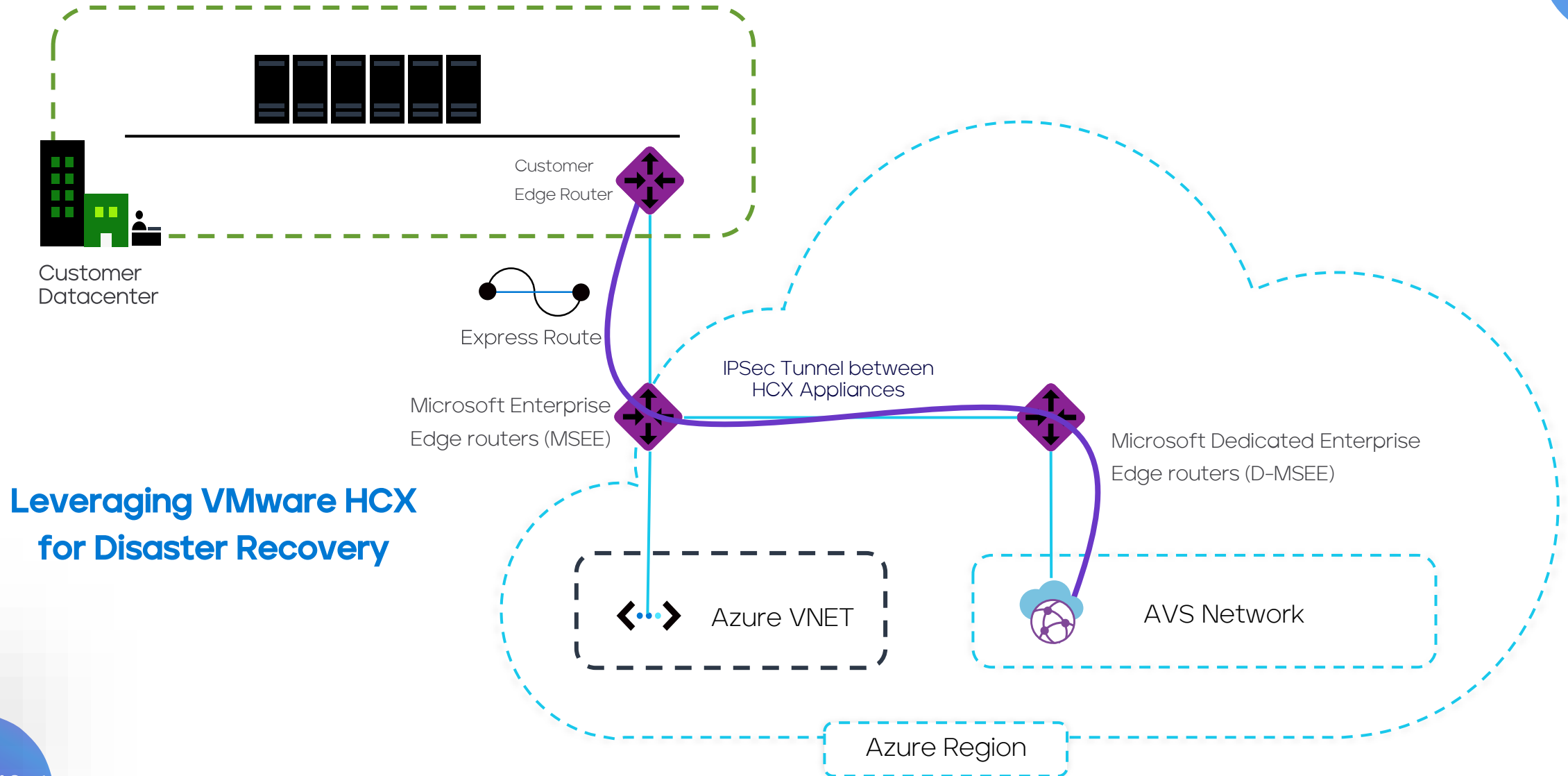
Networking

Key Networking Features

- ExpressRoute based connectivity to Azure and On-Prem
- Global Reach used to connect On-Prem ER to AVS ER
- ExpressRoute Gateways for AVS to Azure Vnets
- NSX-T only for SDDC Networking
- Simplified NSX-T interface for workload segments
- Public to AVS
- Compatible with Azure Application Gateway for http/https traffic
- L4 DNAT for non-http(s) traffic
- Site to Site Routed VPN support
- Built on Azure VWAN technology
- HCX over VPN enabled in limited mode only for POC's/customer trials of AVS. No SLA from Microsoft or VMware for production use
- **ExpressRoute is the only supported way to use HCX**
- Automated SDDC network connectivity
- SDDC creation to first Azure Vnet
- Future – Global reach to on-prem ER circuit(s)
- Future – Automated VPN VWAN deployment

Backup & Disaster Recovery

DR using HCX



**Leveraging VMware HCX
for Disaster Recovery**

Education



Thank You

