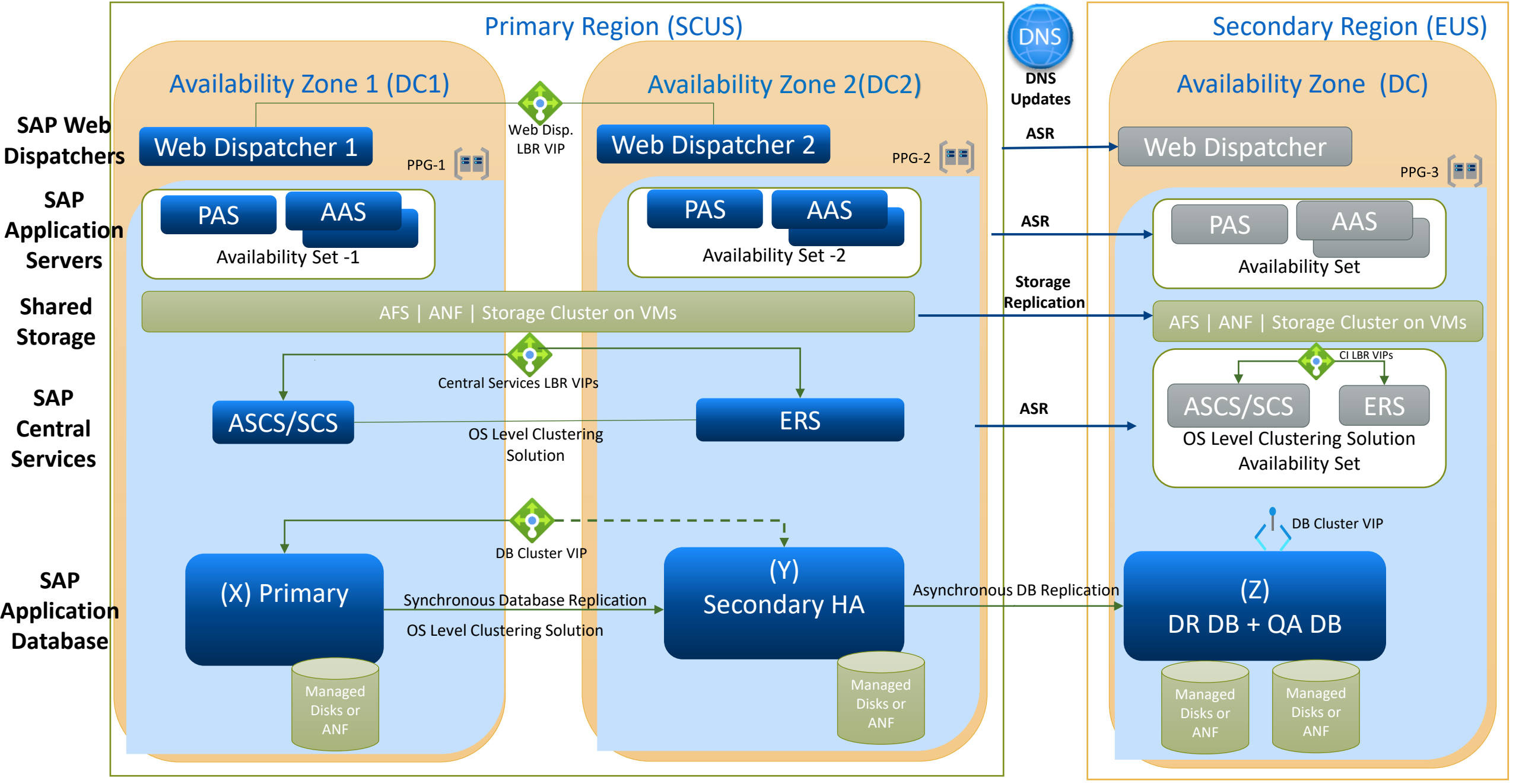
Microsoft

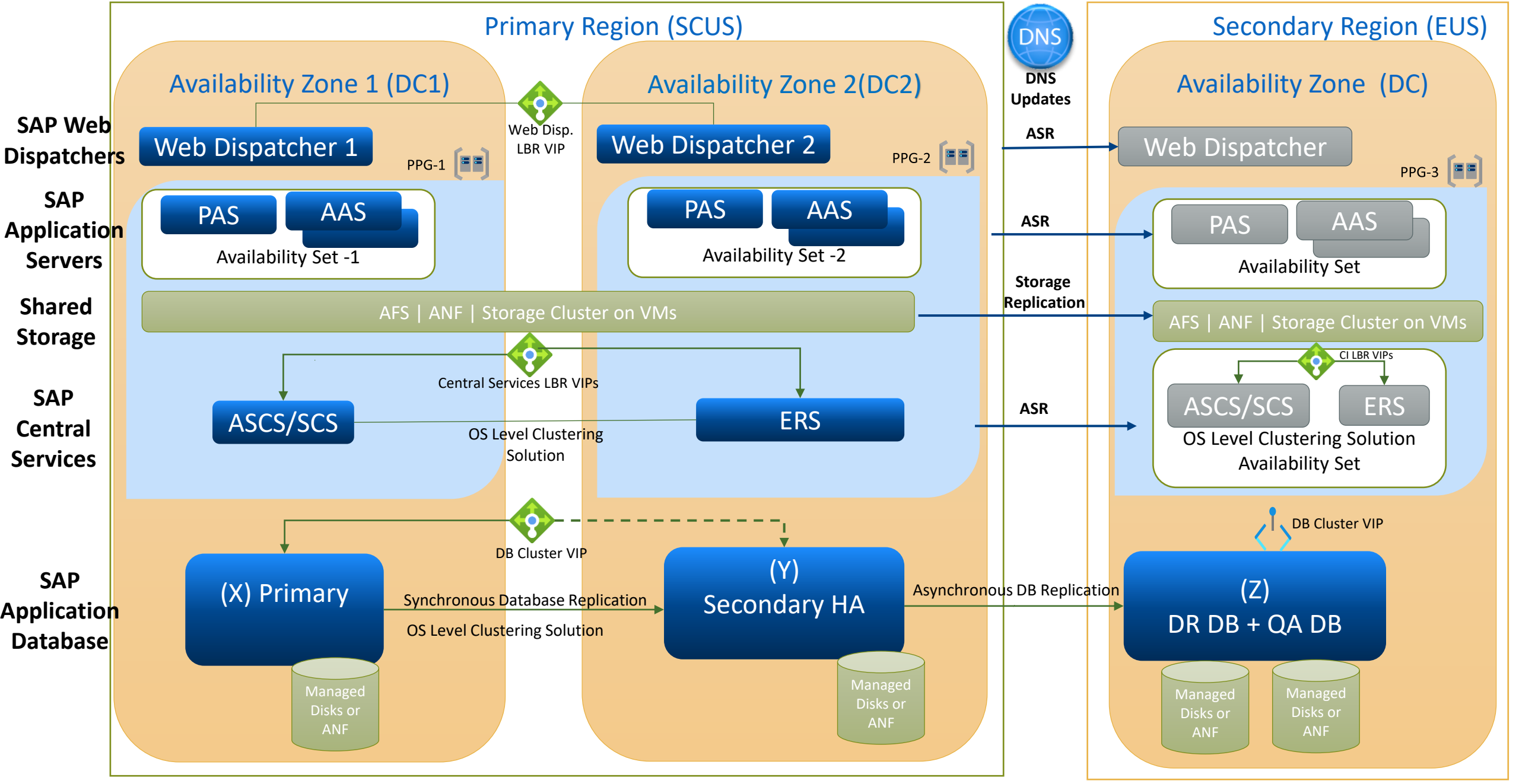
Design Complex Networking Solutions for SAP on Azure workloads

Abbas Ali Mir
SAP on Azure Cloud Solution Architect

SAP on Azure – Cross Zone High Availability and Cross-Region DR Solution



SAP on Azure – Cross Zone High Availability and Cross-Region DR Solution



Customer Networking and Security Requirements for SAP

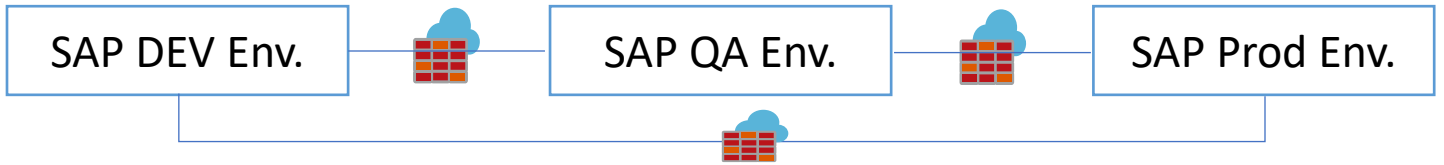
1. Any communication between Internet and SAP Networks in Azure is routed through Firewall NVA

2. Any communication between On-Premises and SAP Networks in Azure is routed through Firewall NVA

3. Any communication between Non-SAP in Azure and SAP in Azure is routed through Firewall NVA. (applies to In-Region and Cross-Region)

4. All communication within SAP Env. (eg: Dev, QA, Prod) can leverage NSG's

5. All communication across SAP Env. (eg: QA to Prod.) will route through Firewall NVA. (only exception is Cross-Region HSR traffic)



SAP Virtual Networks in Azure

South Central US Azure Region

Non-SAP VNET

Hub VNET

SAP VNETs

SAP Dev VNET

SAP Mini-Hub VNET

(hosts Cloud Connector, SAP Router, WTS Servers & ANF Storage)

SAP Prod VNET

Internet

Dallas ExpressRoute Circuit

Washington DC ExpressRoute Circuit

On-Premises Datacenter Texas

On-Premises Datacenter Virginia

On-Premises

East US Azure Region

Non-SAP VNET

Hub VNET

SAP VNETs

SAP Mini-Hub VNET

(hosts Cloud Connector, SAP Router, WTS Servers & ANF Storage)

SAP QA VNET (Dual-Purpose DR)

Virtual Networks

Regional VNET Peering

Global VNET Peering

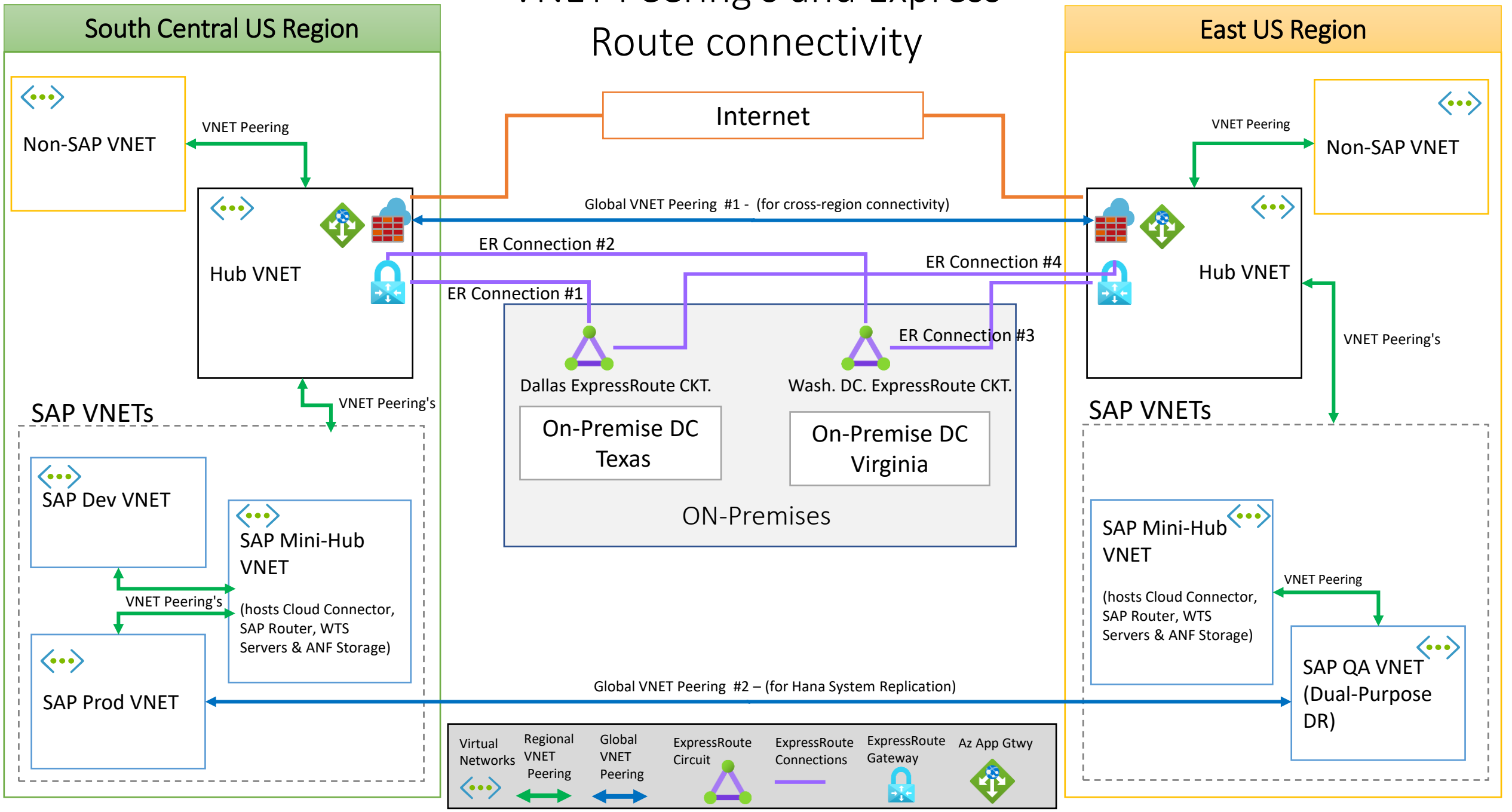
ExpressRoute Circuit

ExpressRoute Gateway

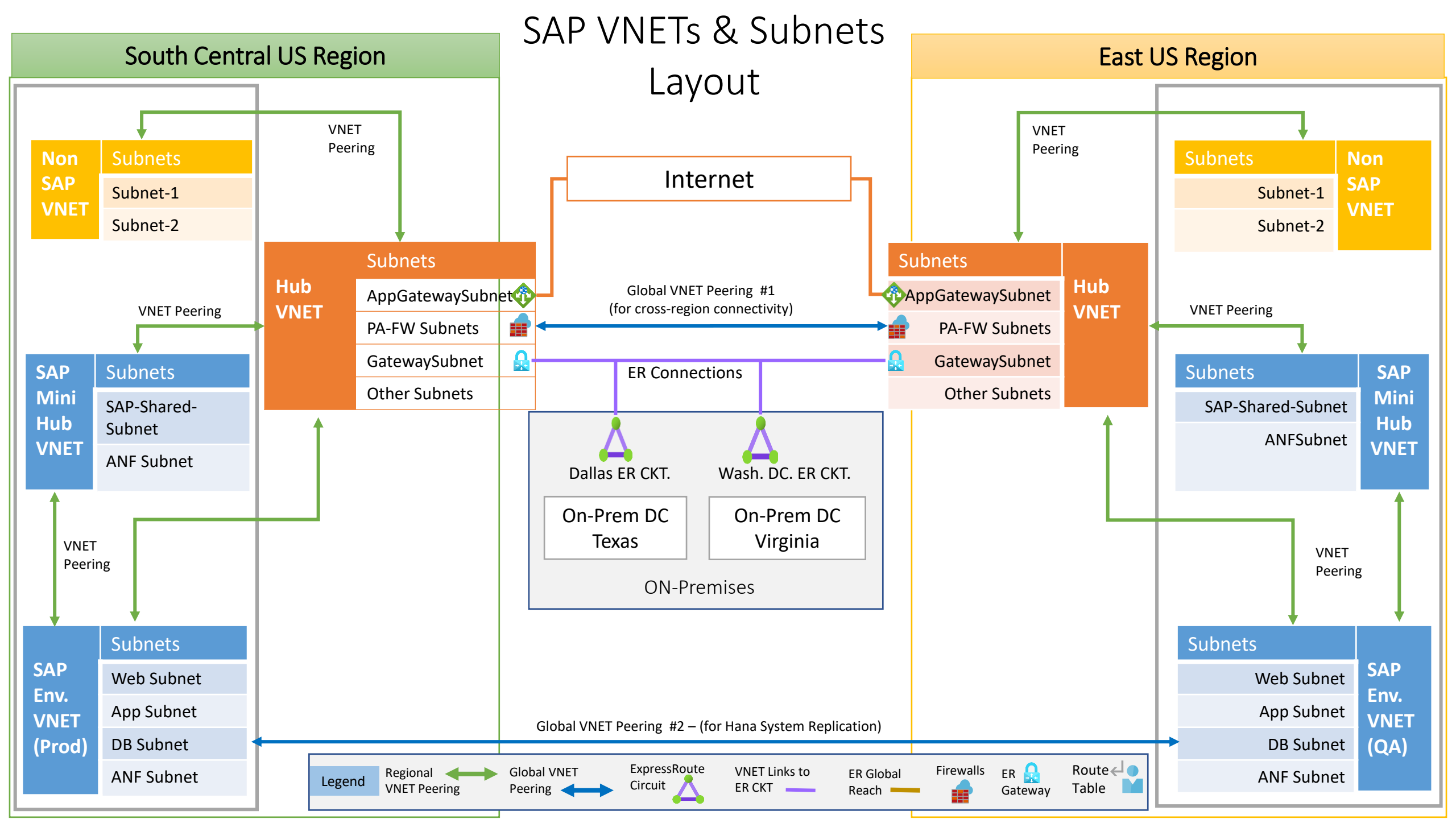
Firewalls

Az App Gtwy

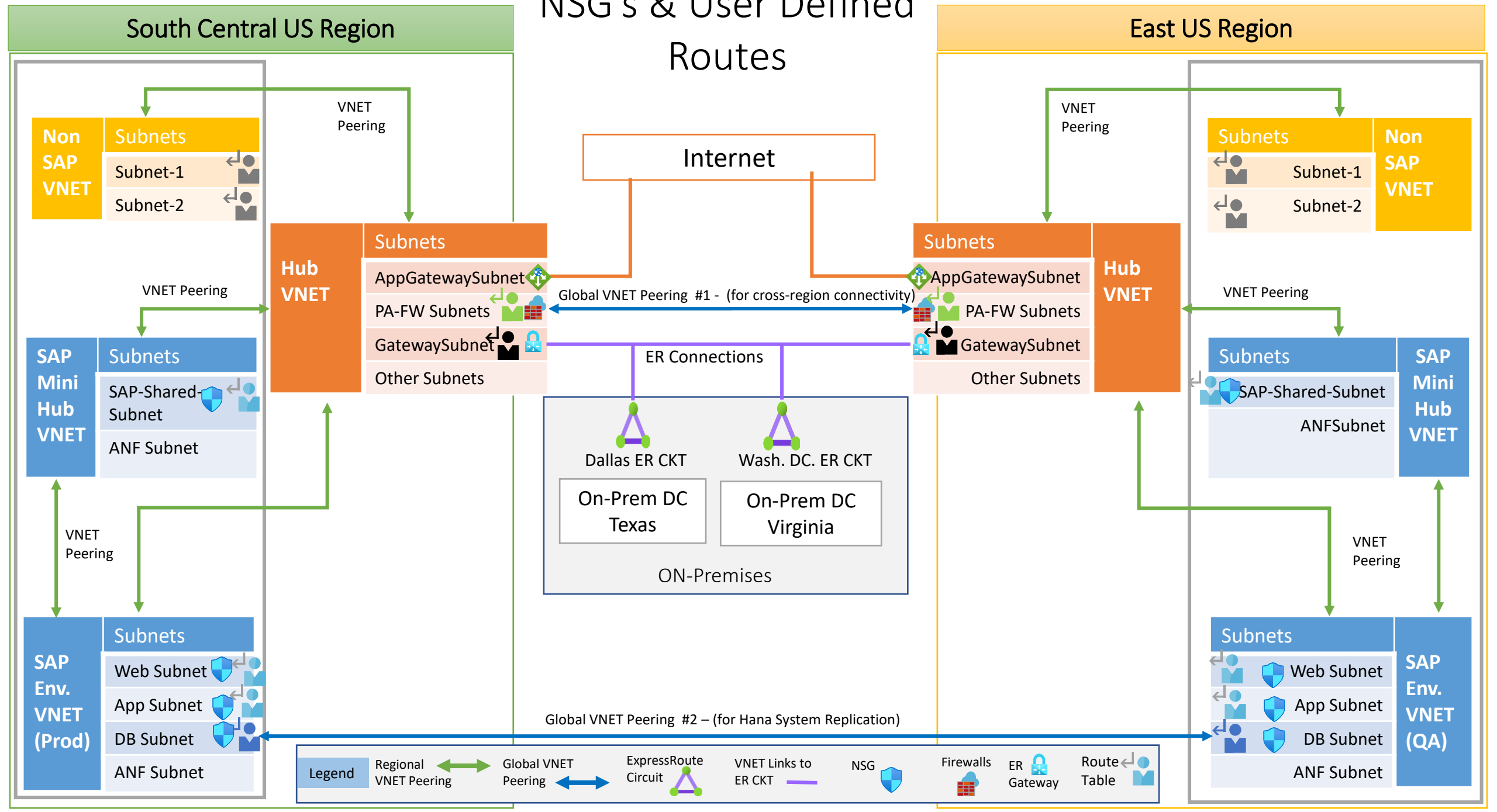
VNET Peering's and Express Route connectivity



SAP VNETs & Subnets Layout

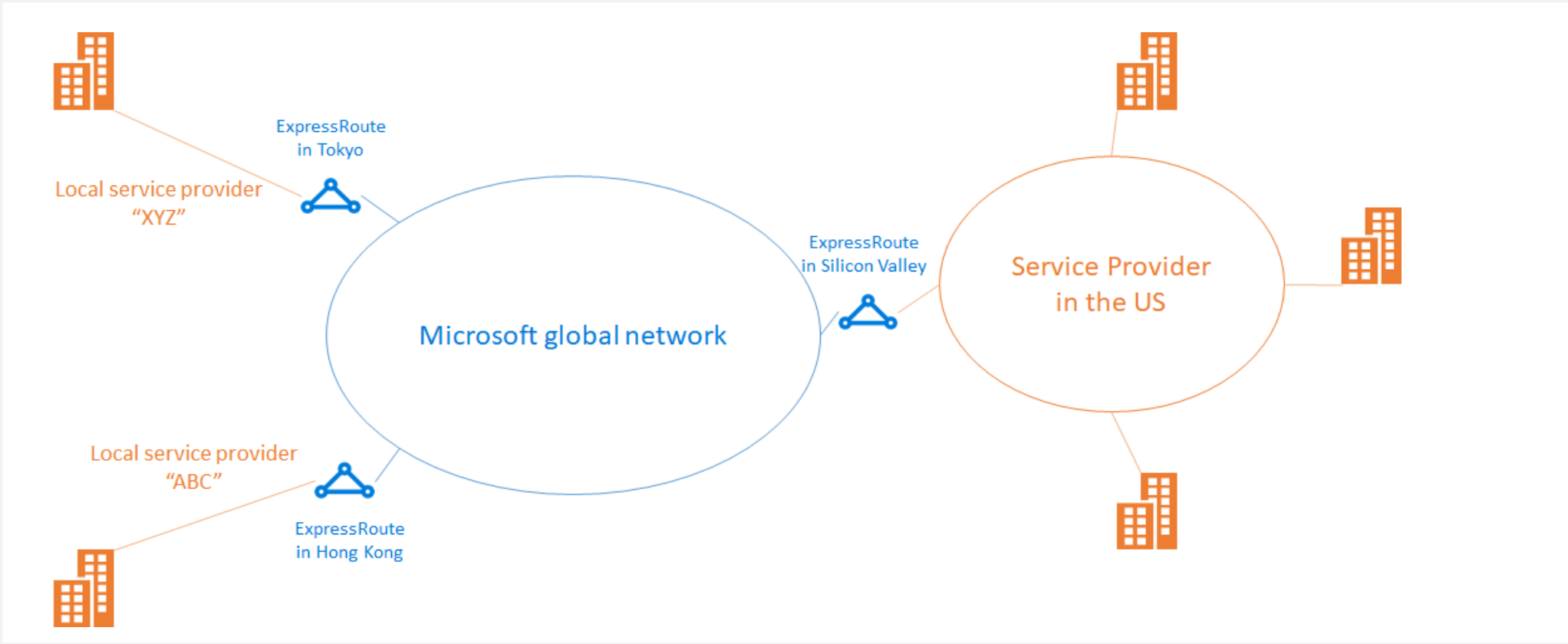


NSG's & User Defined Routes



Designing Networking Solutions for SAP on Azure VMs and HLI (Hana Large Instances)

ExpressRoute Global Reach



Designed to complement your service provider’s WAN implementation and connect your branch offices across the world

You can link ExpressRoute circuits together to make a private network between your on-premises networks

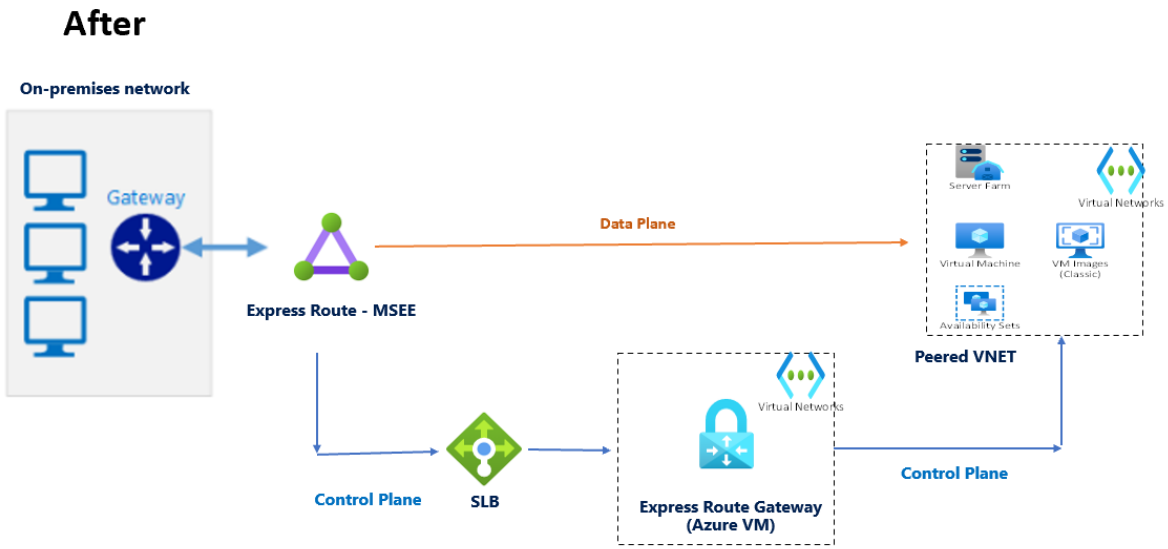
ExpressRoute FastPath

FastPath is designed to improve the data path performance between your on-premises network and your virtual network

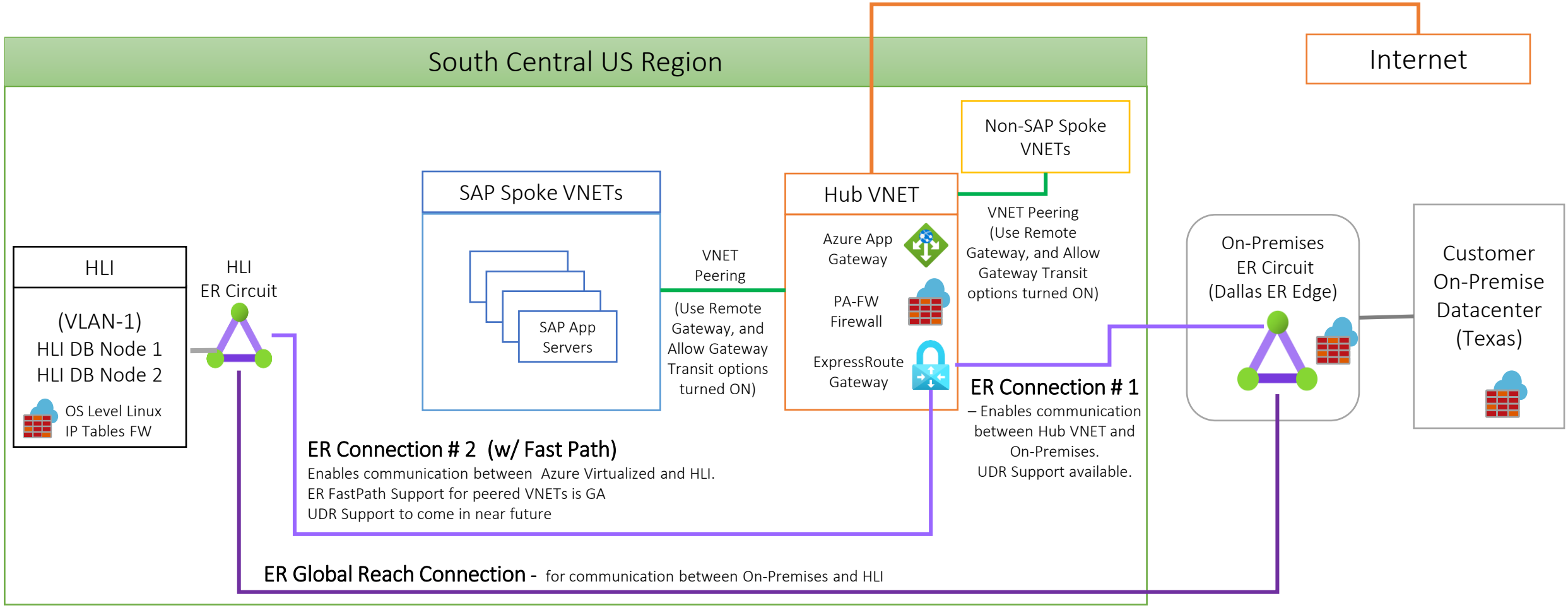
When enabled, FastPath sends network traffic directly to virtual machines in the virtual network, bypassing the gateway.

FastPath improves data path performance such as packets per second and connections per second between your on-premises network and your virtual network.

You can enable ExpressRoute FastPath if your virtual network gateway is Ultra Performance or ErGw3AZ



HLI & VNET Integration Option #1 – ER FastPath support for Peered VNETs



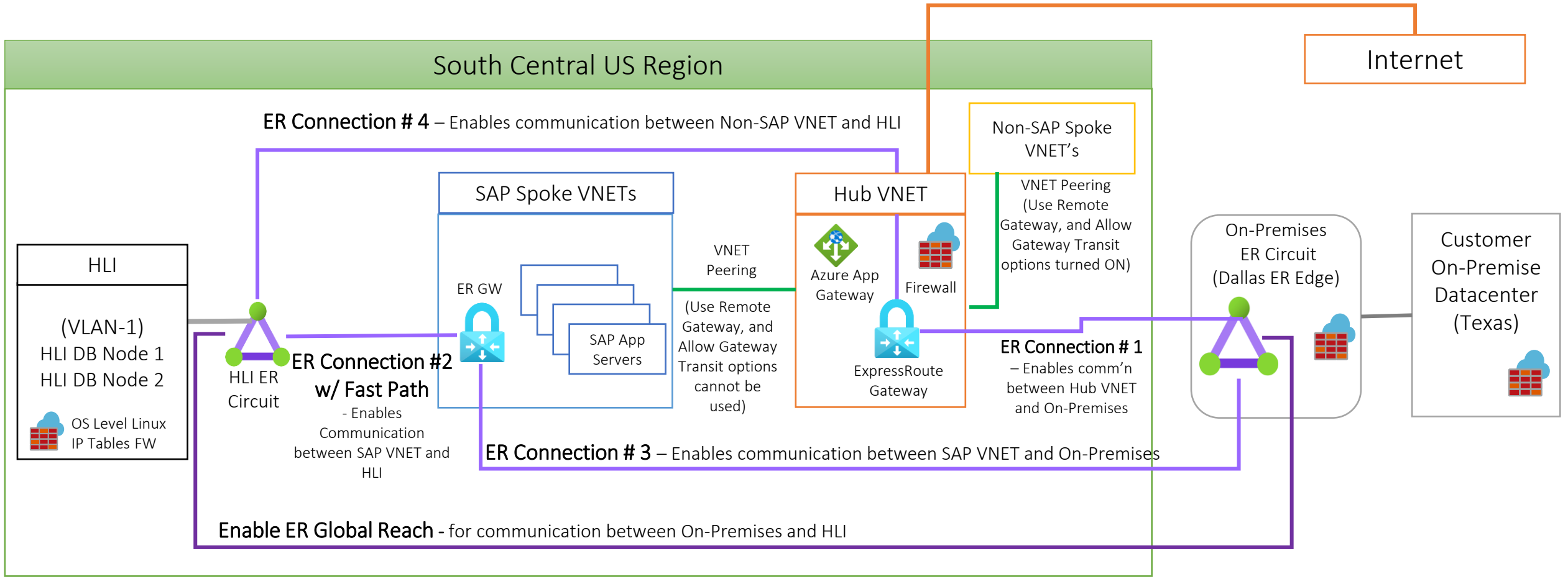
HLI Connectivity Use-Cases

1. SAP VNETs to HLI via ER Connection #2 (w/ Fast Path)
2. Non-SAP VNETs to HLI Hana DB via ER Connection #2 (w/ Fast Path)
3. On-Premises to SAP VNETs via ER Connection #1
4. On-Premise to HLI via ER Global Reach Connection
5. Internet to HLI via Hub VNET Firewall + ER Connection #2 (w/ Fast Path)

Legend

- Internet Connectivity
- Regional VNET Peering
- ER Connection – Linking VNETs to ER Circuit
- ER Global Reach Connection (between HLI Circuit and On-Premises ER Circuit)

HLI & VNET Integration Option # 2 – ER Fast Path through SAP VNET



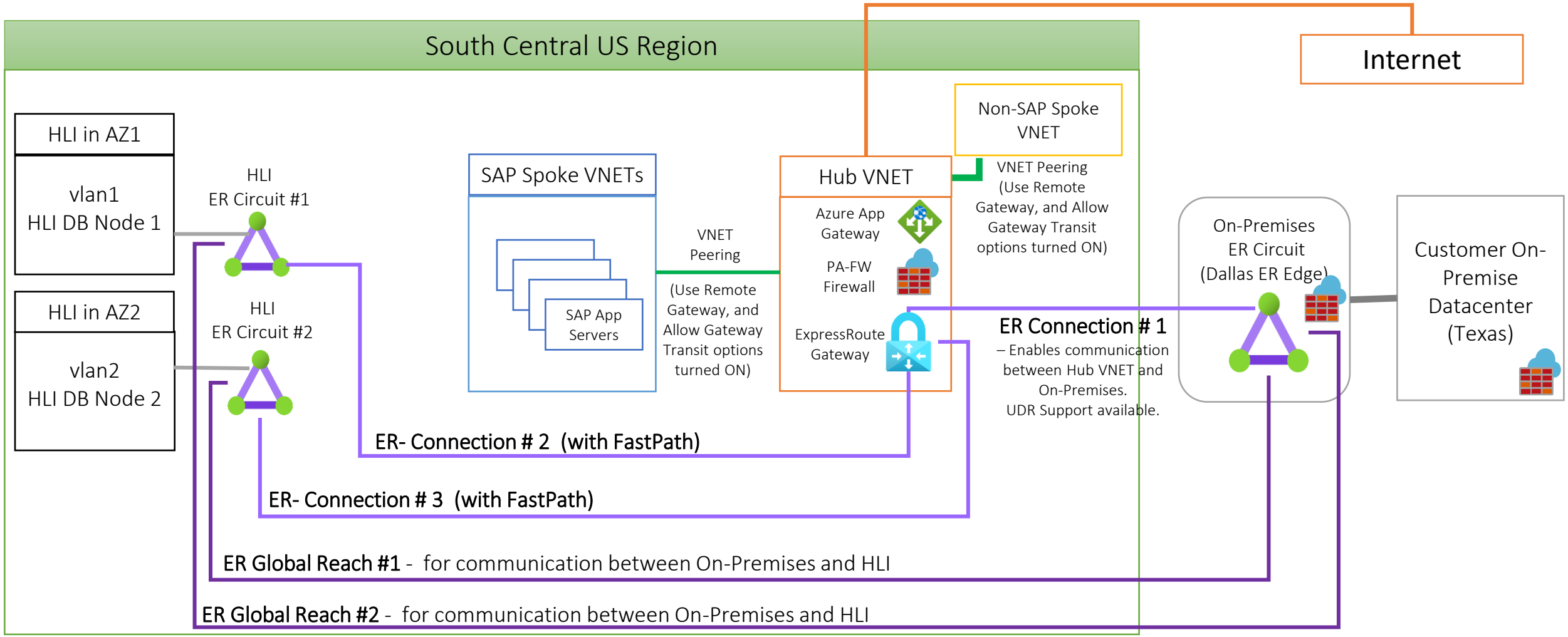
HLI Connectivity Use-Cases

1. SAP VNETs to HLI via ER Connection #2 (w/ Fast Path)
2. Non-SAP VNETs to HLI Hana DB via ER Connection #4
3. On-Premises to SAP VNETs via ER Connection #3
4. On-Premise to HLI via ER Global Reach Connection
5. Internet to HLI via Hub VNET Firewall + ER Connection #4
6. Need to use UDR's to over-ride direct communication path created between SAP VNETs and Non-SAP VNETs

Legend

- Internet Connectivity
- Regional VNET Peering
- ER Connection – Linking VNETs to ER Circuit
- ER Global Reach Connection (between HLI Circuit and On-Premises ER Circuit)

HLI & VNET Integration – (HLI's across two Av. Zones) – Option #1 - ER FP for Peered VNETs



HLI Connectivity Use-Cases

1. SAP VNETs to HLI via ER Connections #2 and #3
2. On-Premises to SAP VNETs via ER Connection #1
3. Non-SAP VNETs to HLI via ER Connection #2 and #3
4. On-Premise to HLI via ER Global Reach Connection #1 and #2
5. Internet to HLI via Hub VNET Firewall + ER Connection #2 and #3

Legend

- Internet Connectivity
- Regional VNET Peering
- ER Connection – Linking VNETs to ER Circuit
- ER Global Reach Connection (between HLI Circuit and On-Premises ER Circuit)

Thank you