

# Architecting Multi-Cloud Horizon

Leveraging cloud-based capacity  
for your Horizon deployment

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SESSION ID EUS1547  
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The "vmworld 2021" logo, featuring the word "vmworld" in a white, lowercase, sans-serif font with a registered trademark symbol (®) to the upper right, and the year "2021" in a larger, white, sans-serif font below it. The logo is set against a dark blue, textured background that resembles a night sky or a nebula. There are white, glowing orbital lines and small satellite-like icons scattered around the logo.

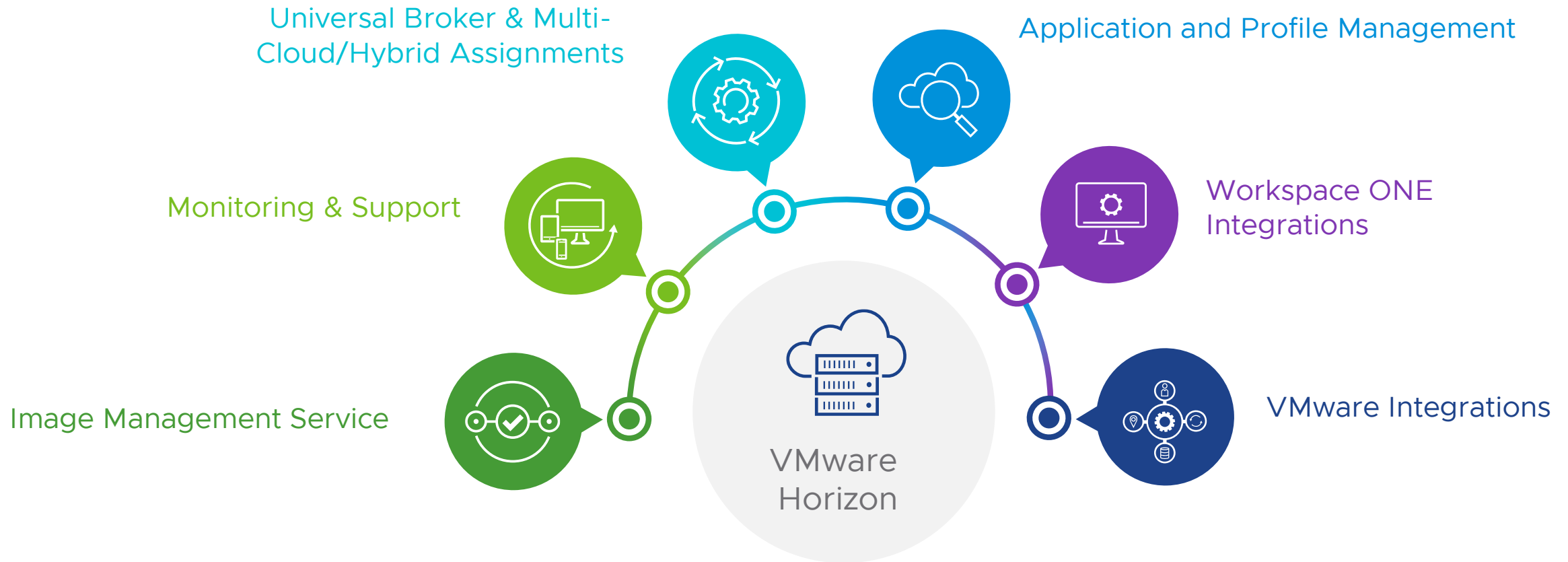
1. Horizon Service Overview
2. Horizon Cloud on Microsoft Azure
3. Horizon Cloud Connector
4. Horizon on vSphere Clouds Overview
5. Horizon on VMware Cloud on AWS
6. Horizon on Azure VMware Solution (AVS)
7. Horizon on Google Cloud VMware Engine (GCVE)

# Horizon Service

## Overview

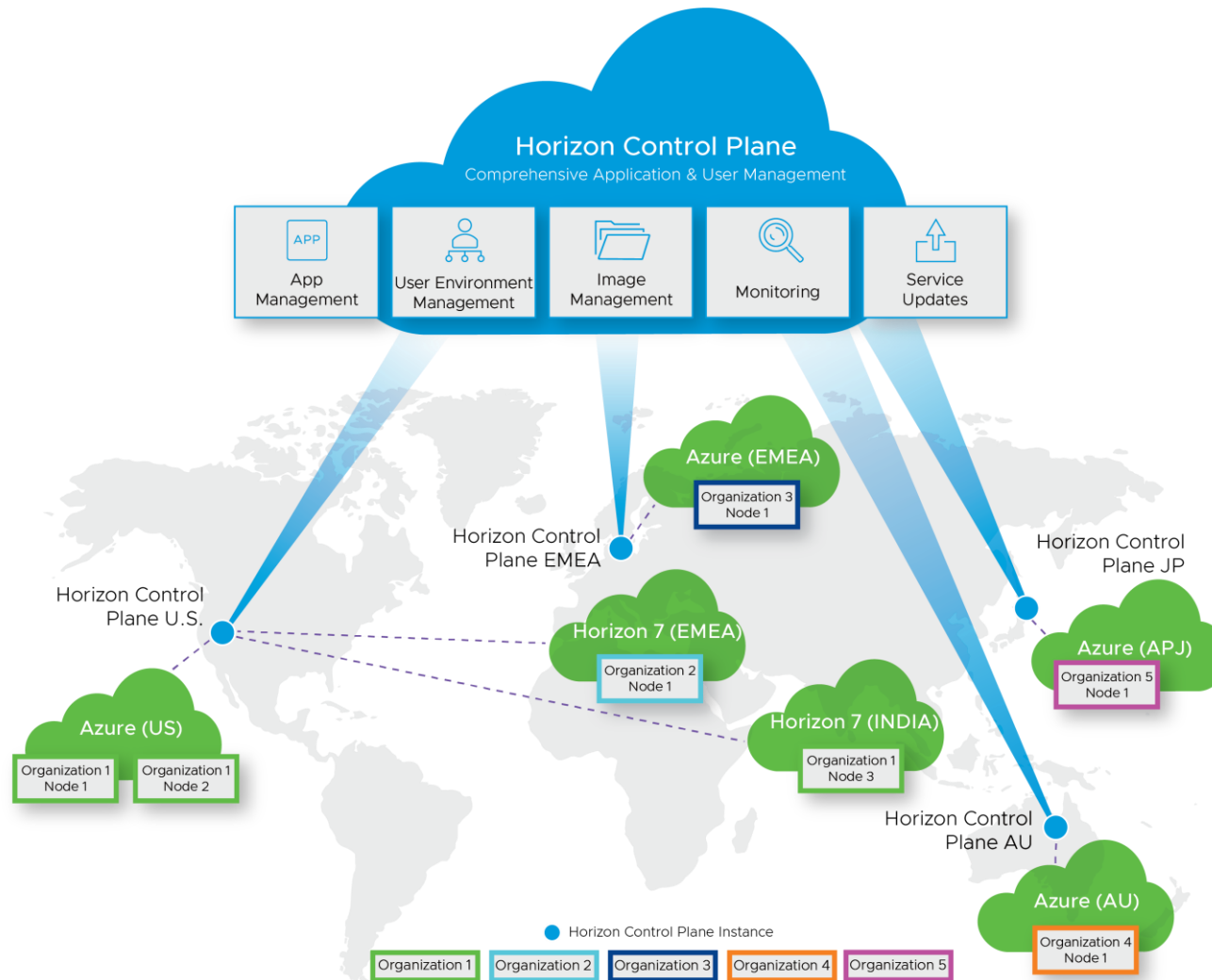
# Horizon Cloud Services

## Cloud Services via Control Plane



# Enabling Customers to Move to the Cloud

Manage on-premises and cloud environments together



Customers can move to the cloud at their own pace

No huge up-front migration

Delivers ultimate flexibility connecting users with workloads, applications, and data



# Connecting Horizon to Horizon Cloud Service



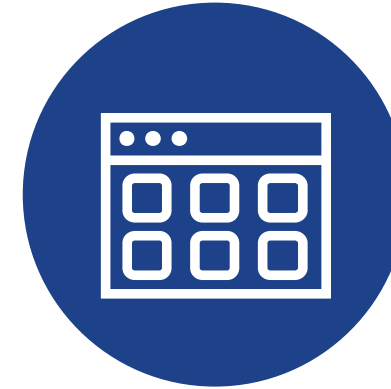
Horizon  
Subscription  
Licenses



Download &  
Deploy  
Horizon  
Connector  
OVA



Apply a valid  
CA-signed  
Certificate



Register AD  
Domain with  
Horizon Cloud  
(Optional)



Configure and  
use Horizon  
Services  
(Optional)

# Horizon Control Plane Services

## Architecture Resources

RA Landing page:

<https://techzone.vmware.com/reference-architecture>

Horizon Control Plane Service Architecture:

<https://techzone.vmware.com/resource/horizon-control-plane-services-architecture>

Horizon Service Journey Page

<http://via.vmware.com/hsj>



# Horizon Cloud on Microsoft Azure



# High-level architecture

## Horizon Cloud on Microsoft Azure

Provides desktop virtualization infrastructure as a managed service in customer's Azure subscription

Deploy and manage virtual machines in customer's Azure subscription

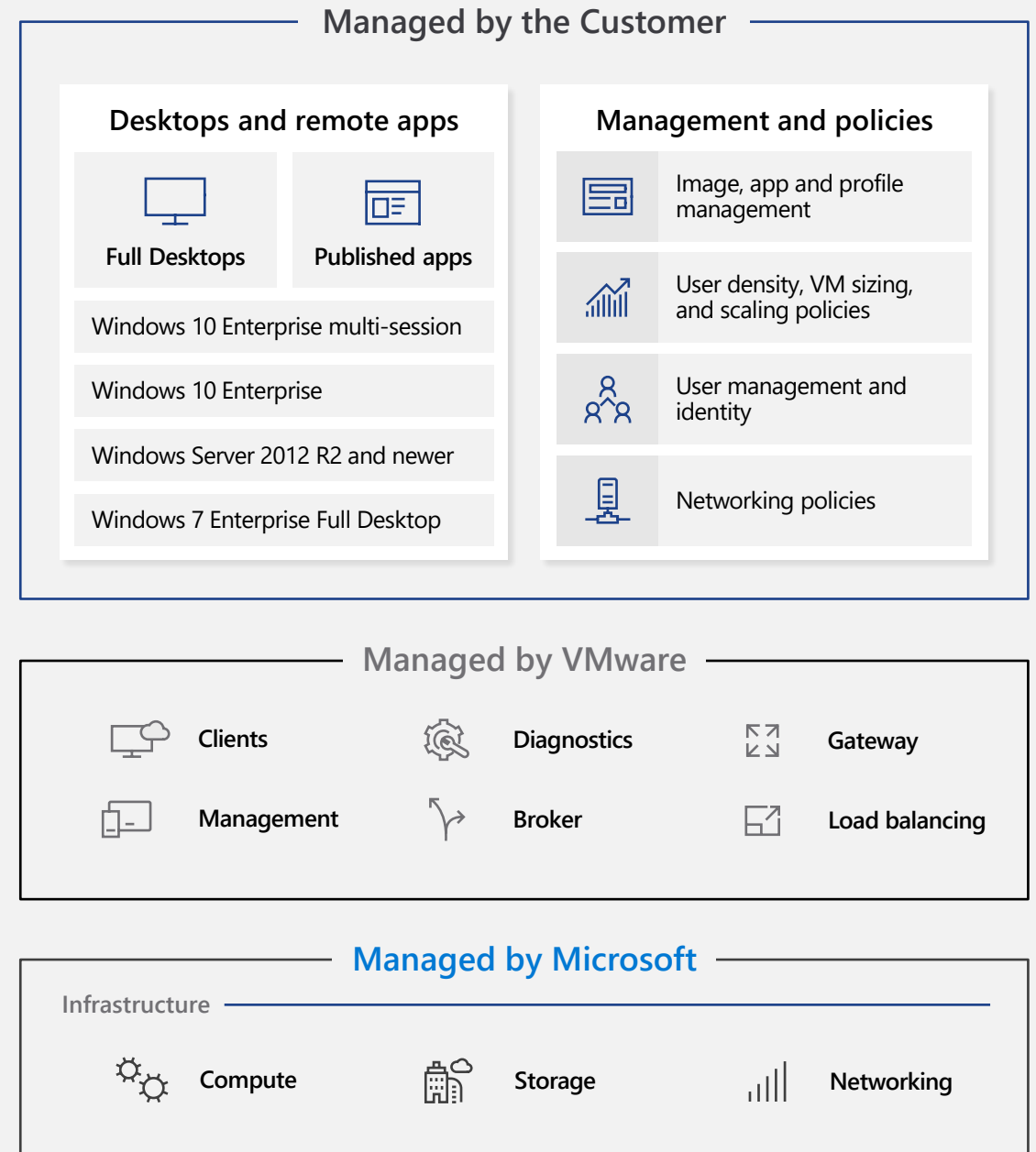
Leverages customer's Azure Virtual Desktop benefit

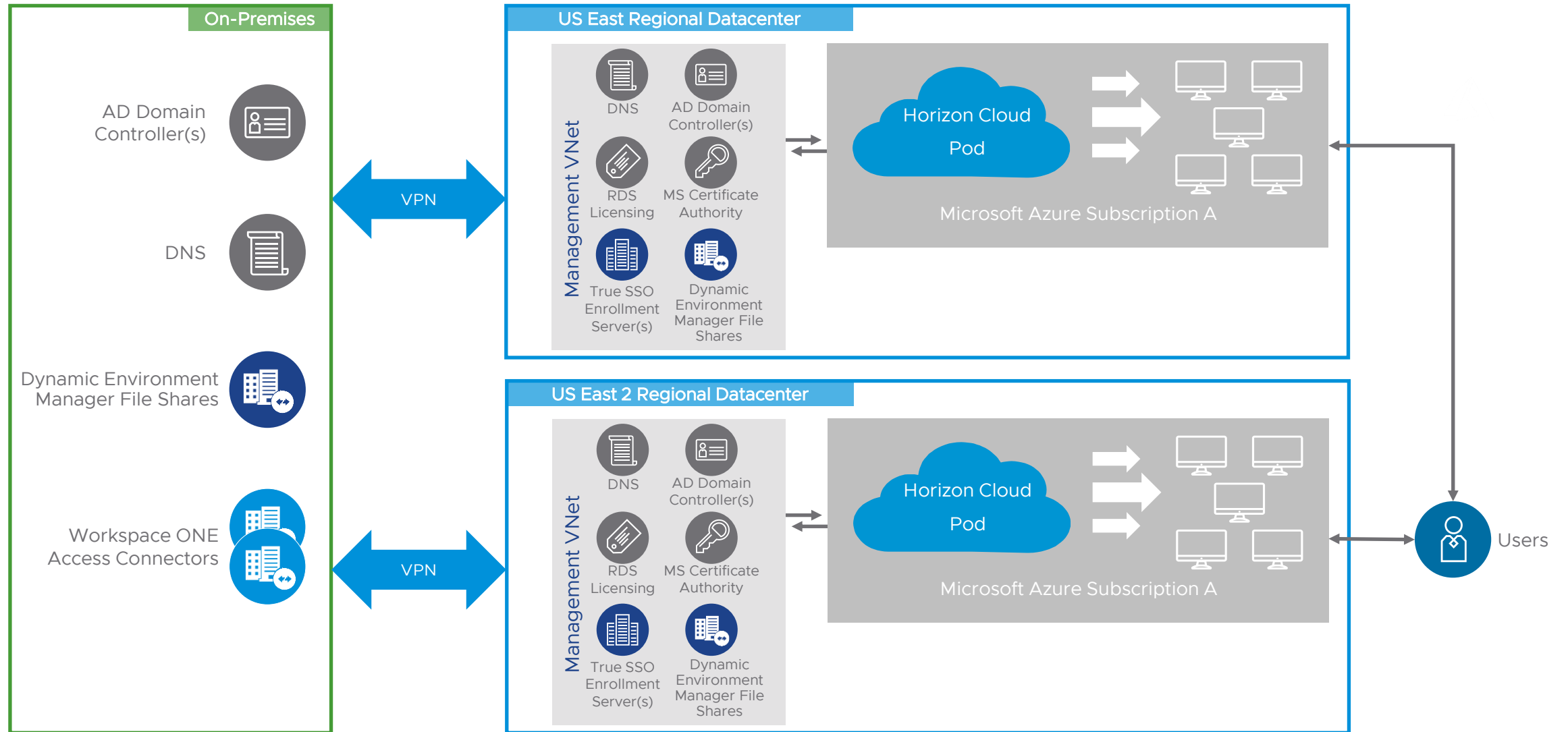
Integrates with Horizon Control Plane, which includes:

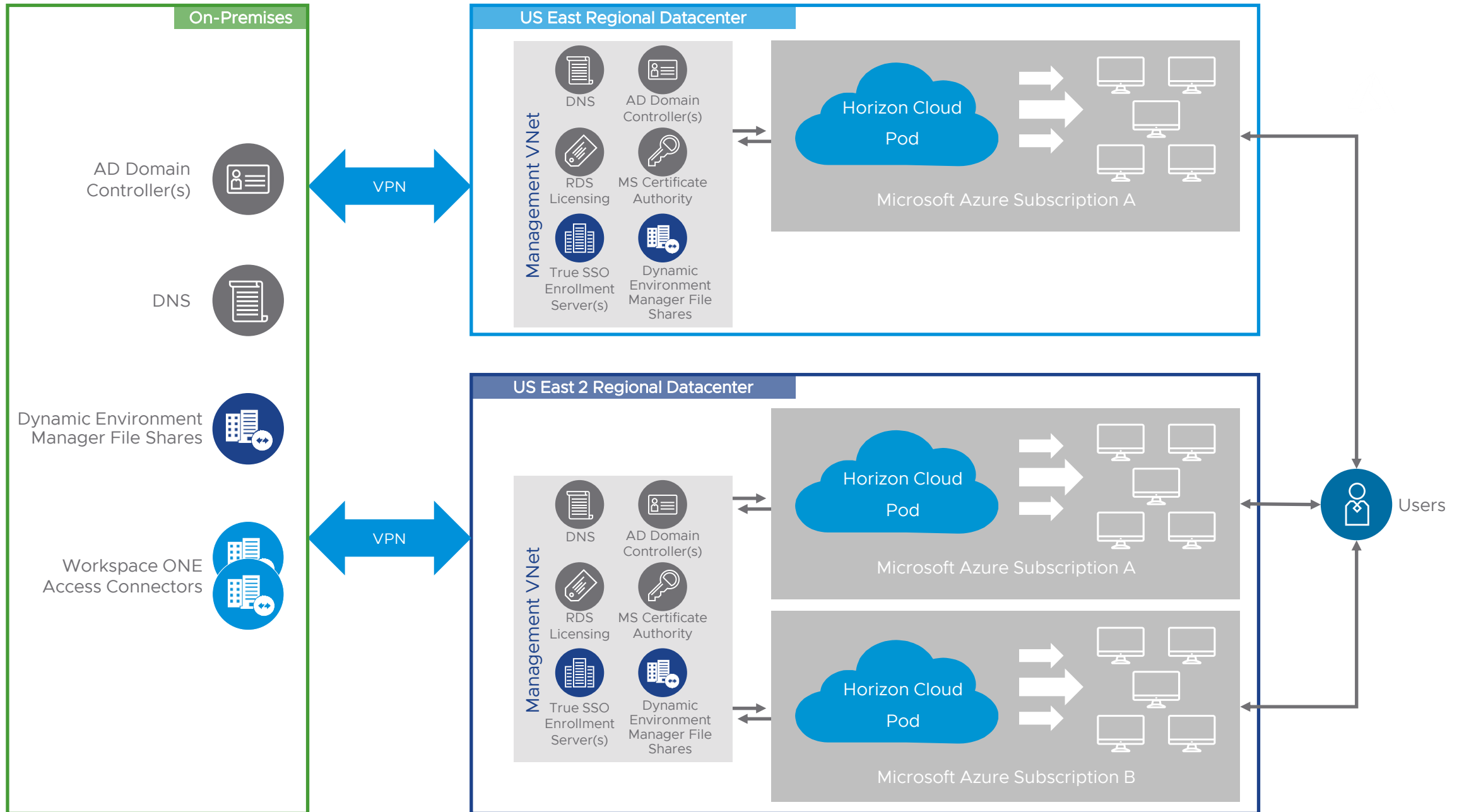
- Hybrid support so admins can manage on-premises and cloud environments from one pane of glass
- Monitoring & Help desk capabilities
- Advanced application and user environment management with VMware App Volumes and Dynamic Environment Manager
- Cloud-based Universal Broker that routes users to any workload regardless of location



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# Next Steps....

## Horizon Cloud on Microsoft Azure

**RA Landing page:**

<https://techzone.vmware.com/reference-architecture>

**Architecture:**

<https://techzone.vmware.com/resource/horizon-cloud-on-microsoft-azure-architecture>

**Horizon Control Plane Service Architecture:**

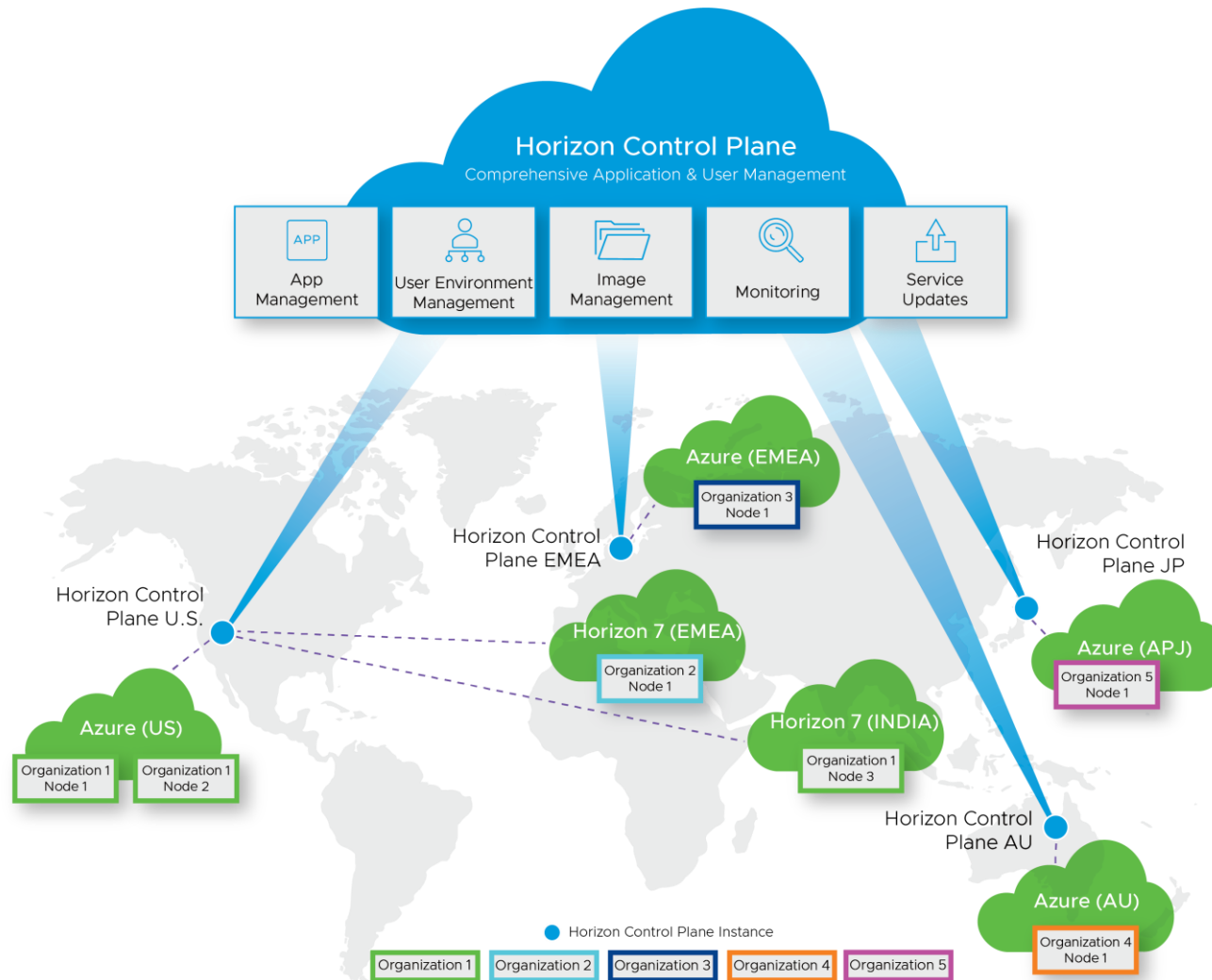
<https://techzone.vmware.com/resource/horizon-control-plane-services-architecture>



# Horizon Cloud Connector

# Enabling Customers to Move to the Cloud

Manage on-premises and cloud environments together

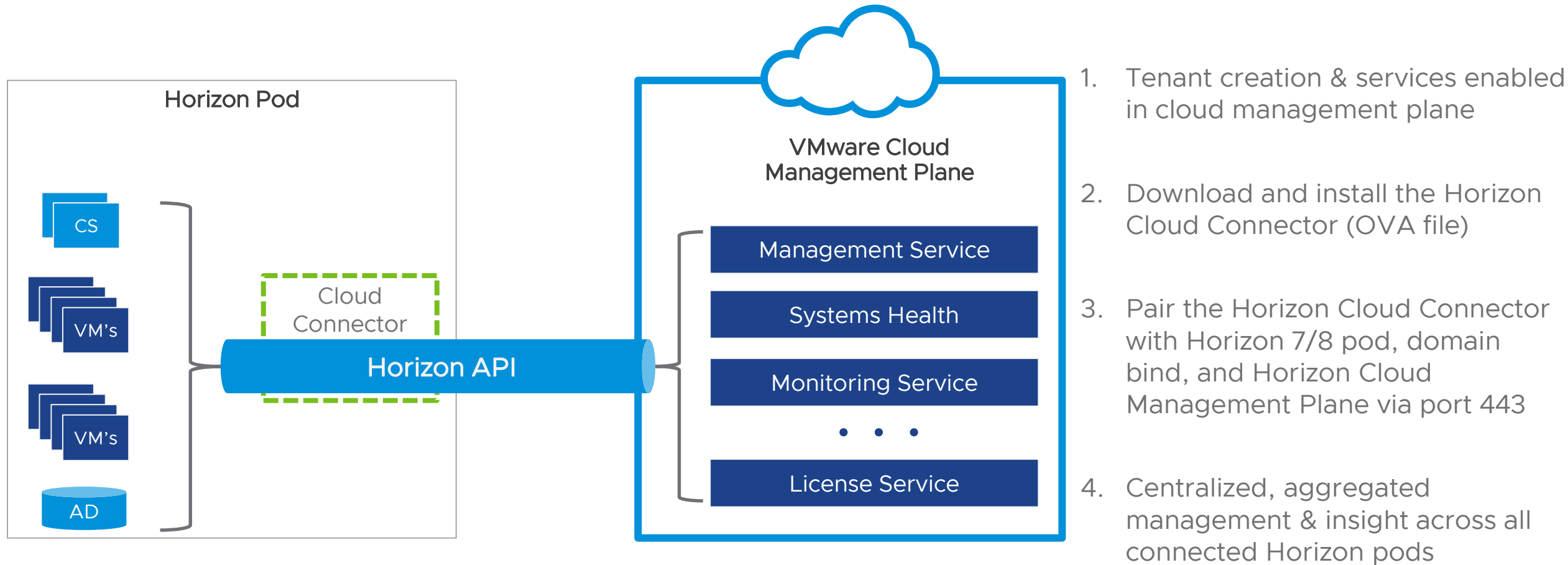


Customers can move to the cloud at their own pace

No huge up-front migration

Delivers ultimate flexibility connecting users with workloads, applications, and data

# Connecting Horizon to Horizon Control Plane





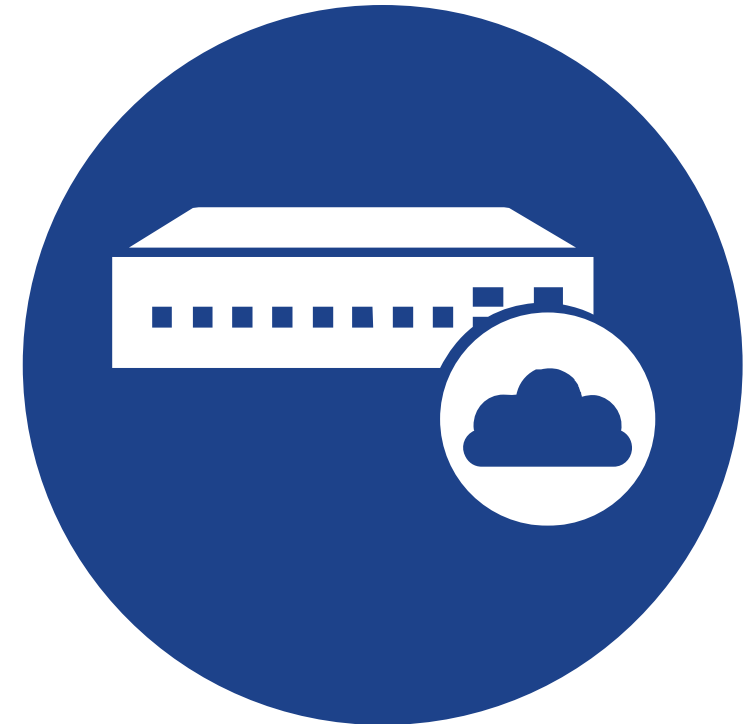
# Horizon Cloud Connector

## What is it?

The salient features of the cloud connector are listed below:

- The Cloud Connector is a pure add-on appliance and doesn't require any changes on the Horizon infrastructure.
- It pairs the Horizon infrastructure with Horizon Control Plane.
- It allows Horizon Control Plane to interact with the infrastructure using the Horizon APIs including the View APIs and the REST APIs.
- It provides a platform to run components as docker images so that optional cloud-based features can be enabled on the existing Horizon infrastructure.

The lifecycle of the Cloud Connector itself can either be managed fully from the cloud or by the Horizon infrastructure administrator .



# Horizon Cloud Connector

## How does it work & Considerations

Horizon Cloud Connector runs as vSphere appliance

- You must use vSphere Client or vSphere Web Client to deploy.
- Do not deploy the appliance directly into the ESXi host.

HTTPS Websocket Connection over Port 443

- Open all the time
- DNS names for relevant Horizon Control Plane services must be correct
- Must be able to communicate with `cloud.horizon.vmware.com`
- Proxy SSL configuration is not supported for the self-signed certificate for the Horizon Cloud Connector virtual appliance.
- All in product docs

Deployment details may be different on different SDDC services.

- Details in the product docs



# Pre-Check Script

[Troubleshooting detail in KB 79859](#)

## Troubleshooting Horizon Cloud Connector Connectivity Issues (79859)

Last Updated: 7/10/2020

Categories: Troubleshooting

Total Views: 1564



Language: English ▾



### ✓ Symptoms

While accessing the onboarding page, you experience this symptom:

A **502** gateway error comes due to which the expected page is not displayed in browser.

### ✓ Purpose

This article explains how to identify root cause of connectivity issues for Horizon Cloud Connector.

### ✓ Cause

This issue may occur due to proxy / firewall configurations in your network.

### ✓ Resolution

To resolve this issue:

Pre-Check Script

Execute the pre-check script (`/opt/vmware/bin/precheck.sh`) to see if the Cloud Proxy Service component shows failure. Failure would mean that there is out-bound connectivity issue.

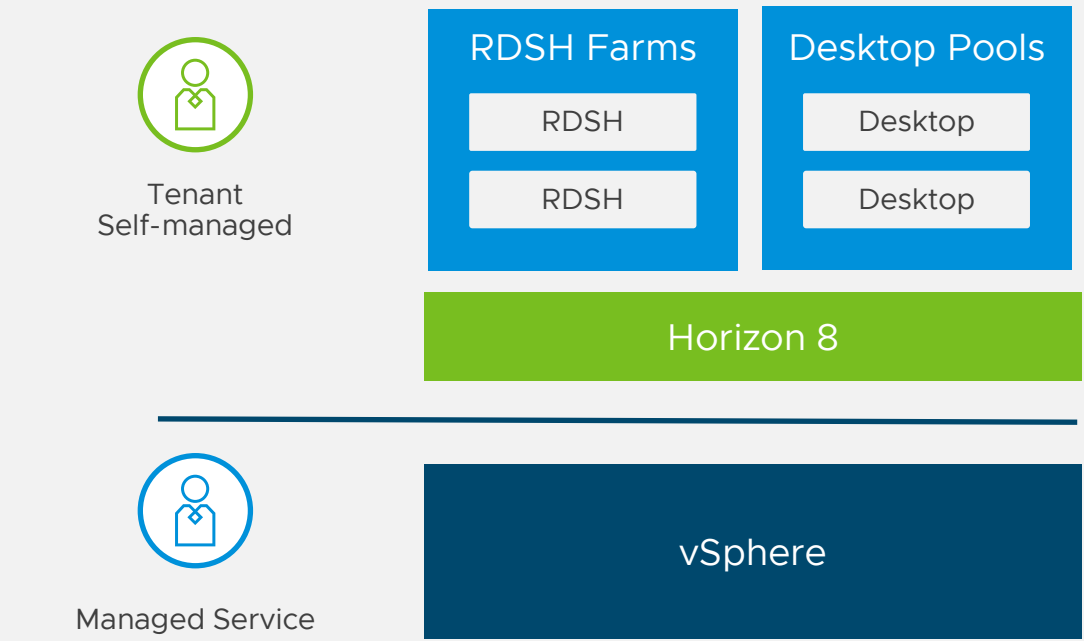
For example:

```
/opt/vmware/bin/precheck.sh <CS IP/FQDN>
```

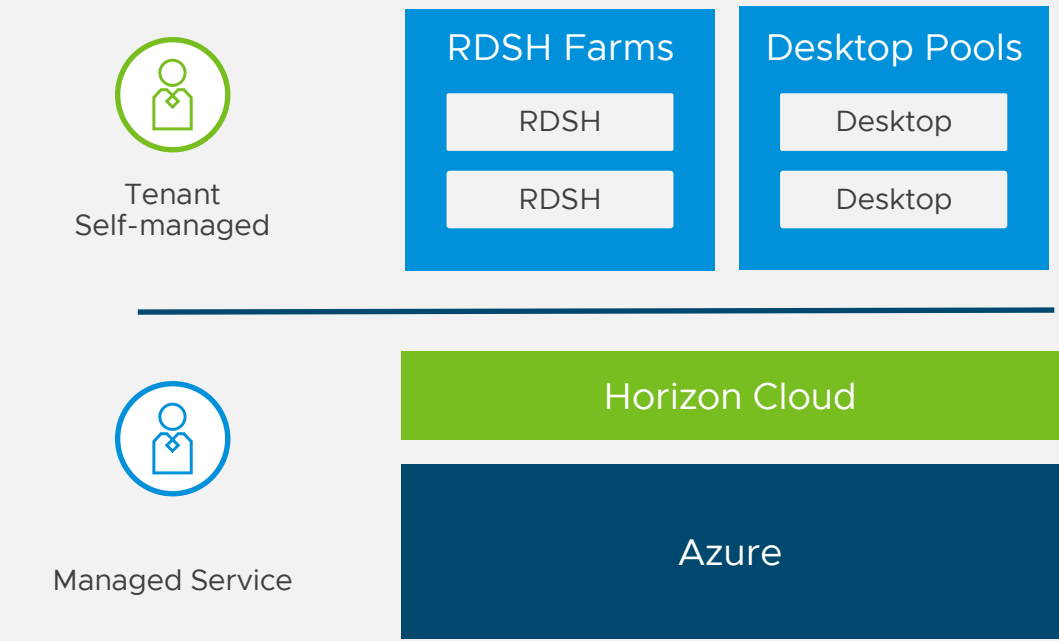
# Horizon on vSphere Clouds

# Horizon with vSphere Cloud Solutions ≠ DaaS

## Horizon with vSphere Cloud Solution (IaaS Model)

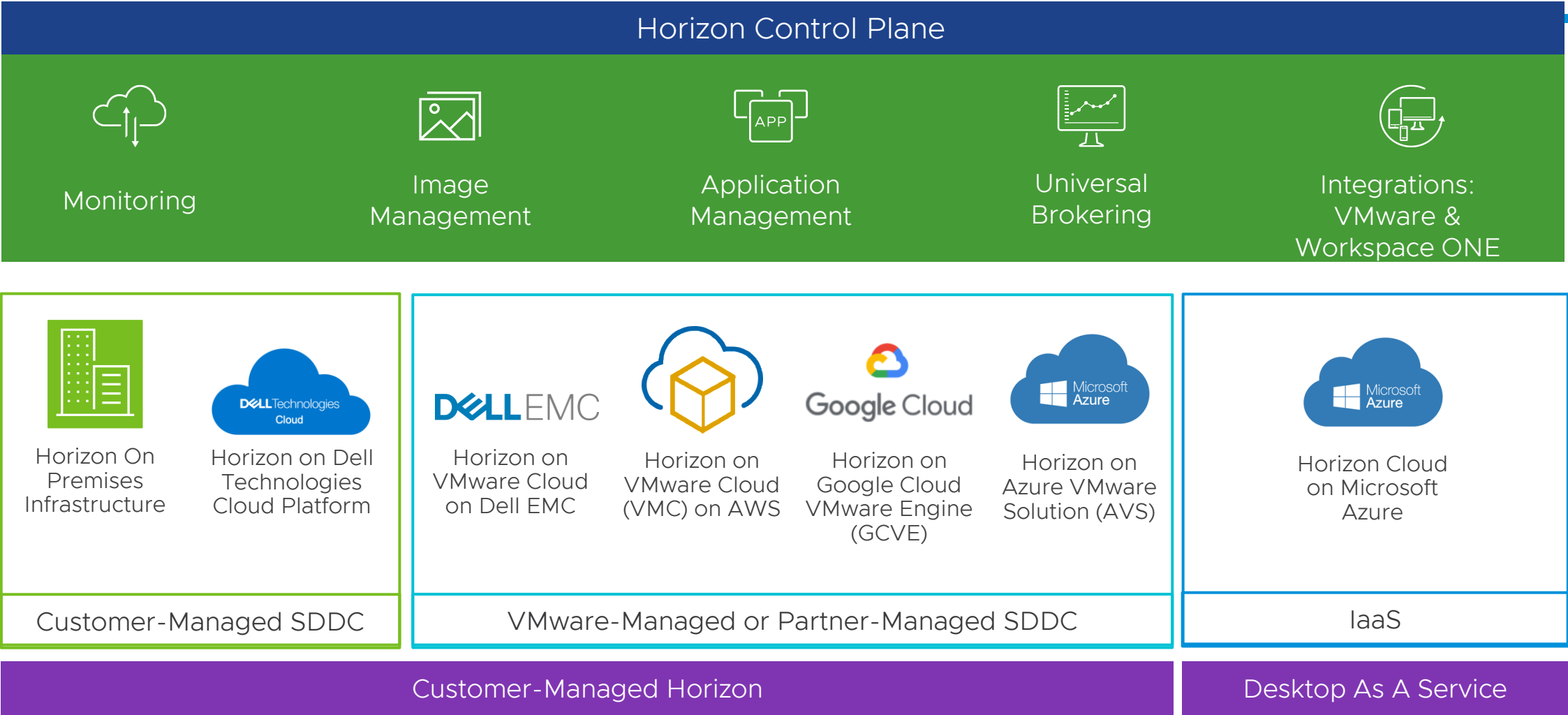


## Horizon Cloud on Azure (DaaS Model)

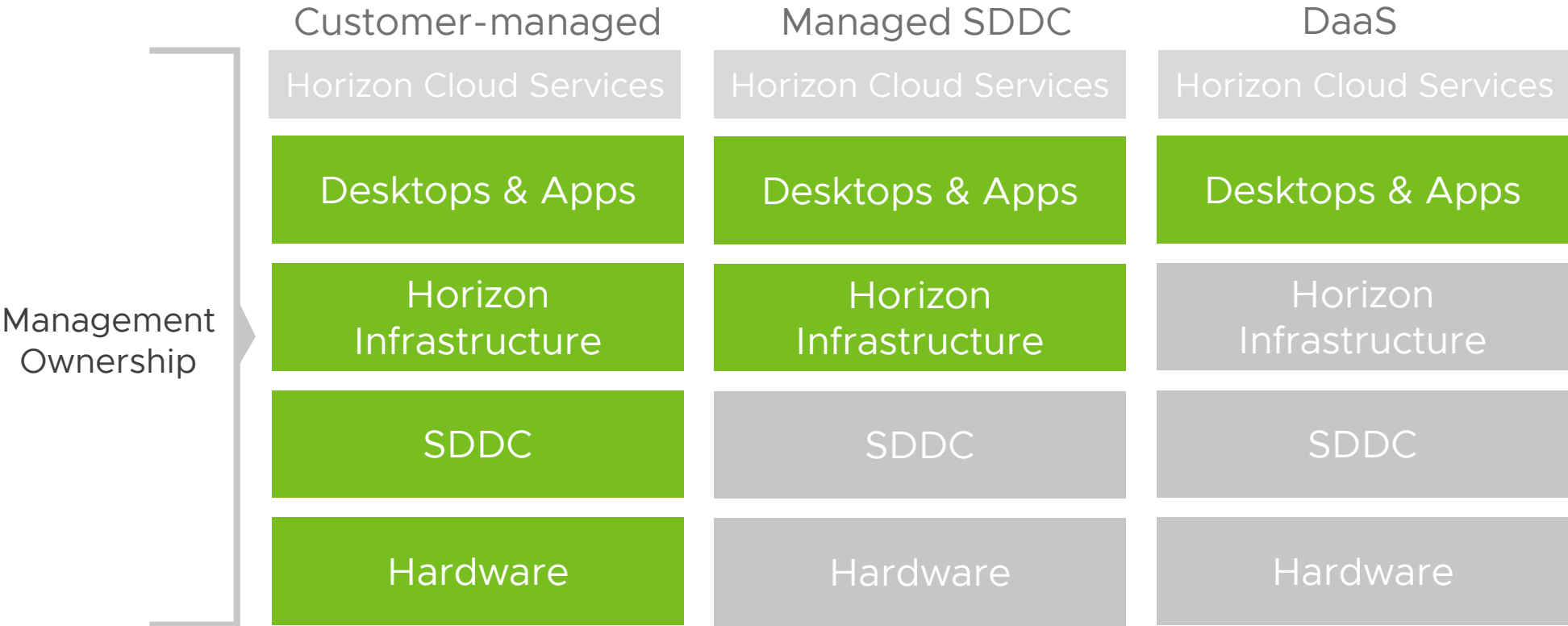


# Horizon Cloud Services

Leverage Cloud Resources for Hybrid Delivery and Management



# Providing Choice with Horizon Subscription



On Premises / Private Cloud



VMware Cloud – AWS, AVS, GCVE

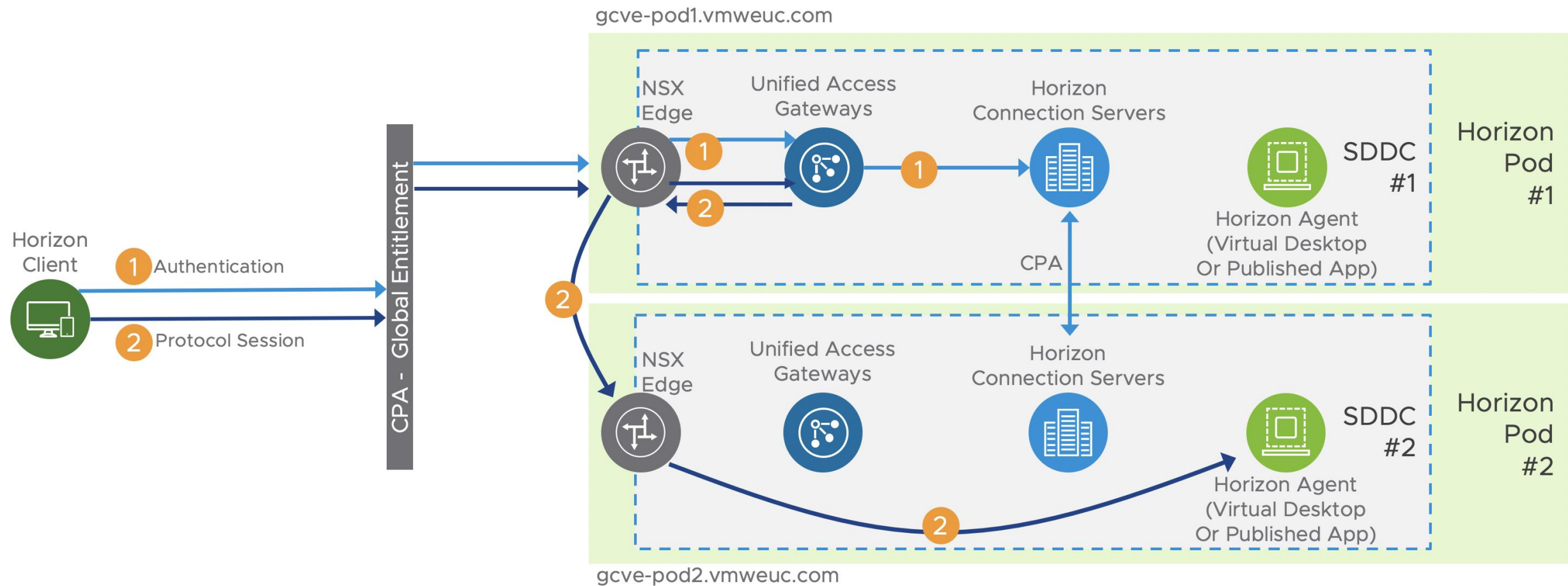


Public Cloud – Azure  
(+ Support for Private cloud, VMware Cloud coming soon)



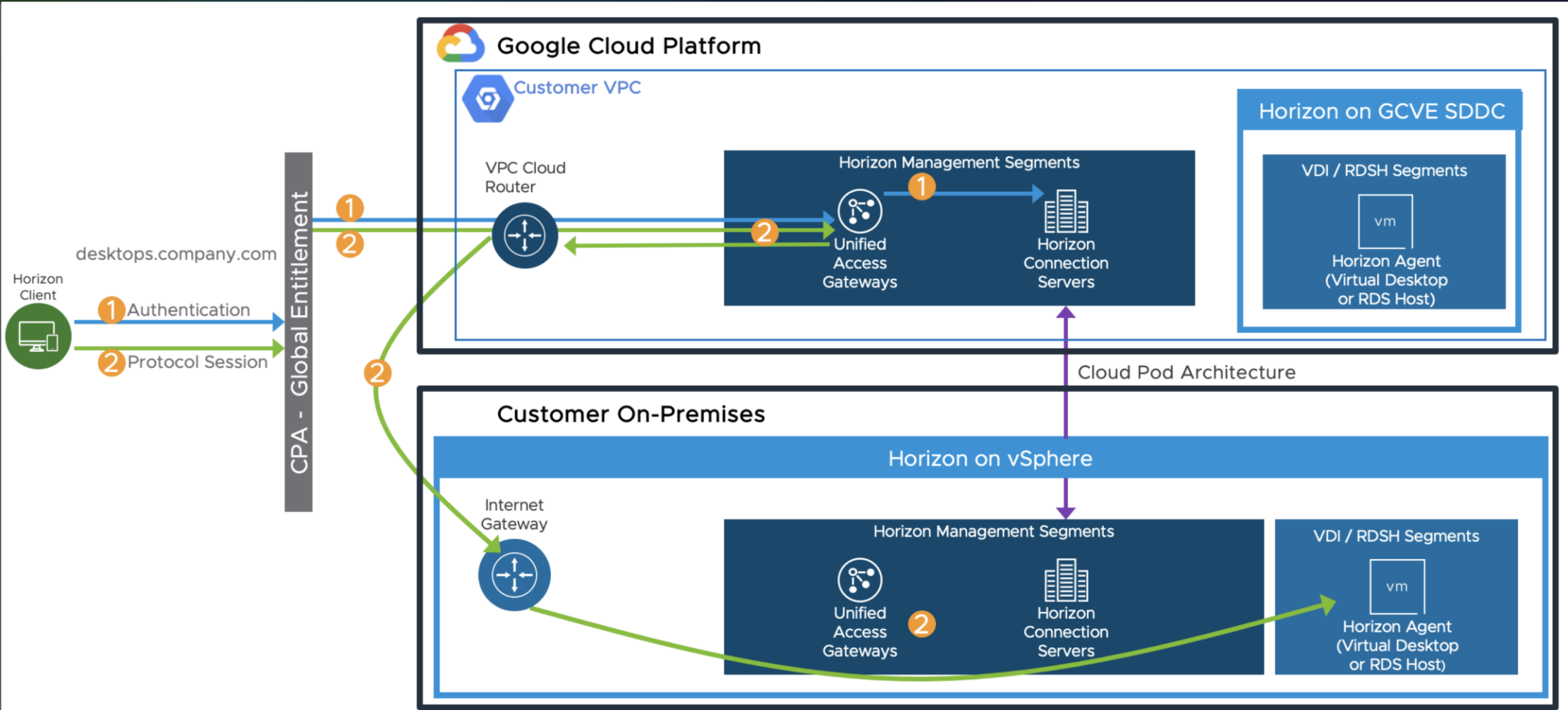
# Hair Pinning Concerns – Cloud Pod Architecture

## Horizon Protocol Traffic Hair-Pinning

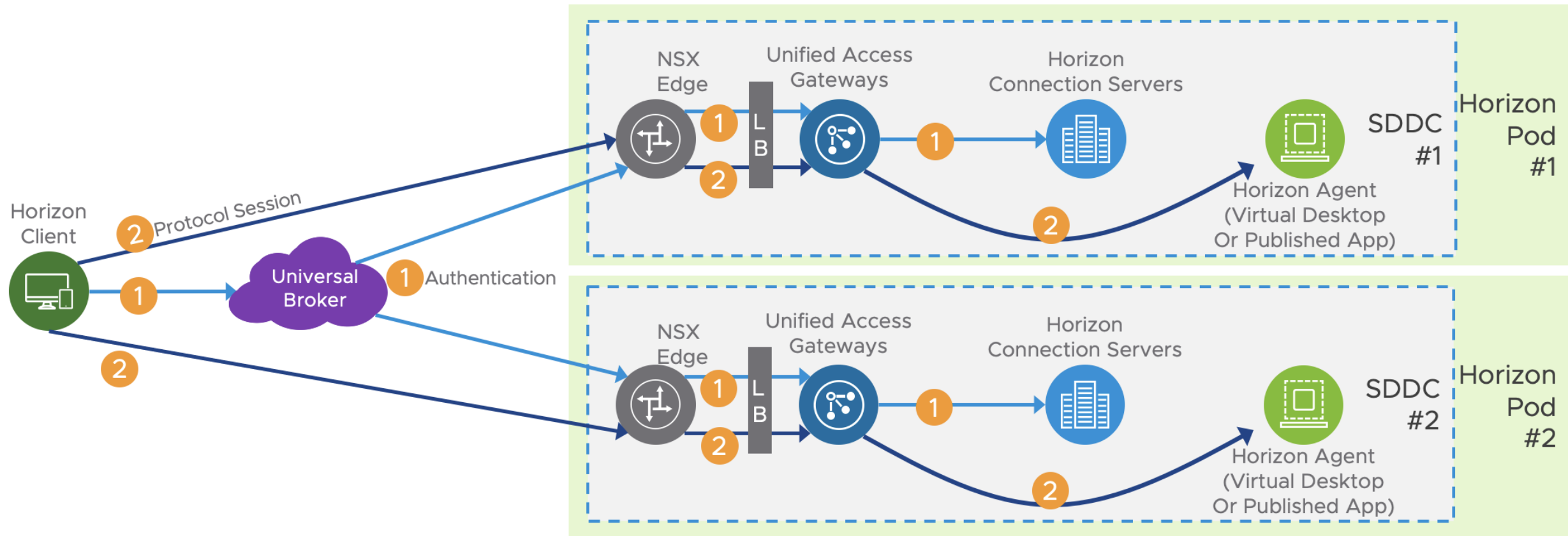


# Hair Pinning Between on Premises and Cloud

## Cloud Pod



# Universal Broker Architecture



# Federated Architecture

## Horizon Management Component in a Cloud Native Virtual Network (VPC/vNET)

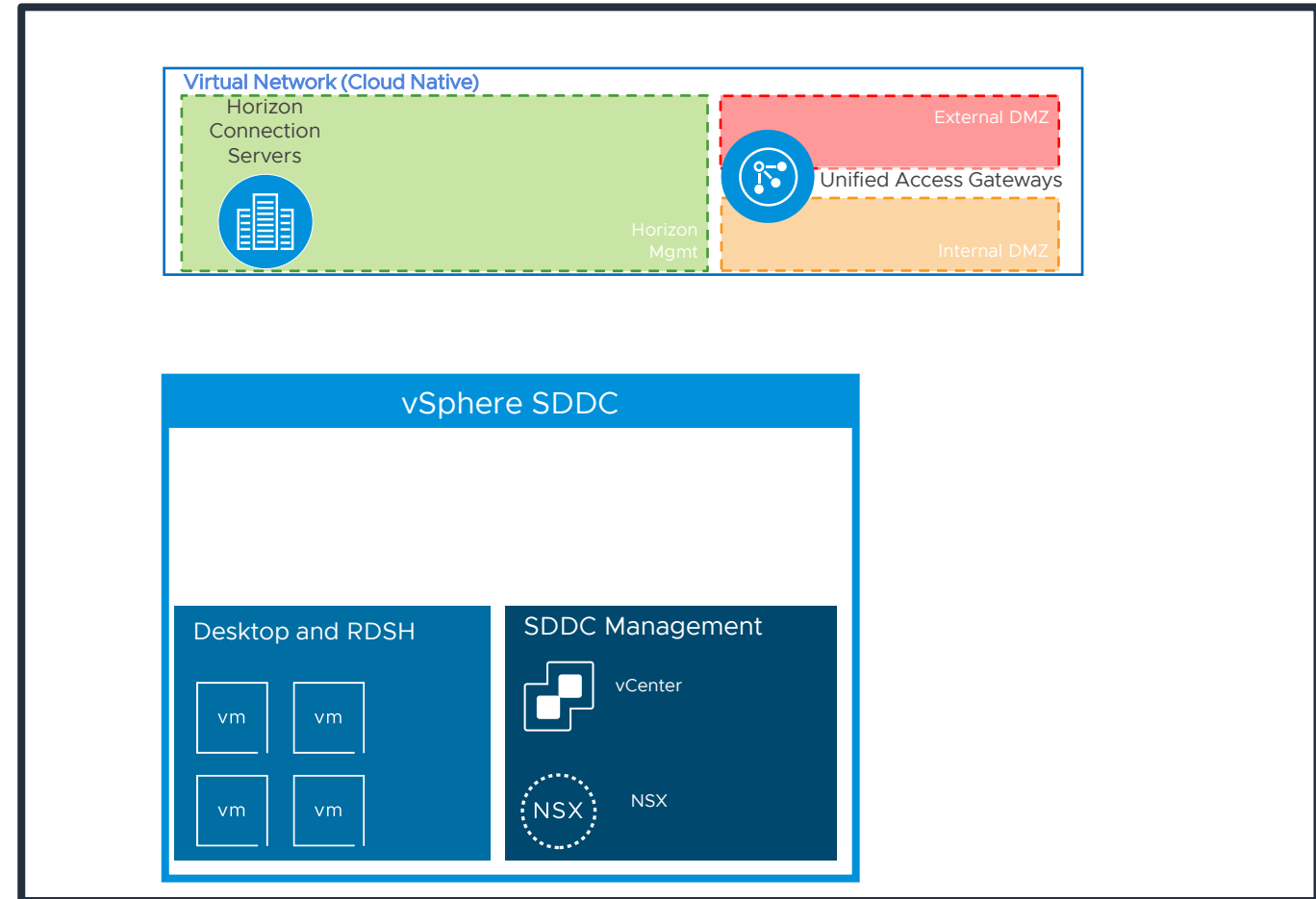
Azure VMware Solution (AVS)

Google Cloud VMware Engine (GCVE)

- Medium/Large Design

VMware Cloud on AWS

- Large Design



# SDDC Architecture

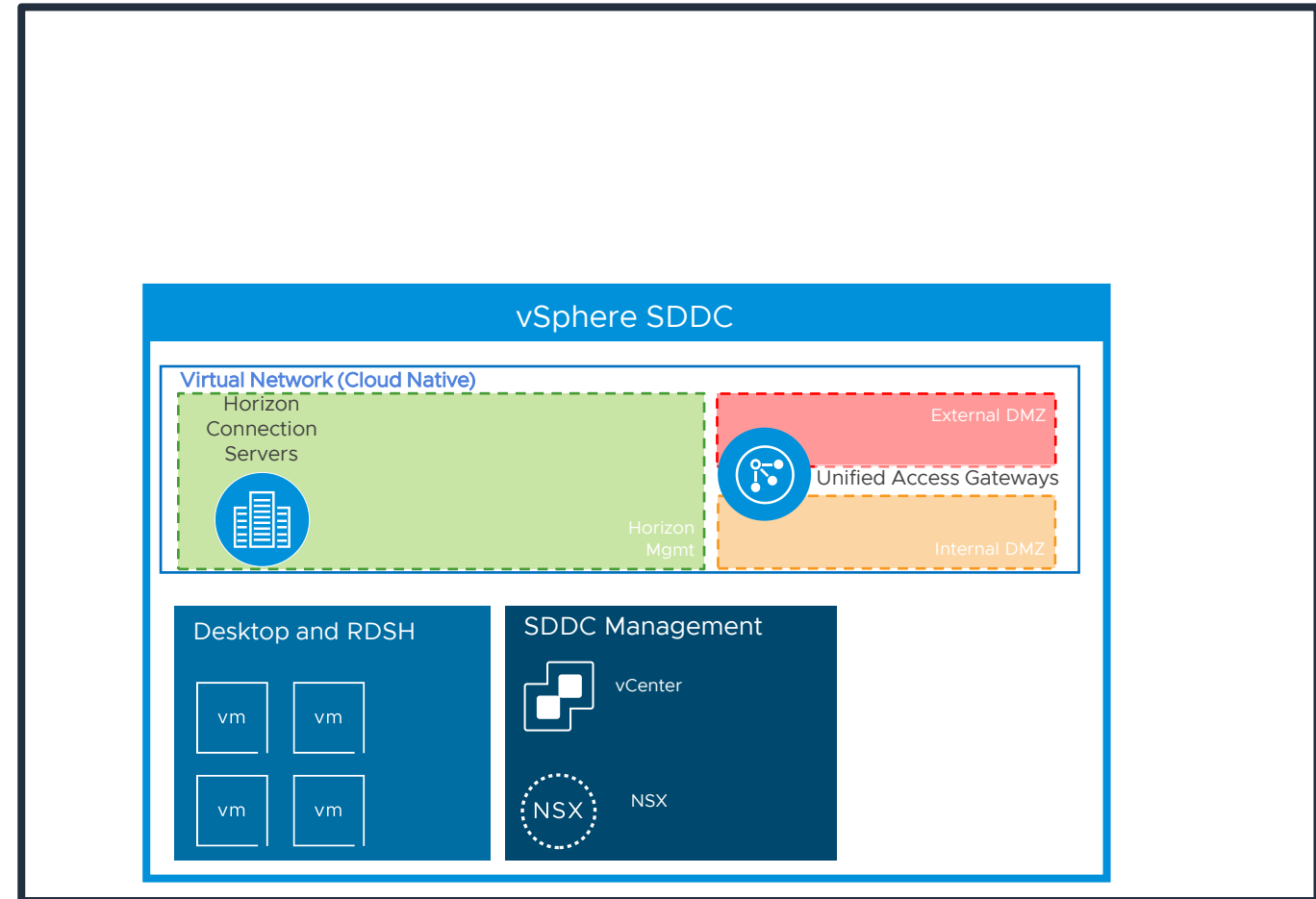
## Horizon Management Component in vSphere SDDC

### Google Cloud VMware Engine (GCVE)

- Small Design
- Does have a load balancer as VPC entry point
- Maximum of two PODs

### VMware Cloud on AWS

- Small/Medium Design



# Cross Cloud Infrastructure as Pure Capacity

Features in Horizon 8 (2106) to enable “bursting”

## Overview

Choose vCenter Type to support on prem managing Cloud Burst capacity

- Up to ~120ms latency between Agents and Connection server

## Benefits

Separate Horizon infrastructure from VDI workloads.

Third-Party can manage the Connection Server on behalf of the customers as a service

Reduce the overhead of deploying Horizon on public clouds. Instead of standing up a separate pod on the public cloud, customers can simply extend their on-premises pod infrastructure and use the public cloud capacity as an additional block

The screenshot shows the 'Add vCenter Server' configuration window. On the left, a progress bar indicates three steps: 1. vCenter Information (active), 2. Storage, and 3. Ready to Complete. The main form area contains the following fields:

- Server address:** https://vc-vdi.betavmweuc.com
- User Name:** betavmweuc\chalstead
- Password:** (masked with dots)
- Description:** (empty text area)
- Port:** 443
- Deployment Type:** A dropdown menu is highlighted with a red rectangle. It lists several options: 'General' (which is selected and highlighted in blue), 'VMware Cloud on AWS', 'Azure VMware Solution (AVS)', 'VMware Cloud on Dell EMC', 'Google Cloud VMware Engine (GCVE)', and 'Oracle Cloud VMware Solution (OCVS)'.

At the bottom right, there are three buttons: 'Cancel', 'Previous', and 'Next'.

# Choose vCenter Type for Cloud Burst - Detail

## Horizon 8 (2106)

### Overview

Add remote desktop capacity by adding a Virtual Center to existing Horizon POD

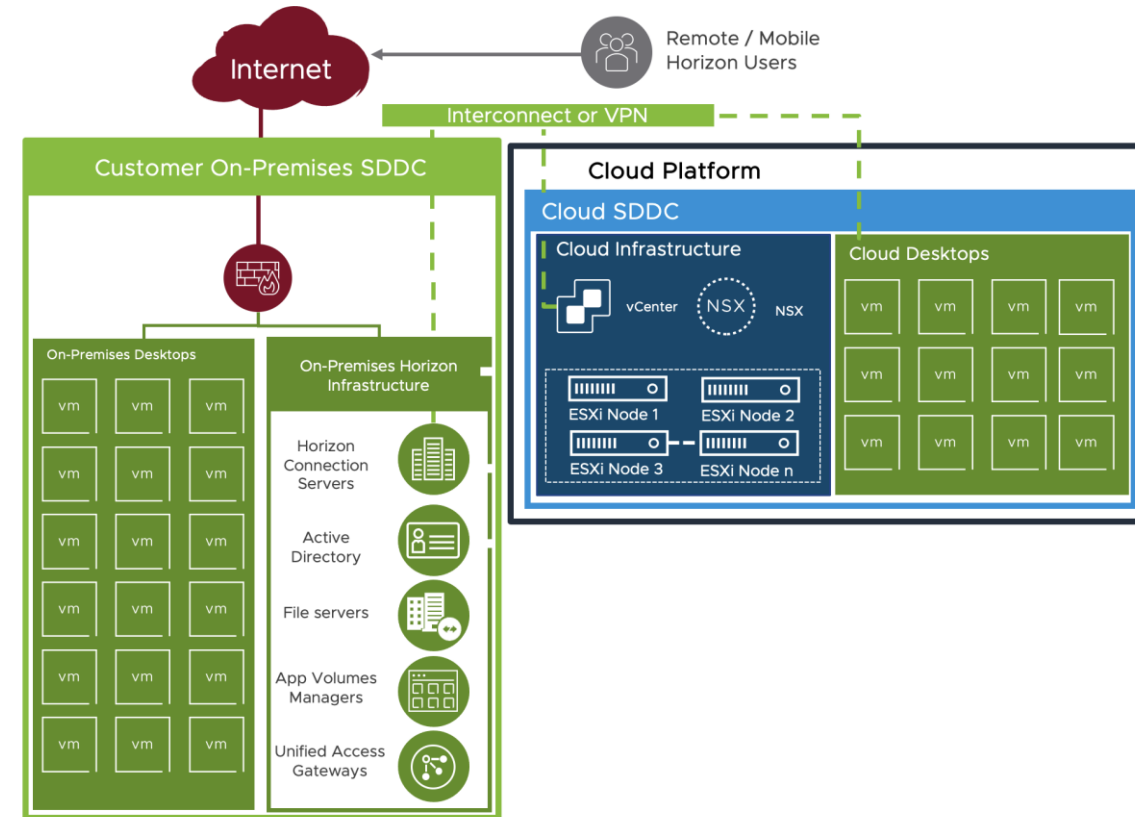
- General
- VMware Cloud on AWS
- Azure VMware Solution (AVS)
- VMware Cloud on Dell/EMC
- Google Cloud VMware Engine (GCVE)

Connection Server must have line of sight to vCenter / Agents

- VPN / Direct Connection
- No more than ~120ms latency

Unified Access Gateways in the existing Horizon POD must have line of sight to Agents.

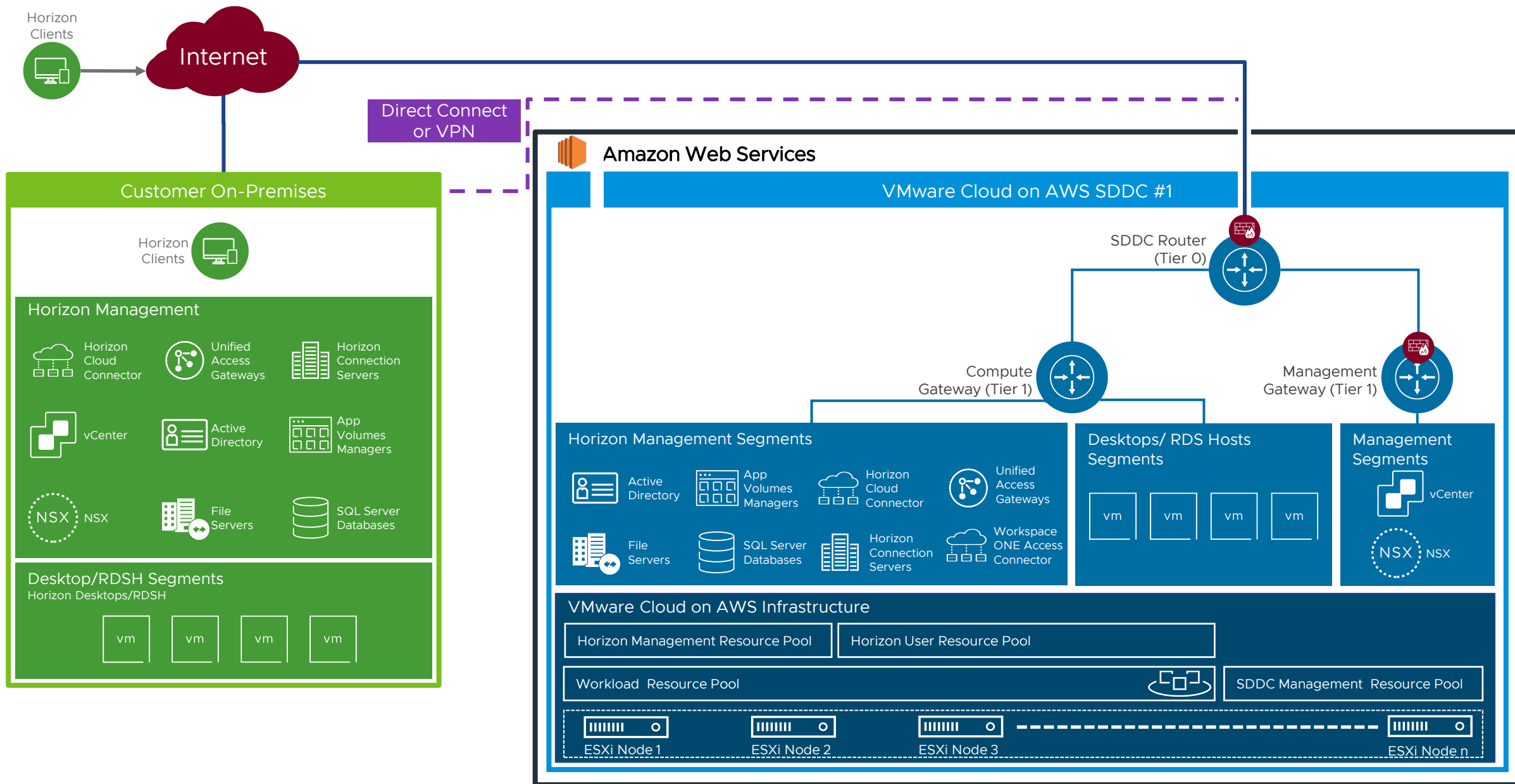
- Connection flow - UAG in initial site direct to Agent at site used for burst

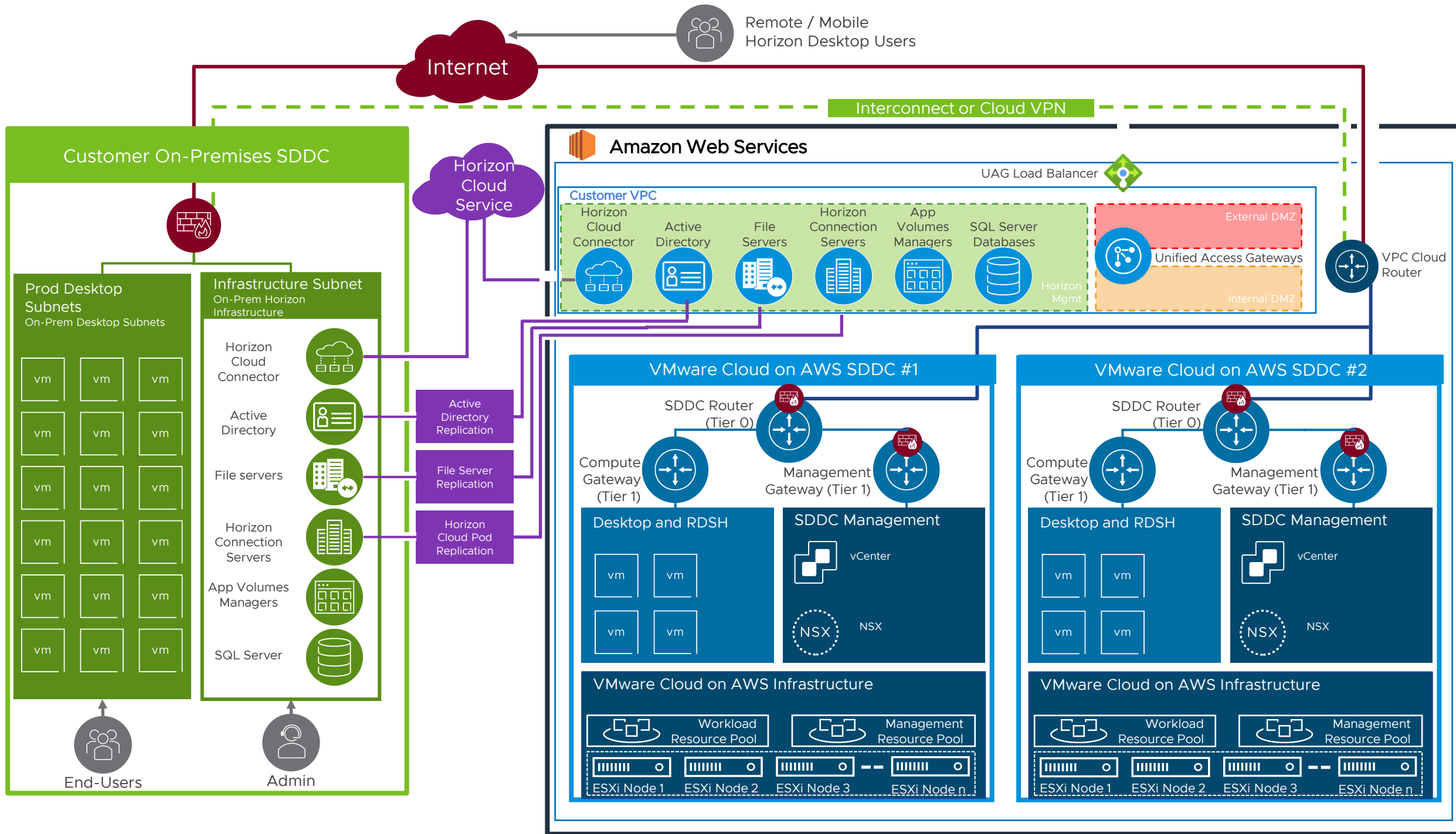




# VMware Cloud on AWS







# Next steps...

## Horizon on VMware Cloud on AWS

Review the Reference Architecture guides

- [Horizon on VMware Cloud on AWS Architecture](#)
- [Horizon on VMware Cloud on AWS Configuration](#)

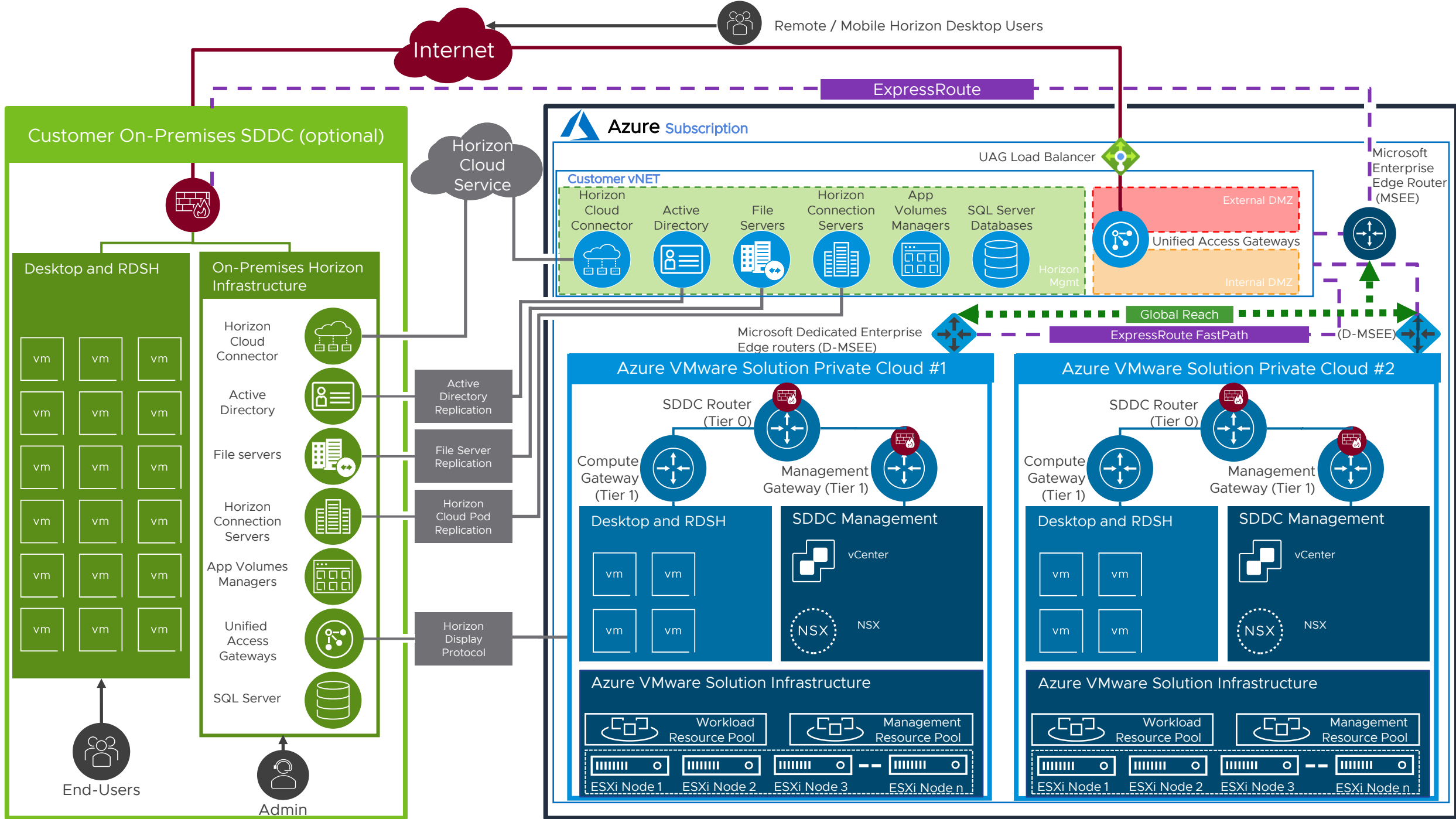
Review VMware Cloud on AWS Documentation

- <https://docs.vmware.com/en/VMware-Cloud-on-AWS/index.html>



Horizon on  
VMware Cloud  
on AWS

# Azure VMware Solution



# Next steps...

## Horizon on Azure VMware Solution

Review the Reference Architecture guides

- [Horizon on AVS Architecture](#)
- [Horizon on AVS Configuration](#)

Review AVS Documentation

- <https://docs.microsoft.com/en-us/azure/azure-vmware/tutorial-create-private-cloud>



Horizon on  
Azure VMware  
Solution  
Configuration



# Google Cloud VMware Engine

Chris Halstead  
Senior Staff Architect



Remote / Mobile  
Horizon Users



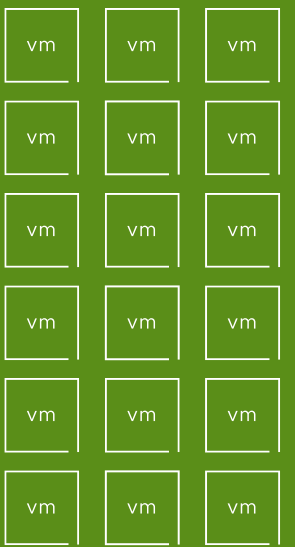
Internet

Interconnect or VPN

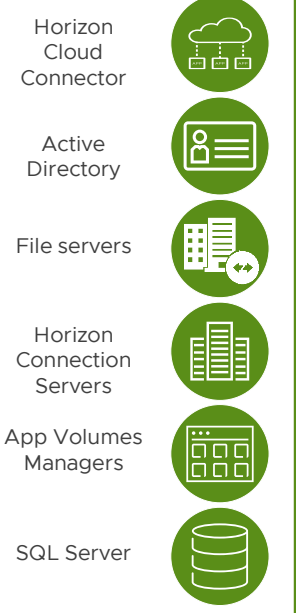
### Customer On-Premises SDDC



#### Prod Desktop Subnets On-Prem Desktop Subnets



#### Infrastructure Subnet On-Prem Horizon Infrastructure



### Google Cloud Platform

Customer VPC  
CIDR: 10.204.0.0/16



VPC Cloud Router

Load Balancer to UAGs

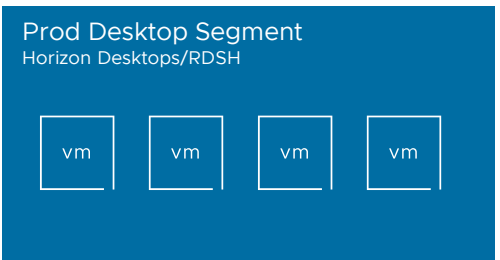
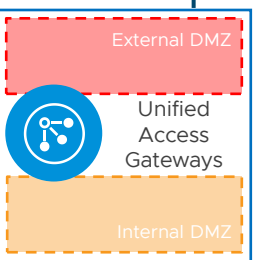
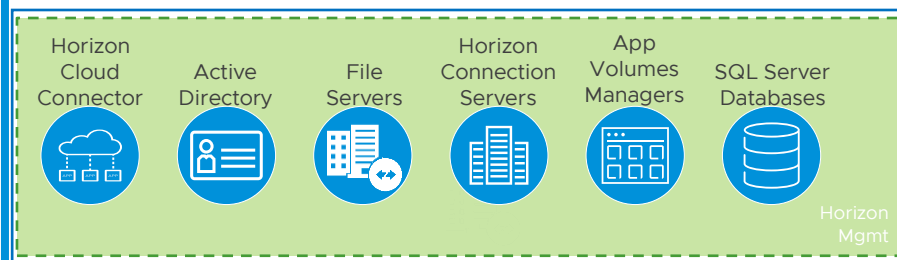
### Google Cloud VMware Engine SDDC #1



SDDC Router  
(Tier 1) - Multiple



SDDC Router  
(Tier 0)

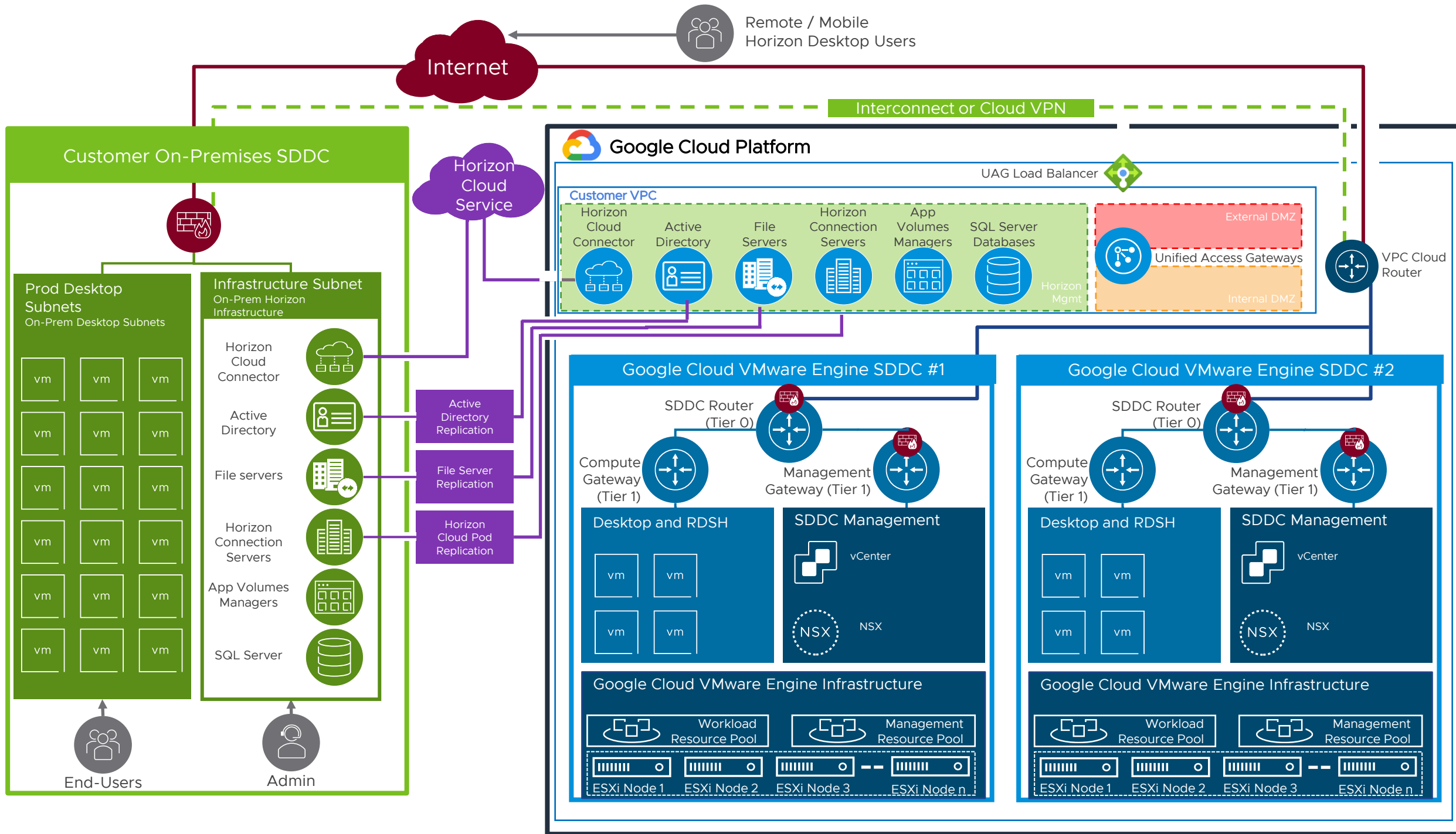


### Google Cloud VMware Engine Infrastructure



Workload Resource Pool





# Next steps...

## Horizon on Google Cloud VMware Engine

Review the Reference Architecture guides

- [Horizon on GCVE Architecture](#)
- [Horizon on GCVE Configuration](#)

Review GCP Documentation

- <https://cloud.google.com/docs>
- Sign up for a trial if possible

Review GCVE Documentation / Quick Start Guides

- <https://cloud.google.com/vmware-engine/docs>

Review NSX-T Documentation

- <https://docs.vmware.com/en/VMware-NSX-T-Data-Center/index.html>
- How to create segments / DHCP



Horizon on  
Google Cloud  
VMware Engine  
Configuration



# vmware®

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## CARBON BLACK TECH ZONE

[carbonblack.vmware.com](https://carbonblack.vmware.com)

## THE CLOUD PLATFORM TECH ZONE

[core.vmware.com](https://core.vmware.com)

## NETWORKING AND SECURITY TECH ZONE

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Thank you!

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IMAGINE  
*that*