VMware Cloud on AWS
Technical Overview

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To maximize the benefits of cloud models, organizations need a holistic cloud strategy and a way to make it real.

PRIVATE
CLOUD WORLD

PUBLIC
CLOUD WORLD

CAN REQUIREMENTS BE MET ACROSS BOTH WORLDS?

Operational Consistency

Existing Skillsets & Tools

Control, Manage, Secure

Enterprise-class App SLA

Compatibility with Apps

NOT ALWAYS, AND NOT EASILY.

Application needs are driving cloud strategies and directions

Cloud strategies must match the needs of each application

Existing Apps
Reduce Costs • Security • Reliability • Control

Cloud Native Apps
Time to market • Innovation • Scale • Differentiation

Maintain

Keep app as is in existing environment

Replatform

Keep app as is, move to new environment

Multi-Tier Hybrid

Shift portions of multi-tier app to public cloud

Refactor

Modify app, new environment, on-prem or in the cloud

Develop for Cloud

New cloud native app deployed on-prem & IaaS

Replace

Move to SaaS version of packaged app

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VMware Cloud

Run, Manage, Connect, Secure Any App

Existing Apps
Reduce Costs • Security • Reliability • Control

Cloud Native Apps
Time to market • Innovation • Scale • Differentiation

CONSISTENT OPERATIONS

Management and Operations • Across Clouds

CONSISTENT INFRASTRUCTURE

VM Infrastructure • Container Infrastructure

Consistent Infrastructure
VM Infrastructure • Container Infrastructure

Consistent Operations
Management and Operations • Across Clouds

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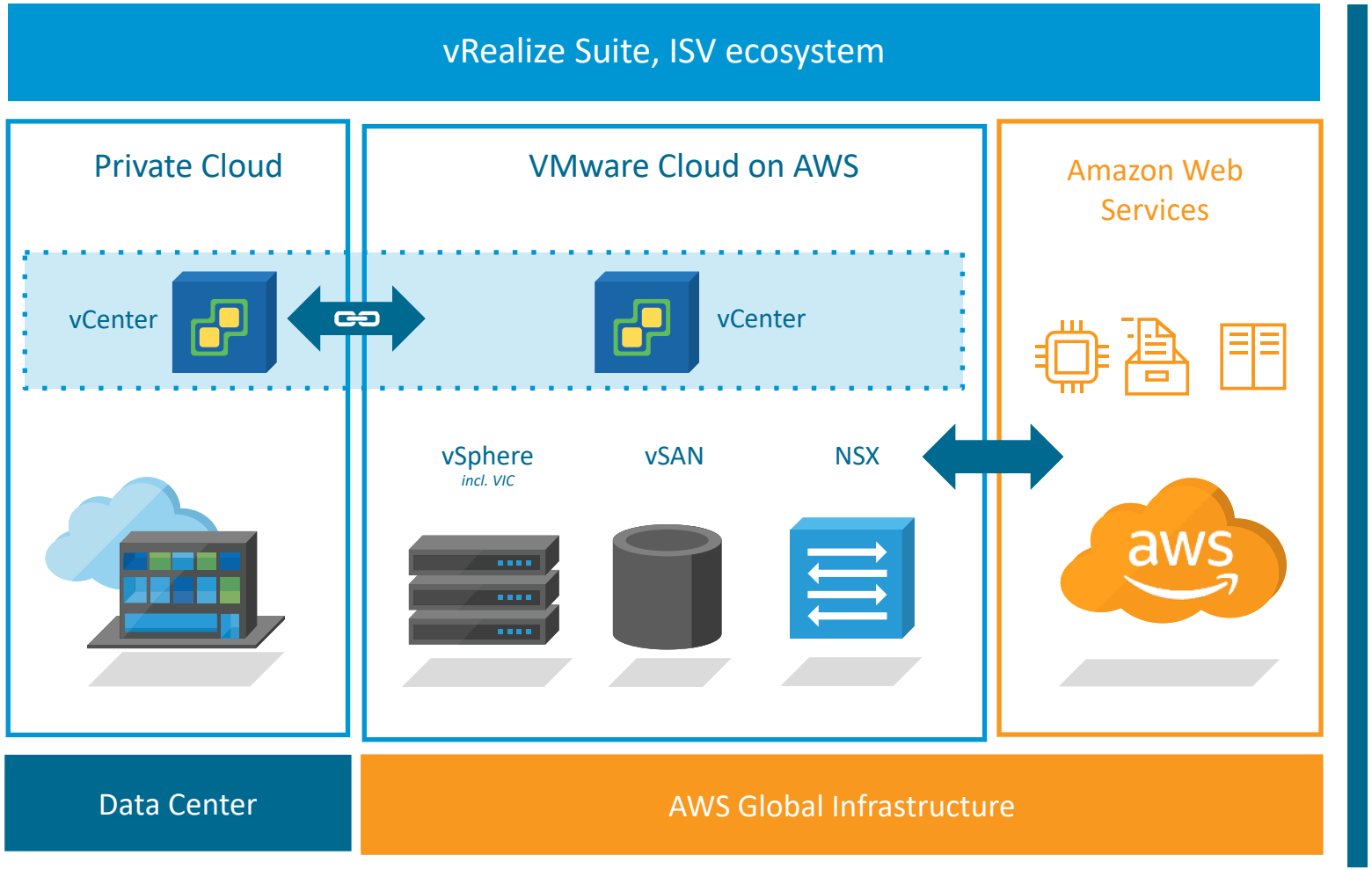
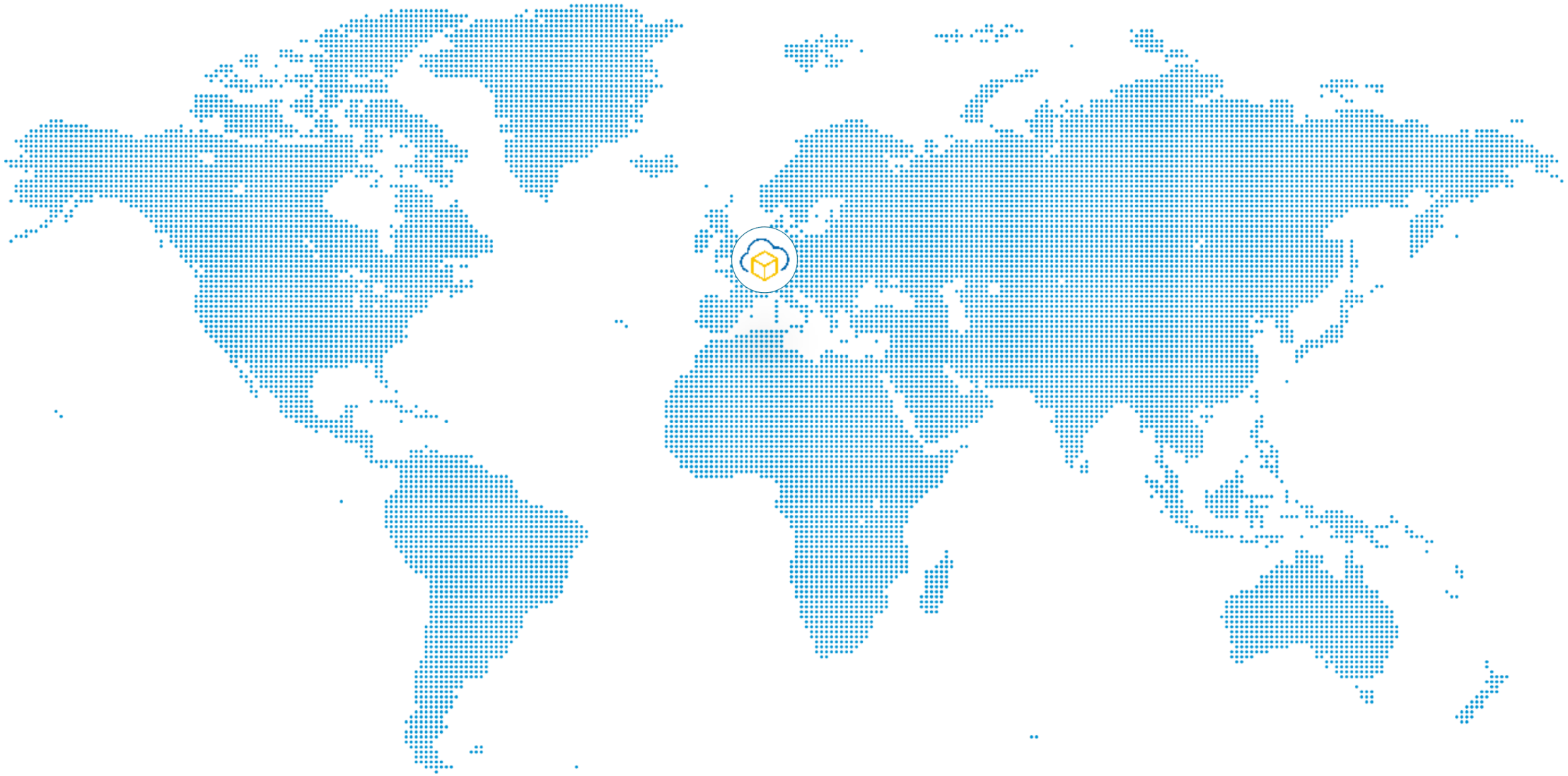
VMware Cloud on AWS Overview

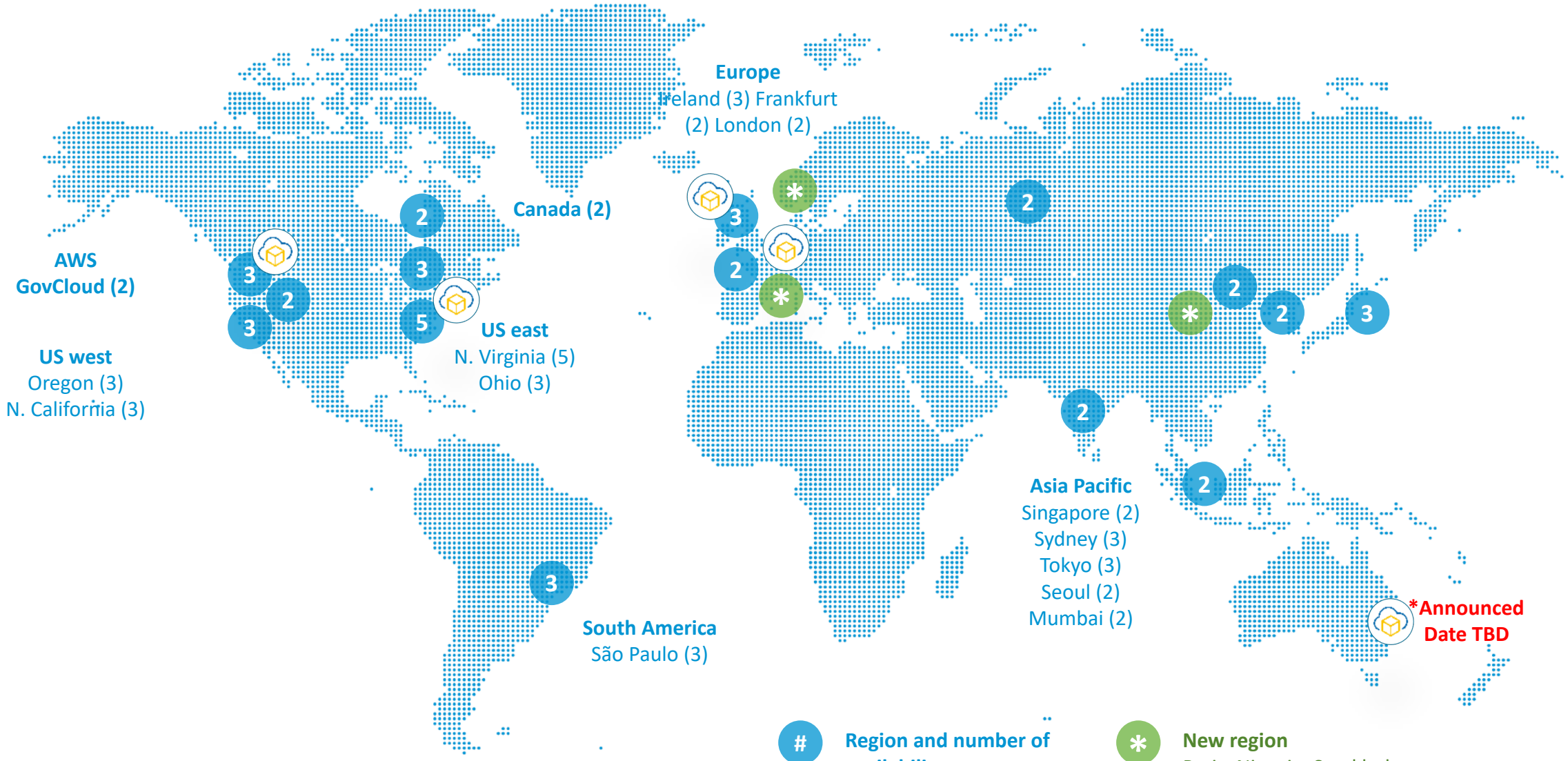


- VMware SDDC running on AWS bare metal
- Sold, operated and supported by VMware
- Support for containers & VMs
- On-demand capacity & flexible consumption
- Full operational consistency with on-premises SDDC
- Seamless workload portability and hybrid operations
- Global AWS footprint, reach, availability
- Direct access to native AWS services

VMware Cloud on AWS – Frankfurt Region



Global Reach Delivered Over Time



Flexible Purchasing Models

Consumption-based Billing

- On-demand / hourly model
- 1 or 3-year reserved model
- Buy add-on services

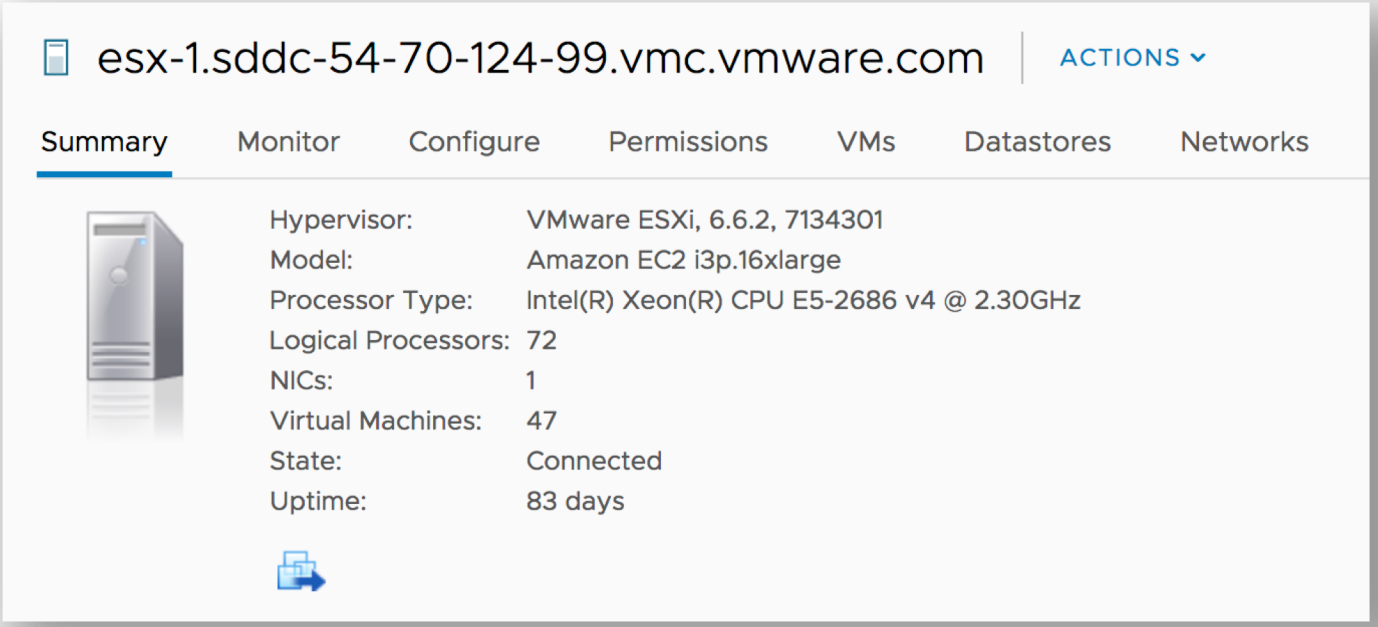
Various Payment Methods

- VMware SPP or HPP credits
- Purchase orders
- Credit Card

Hybrid Loyalty Program

- Leverage existing investments with VMware
- Purchase VMware Cloud on AWS at a lower rate
- No trade-in of on-premises licenses required

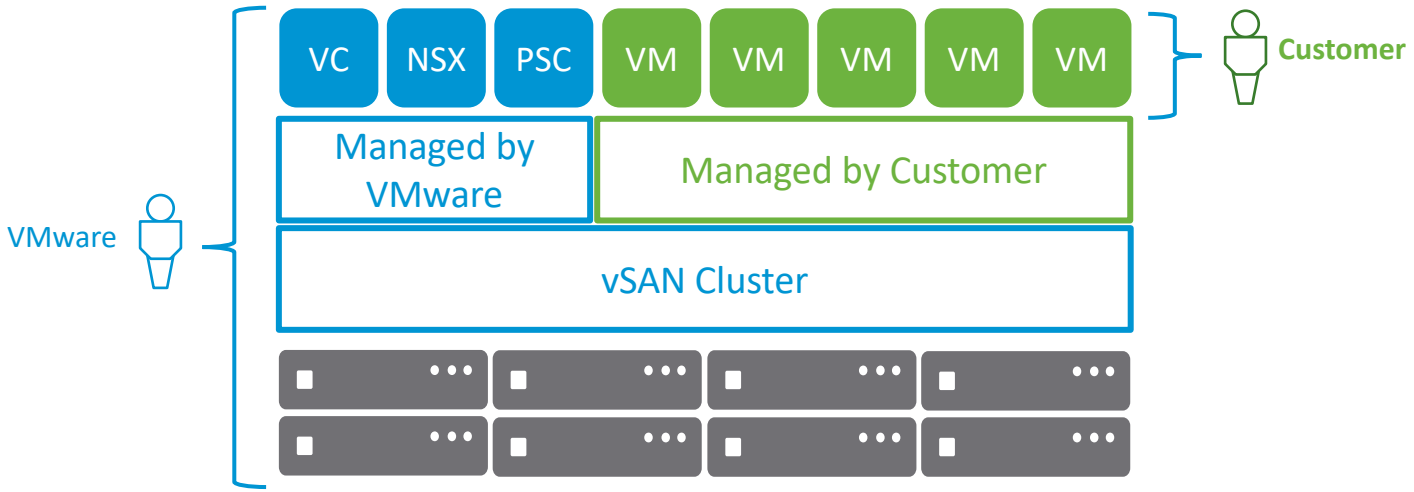
Compute Cluster Configuration



- Four host base cluster configuration
- Can be expanded up to 32 hosts
- Dual socket CPU host configuration
- Intel E5-2686 v4
- 18 Cores per socket at 2.3 GHz
- Hyper-Threading is enabled by default
- 512 GiB memory per host

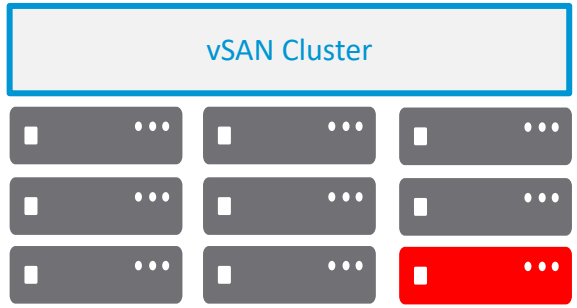
Restrictive Access model

- No root ESXi access
- No VIB installations
- No VDS configuration access
- No direct management VM access

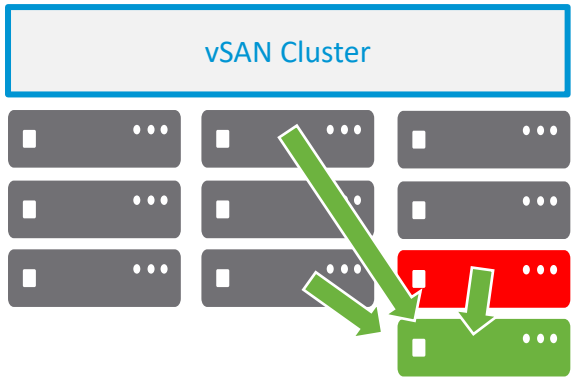


Automated Hardware Remediation

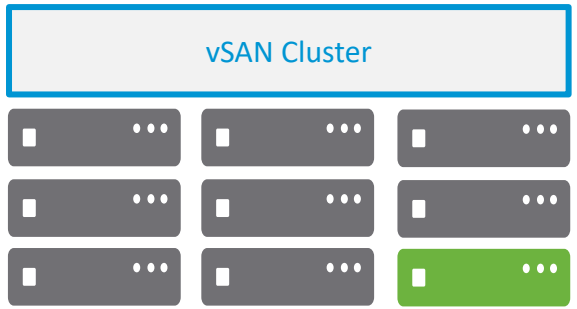
1. HOST FAILS, OR PROBLEM IDENTIFIED



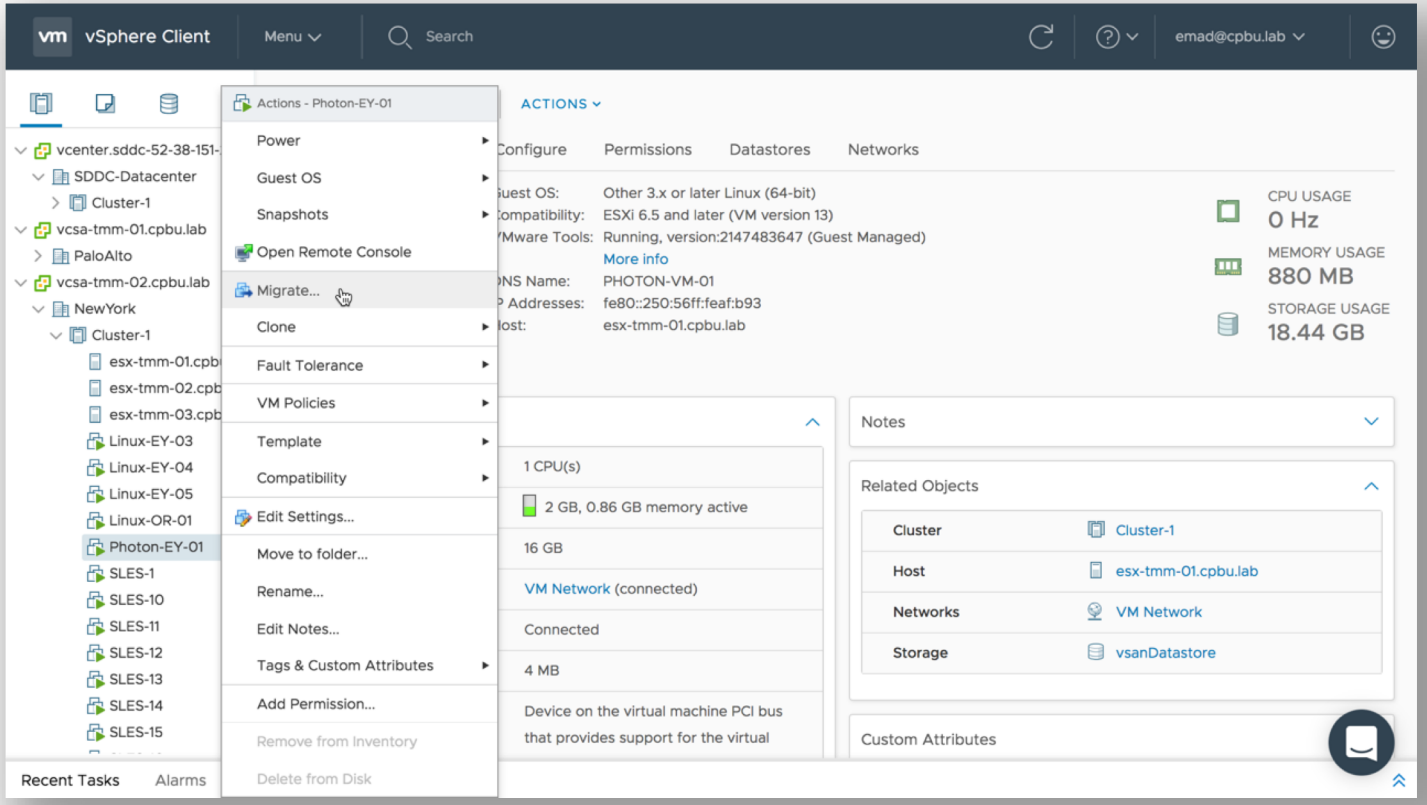
2. NEW HOST ADDED TO CLUSTER. DATA FROM PROBLEM HOST REBUILT, AND/OR MIGRATED



3. PREVIOUS HOST EVACUATED FROM CLUSTER, FULLY REPLACED BY NEW HOST



Workload Migration - Cross-vCenter vMotion



- Ability to vMotion VMs from on-premises to SDDC and back over L2VPN
- No need to power off the VM
- No need to re-IP address of the VM
- Requires 250Mbps of bandwidth per vMotion

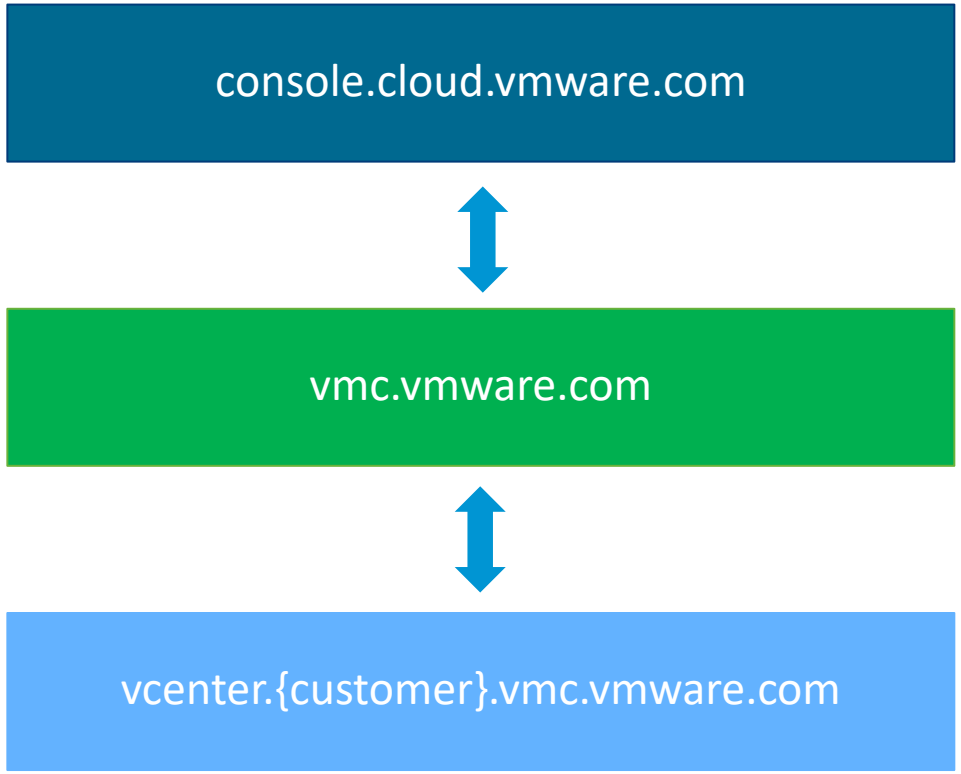
VMware Cloud on AWS Platform API

VMware Cloud on AWS Exposes three API surfaces that work together to provide end-to-end functionality

- Console
- VMware Cloud on AWS
- vCenter

All APIs adhere to modern API standards

- RESTful
  - HTTP Verbs - GET, POST, DELETE, PATCH
- JSON
  - Dictionaries with Key – Value pairs
- OAuth
  - Authentication tokens as part of the HTTP Header



VMware Cloud on AWS Developer Center

https://vmc.vmware.com/console/developer/api-explorer#default/account-linking

Developer Center

Overview | API Explorer | Code Samples | SDKs | Downloads

VMware Cloud on AWS

Filter

AWS Account Connection Operations

POST	/orgs/{org}/account-link/compatible-subnets-async	Sets which subnet to use to link accounts and finishes the linking process via a task
GET	/orgs/{org}/account-link/compatible-subnets-async Gets a customer's compatible subnets for account linking via a task. The information is returned as a member of the task (found in task.params['subnet_list_result'] when you are notified it is complete), and it's documented under ref /definitions/AwsCompatibleSubnets	
GET	/orgs/{org}/account-link	Gets a link that can be used on a customer's account to start the linking process.
POST	/orgs/{org}/account-link/compatible-subnets	Sets which subnet to use to link accounts and finishes the linking process
GET	/orgs/{org}/account-link/compatible-subnets	Gets a customer's compatible subnets for account linking
DELETE	/orgs/{org}/account-link/connected-accounts/{linkedAccountPathId}	Delete a particular connected (linked) account.
GET	/orgs/{org}/account-link/sddc-connections	Get a list of SDDC connections currently setup for the customer's organization.
POST	/orgs/{org}/account-link/map-customer-zones	Creates a task to re-map customer's datacenters across zones.
GET	/orgs/{org}/account-link/connected-accounts	Get a list of connected accounts

convert

DNS

Operations on management and compute gateway (NSX Edges).

VMware Cloud on AWS attains key industry certifications

Compliance Certifications, attestations and assessments

ISO 27001, 27017, 20718

SOC 1, SOC 2, SOC 3

GDPR compliance

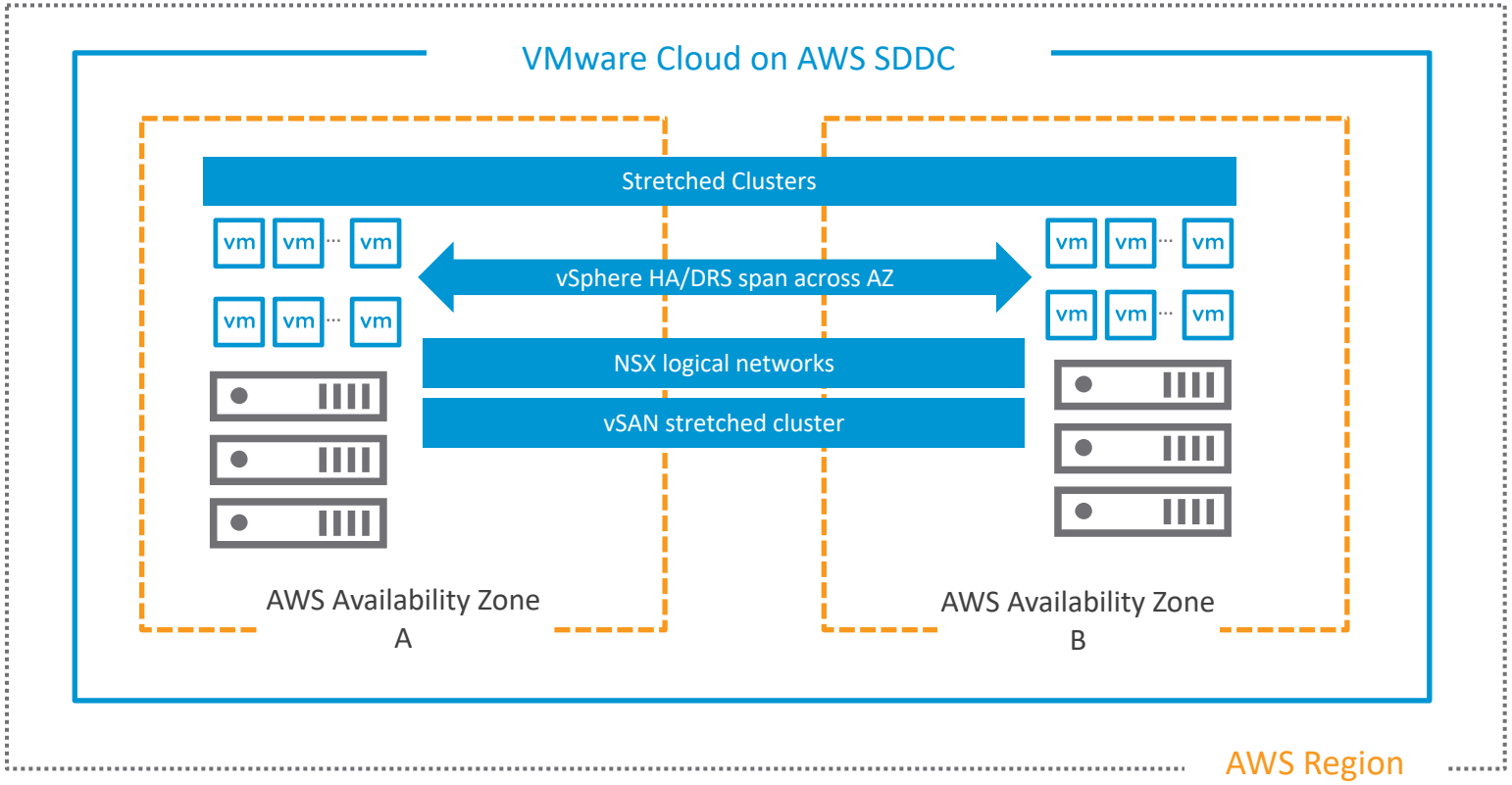
HIPAA BAA

CSA STAR Self-Assessment

Stretched Clusters for VMware Cloud on AWS – Now Available

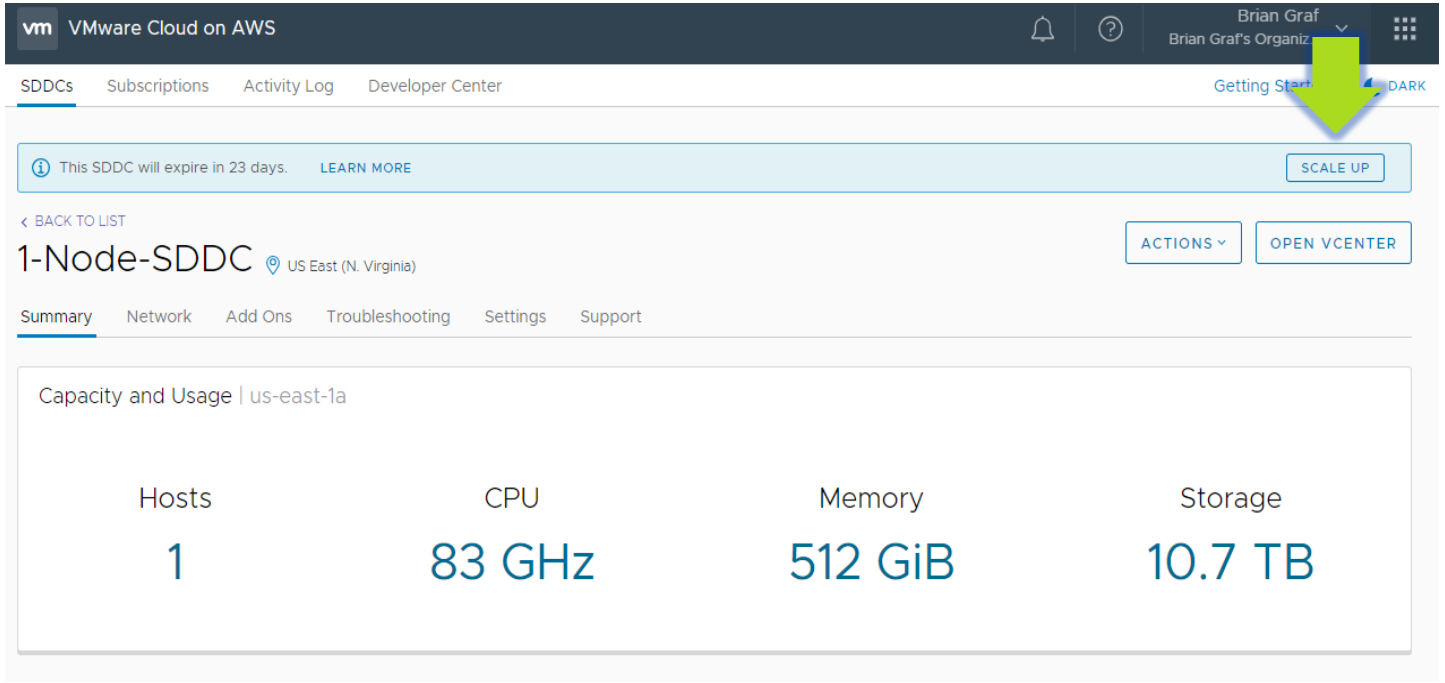
Deliver protection against AWS AZ failure at an infrastructure level

- Building on intrinsic vSphere HA as well as automated host failure remediation
- Zero RPO high availability across AZs
- Built-in infrastructure layer – no necessity to architect in the application
- Stretched cluster with common logical networks with vSphere HA/DRS enabled
- Synchronous replication between AZs for mission-critical applications
- If one AZ goes down, it is simply treated as a vSphere HA event and VM is restarted in the other AZ



VMware Cloud on AWS – Single Host SDDC starter configuration

- Rapid Provisioning
  - Easy on-boarding process
  - Click-to-deploy SDDC
- Low Cost
  - Less than 1/4 the price of a Production SDDC
  - Per-hour billing
- Quick-Scale
  - Scale-up to a 4-Host SDDC in 2 clicks of the mouse
  - Designed for customers to prove value of VMware Cloud on AWS



Single Host SDDC starter configuration vs. Production SDDCs

		Single Host	Production
Delivered as a VMware Service			
Flexible Consumption	*Self-service VMware Cloud on AWS Console/API, on-demand hourly*	✓	✓
Support	*Unlimited 24x7x365 support and live chat support*	✓	✓
Lifecycle Management	*Automated SDDC upgrades and patches*	NA	✓
Key VMware SDDC Capabilities (vSphere, vSAN, NSX)			
Hybrid Linked Mode	*vCenter Server single pane of inventory management of on- and off-premises resources*	✓	✓
Migration between On-Prem and Cloud	*Migration of virtual machines between on-premises and VMware Cloud on AWS environments incl' vMotion*	✓	✓
All Flash vSAN Storage	*All Flash configuration with vSAN that uses flash for both caching and capacity layer*	✓	✓
Logical Networking and Firewall	*Logical networking within VMware Cloud on AWS and L2/L3 VPN to on-prem, with edge firewalling*	✓	✓
vMotion and Storage vMotion (within VMC)	*Live migration of VMs and virtual disk files within the SDDC*	NA	✓
High Availability	*Continuous availability of applications in the event of a hardware failure*	NA	✓
Distributed Resource Scheduler	*Automated load balancing across hosts*	NA	✓
AWS Infrastructure			
Each host has 2 CPUs, 36 cores, 72 hyper-threads, 512GB RAM, local flash storage (3.6TB cache, 10.7TB raw capacity tier[1])		✓	✓

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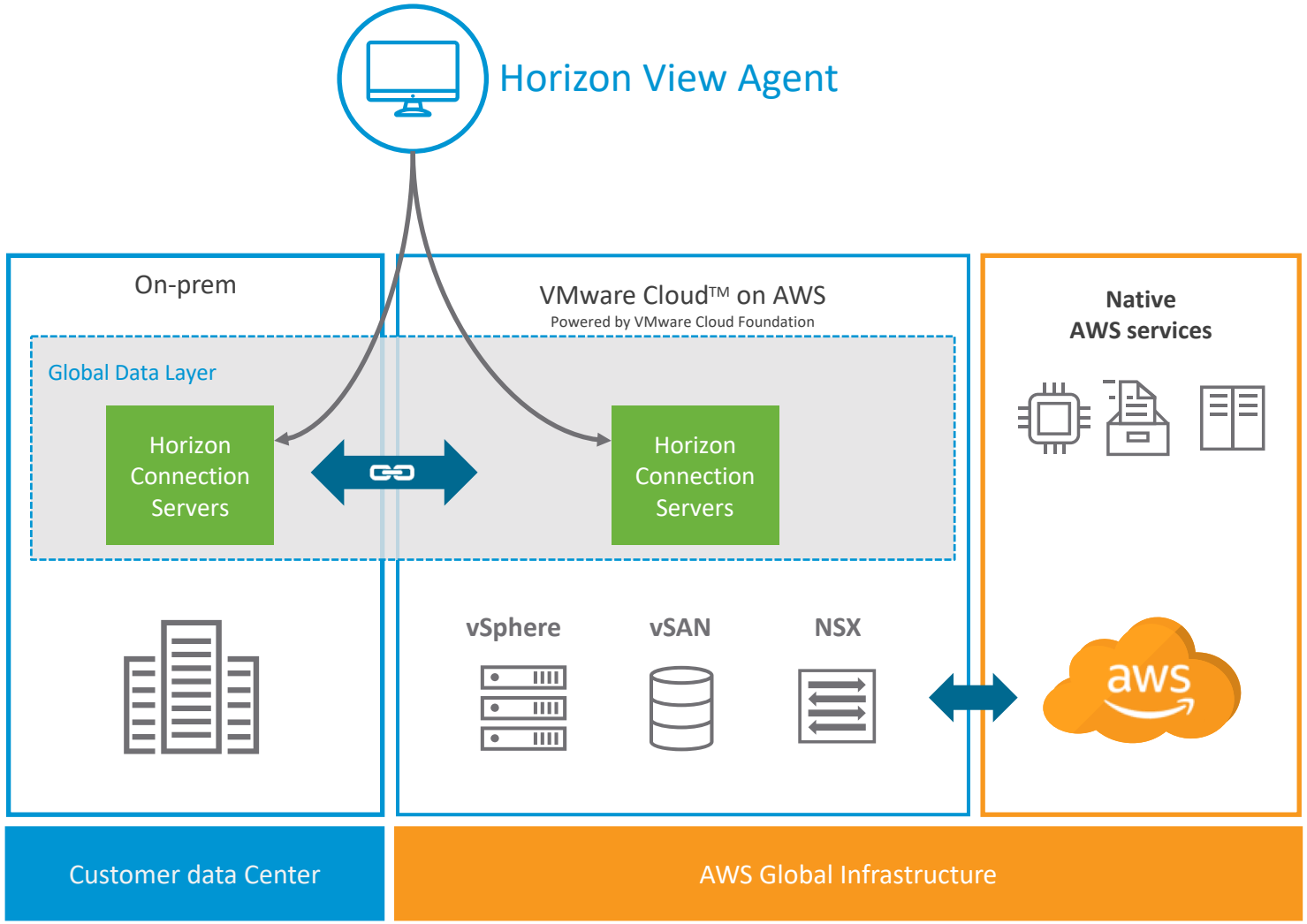
Horizon 7 on VMware Cloud on AWS



- Flexibly deploy and manage Horizon across on-premises & the cloud with Cloud Pod Architecture
- Easily add and extend on-premises desktop services without buying additional hardware
- Co-locate virtual desktops or published application hosts (remote desktop session) near latency-sensitive applications in the cloud
- Leverage elastic capacity as a cost-effective way to protect on-premises Horizon deployments or temporary needs

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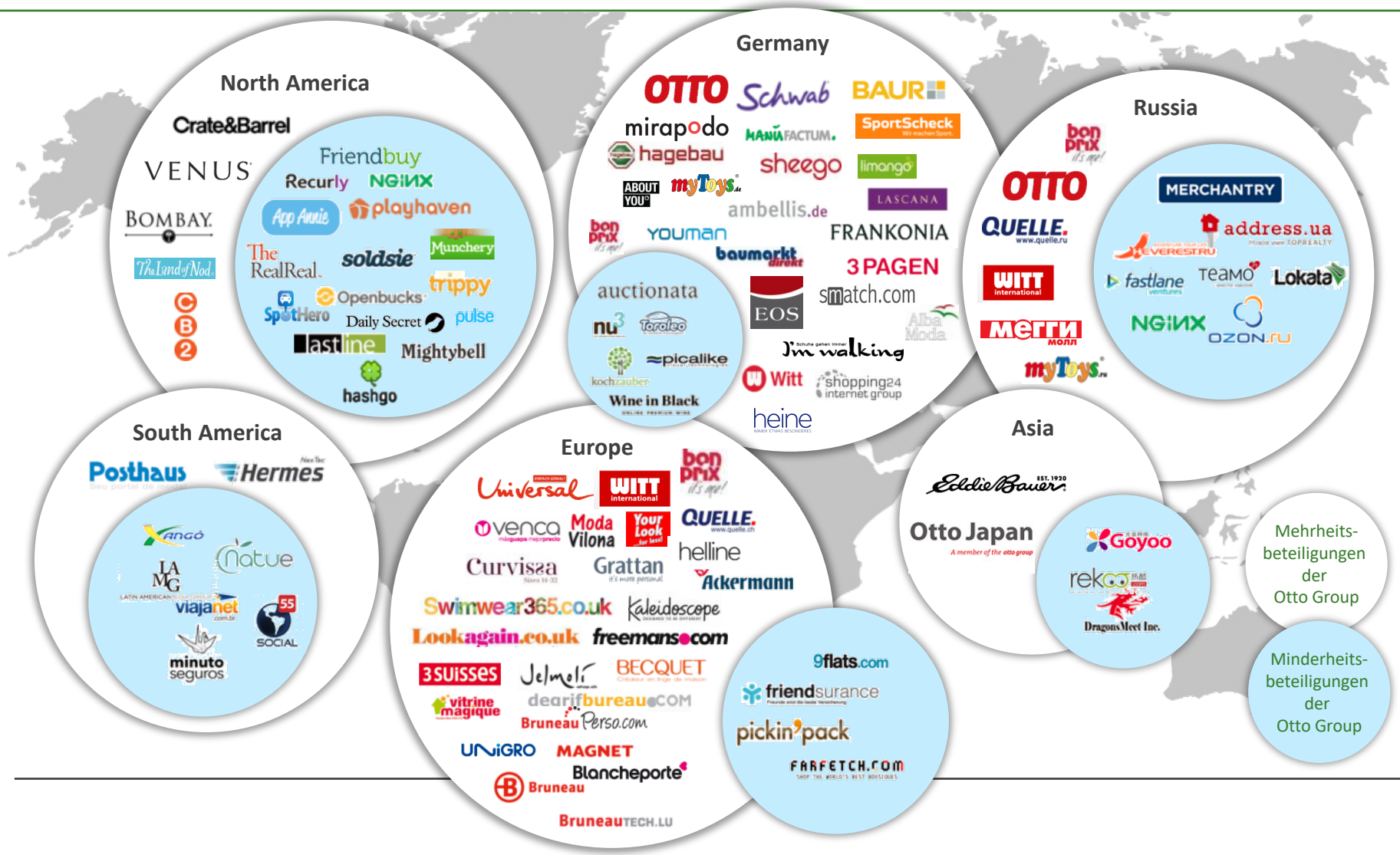
Roots of the Otto Group

Founded 1950 in Hamburg Bramfeld

Otto Company Overview - Today

A global but very decentralized company



Feedback and Findings from the Early Adopter Program

Getting everything up and running:

- Creating Accounts
- Deploying SDDC
- Establishing VPN Connection
- Deploying Hybrid Cloud Extension
- Stretching Networks

First steps – how it feels :

- Live vMotion and Bulk Migration
- Look and Feel
- What happens under high load
- What happens in case of host failure
- Documentation and Live Support

Summary:

Everything works like a charm within hours and is perfectly integrated in on premise environment.

Advantages we like to dig into

Frictionless

Processes and tools for operating the infrastructure and systems are already fully available

Proven standards and best practices can still be used

Great approval by the IT staff

Speed

Fast reaction on new demands from business units

Preserving investments and employee knowledge

Always new technology and hardware without any hassle

Agility

Reduction of costs by reducing the spare capacity
in on premise data center

Future scenario for disaster recovery site (maybe)

Thank you

Georg Deil
Principal Consultant for Cloud and Automation
Cloud Transformation Consulting - it's all about efficiency, scale and speed

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VMware Cloud on AWS: Account Structure

VMware Cloud on AWS SDDC account

- A new AWS account to run SDDC resources
- Is owned, operated, and paid directly by VMware
- Is single tenant for all SDDC resources

AWS customer owned account

- Is owned, operated, and paid directly by the customer
- Private connectivity to VMware Cloud SDDC
- Full access to the native AWS services

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VMware Cloud on AWS: Getting started

https://vmc.vmware.com

VMware Cloud on AWS Console

- my.vmware.com credentials
- Organizational Assignment
- Identity and Access Management

Create a new SDDC

- SDDC Cluster Name
- Number of Hosts (4 to 32)
- AWS Region (Oregon, Virginia, London, Frankfurt)
- Target Customer AWS Account information
  - Target customer-managed VPC
  - Target subnet

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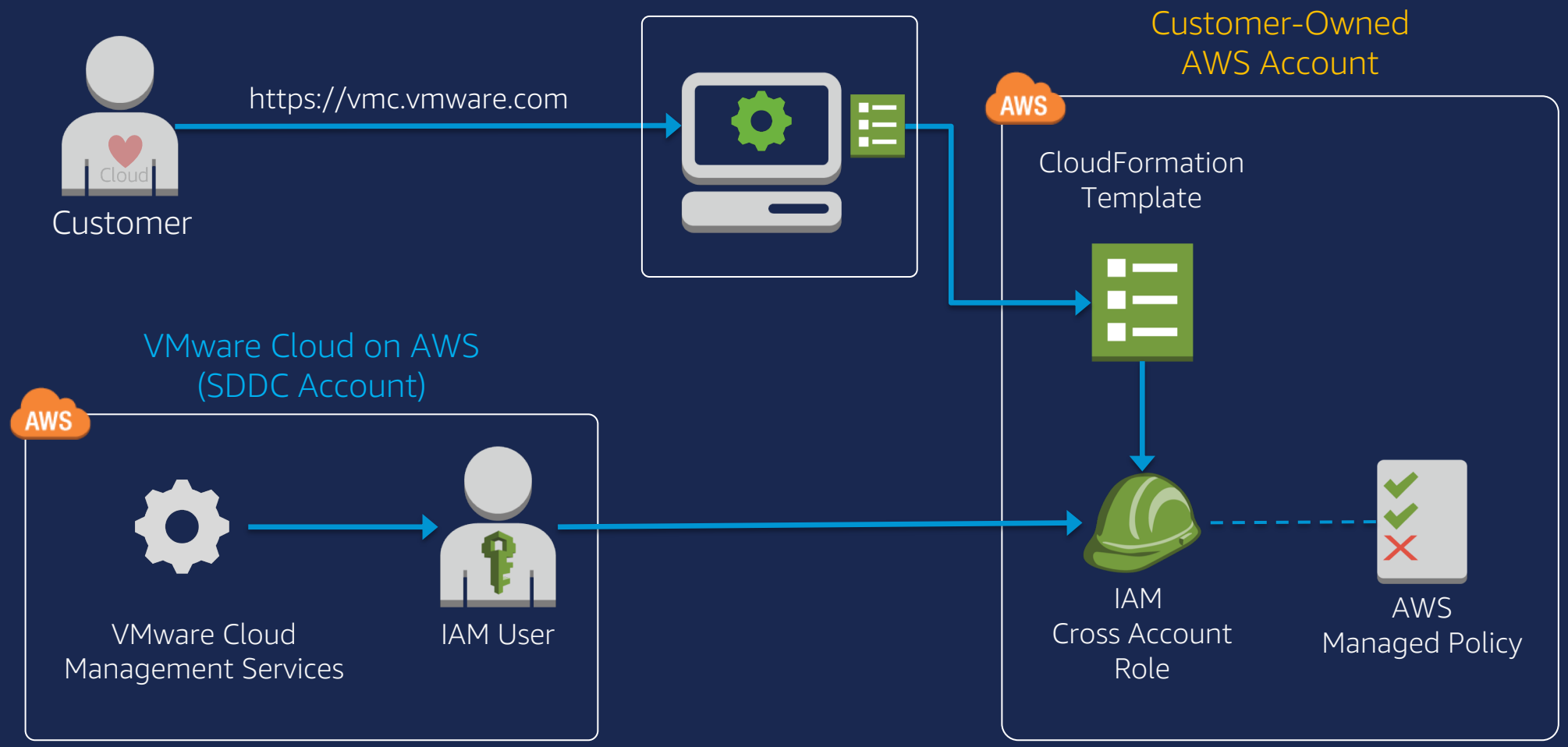
VMware Cloud on AWS: Connecting to an AWS account



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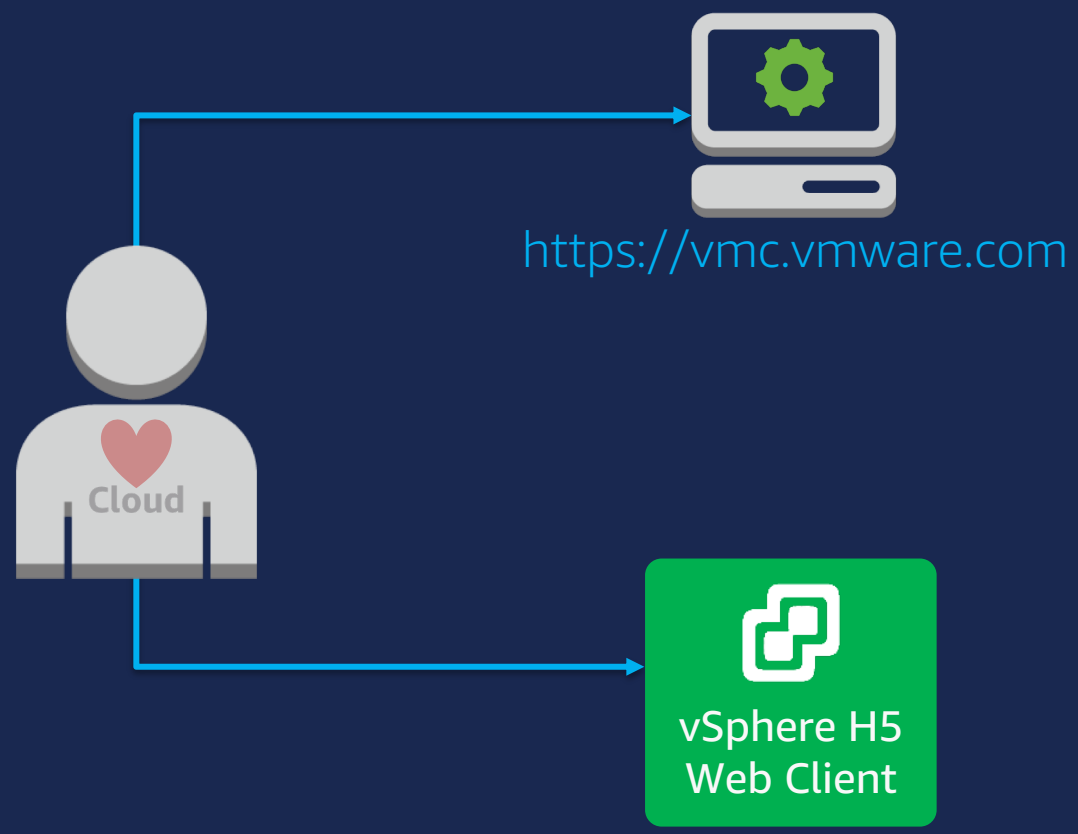
Accessing VMware Cloud on AWS



- Add and remove ESXi hosts
- Console user and role management
- Firewall configuration
- EIP and NAT configuration
- VPN connectivity

- Hybrid Linked-Mode
- Logical network configuration
- Virtual machine administration
- VM storage policies

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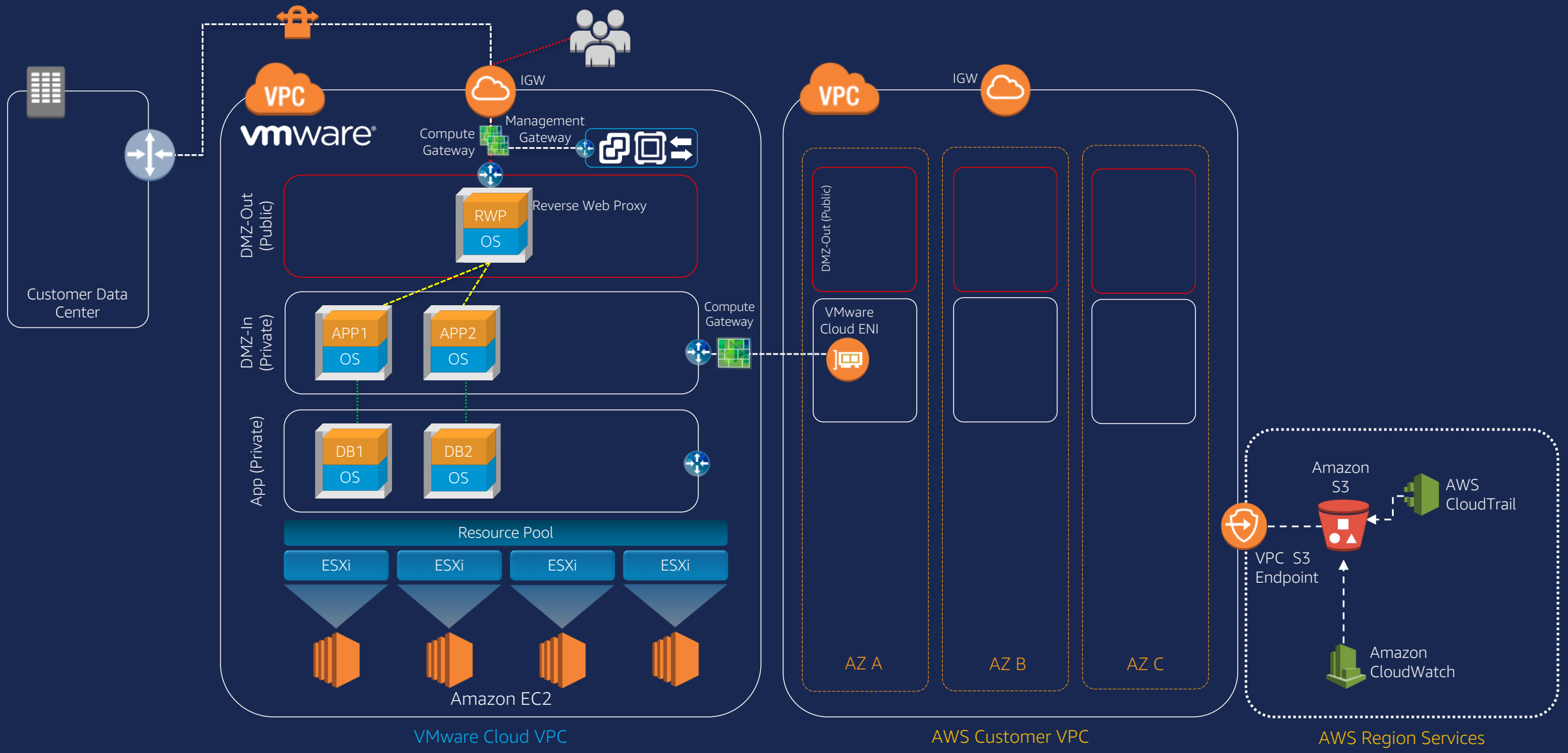
VMware Cloud on AWS: Base Topology



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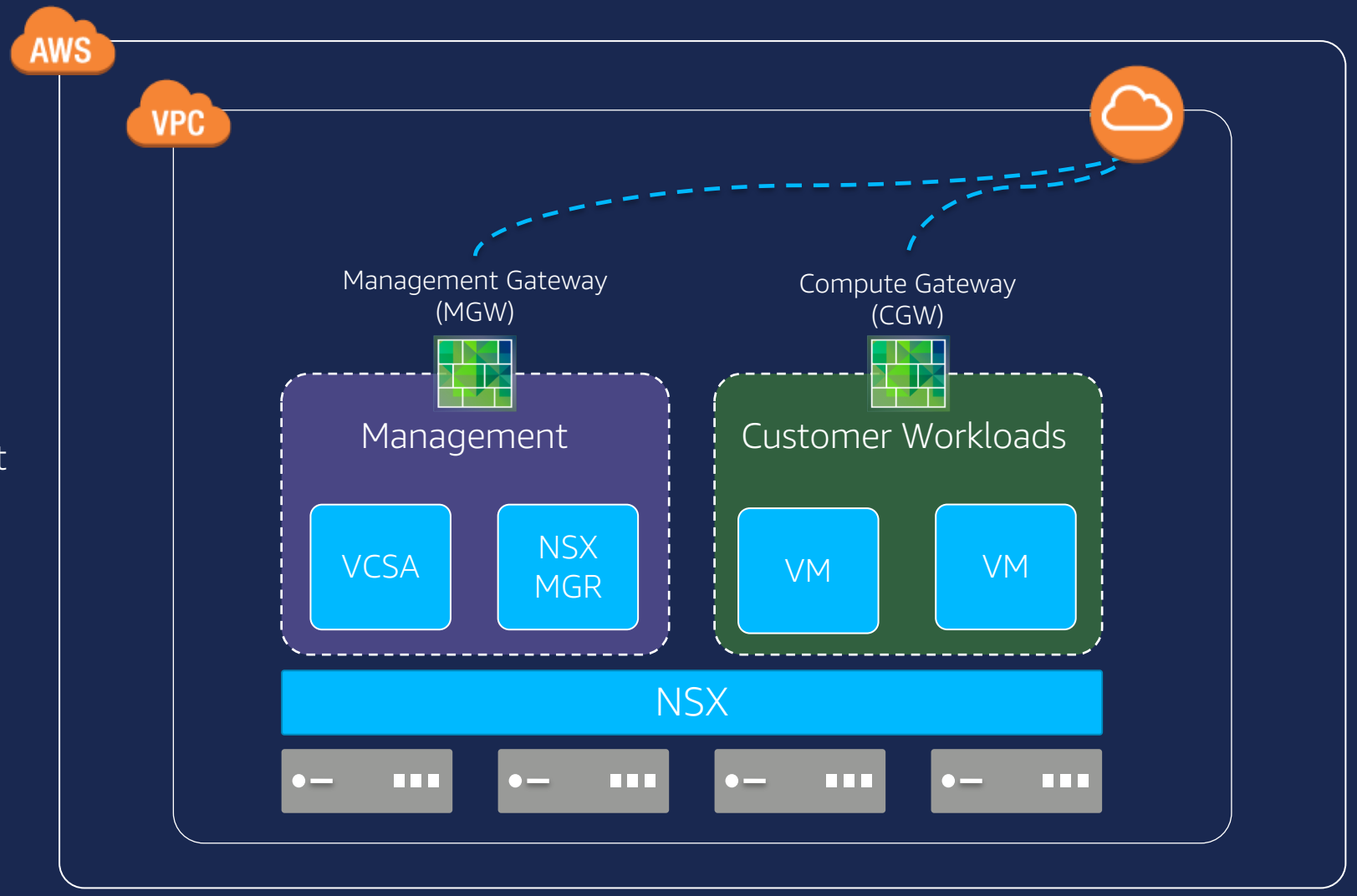
VMware Cloud on AWS: Overlay

VMware Cloud on AWS SDDC Account



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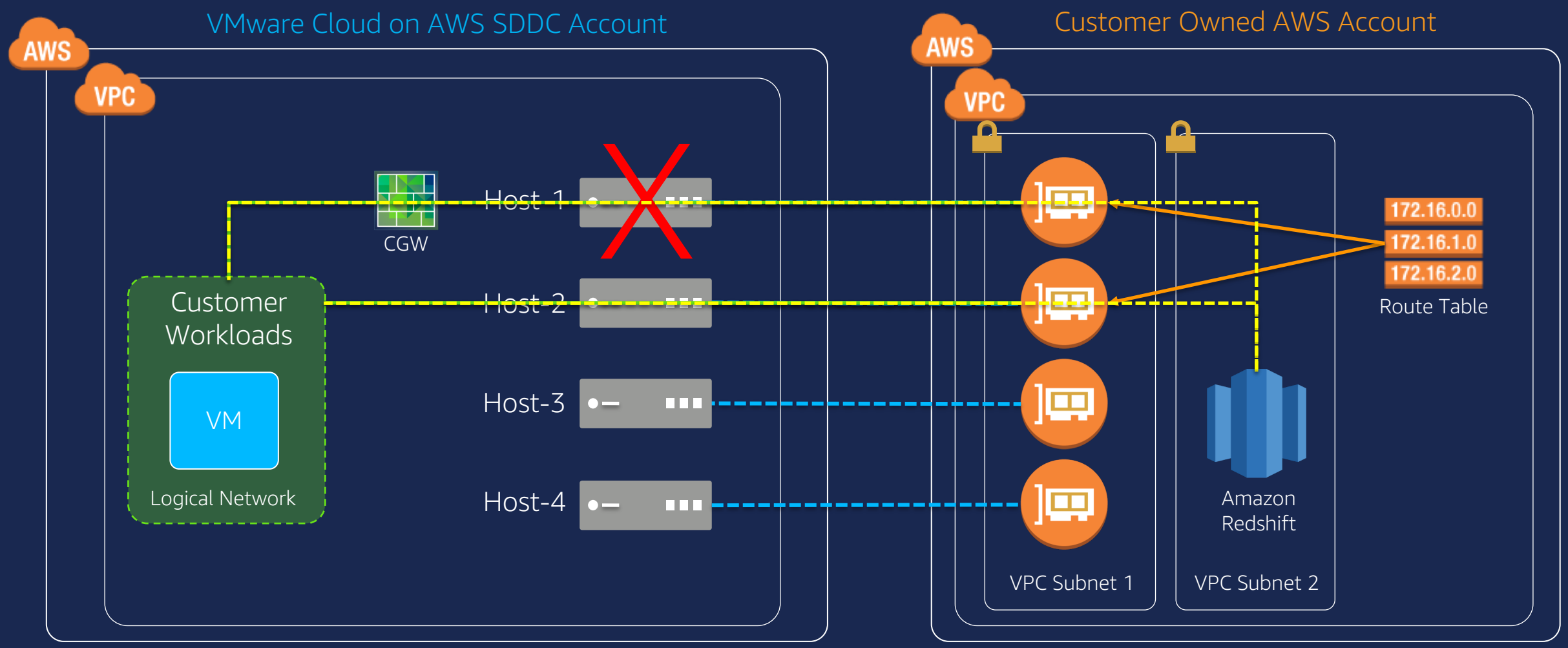
VMware Cloud on AWS: Customer AWS account connectivity



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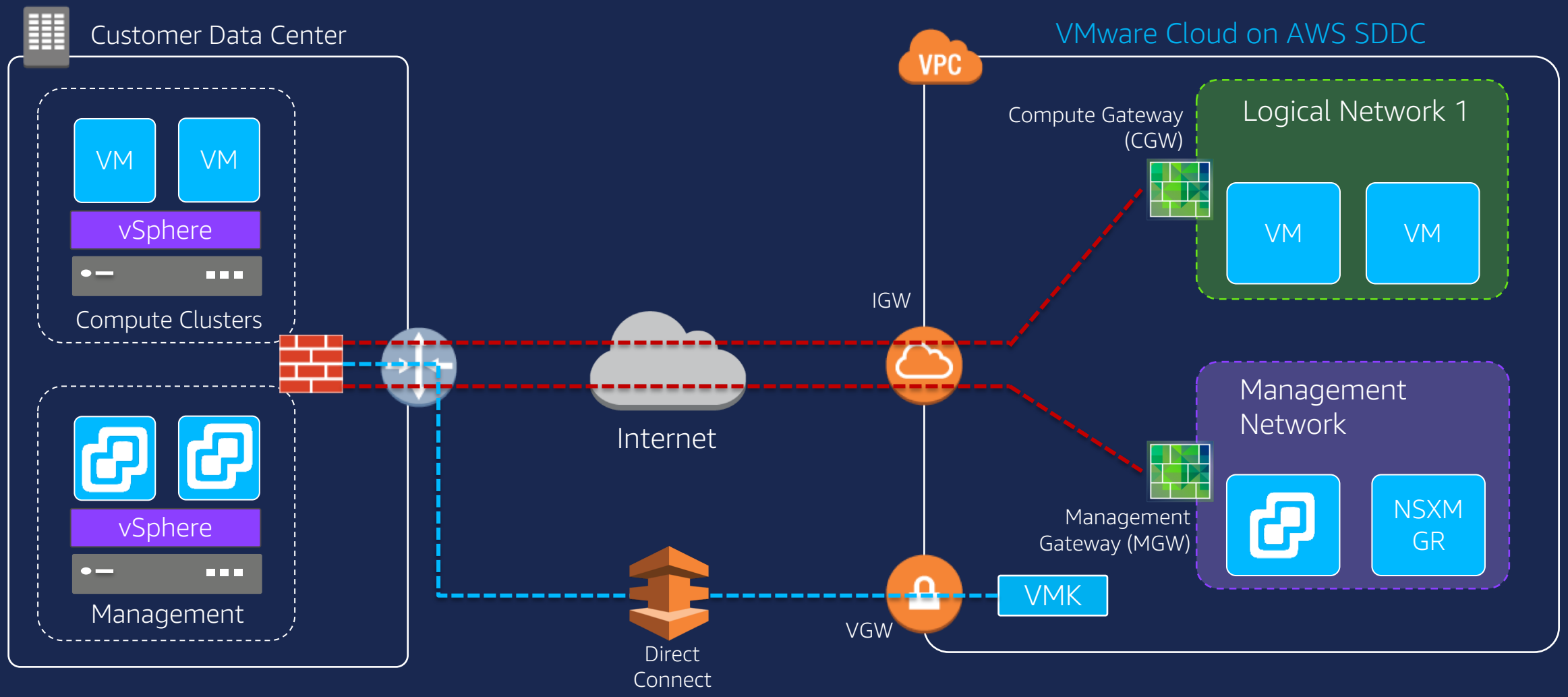
VMware Cloud on AWS: On-Premises connectivity



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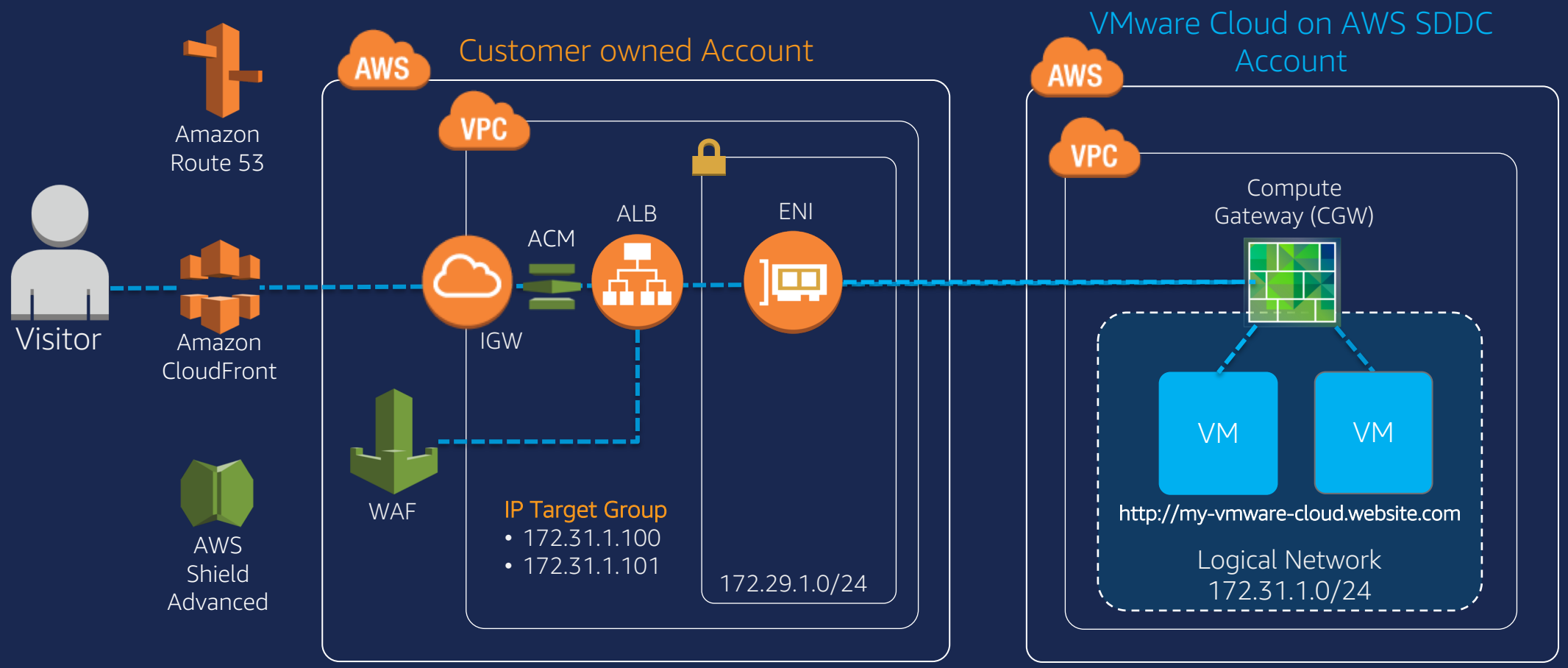
VMware Cloud on AWS: Protecting workloads with native AWS services



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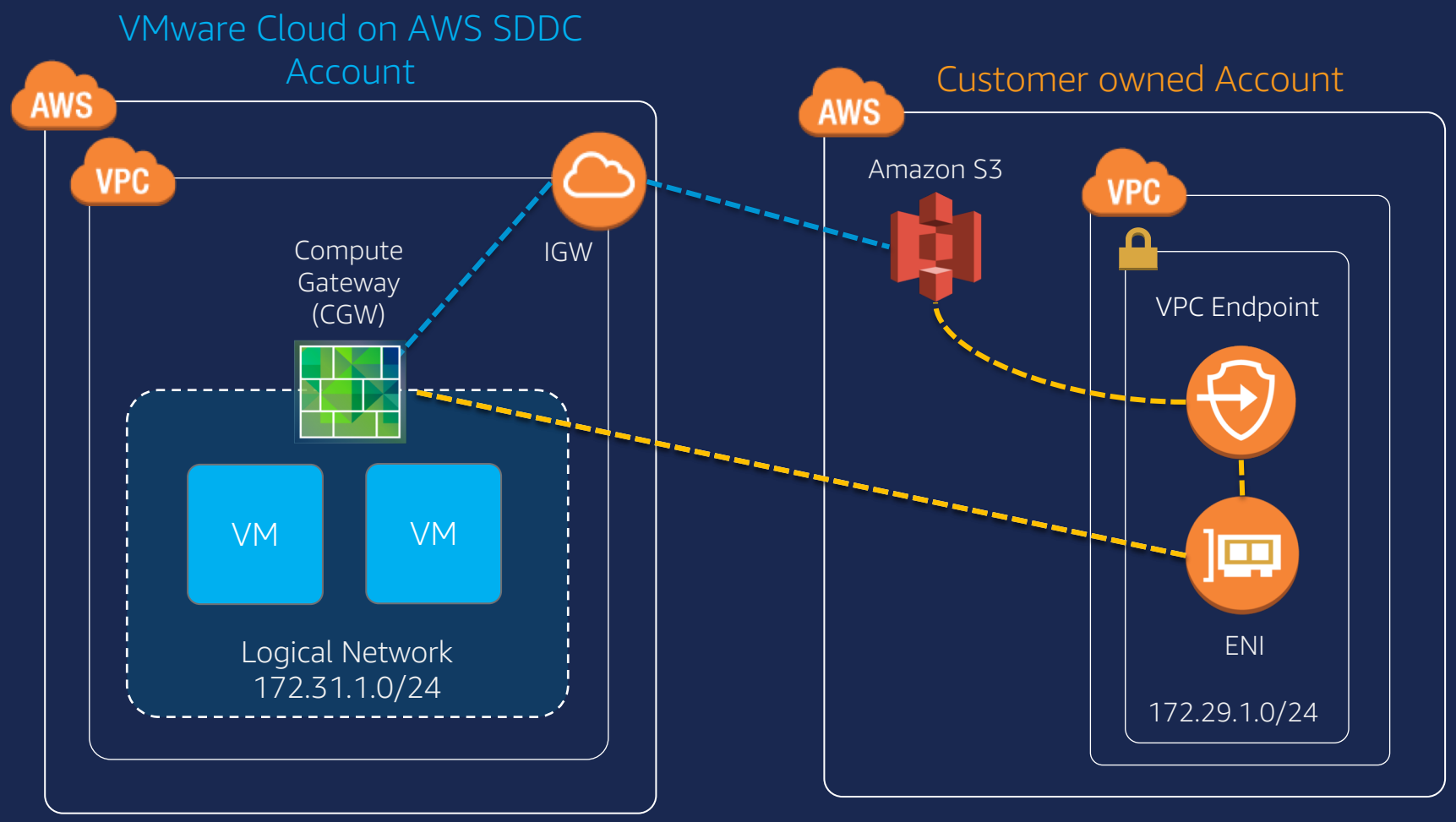
VMware Cloud on AWS: Backup and File Storage



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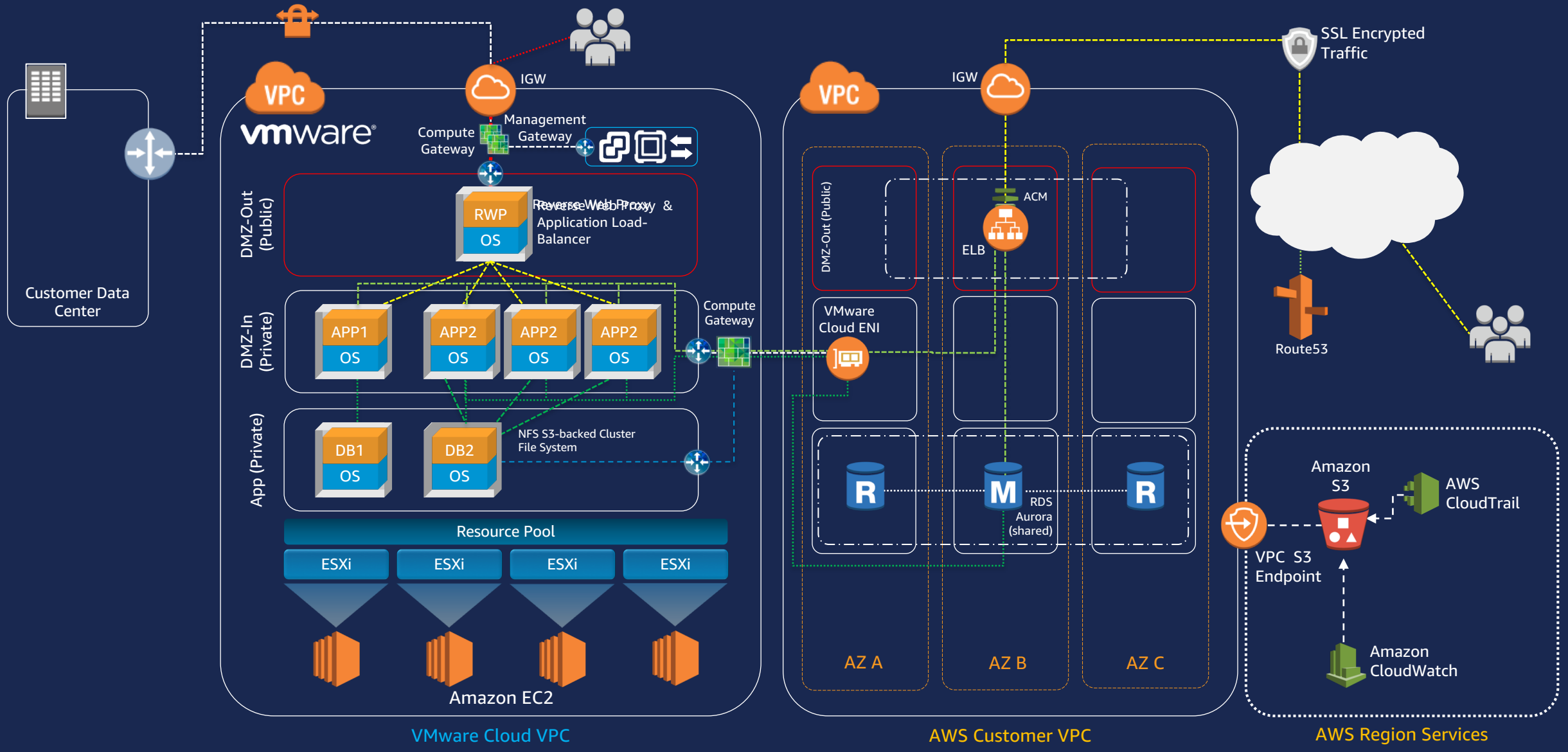
VMware Cloud on AWS: Putting the Sample Hybrid Architecture together



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