AWS re:Invent

NOV. 29 – DEC. 3, 2021 | LAS VEGAS, NV

ENT225

Go hybrid: Build and migrate with VMware Cloud on AWS

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Agenda

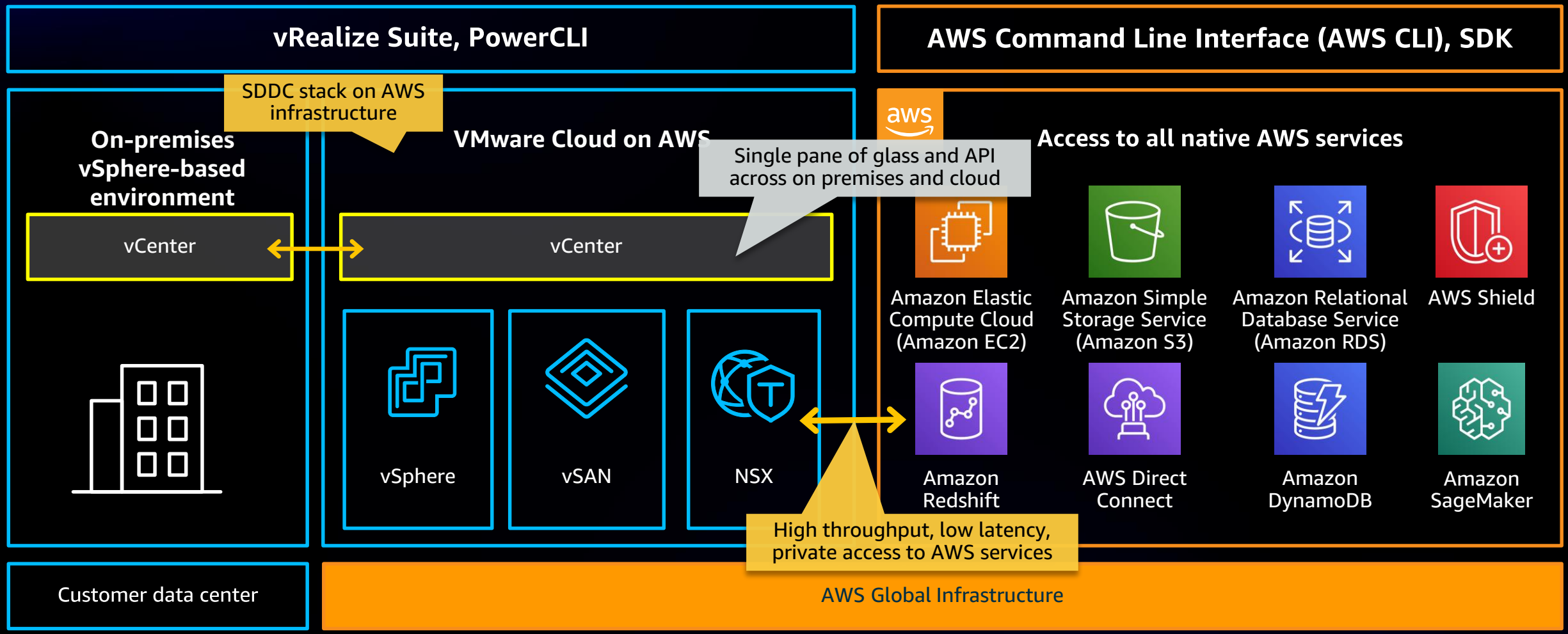
- Introduction to VMware Cloud on AWS
- Lab introductions
- Lab 1: Sizing and SDDC Deployment
- Lab 2: Migration
- Lab 3: Public IP/NAT/Firewalls/Networking
- Disaster Recovery with VCDR **(Optional)**

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Introduction to VMware Cloud on AWS

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VMware Cloud on AWS



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Access VMware Cloud on AWS



VMware Cloud on AWS portal

- ESXi host addition and removal
- Console user and role management
- Firewall configuration
- Elastic IP address and network address translation (NAT) configuration
- Virtual private network connectivity
- Logical network configuration
- Direct Connect configuration



vSphere Client (HTML 5)

- Hybrid Linked Mode (HLM)
- Virtual Machine (VM) administration
- VM storage policies



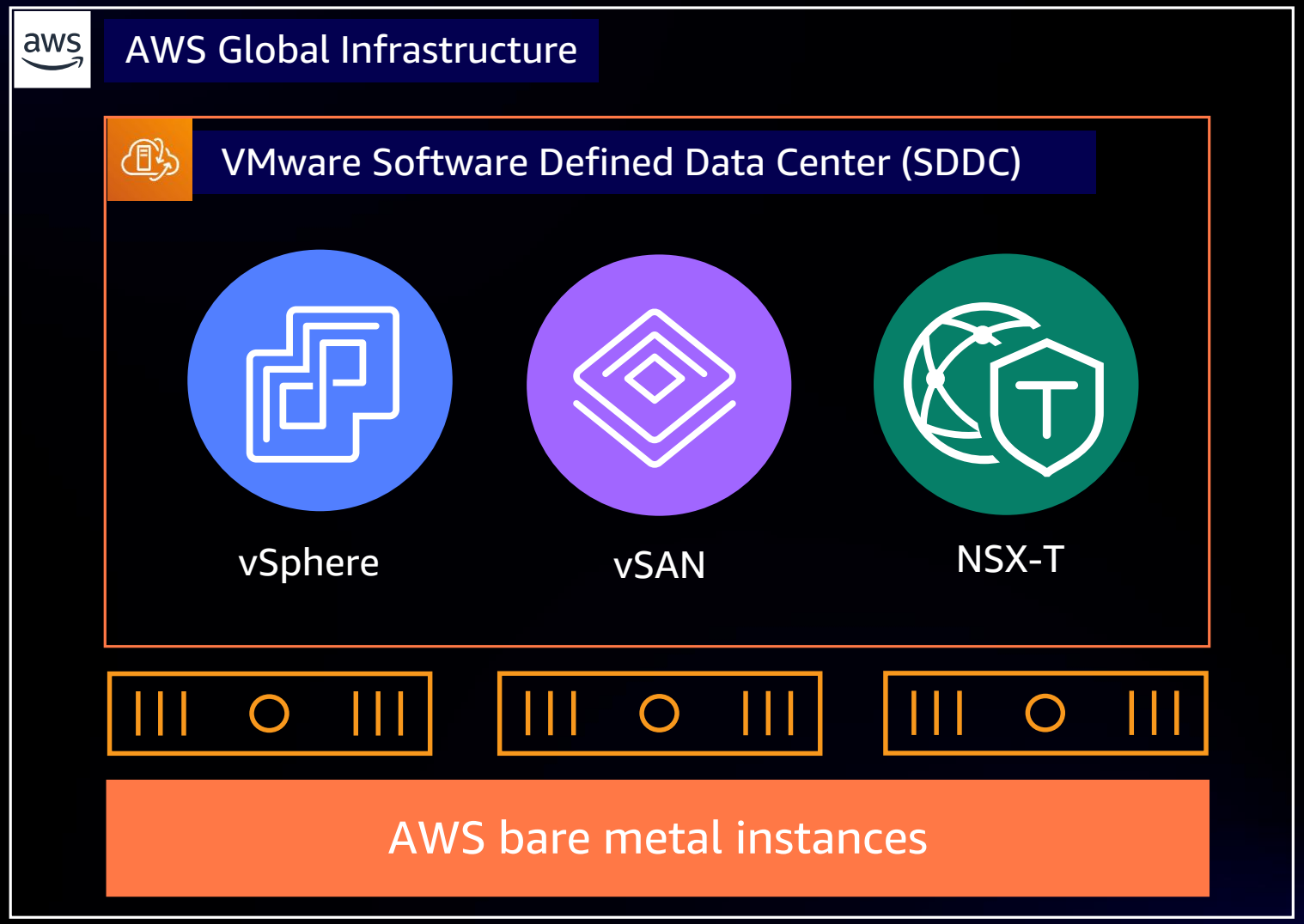
AWS Management Console

- Amazon Virtual Private Cloud (Amazon VPC) configuration
- Network and security configuration to access AWS services
- Manage AWS services

aws

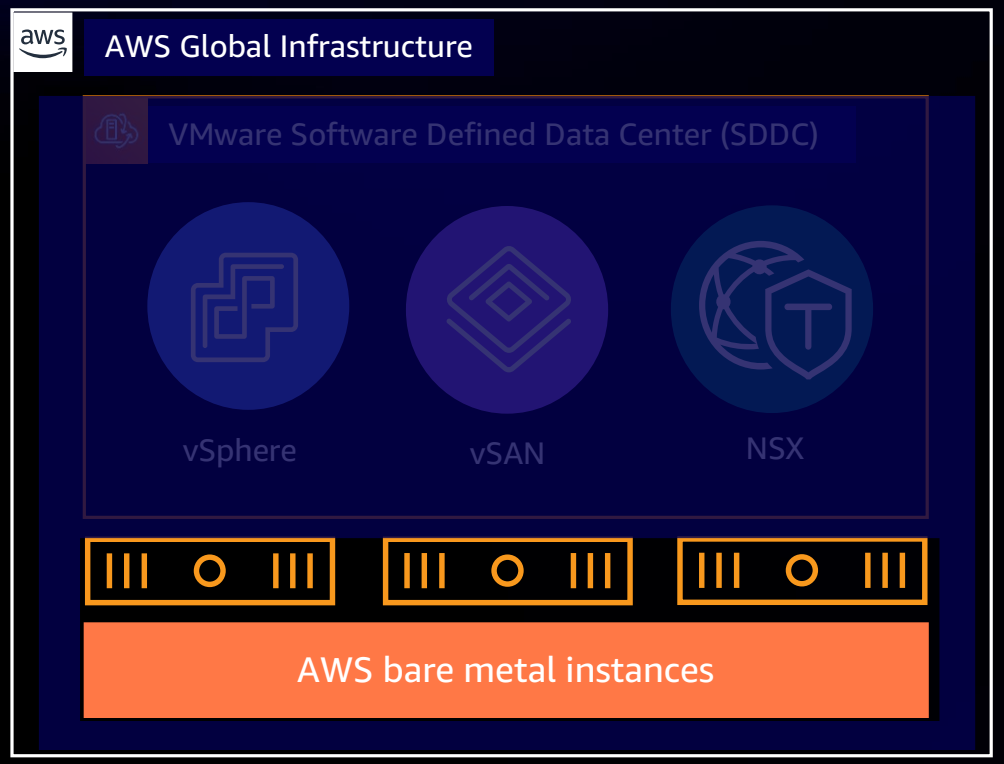
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Technical components



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Infrastructure

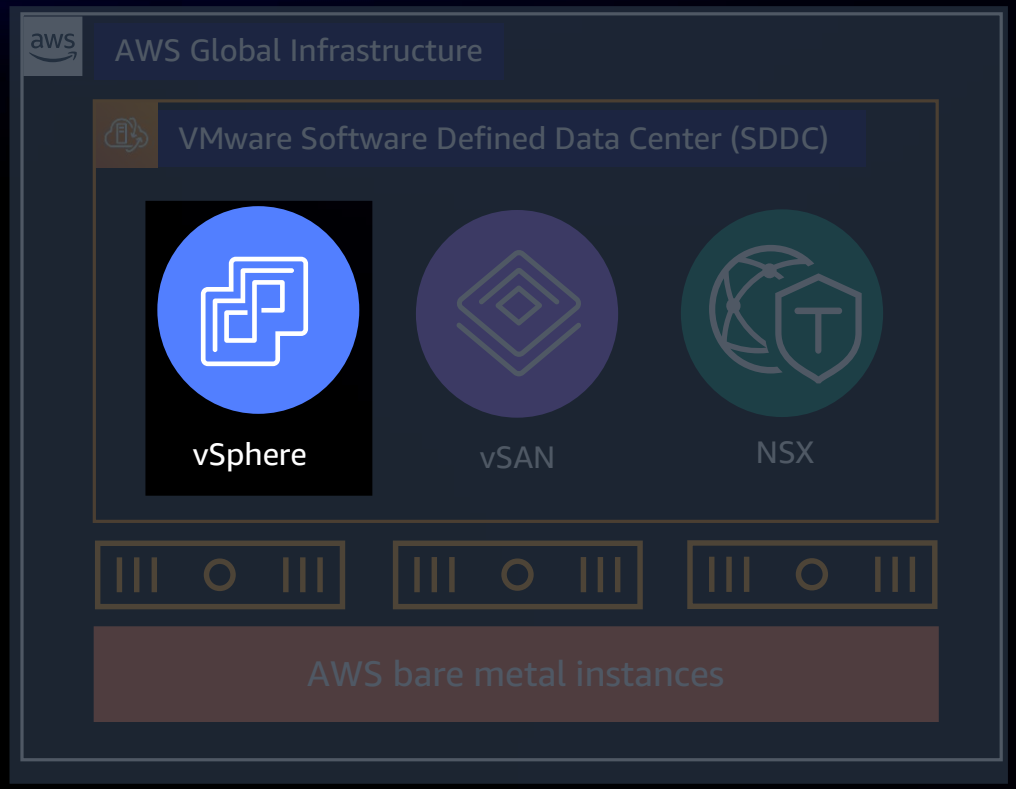


AWS Global Infrastructure

- VMware Software Defined Data Center delivered on the dedicated next-generation bare metal AWS infrastructure
- Deploy workloads in regions across the globe
- Run stretched clusters effortlessly across Availability Zones in a region
- Take advantage of automated scalability with clusters that grow and shrink on demand
- Seamless access to broad range of AWS services

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Compute



VMware vSphere

ESXi on dedicated i3.metal and i3en.metal AWS bare metal instances

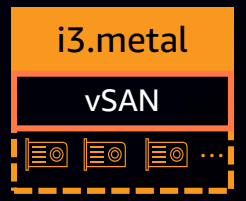
Elastic distributed resource scheduler for auto-scaling capacity up or down

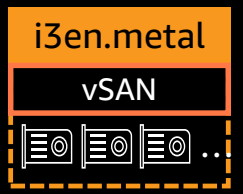
Single-pane of glass management using Hybrid Linked Mode

Same vSphere API across on premises and cloud

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AWS bare metal compute instances





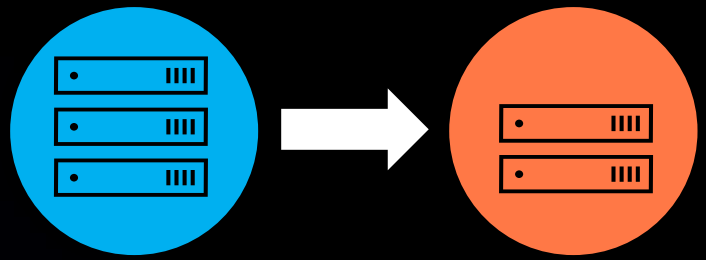
Typical Use Case	General purpose clusters	General purpose or storage bound clusters
Suitable for	Workloads with high transaction rates • Databases used in OLTP • High-speed analytics	Workloads with high storage capacity needs and high transaction rates • No SQL databases • Distributed file systems • Data warehouse with high random I/O
Compute		
CPU type	Intel Xeon E5-2685	Intel Xeon Cascade Lake
CPU cores	36 Cores at 2.3GHz	48 cores at 2.5 GHz (hyperthreading enabled by default)
Memory	**Memory**	**Memory**
RAM	512 Gib	768 GiB
Storage	**Storage**	
Type	vSaan with local NVMe All Flash	vSaan with local NVMe all flash
Capacity tier	10.7 TiB (raw)	45.8 TiB (raw)
Network	**Network**	**Network**
Physical speed	25 Gbps	100 Gbps (50 Gbps supported by VMware currently) Has native encryption at the NIC-level for east-west traffic

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2-Host SDDC cluster

- Broadens access to the service and reduces minimum cluster size requirement for production environments with standard (99.9%) SLA — the same as 3+ hosts
- Supports a range of enterprise workloads such as ROBO, Disaster Recovery Pilot Light, and VDI
- Stretched Clusters is available for the 2-host cluster
- There are some limitations at this time:
  - Scale down from 3+ hosts to 2 hosts is not supported
  - Only the Default Storage EDRS policy is currently available

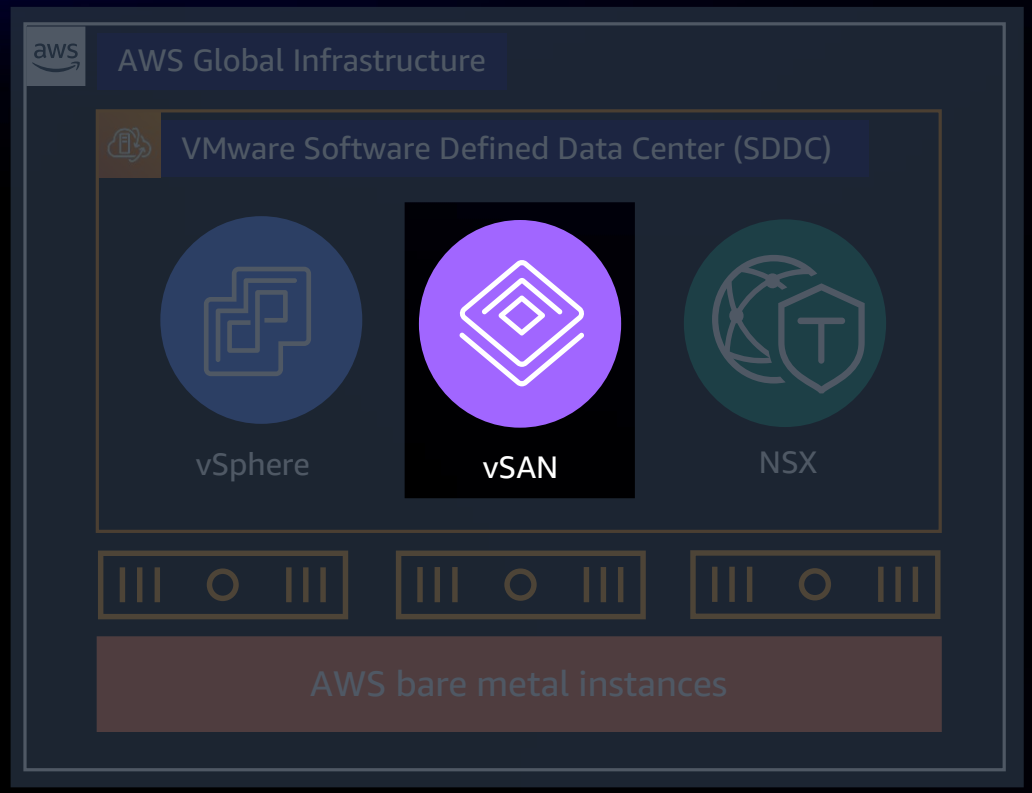
33% lower starting cost for production environments



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Storage



VMware vSAN

Software-defined enterprise storage solution

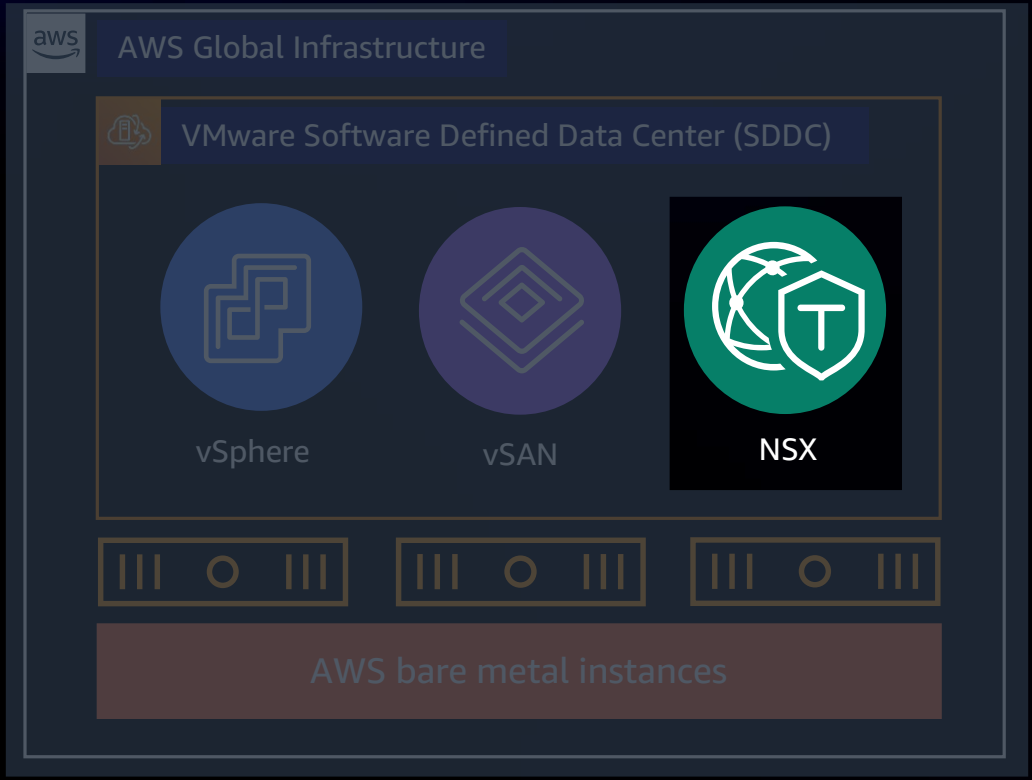
Fully integrated with VMware vSphere

High-performance all flash NVMe instance storage for Cache/Capacity

Granular data protection with policy-based storage management

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Networking



VMware NSX

Software-defined logical networks

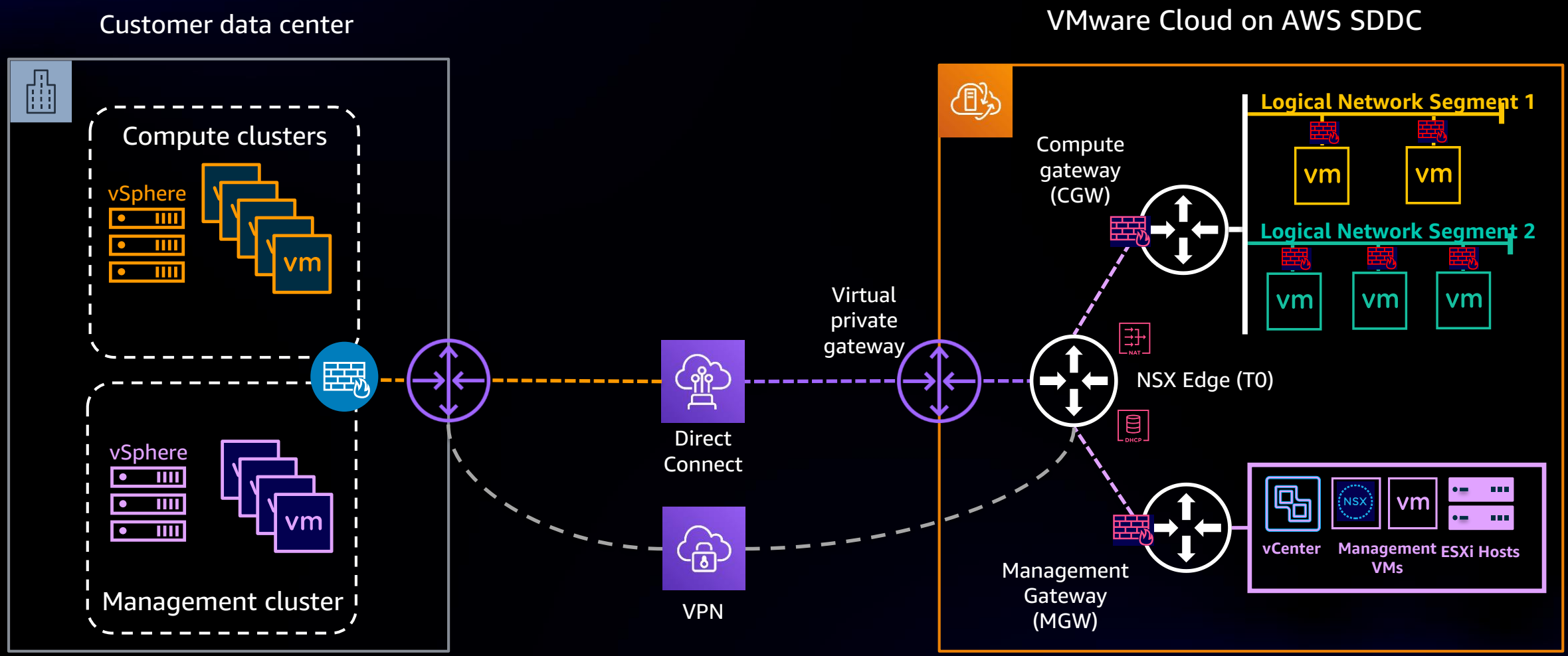
North/south firewalls on compute and management gateways

Micro-segmentation for east/west traffic

IPSec VPN termination, layer 2 network stretching

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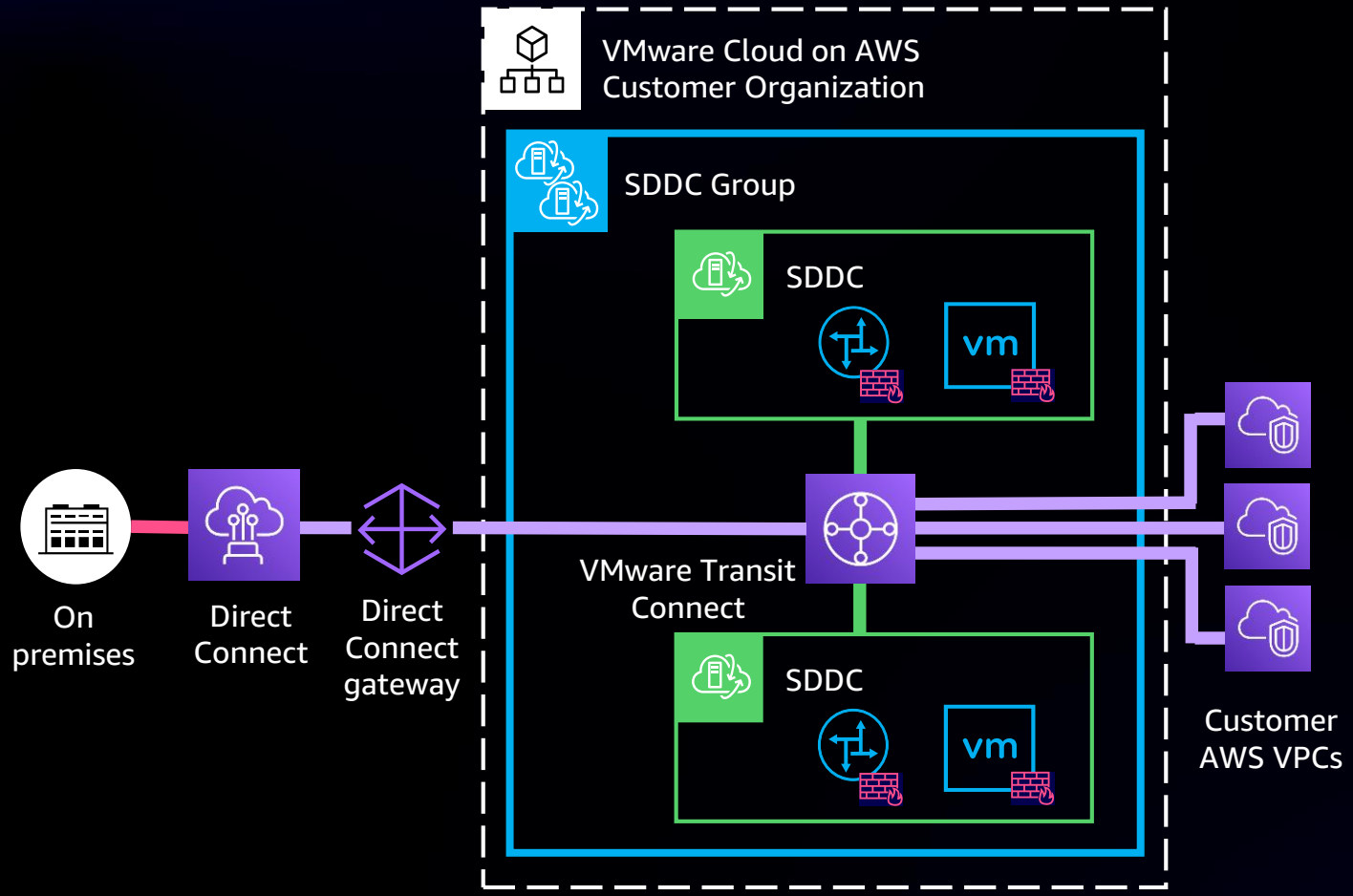
Connectivity from on-premises to SDDC



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VMware Transit Connect

Simplifying multi-environment connectivity at scale



- High-bandwidth, low latency connectivity based on AWS Transit Gateway
- VMware managed networking eliminates management overhead
- Automated and simplified provisioning and control of connectivity
- Automatic scaling provides users with flexibility

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Add-on resource: VMware HCX

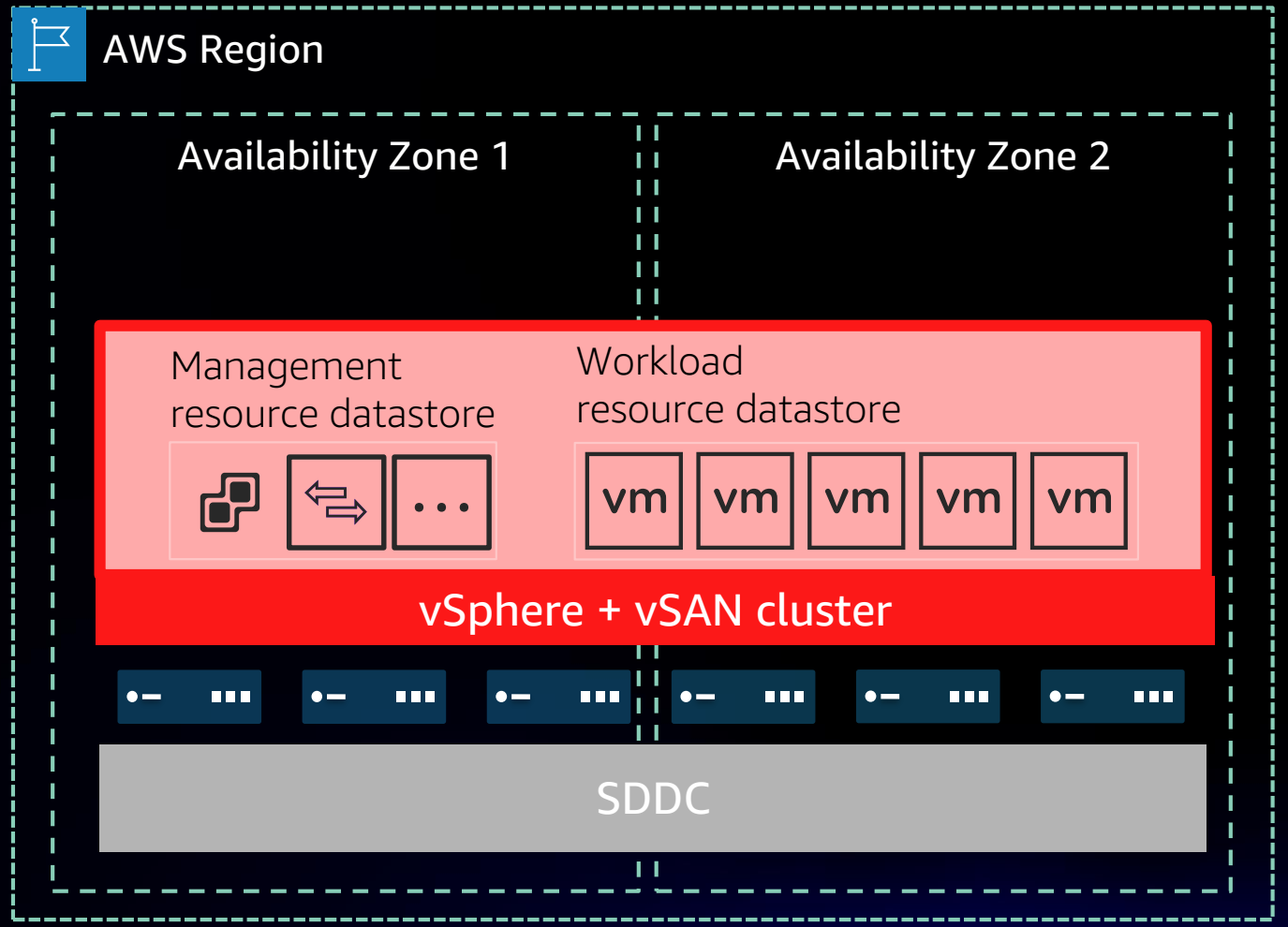


- Software as a service (SaaS) extension to VMware Cloud on AWS
- Cloud migration without retrofitting the source infrastructure
- Capabilities appear as a continuous hybrid cloud
- Faster migrations and bi-directional mobility
- Migrate hundreds of VMs in parallel at a time

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Stretched clusters

- Virtual machine high availability (HA) across Availability Zones (AZs)
- AZ availability treated as vSphere HA event and VM is restarted in the other AZ
- Common logical networks with vSphere HA/DRS enabled
- Synchronous replication between AZs for mission-critical applications
- Zero RPO high availability across AZs



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Workshop labs

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Files for Lab

https://tinyurl.com/4r5vfyfb

OR

https://d3rmh2yqgoya9c.cloudfront.net/

Name	Size	Kind
ENT225-Credentials	98 KB	PDF Document
ENT225-StudentGuide-Lab1-Sizing-VMConAWS.pdf	2.8 MB	PDF Document
ENT225-StudentGuide-Lab1-SizingpRVTools_export_all_2021-11-30_PROD.xlsx	1.1 MB	Microsoft Excel Workbook (.xlsx)
ENT225-StudentGuide-Lab2-Migration-VMConAWS	2.5 MB	PDF Document
ENT225-StudentGuide-Lab3-PublicIP-VMConAWS.pdf	1.1 MB	PDF Document

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Lab introductions

- Lab 1: Sizing and SDDC Deployment
- Lab 2: Migration
- Lab 3: Public IP/NAT/Firewalls/Networking

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Sizing and SDDC Deployment

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Sizing – Data collection tools

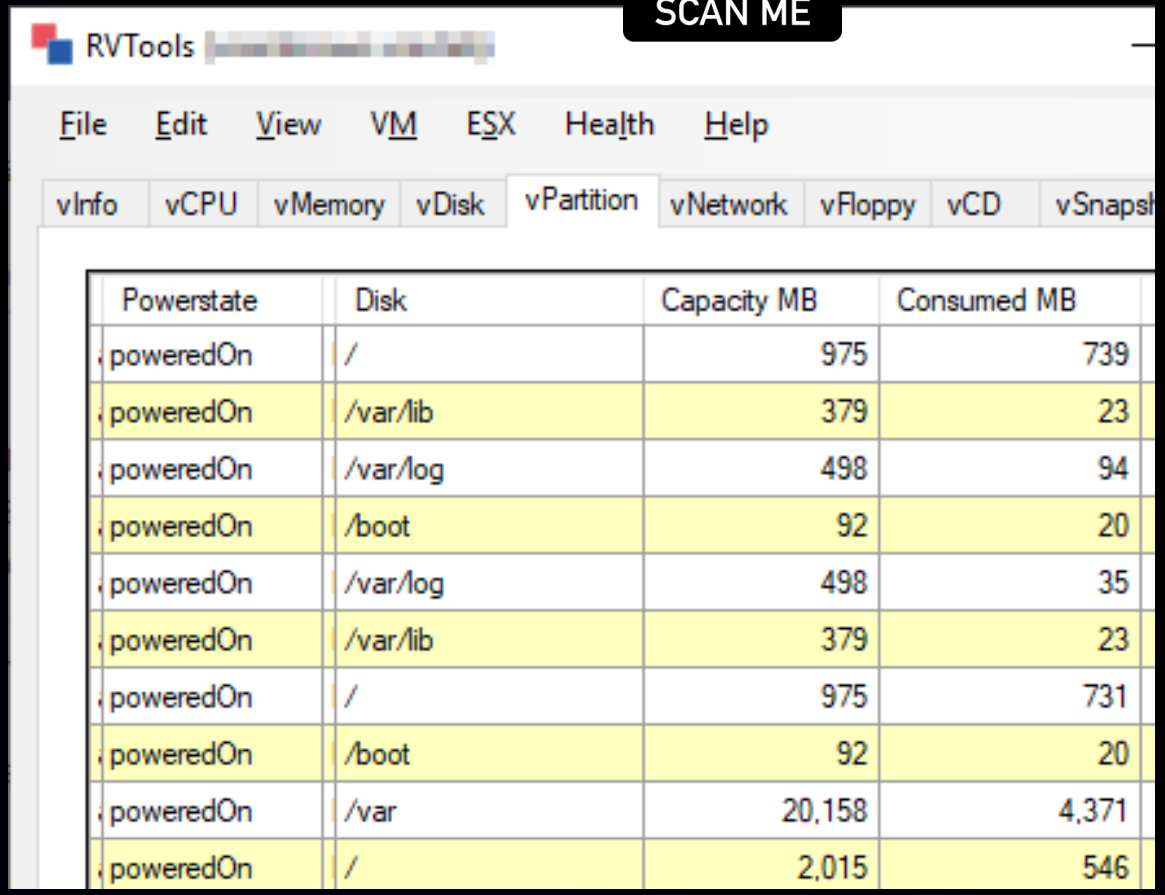
- RVTools
- Live Optics
- vRealize Operations (vROps)
- AWS Migration Evaluator
- CloudChomp
- vCenter exports
- Custom PowerCLI scripts

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Sizing – RVTools

- Requirements
  - vCenter connectivity and credentials
  - Run from Windows
- Constraints
  - Limited performance data
  - Limited view of environment
- Typically you will have 26 tabs in the spreadsheet
  - For the lab we have reduced it down to just 6 > vInfo, vCPU, vMemory, vDisk, vPartition, vHost

SCAN ME



Powerstate	Disk	Capacity MB	Consumed MB
poweredOn	/	975	739
poweredOn	/var/lib	379	23
poweredOn	/var/log	498	94
poweredOn	/boot	92	20
poweredOn	/var/log	498	35
poweredOn	/var/lib	379	23
poweredOn	/	975	731
poweredOn	/boot	92	20
poweredOn	/var	20,158	4,371
poweredOn	/	2,015	546

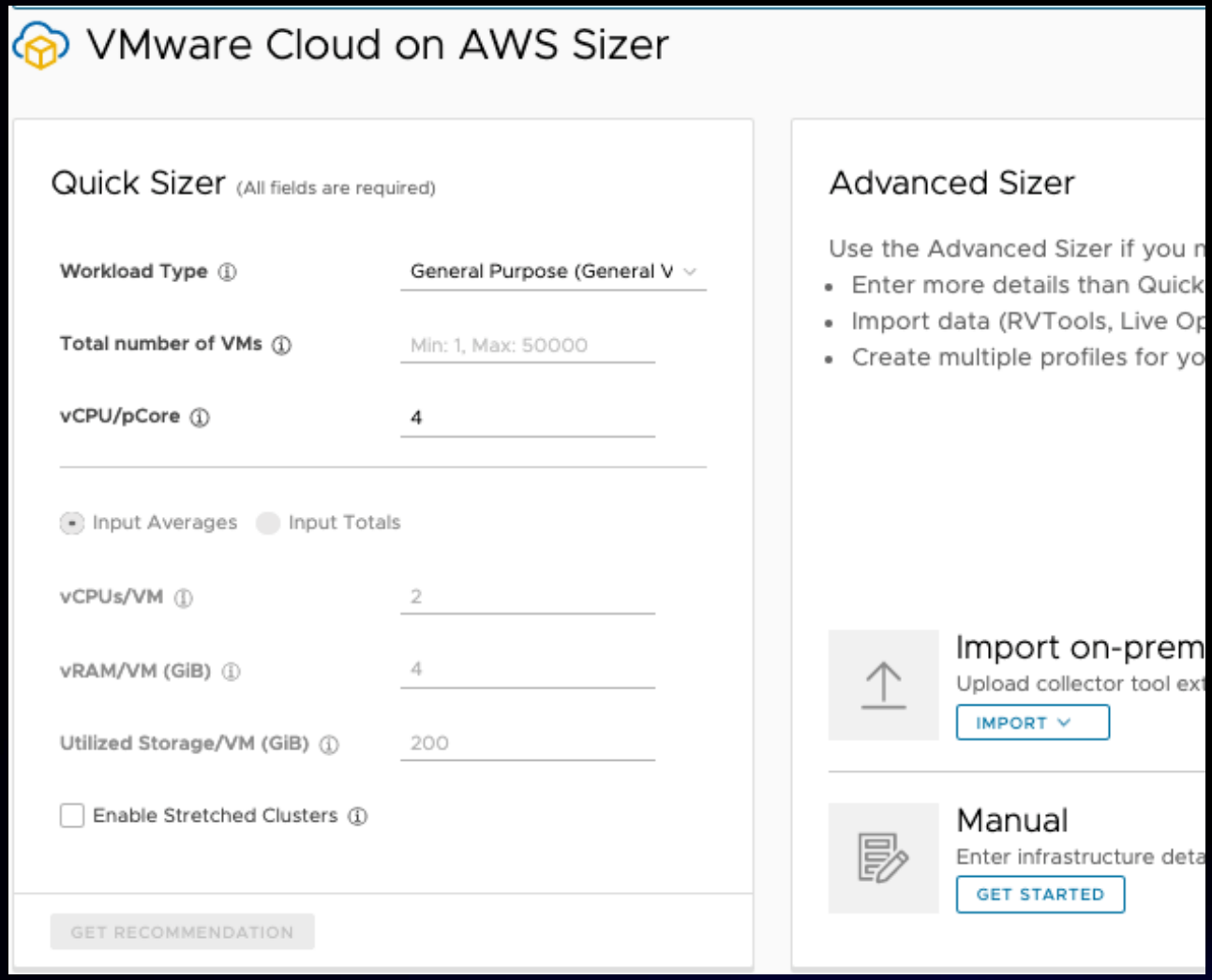
https://www.robware.net/rvtools/

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VMware Cloud on AWS sizer

https://vmc.vmware.com/sizer/

SCAN ME



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Sizer – Key sizing metrics

1. Number of powered-on VMs

   RVTools: vInfo worksheet

2. Average number of vCPUs

   RVTools: vCPU worksheet CPUs column

3. Average provisioned memory

   RVTools: vMemory worksheet Size MiB column

4. Average consumed storage

   RVTools:
   - vPartition worksheet Consumed MiB column
   - vDisk worksheet Capacity MiB column



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Lab 1: Sizing exercise

For this exercise you will need to get the recommended number of hosts.

Time for Lab> **25 mins**

Exercise> **Perform a VMware Cloud Sizer**

Please use the VMware Inventory file and VMware Cloud on AWS Sizer to get your estimates.

VMware Cloud on AWS Sizer> **https://vmc.vmware.com/sizer/quick-sizing**

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Migration

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Cloud migration options



- VMware HCX
- Live migration with vMotion
- Backup and restore
- Application-based migration

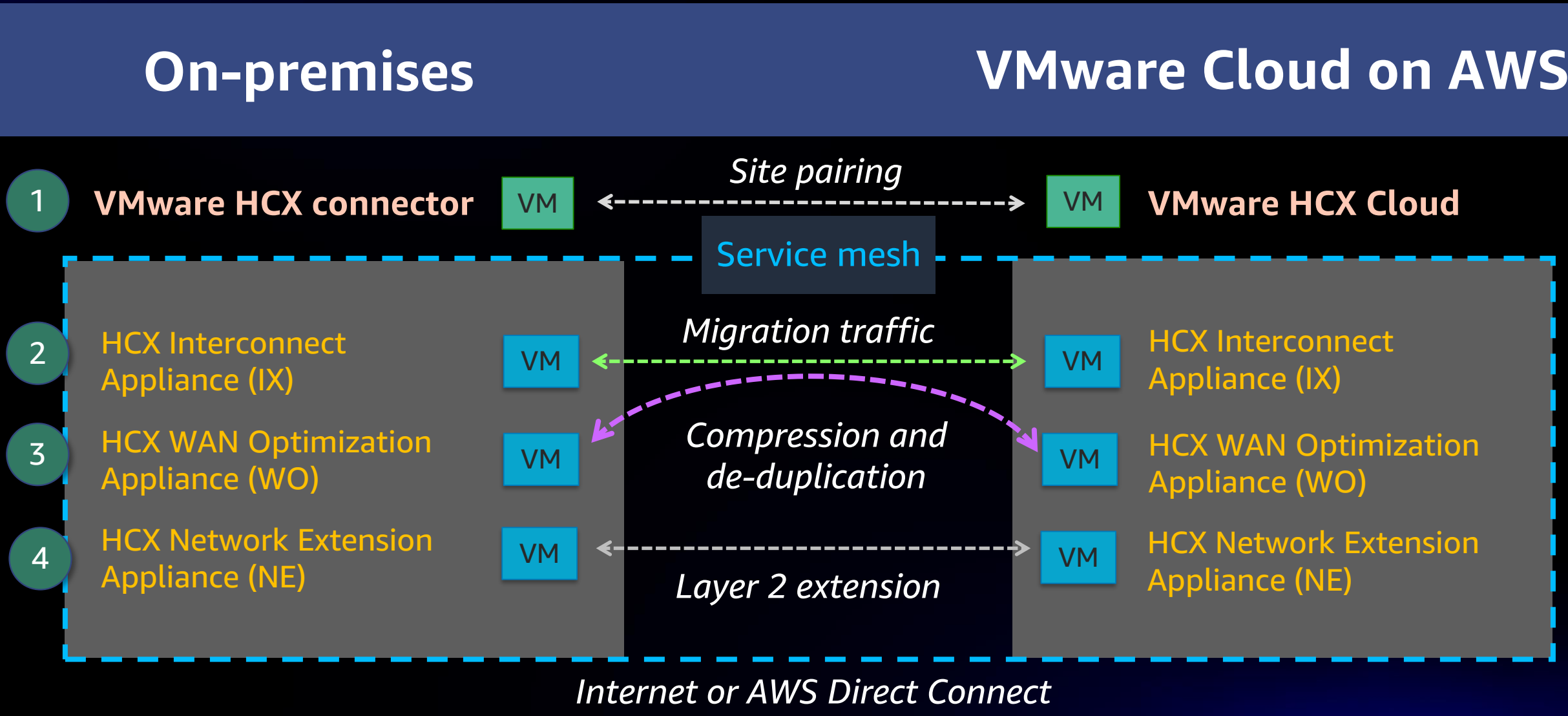
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VMware HCX migration types

Method	Impact	Requirements
Bulk migration	Scheduled cutover, minimal downtime	Requires VM power cycle
vMotion	Avoids downtime for mission-critical applications	One VM at a time
Cold migration	Migrate powered-off VMs	Longer downtime
Replication assisted vMotion	Bulk migrate VMs without downtime	HCX R145 or above

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VMware HCX components and deployment



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Lab 2: Migration using HCX

Time for Lab> 40 mins

Exercise>

- Set up stretched VLAN
- Initiate a migration
- Configure Mobility Optimized Networking (MON)

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Lab 3: Public IP/NAT/Firewalls/Networking

Time for Lab> 20 mins

Exercise> Set up public IP to Webserver previously migrated

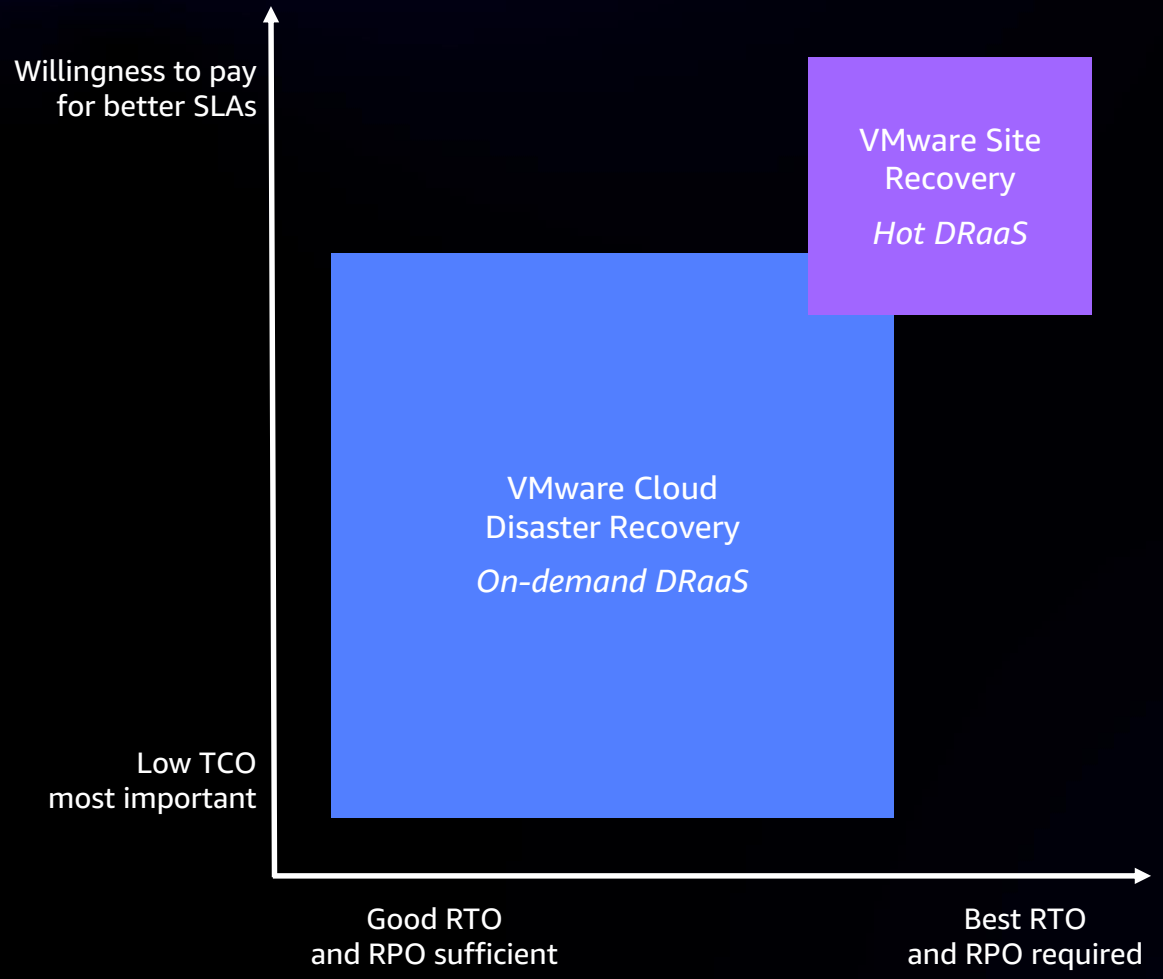
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Disaster recovery with VMware Cloud Disaster Recovery

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VMware Disaster Recovery as a Service (DRaaS)

UTILIZE THE CLOUD FOR UNPREDICTABLE DISASTER EVENTS



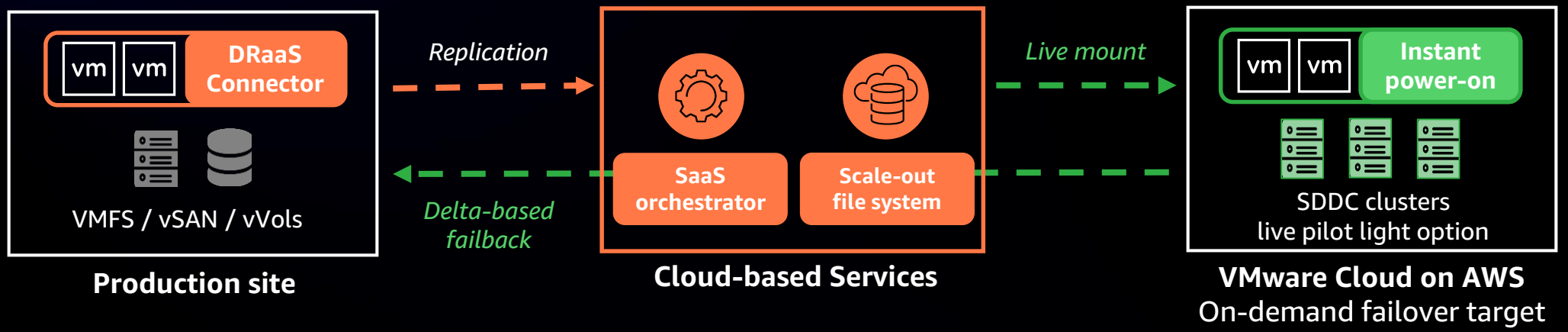
VMware Cloud Disaster Recovery *on-demand DRaaS*	VMware Site Recovery *hot DRaaS*
Consistent, familiar VMware environment	
DR orchestration: failover + failback	
Replicate to Amazon S3 based cloud storage	Replicate directly to VMware Cloud on AWS failover capacity
Instant power-on with Live Mount to SDDC	Fast RTOs with pre-provisioned failover capacity
Moderate RPOs (30+ minutes or 4+ hours*)	Low RPOs (<30 minutes)

*Currently, 30 minute RPOs are only supported when the source location is on-premises; when a VMware Cloud on AWS SDDC is the source location, 4 hour RPOs are the minimum

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VMware Cloud Disaster Recovery

ON-DEMAND DISASTER RECOVERY, DELIVERED AS AN EASY-TO-USE SAAS SOLUTION WITH CLOUD ECONOMICS



Orange: Steady-state

Green: Activated on failover

On-demand

- Instant power-on (Live Mount)
- Pilot light option
- No VM format conversions
- Rapid ransomware recovery

Easy-to-use

- Consistent, familiar operations
- SaaS-based management
- Continuous DR health checks
- Built-in audit reports

Cloud economics

- Pay when capacity needed
- Efficient cloud storage
- Simplified pricing
- Optimized failbacks

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VMware Cloud on AWS at AWS re:Invent 2021

ENT225 – Go hybrid: Build and migrate with VMware Cloud on AWS
Workshop: Monday, Nov 29 10:00–12:15 at Alliance 307, Caesars Forum

This Session

ENT211 – Modernizing VMware workloads with native AWS services
Workshop: Monday, Nov 29 16:45–19:00 at Venetian B, The Venetian

ENT201 – Is VMware Cloud on AWS a good fit for your organization?
Chalk Talk: Monday, Nov 29 10:00–11:00 at Summit 217, Caesars Forum
Chalk Talk: Wednesday, Dec 01 15:15–16:15 at Alliance 305, Caesars Forum

ENT311 – Migration and modernization at scale with AWS and VMware
Breakout Session: Tuesday, Nov 30 13:15–14:15 at Lando 4305, The Venetian

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Thank you!

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