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VCF  
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# Cost-effective Near Zero RPO / RTO with Azure VMware Solution (AVS)

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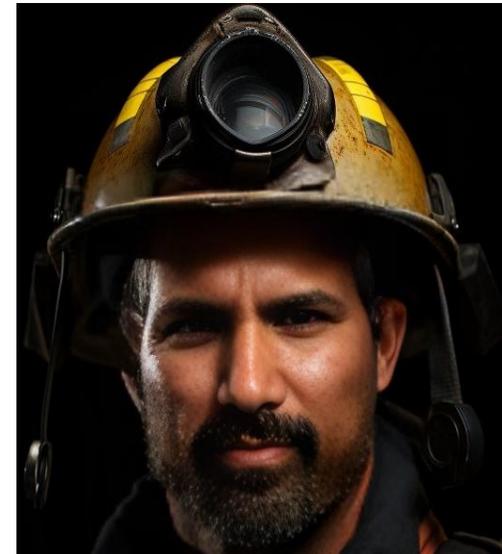
# Sud



- Infrastructure Architect, passionate Tech Enthusiast
- 20+ years in IT industry
- Love solving problems, cycling, cooking & sporting



- Hybrid Cloud Solution Architect
-  **avanade** Global ICOE
- Living in Almere, Flevoland



# Agenda

- AVS – Overview
- Gen 1 vs Gen 2
- JetStream DR – Overview
- SLAs delivered with JetStream BCDR protection
- Core Architecture
- Failover / Failback Scenarios
- Ransomware Protection
- Learnings & Recommendations

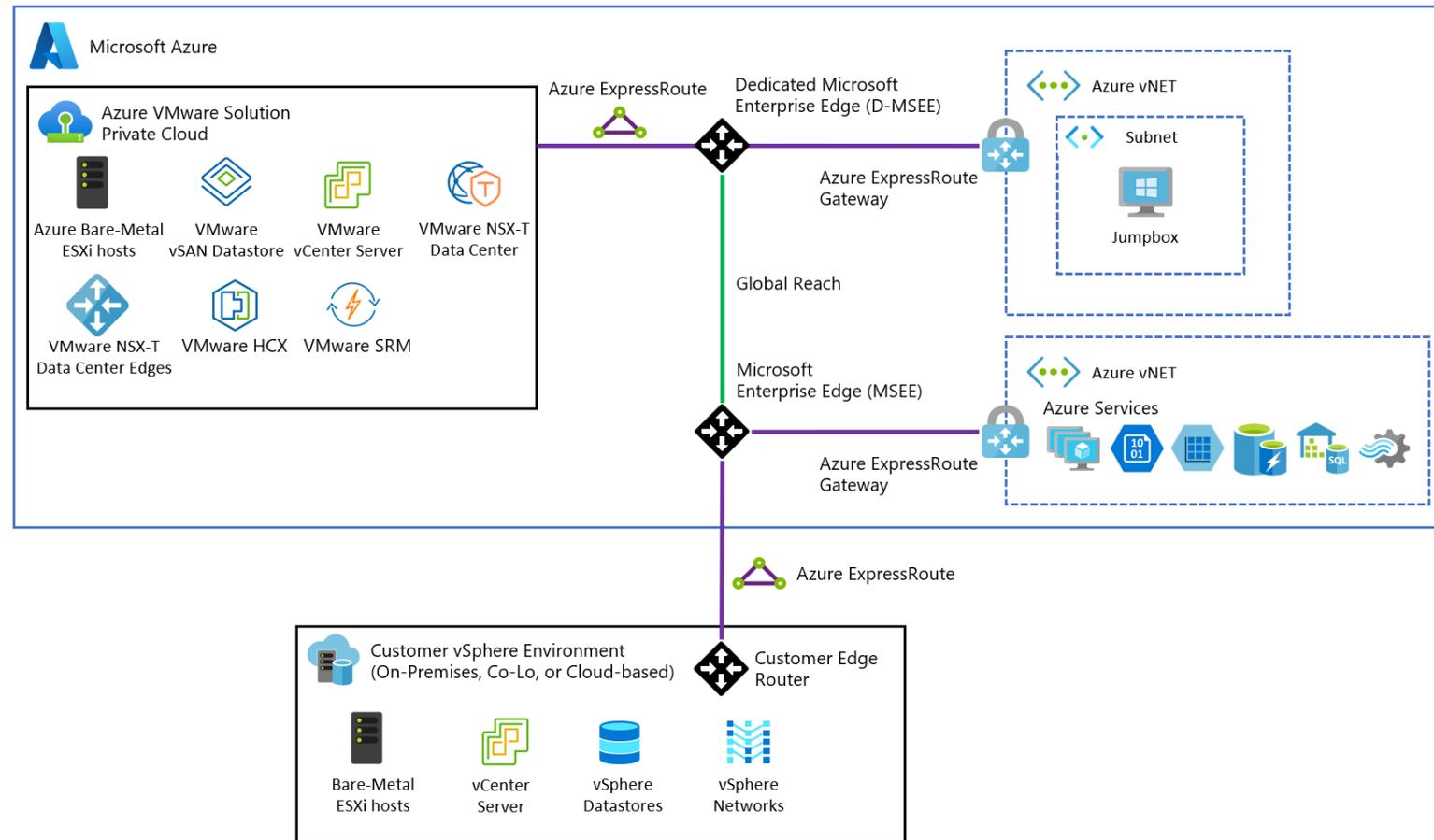
# AVS - Overview

AVS is your **VMware environment, just in Azure** – same tools, same operational model, but with ***cloud-scale elasticity, integrated security and modernization options.***

- **35+** Azure regions worldwide, including **Azure Government Cloud**
- Lift & shift workloads without refactoring – accelerated migration
- Native integration with Azure Blob, ANF, Defender for Cloud etc
- SRM or JetStream DR (cost-effective with Near Zero RPO / RTO)
- Save 30 – 50 % with Reserved instances (RIs); AHB; No ESU for Win / SQL servers
- Modernize at your own pace – integrate with AKS, DB & AI services

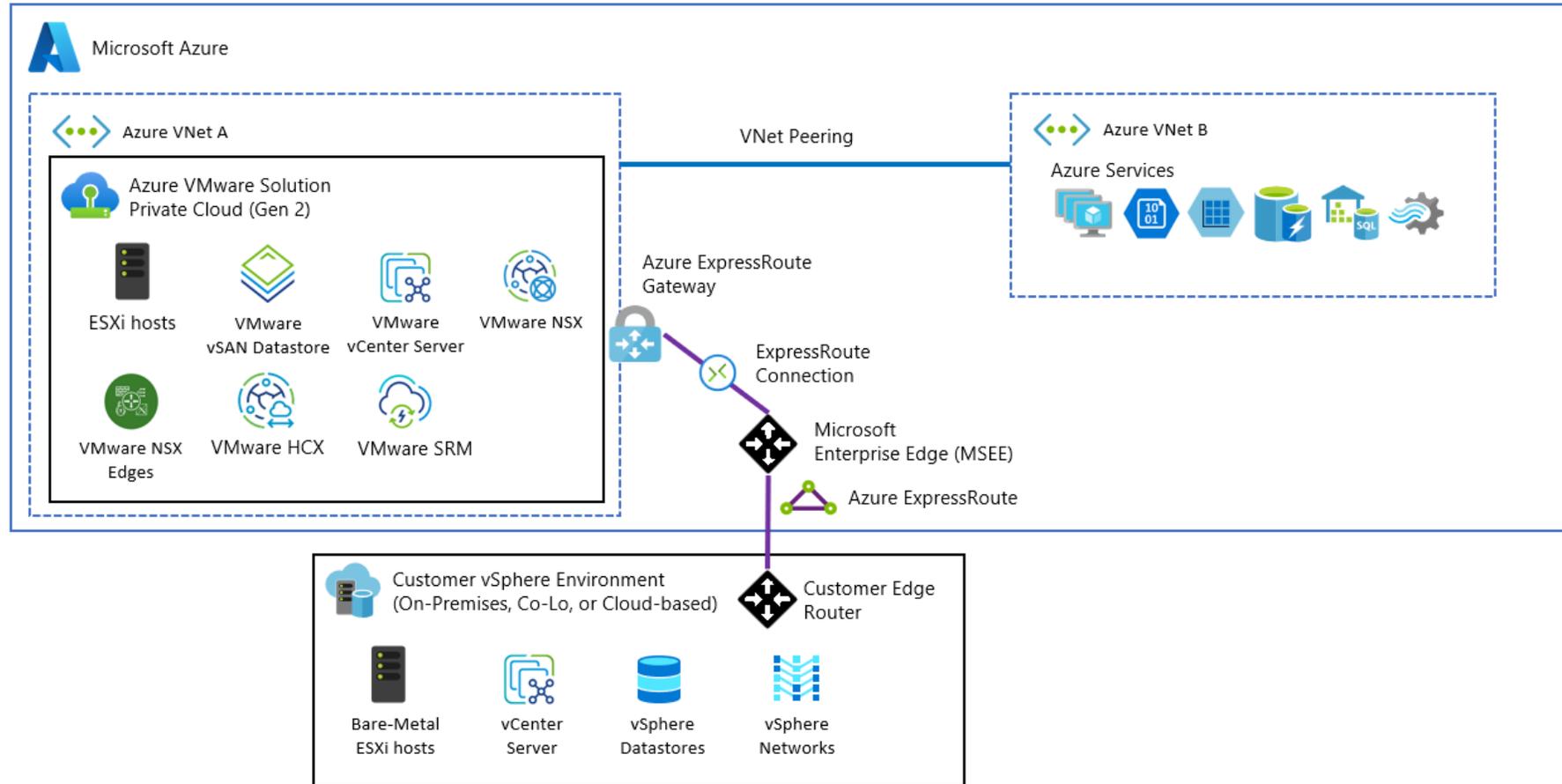
*Best suited - DC Exit, cost-efficient DR, Hardware Refresh / Hybrid Expansion*

# Gen 1 – Network Architecture Overview



*Mostly looked upon as “migration-only” solution*

# Gen 2 – Network Architecture Overview



*Transition towards a high-performance hybrid cloud platform*

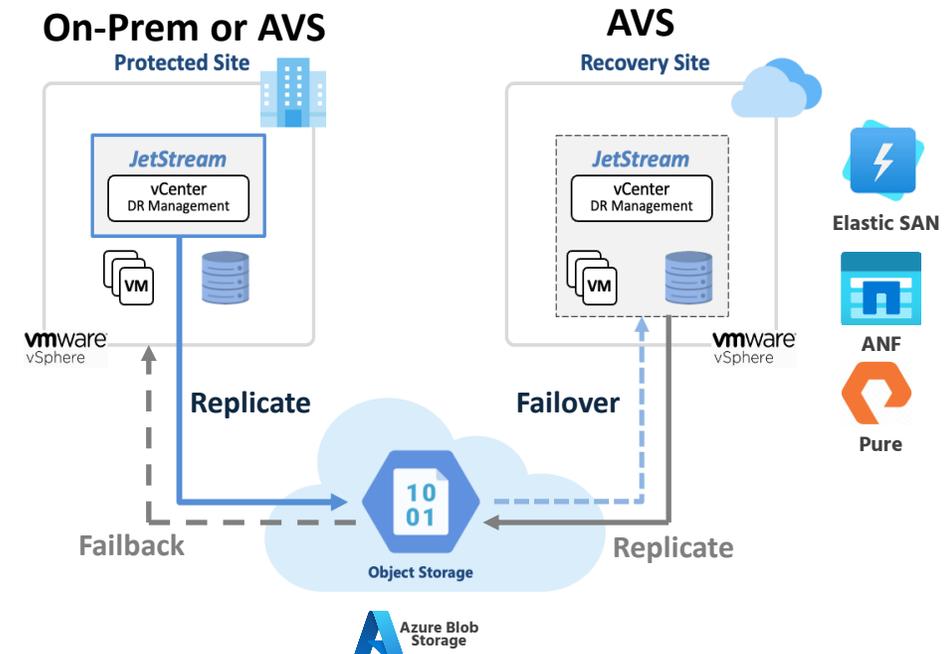
# Gen 1 vs Gen 2

- ✓ Networking Architecture – ExpressRoute / VNet
- ✓ SKUs supported – AV36, AV36P, AV48, AV52, AV64 / Only AV64
- ✓ Storage Architecture – OSA / ESA
- ✓ Performance & Integration – Traditional / Azure Boost (100 Gbps)
- ✓ Security & Operational Enhancements – NSG / AZ / Private DNS etc

*Gen 2 AVS with Azure Boost transforms AVS from a “migration-only” solution into a high-performance hybrid cloud platform*

# JetStream DR – Overview

- Continuous Data Protection
  - Always near-zero RPO
  - Near-zero RTO options
- IO Filter architecture – No agents / snapshots
- Lower operating cost
  - Replicate to Blob storage
  - Pilot light cluster for Mission Critical VMs
- Ease of use with vCenter console (plugin)
- Deployment flexibility
  - On-prem to AVS and AVS to AVS
  - PITR for malware / ransomware recovery
  - Non-linear storage expansion with ANF, CBS & ESAN



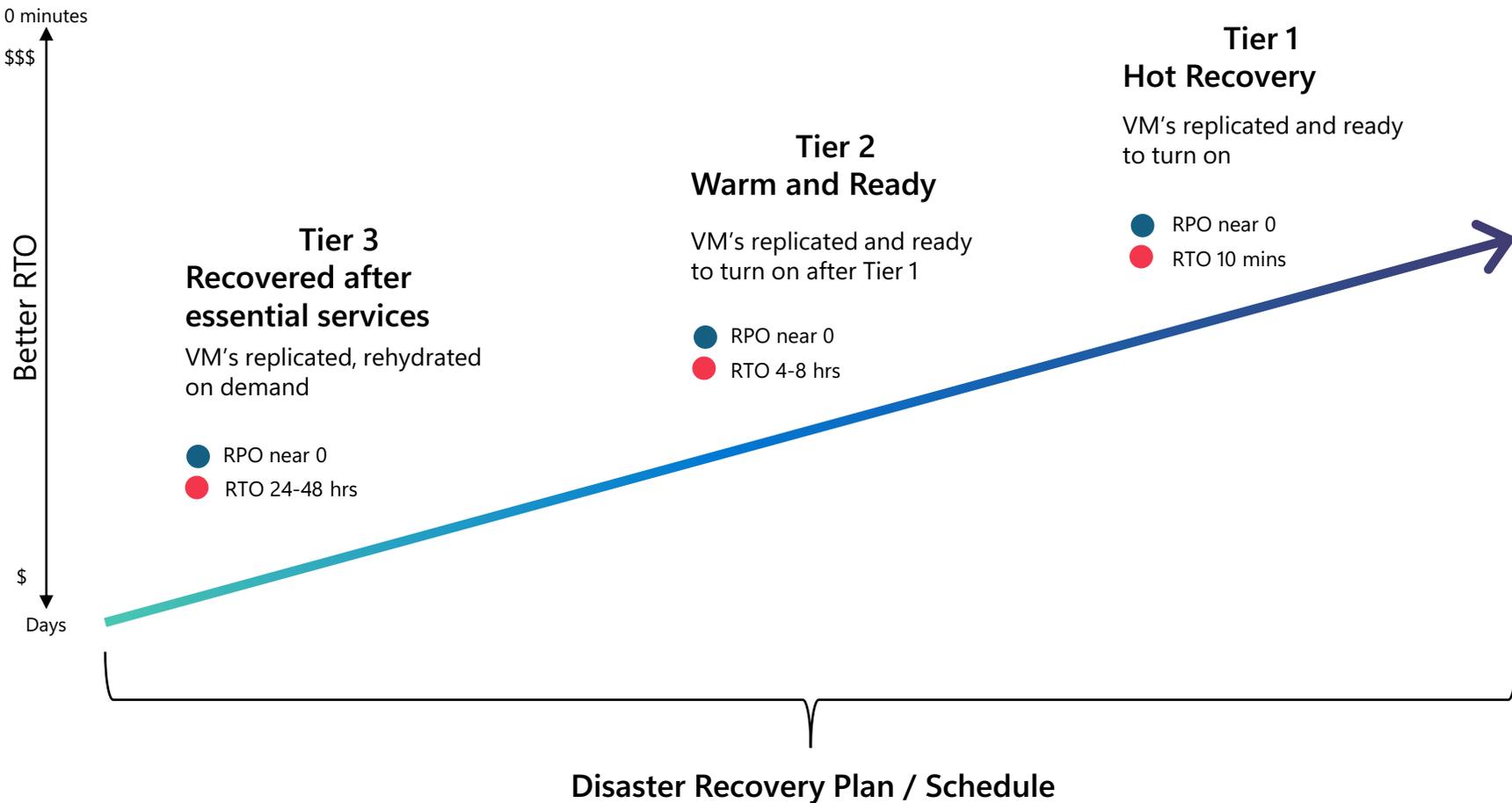
# JetStream DR – Console

The screenshot shows the vSphere Client interface for SDDC-Datacenter. The left navigation pane shows a tree view under 'SDDC-Datacenter' with folders for 'Discovered virtual machine', 'MGMT-VM', 'Templates', and 'Workload'. The 'Discovered virtual machine' folder is expanded, showing several VMs including 'PP02', 'PP03', 'PP04', '1', '2T', '2T\_restored', '-DC2', '-DC5', and '3-1679404685...'. The main content area is titled 'SDDC-Datacenter' and has tabs for 'Summary', 'Monitor', 'Configure', 'Permissions', 'Hosts & Clusters', 'VMs', 'Datastores', 'Networks', and 'Updates'. The 'Configure' tab is active, showing 'Alarm Definitions', 'Scheduled Tasks', 'Network Protocol Profiles', and 'JetStream DR'. The 'JetStream DR' section has sub-tabs for 'Protected Domains', 'Statistics', 'Storage Sites', 'Appliances', 'Configurations', and 'Task Log'. The 'Task Log' tab is selected, displaying a 'Task Console' with a 'Terminate Task' button and a table of task logs.

| Name                           | Initiated by | Target    | Status  | Start time       | Completion time  |
|--------------------------------|--------------|-----------|---------|------------------|------------------|
| Resolve cluster config         |              | Cluster-1 | Success | 7/13/23 11:51 AM | 7/13/23 11:52 AM |
| Delete Protected Domain        |              | -jetpd01  | Success | 7/11/23 11:26 AM | 7/11/23 11:26 AM |
| Failback Domain                |              | -jetpd01  | Success | 7/11/23 10:16 AM | 7/11/23 10:30 AM |
| Configure VMDK Replication ... |              | -jetdrv01 | Success | 7/10/23 1:53 PM  | 7/10/23 1:53 PM  |
| Configure VMDK Replication ... |              | -jetdrv02 | Success | 7/10/23 1:52 PM  | 7/10/23 1:53 PM  |
| Failback Domain                |              | -jetfnd01 | Success | 7/10/23 1:29 PM  | 7/10/23 1:43 PM  |

No task selected. Select a task to view details.

# SLAs delivered with JetStream BCDR protection



# JetStream DR – Core Architecture

## Management Server Appliance (MSA)

1

- Virtual appliance that provides a vCenter plug-in
- Controls configuration and operation
- APIs for integration with other management solutions

## IO Filters

2

- VMware filter that captures all I/O with low latency (5-10  $\mu$ s)
- Eliminates agents and snapshots
- Enables VMware Ready Certification

## DR Replication Virtual Appliance (DRVA)

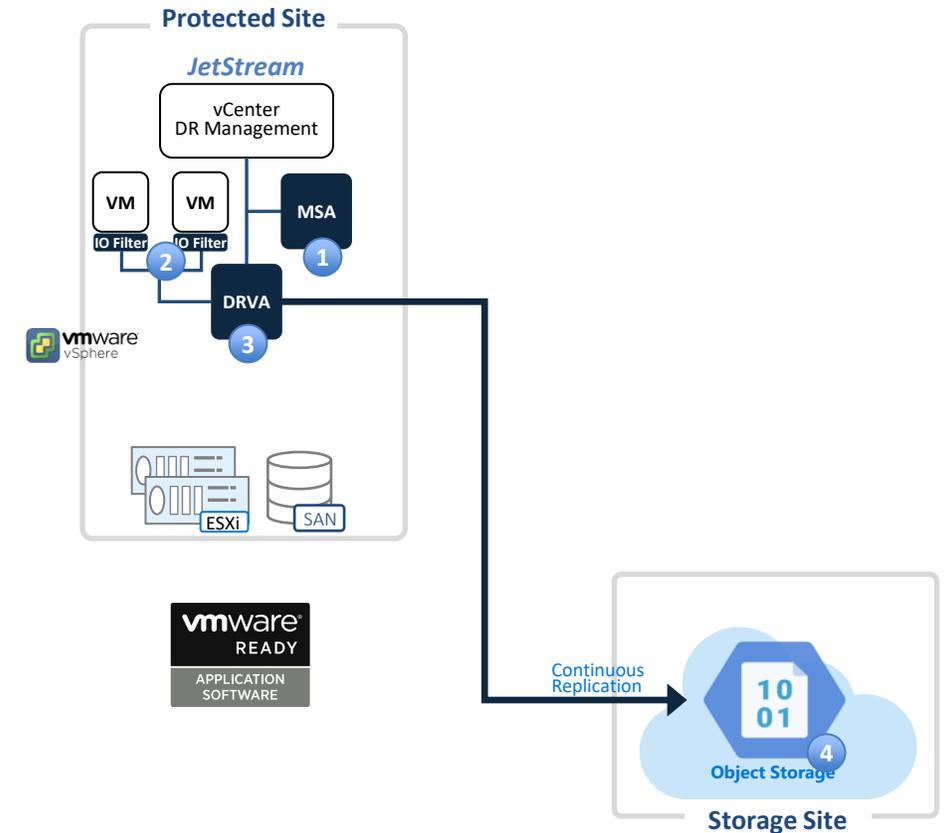
3

- Continuously replicates data into object storage
- Multiple DRVAs to scale
- Lightweight Linux virtual appliance

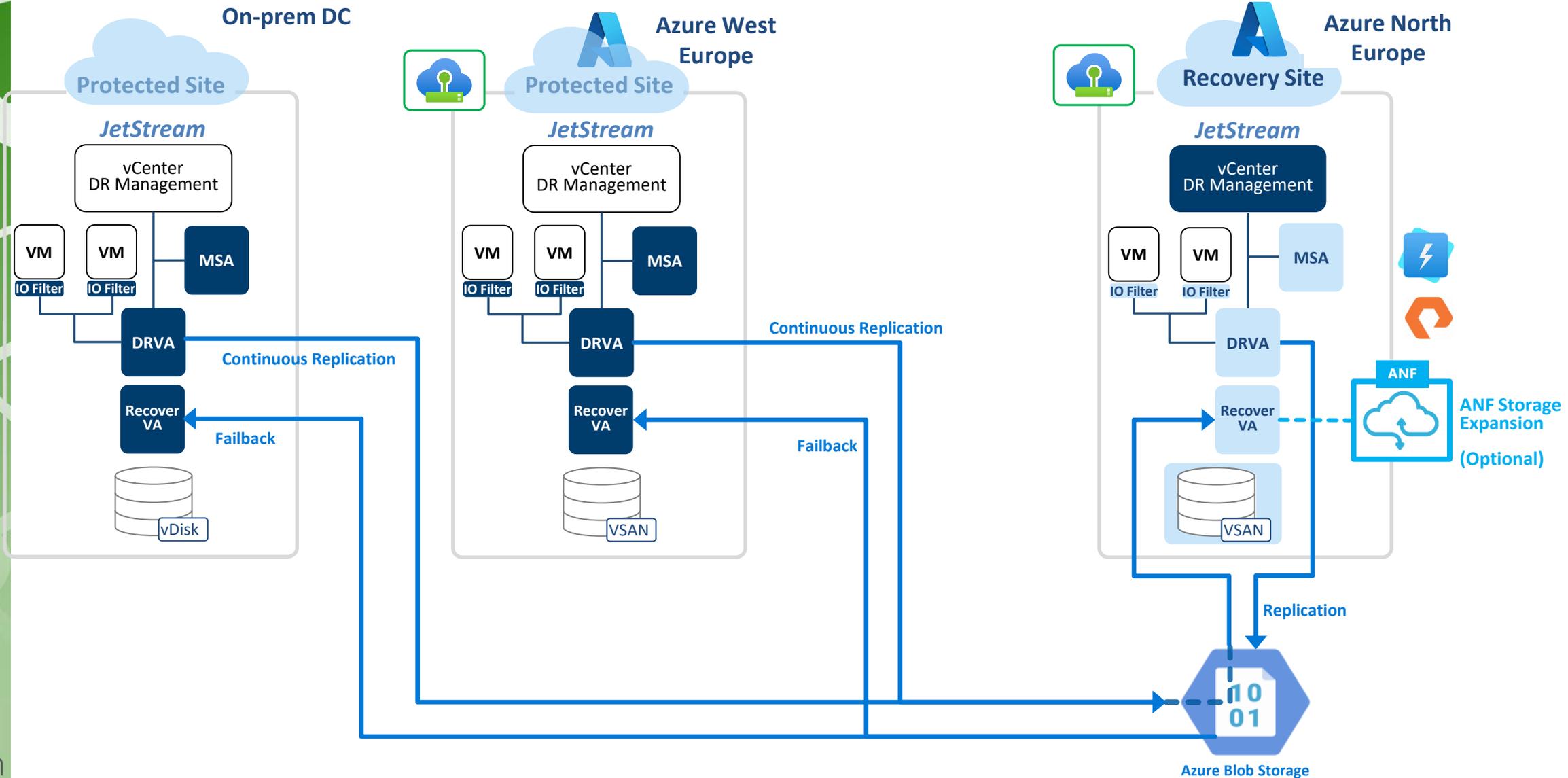
## Object Storage

4

- Independent of Protected or Recovery site
- Protected VM data and configuration
- Protected Domain status, configuration and runbooks



# Failover / Failback



# PITR – Ransomware Protection

Failover Protected Domain

1. General   2a. Failover Settings   2b. VM Settings   3. Recovery VA   4. DR Settings   5. Summary

Datcenter \*  
Datcenter

Cluster \*  
New Cluster

Resource Pool (Optional)

VM Folder (Optional)

Datastore \*  
iSCSI\_storage

Failover Type:  
 Regular  
 Planned  
 Force

Run PITR after recovering VMs

Cancel   Back   Next

# Learnings and Recommendations

- Beware of the rehydration throughput – utilize multiple PDs for max throughput!
- PD is the smallest unit of recovery
- JetStream segment needs DHCP for auto-IP allocation for RVMs / appliances
- Carefully plan the IPs required – each PD requires a RocVA appliance; RVM IPs
- Carefully plan the PDs and sequencing within using Runbooks
- Utilize start up scripts within Runbooks to invoke actions during DR
- VMs with existing snapshots cannot be protected!
- Reverting to snapshot == Restarting protection! All data replicated again
- Test Failover – powerful feature for DR drills of App / VM recovery
- Force failover will be faster (MSA waits for 2 mins for ownership)
- 3 days limit for PITR

**Vragen?**

**Dank Je!**