



Azure Infrastructure as Code Bootcamp

Azure Network Services



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Course Agenda

- + Day 1
 - + Deployment and Configuration
- + Day 2
 - + Security and Hybrid Connectivity
- + Day 3
 - + Governance, Monitoring, and Troubleshooting



Day 1: Deployment and Configuration

Day 1 Learning Goals

- + VNet concepts and planning
- + VNet deployment via Portal, PowerShell, CLI, JSON, and Bicep
- + VNet Peerings
- + IP addressing and routing (route tables and Azure Route Server)
- + Network Address Translation
- + Azure DNS

Relevant Microsoft Certification



CERTIFICATION EXAM **AZ-700**

Designing and Implementing
Microsoft Azure Networking
Solutions



ASSOCIATE CERTIFICATION

Microsoft Certified: Azure
Network Engineer
Associate



Relevant Microsoft Certification



CERTIFICATION EXAM **AZ-720**
Troubleshooting Microsoft Azure
Connectivity



ASSOCIATE CERTIFICATION
Microsoft Certified: Azure
Support Engineer for
Connectivity Specialty



Relevant Microsoft Certification



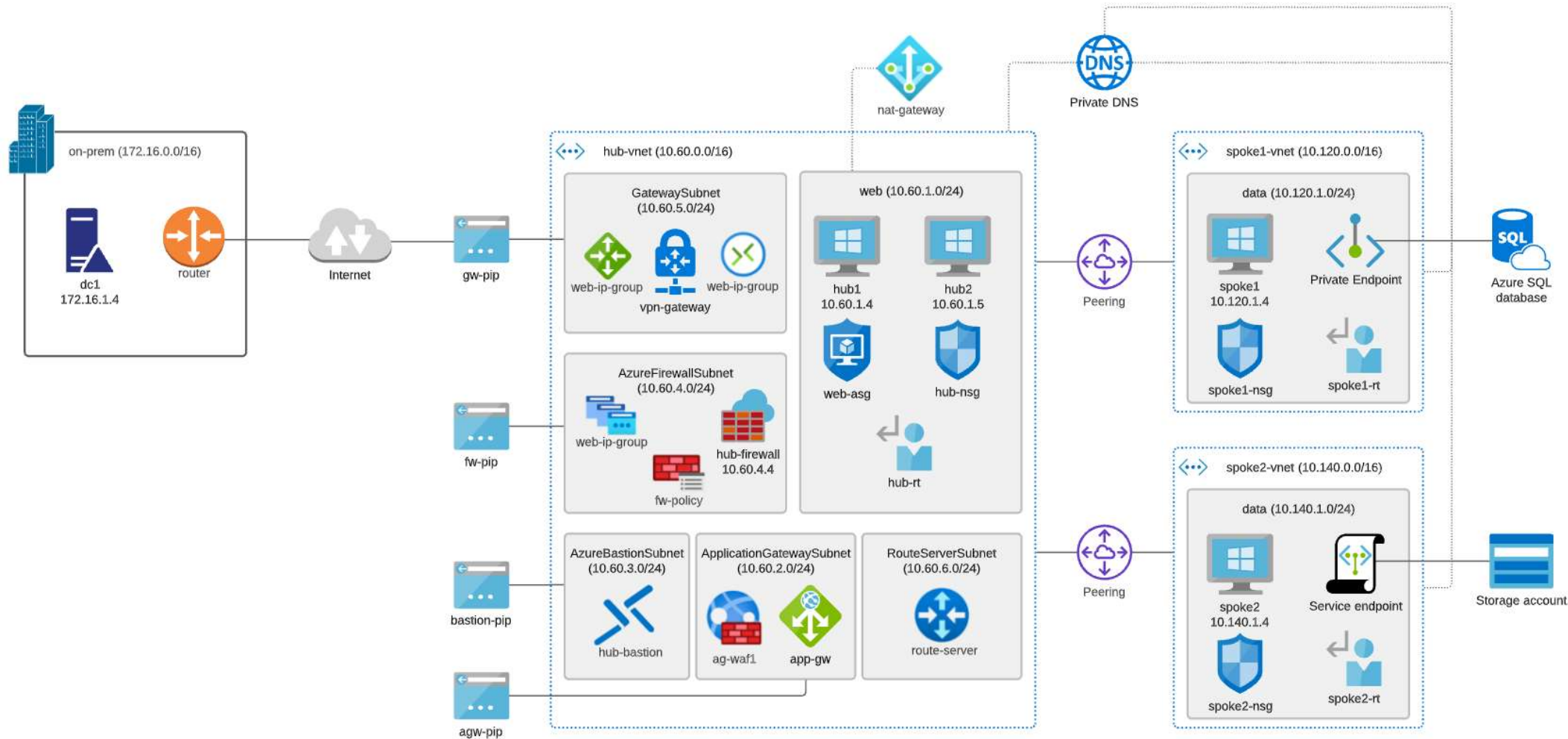
CERTIFICATION EXAM **AZ-104**
Microsoft Azure Administrator



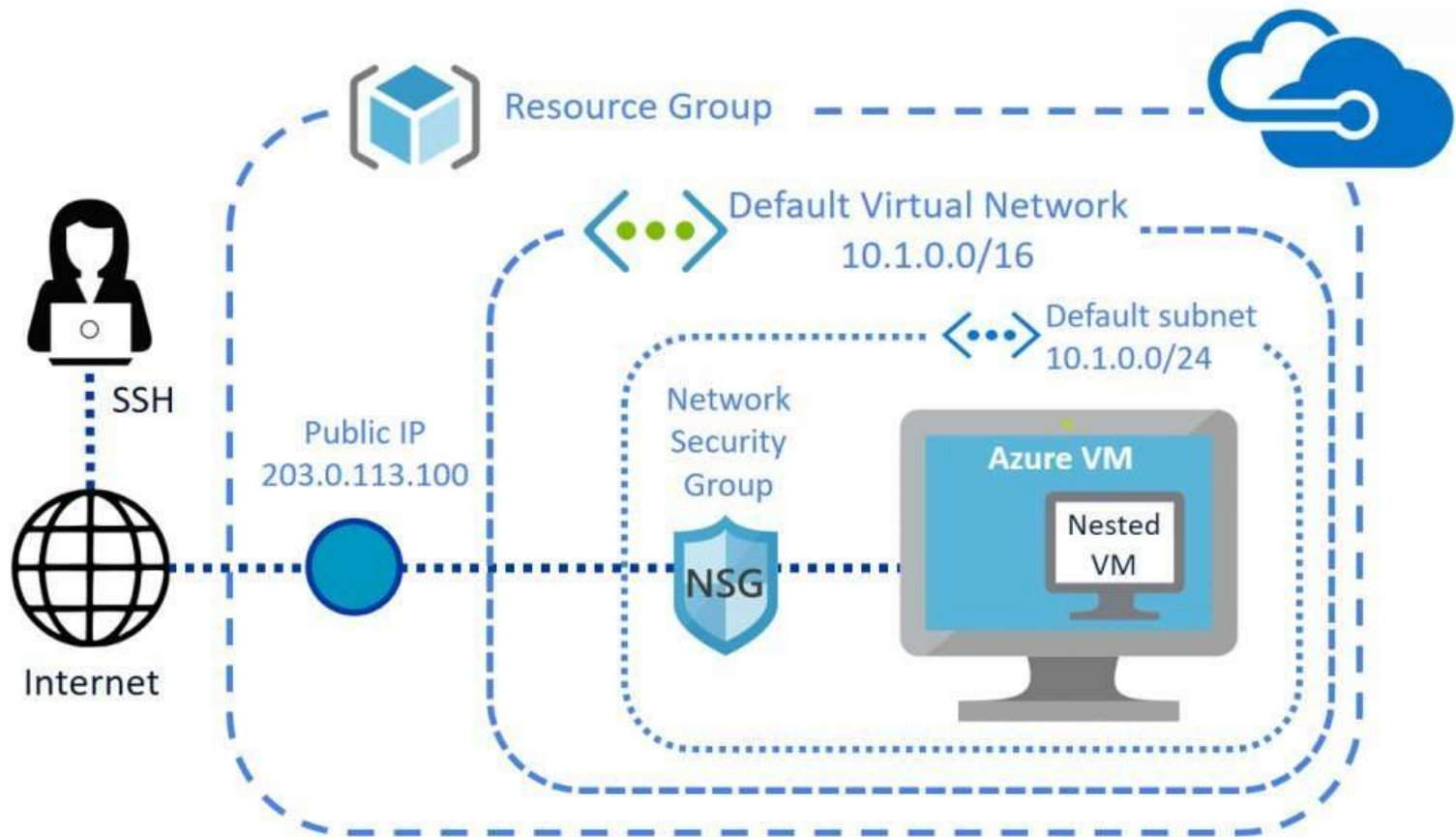
ASSOCIATE CERTIFICATION
Microsoft Certified: Azure
Administrator Associate



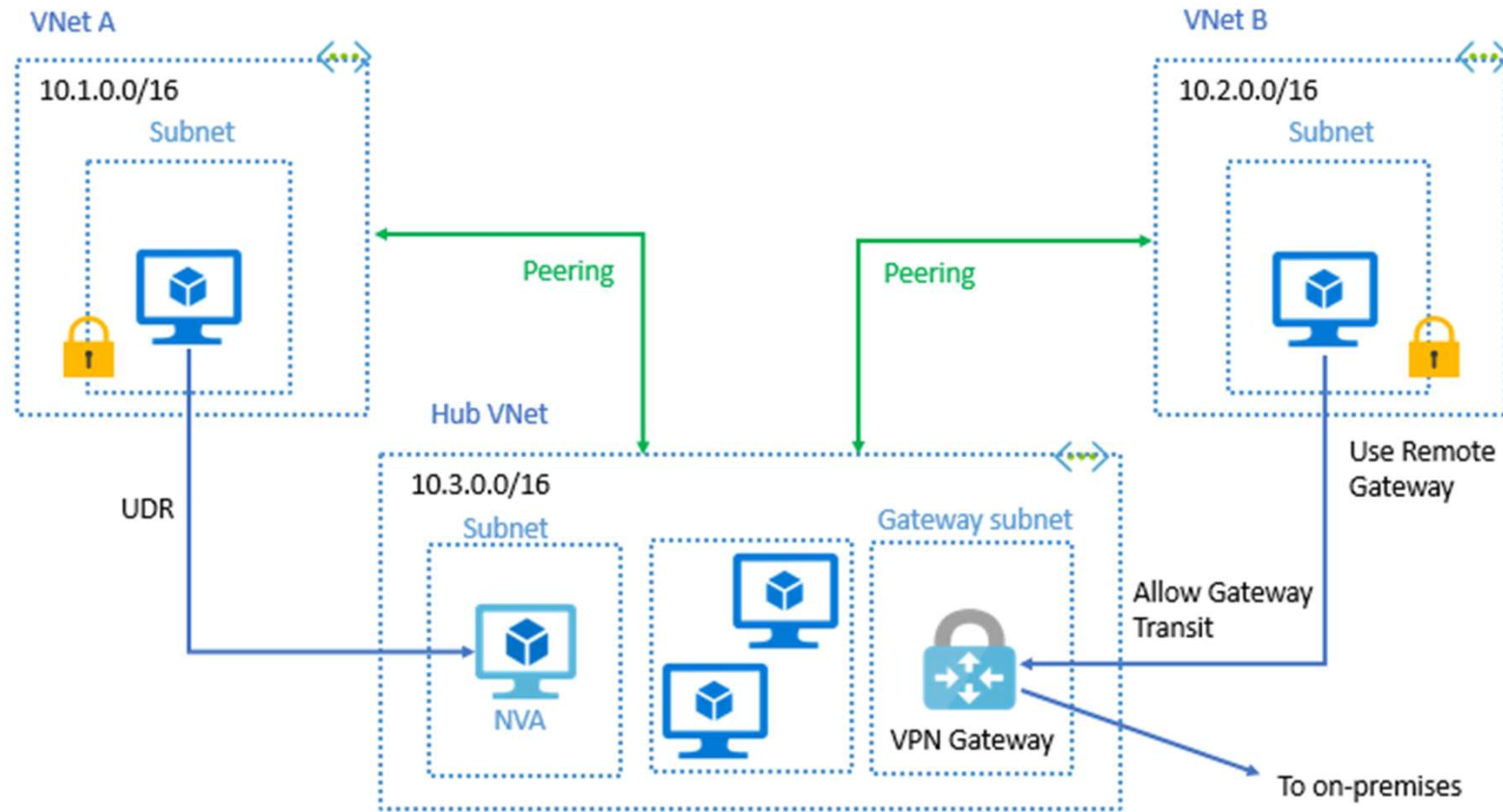
Our Network Topology



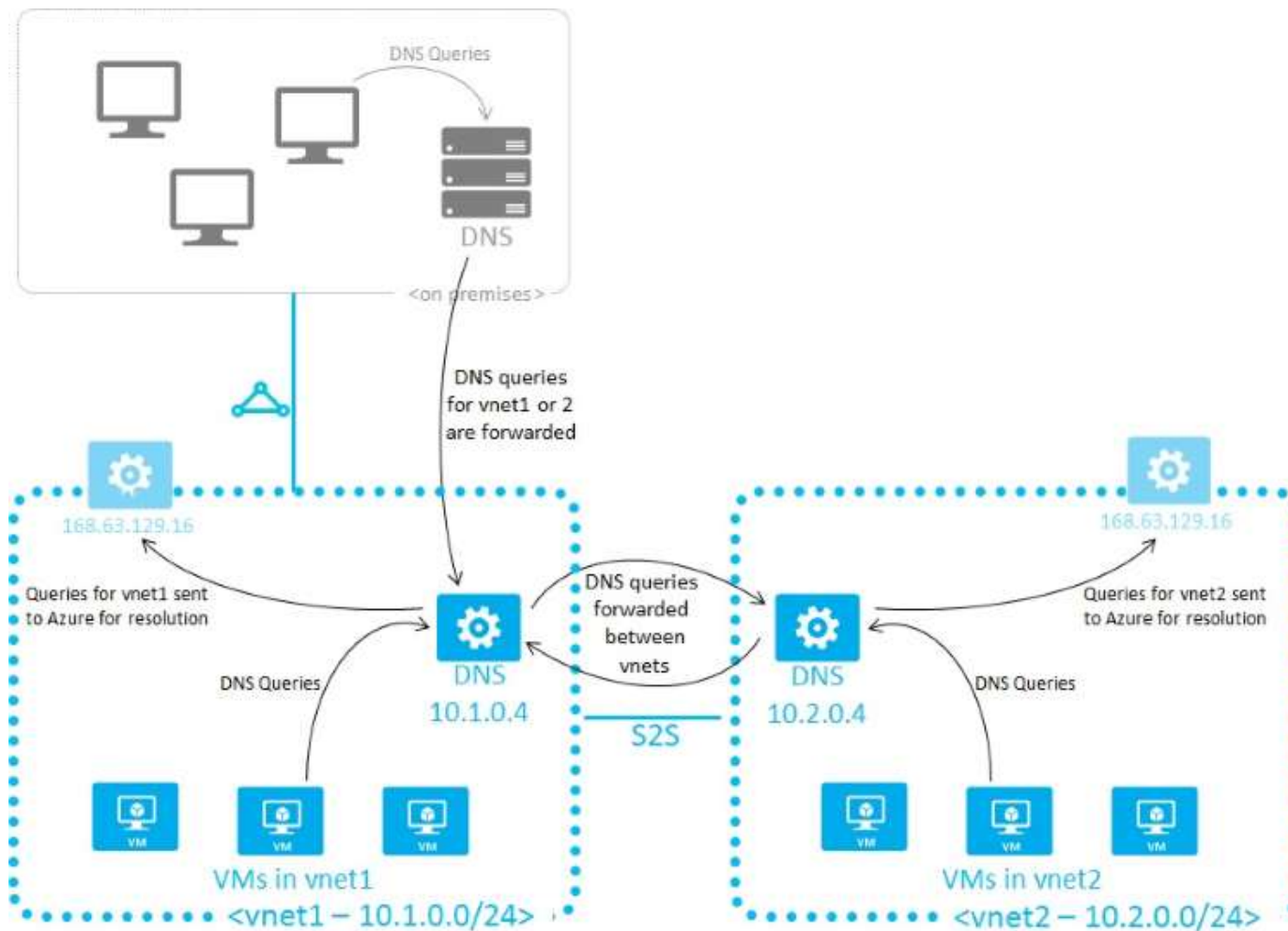
VM Networking



VNet Peering

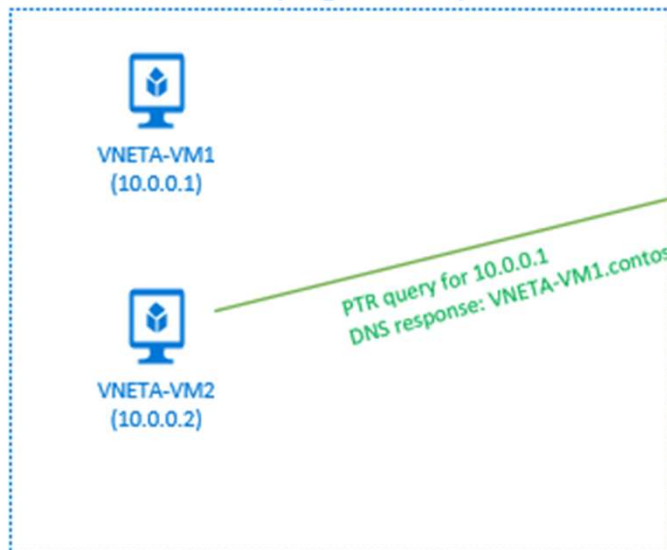


Azure Name Resolution

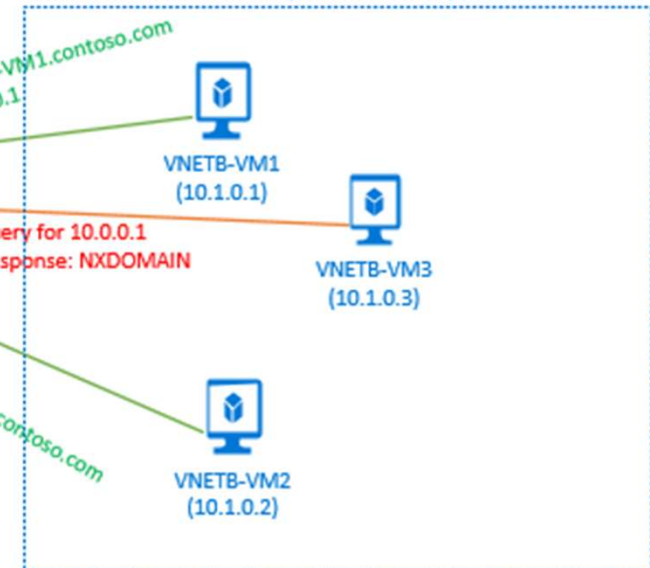


Azure DNS Private Zones

Virtual Network A (Registration)



Virtual Network B (Resolution)

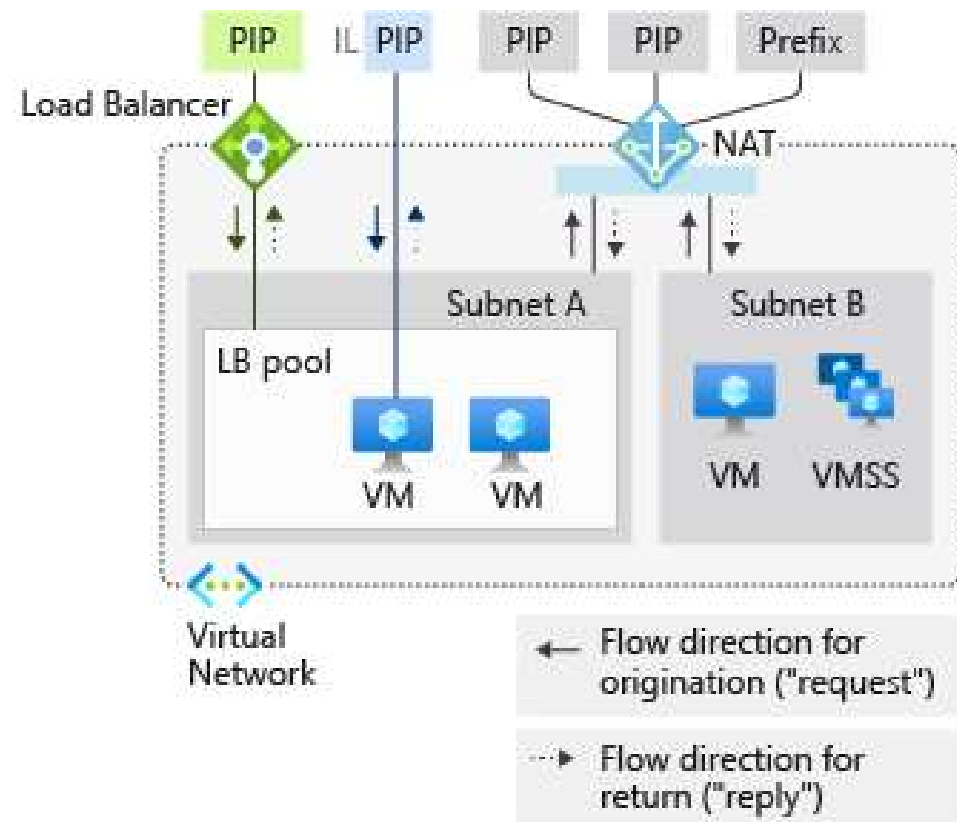
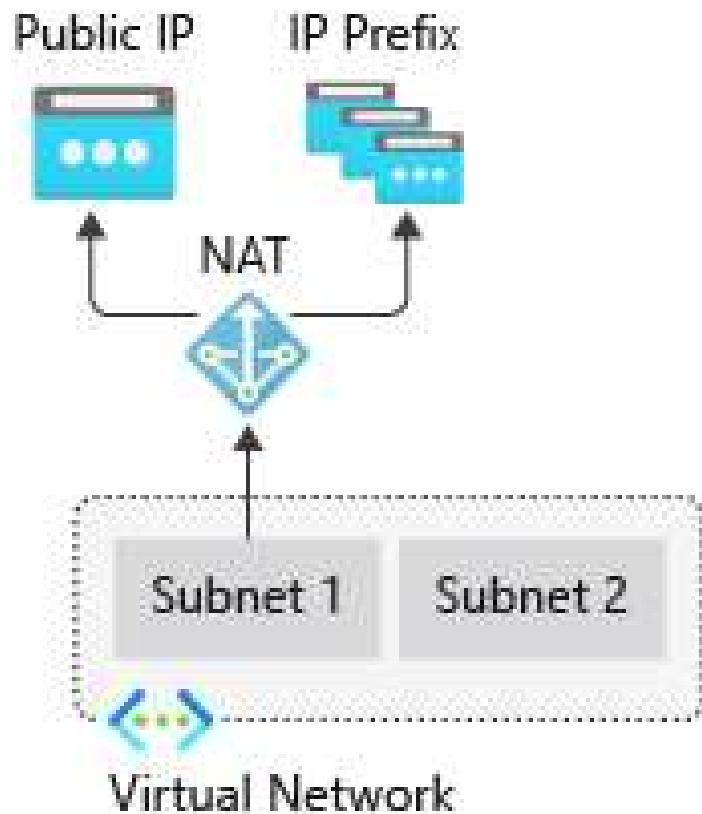


Private Zone records

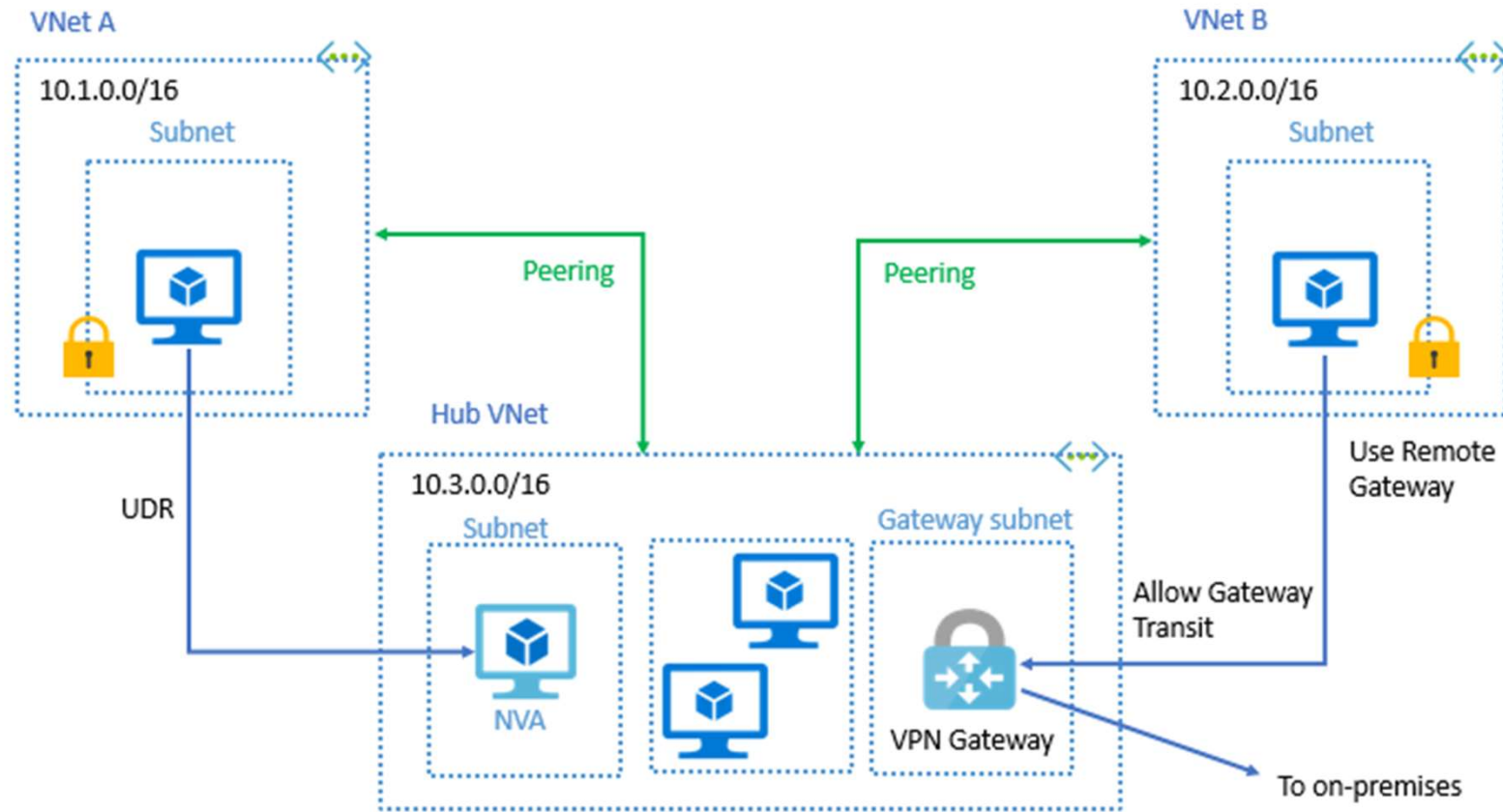
VNETA-VM1 IN A 10.0.0.1 (auto registered)
VNETA-VM2 IN A 10.0.0.2 (auto registered)
VNETB-VM1 IN A 10.1.0.1 (manual record)
VNETB-VM2 IN A 10.1.0.2 (manual record)
VNETB-VM3 IN A 10.1.0.3 (manual record)



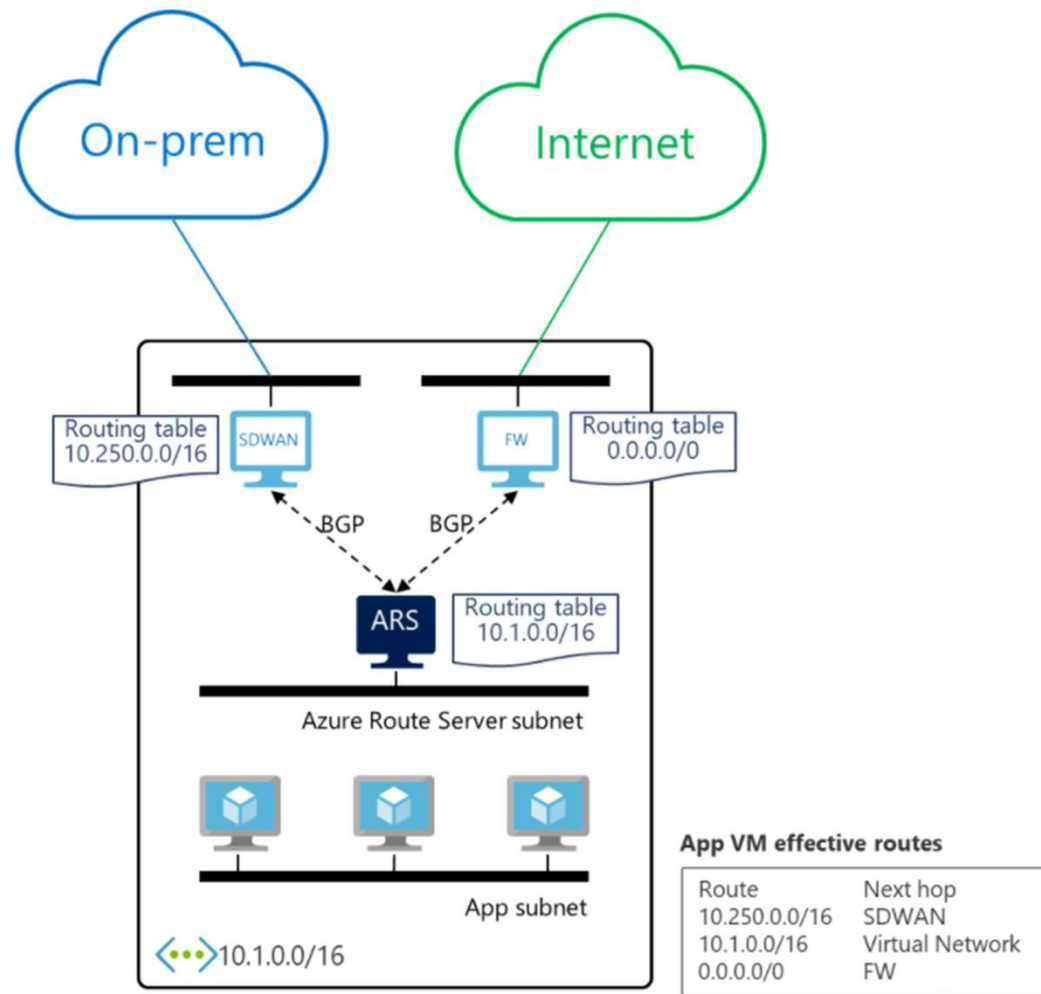
Azure Virtual Network NAT



VNet Peering



Azure Route Server





Demo



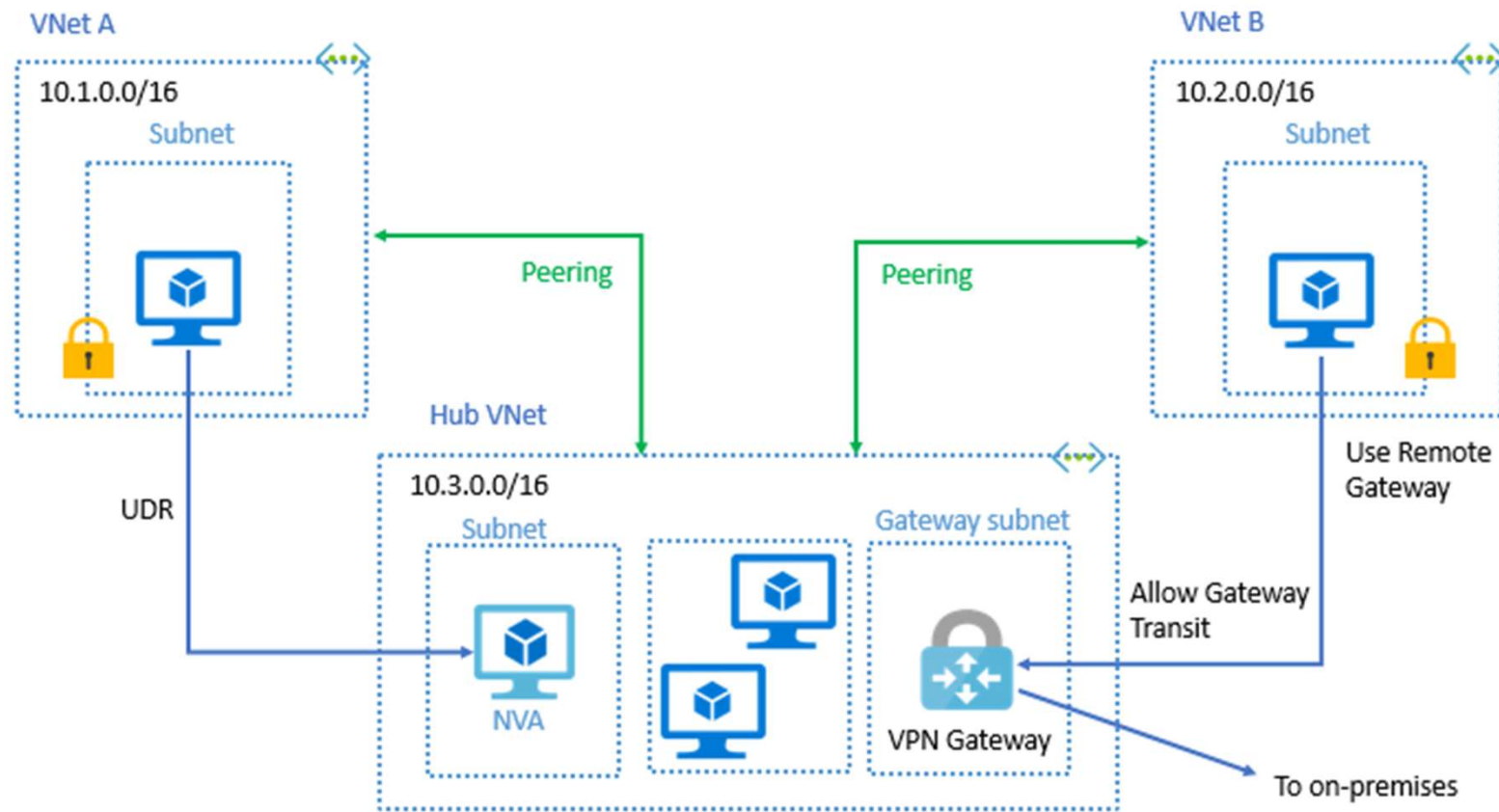


Day 2: Security and Hybrid Connectivity

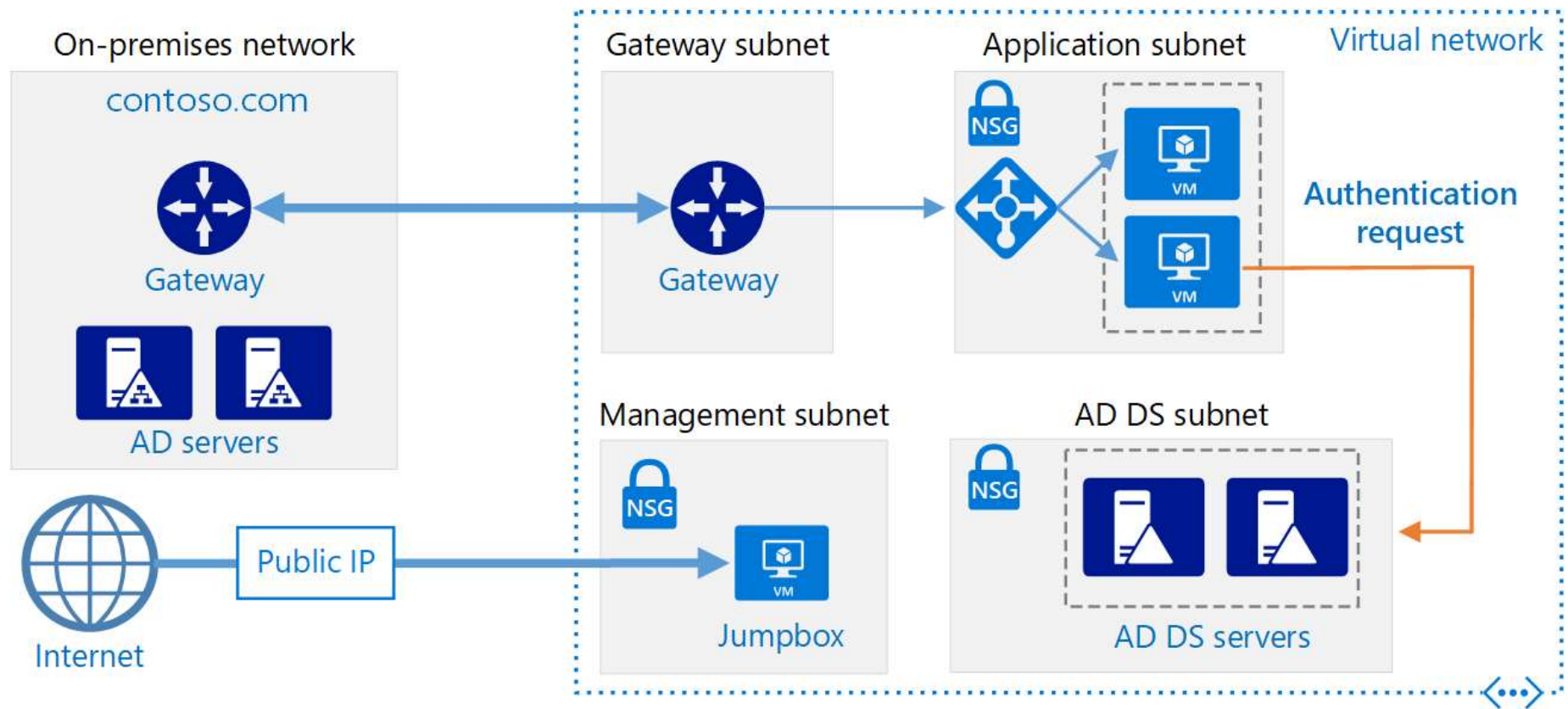
Day 2 Learning Goals

- + NSGs and ASGs
- + Azure Firewall
- + Virtual WAN
- + Virtual Network Gateway
- + Azure load balancers
- + Private Endpoint

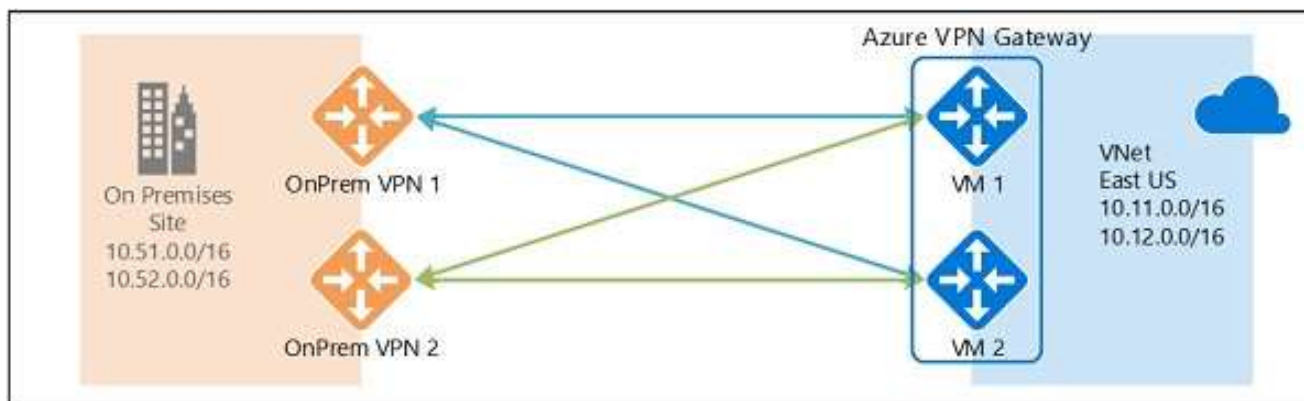
VNet Peering



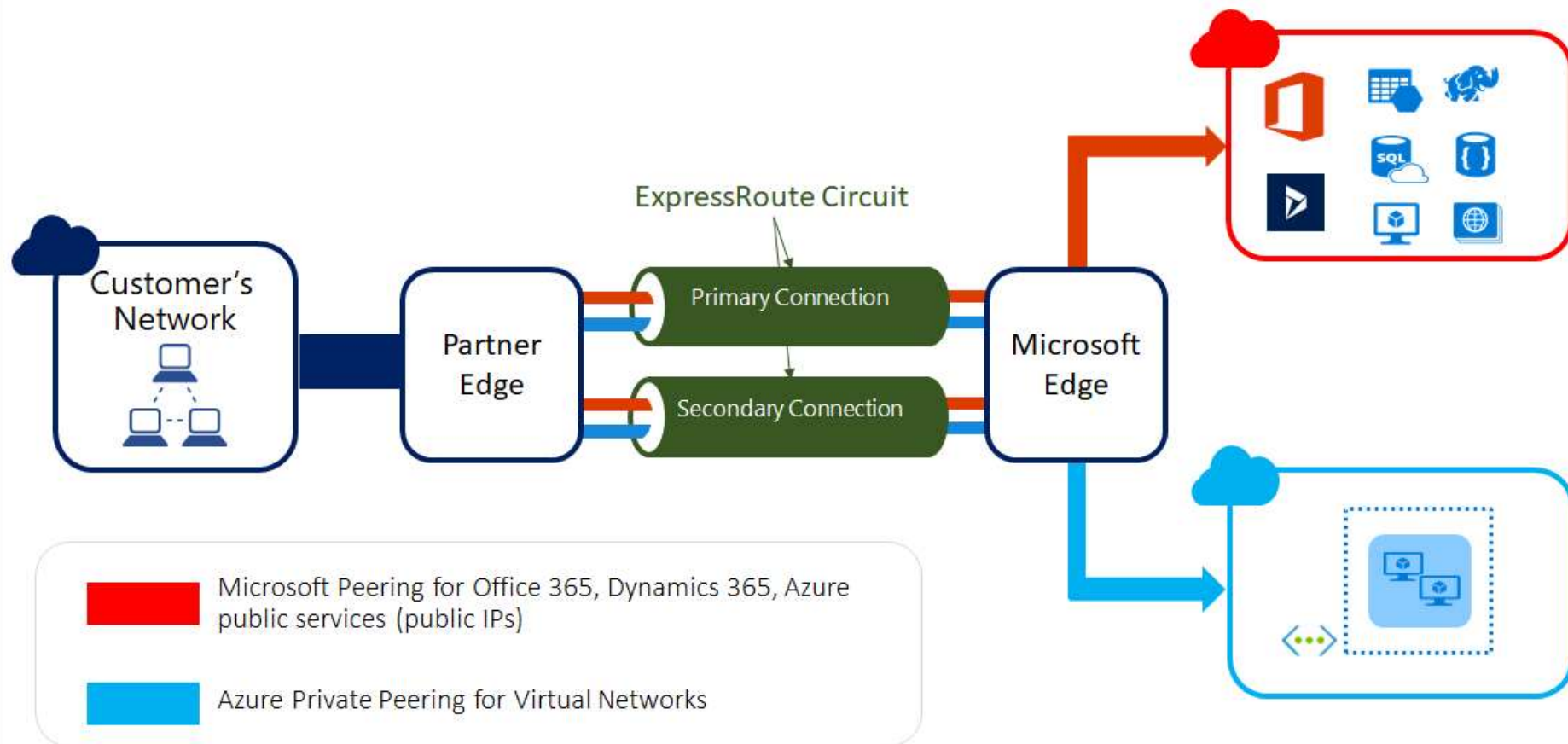
Site-to-Site VPN



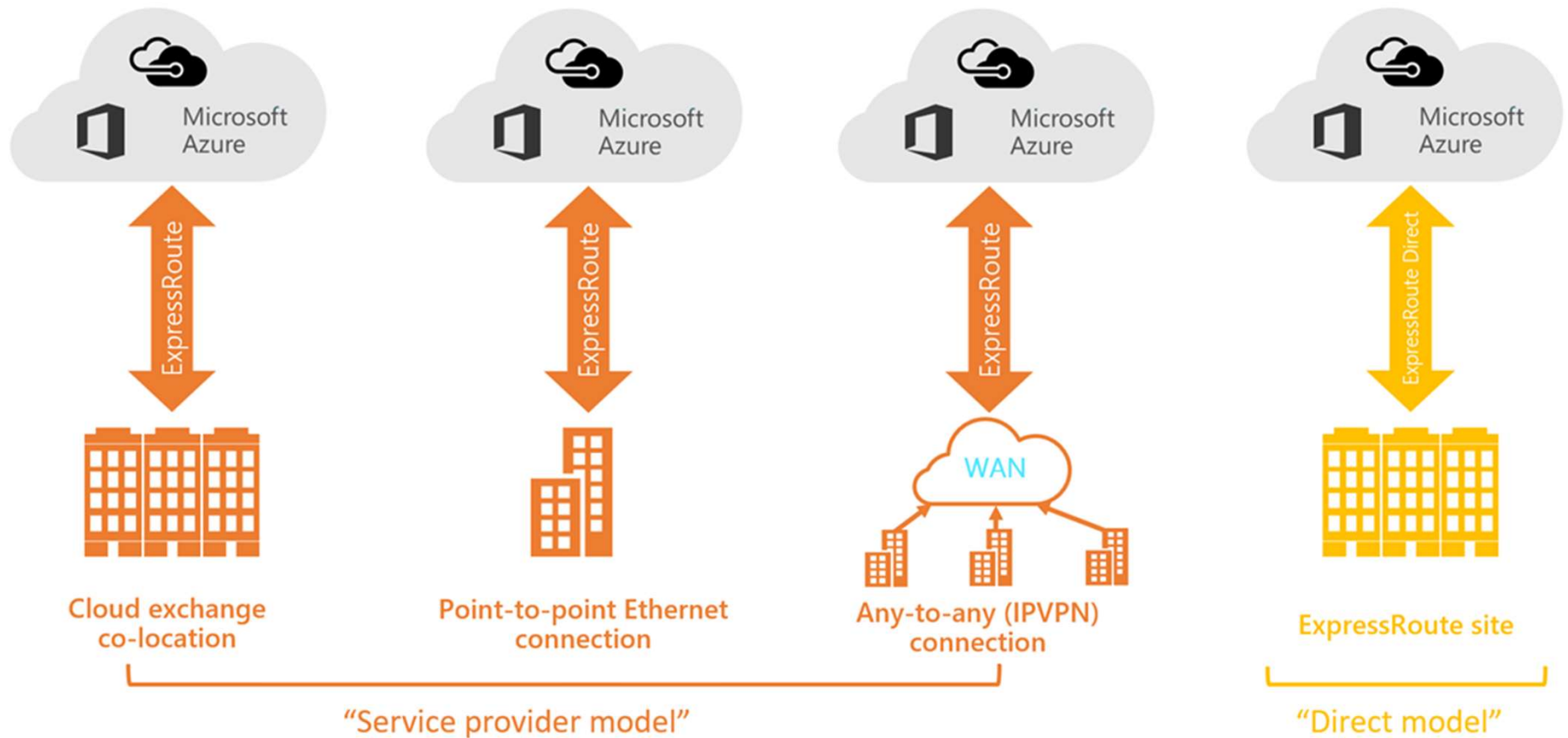
Active/Active VPN Topologies



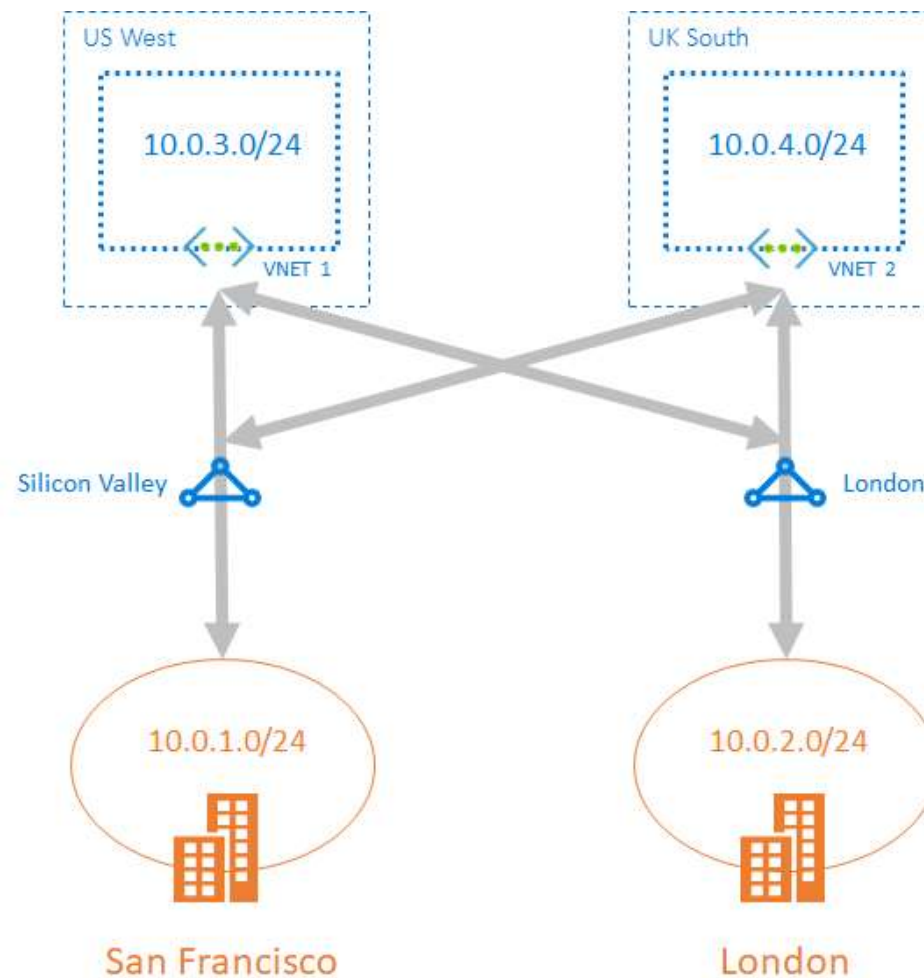
ExpressRoute Peering Types



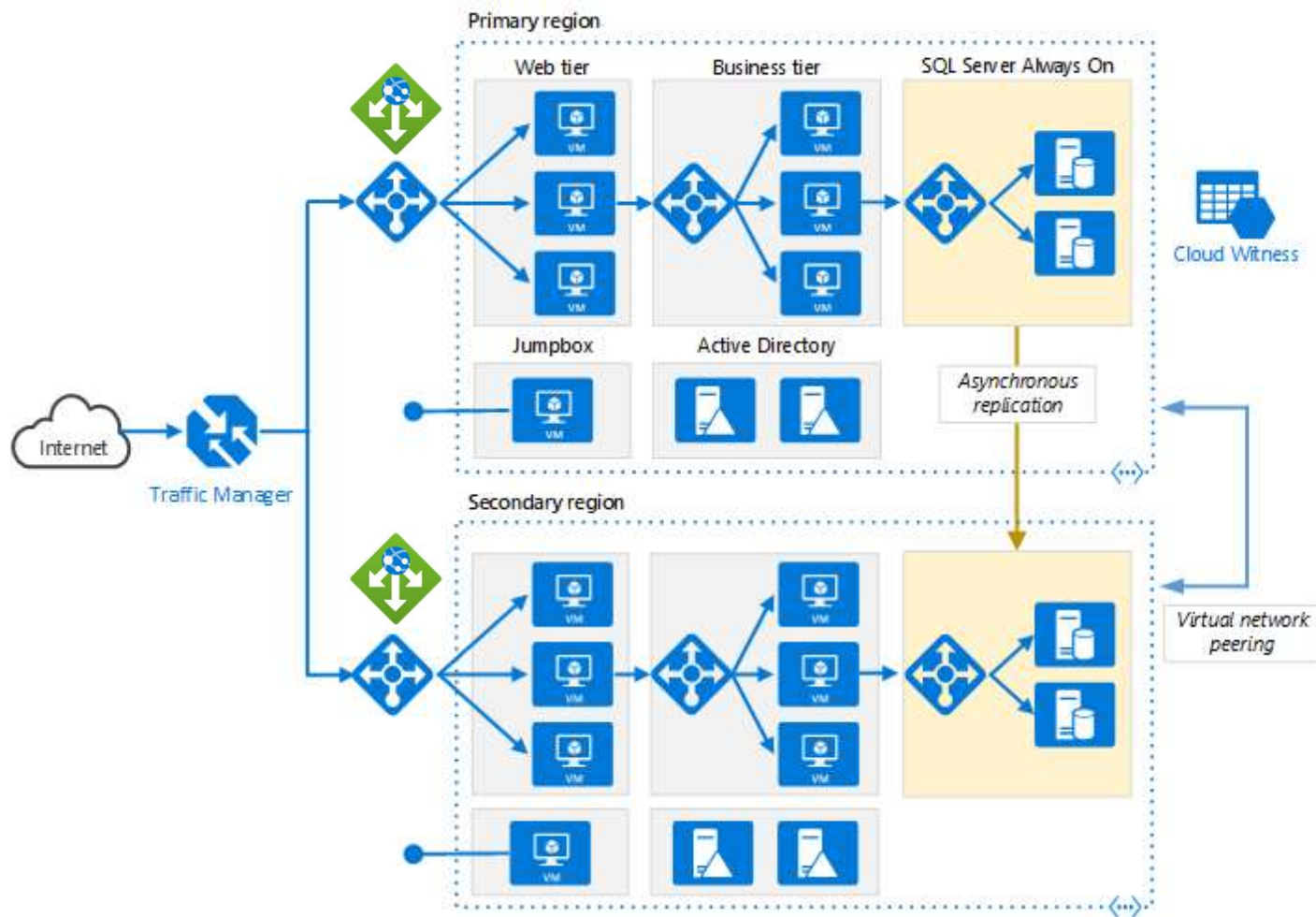
ExpressRoute Service Models



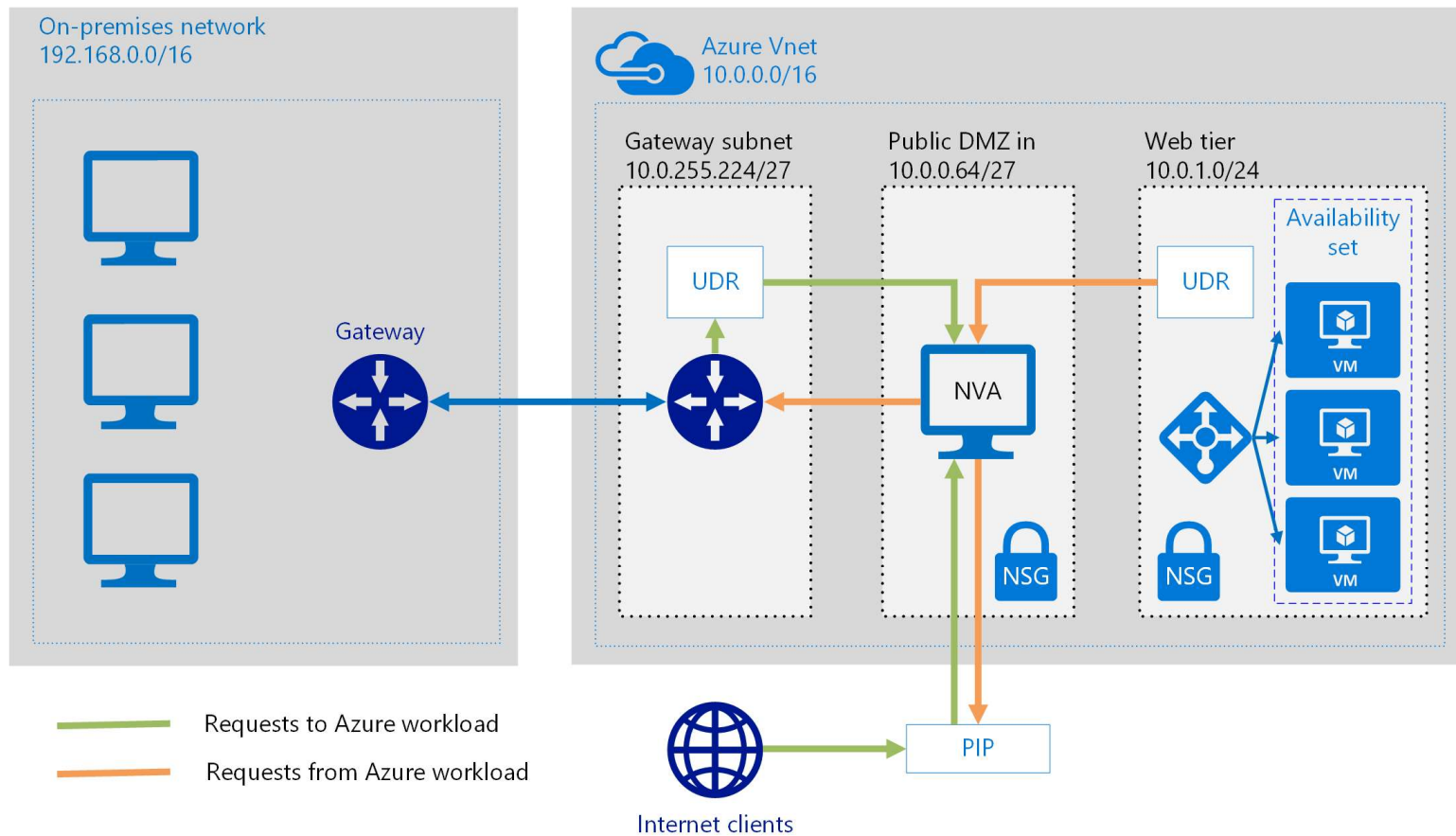
ExpressRoute Global Reach



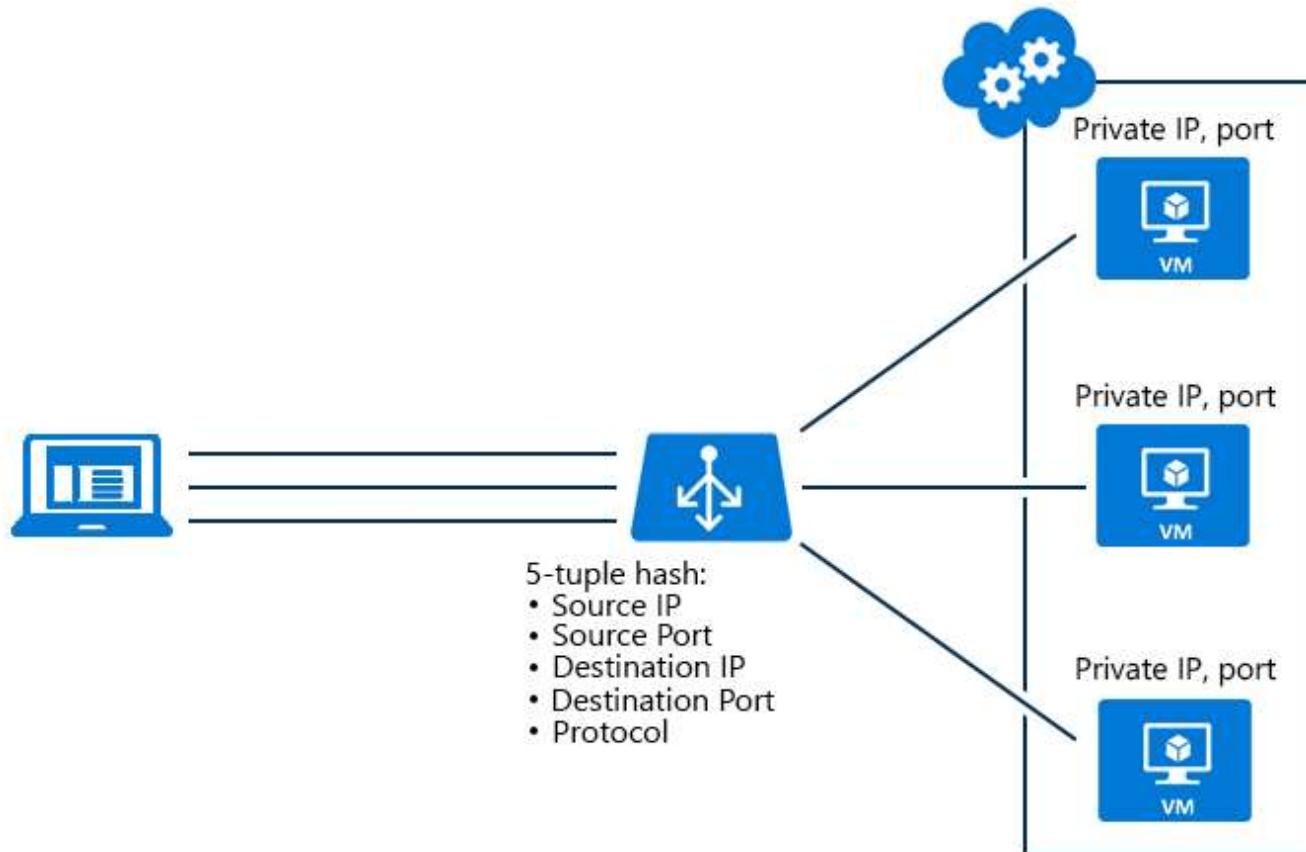
Load Balancing



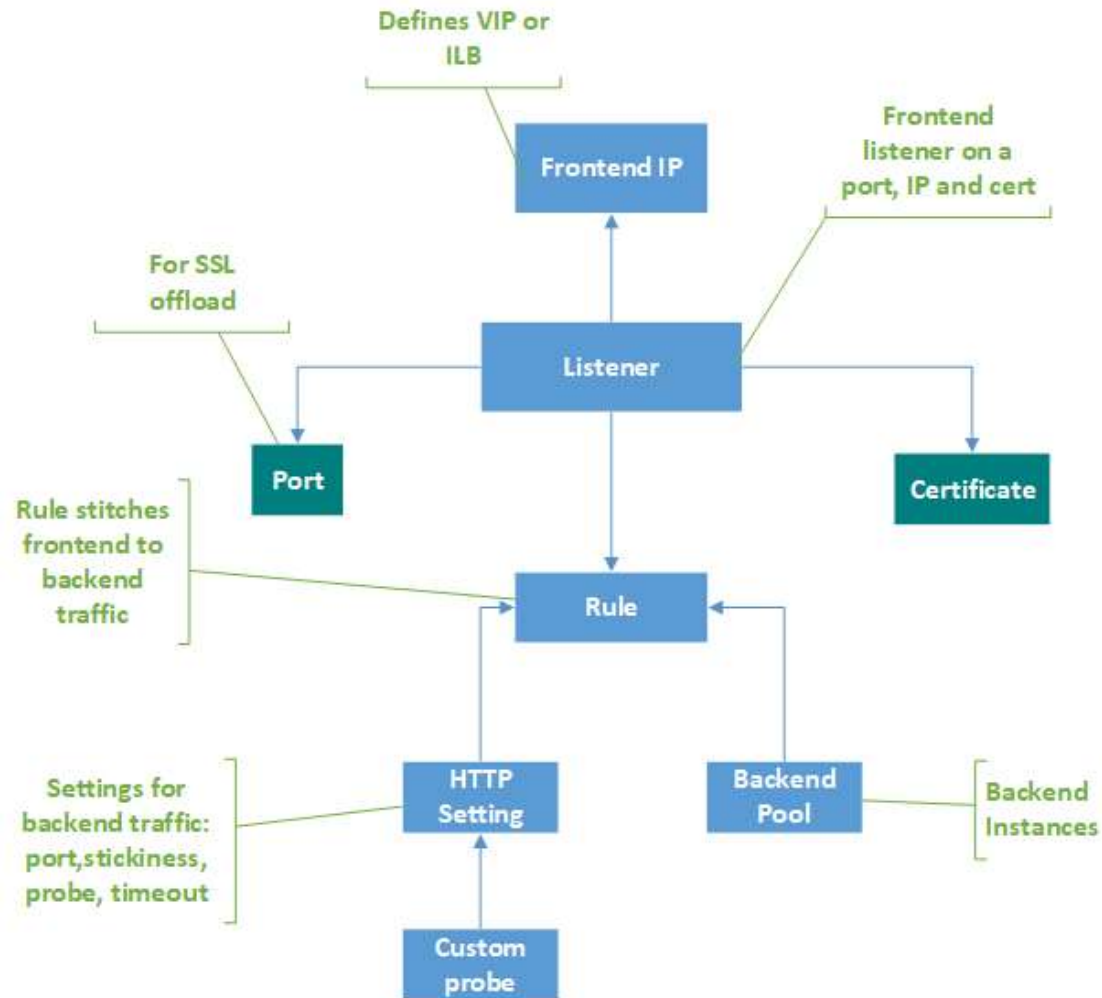
Network Virtual Appliance



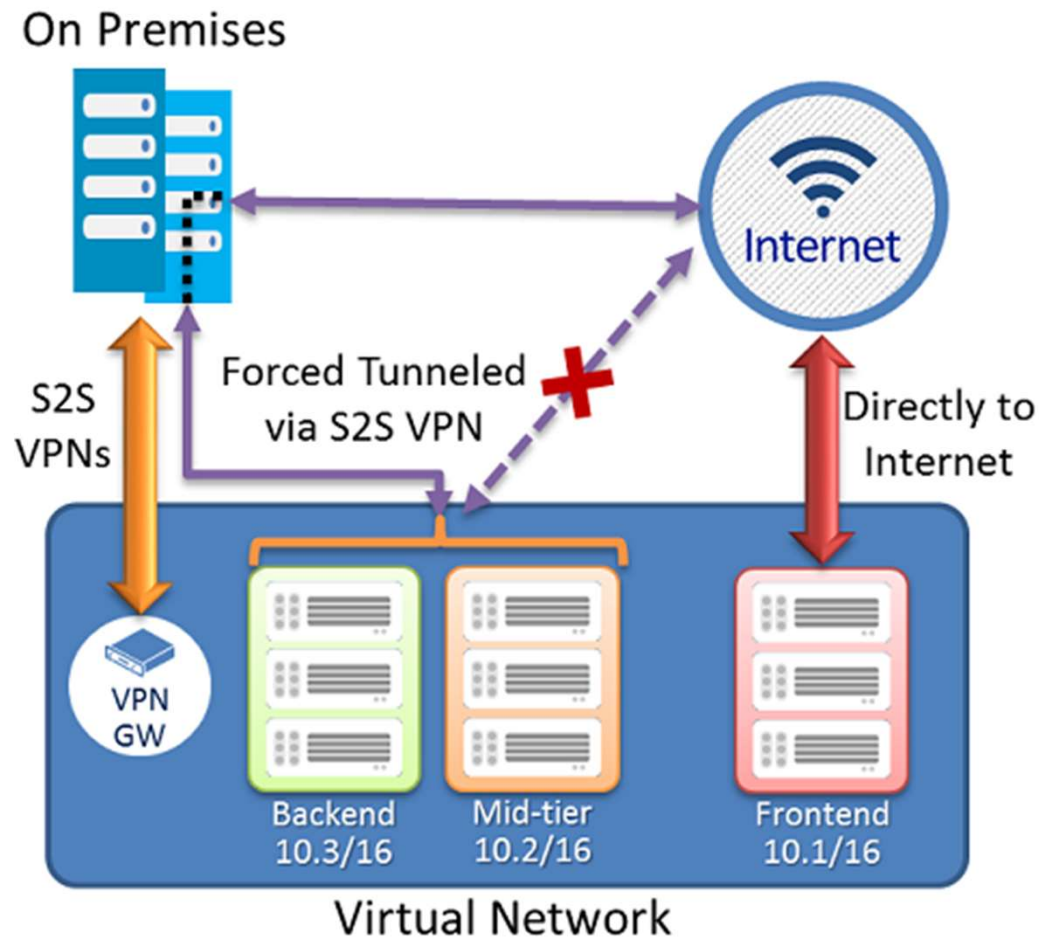
Azure Load Balancer



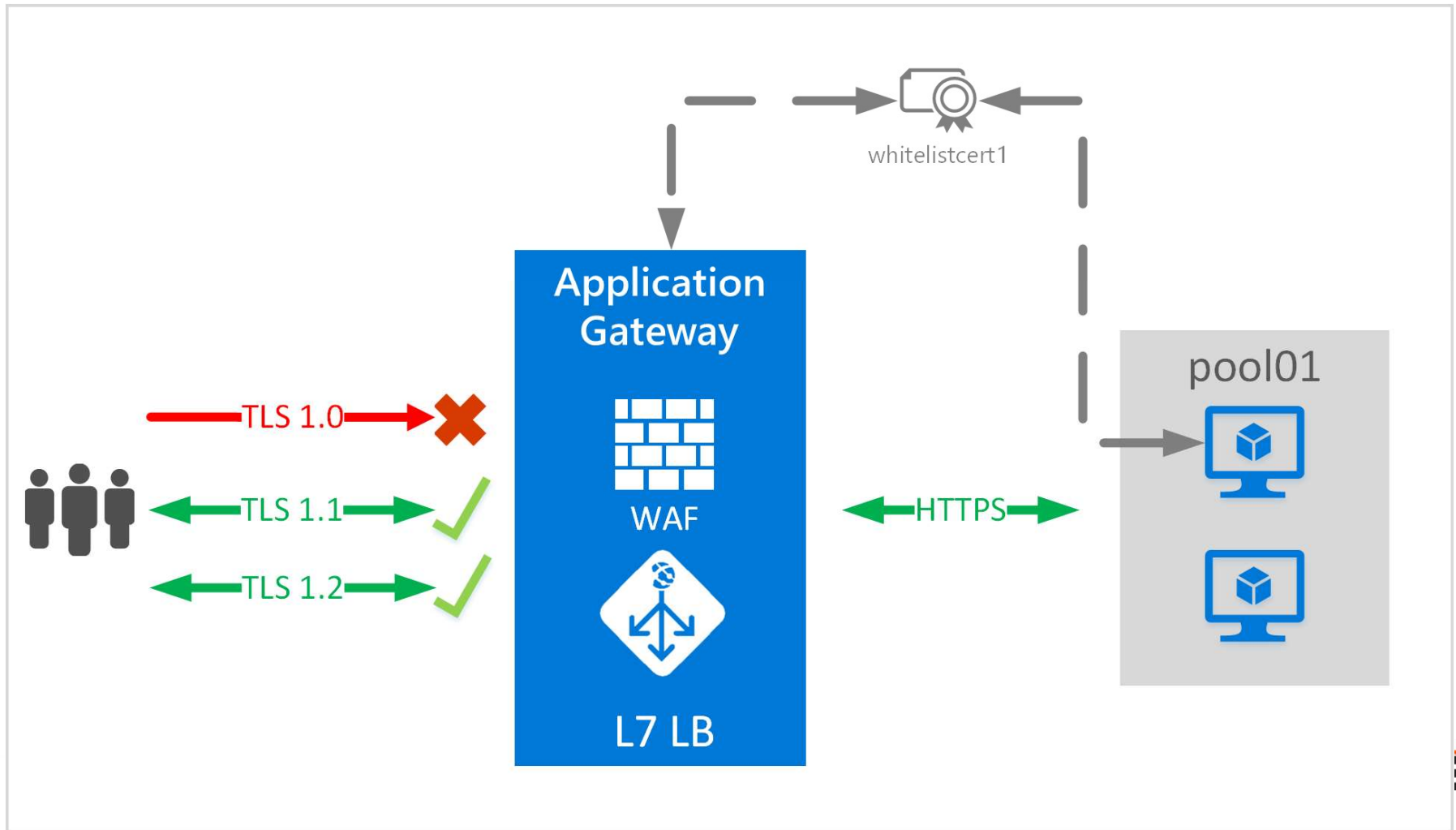
Application Gateway



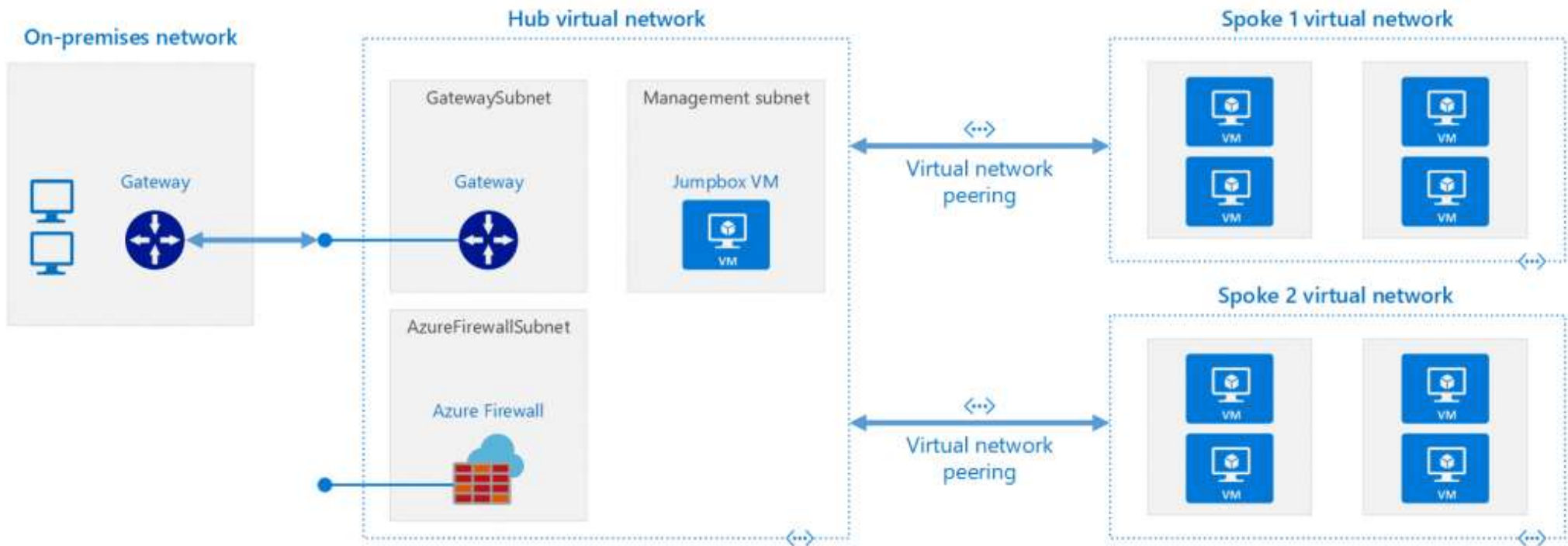
Forced Tunneling - S2S VPN



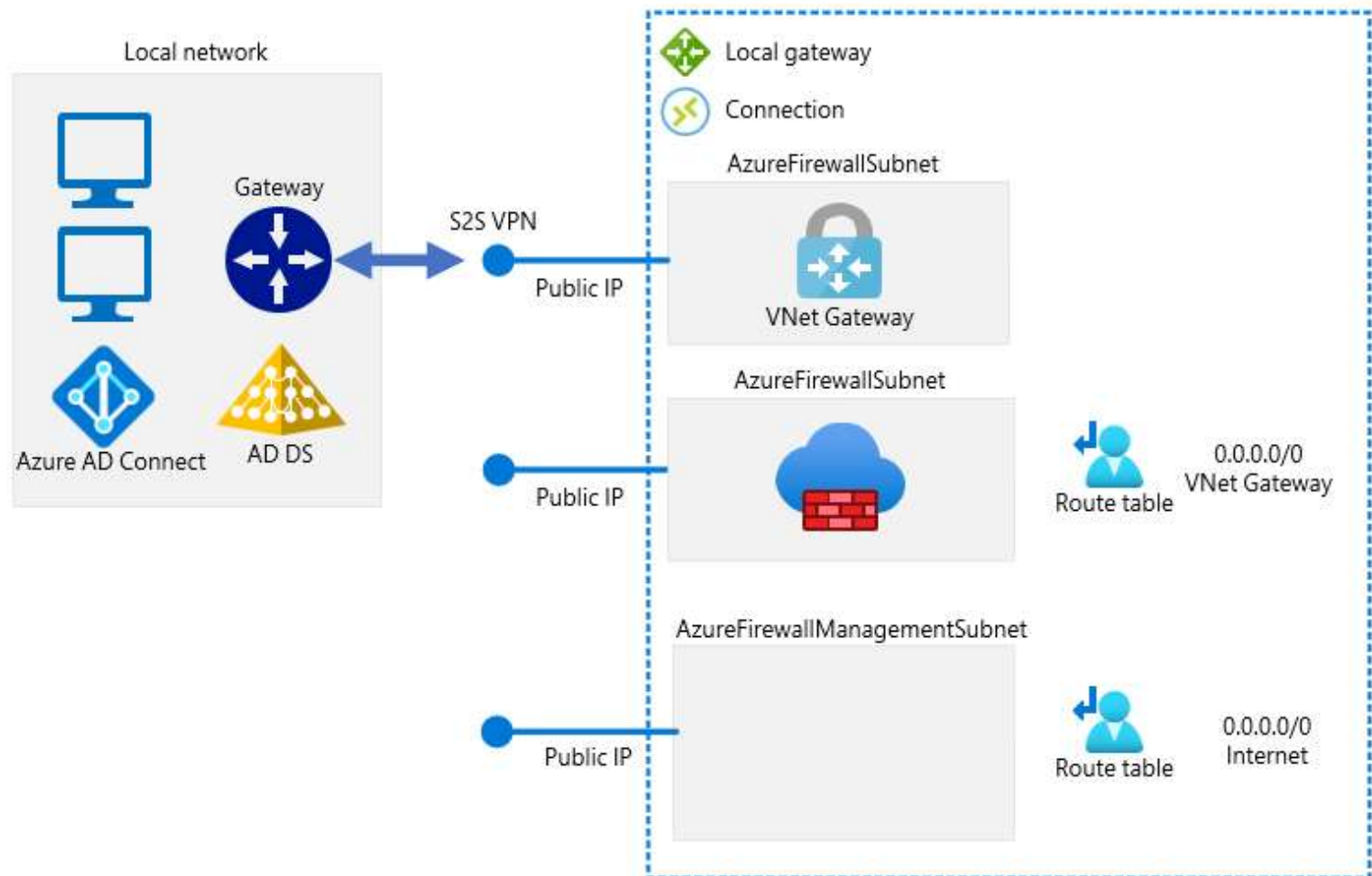
App Gateway E2E TLS



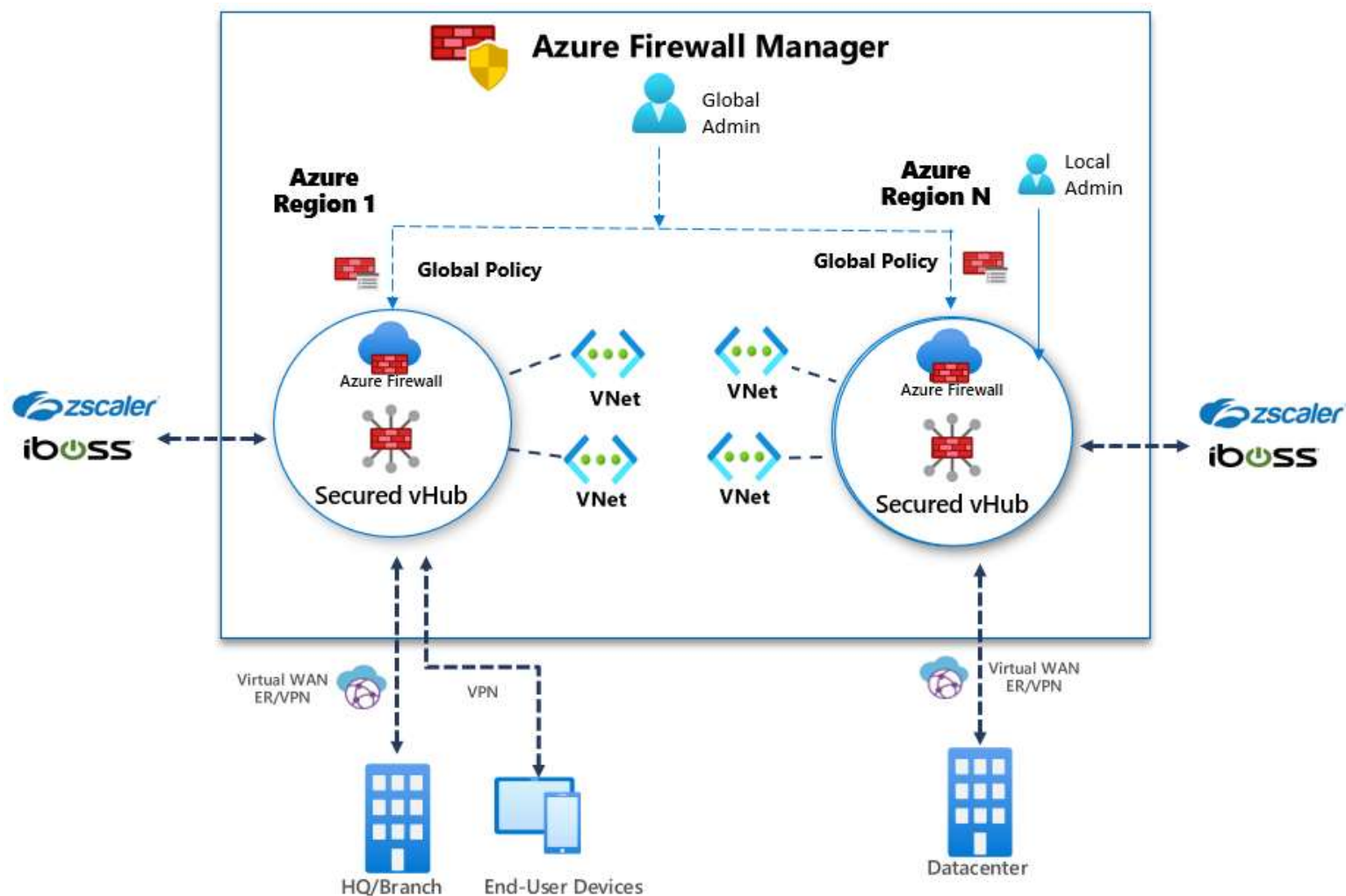
Network Virtual Appliance (NVA)



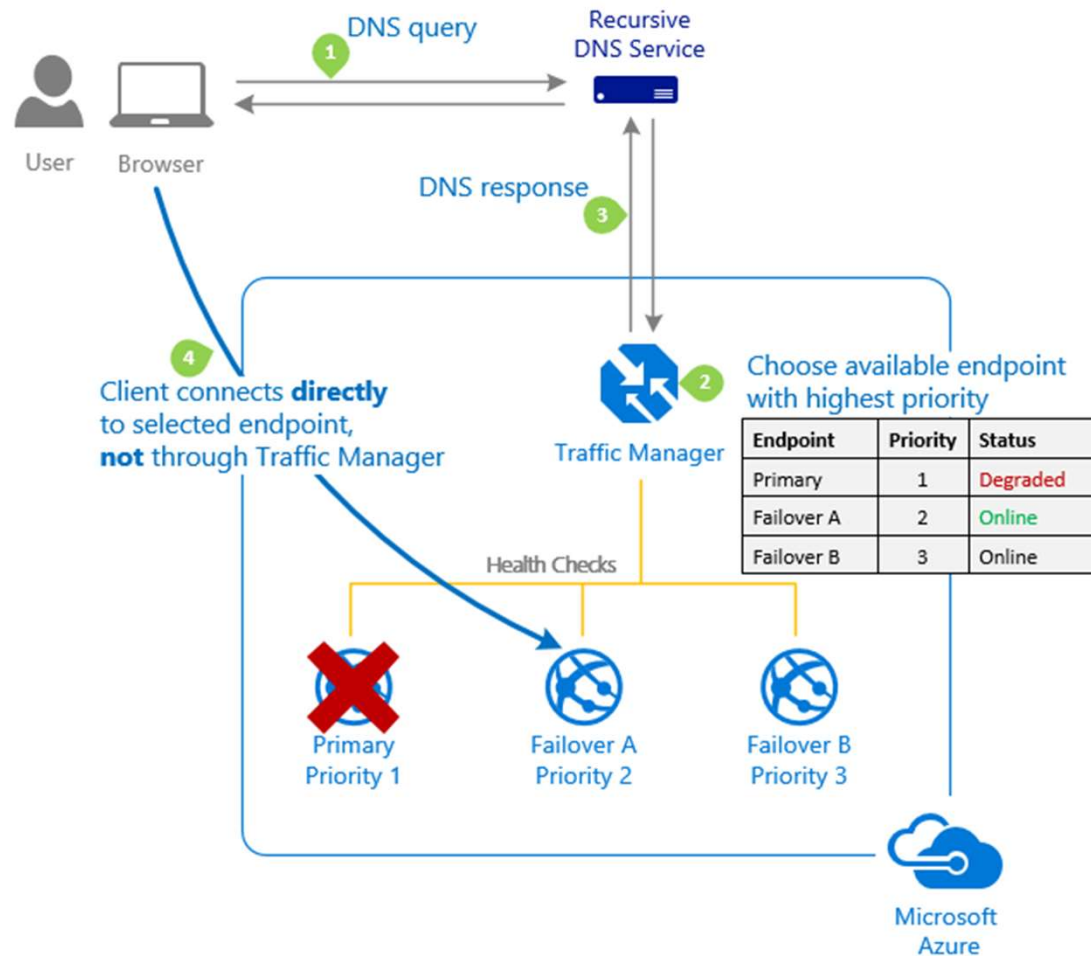
Forced Tunneling - Azure Firewall



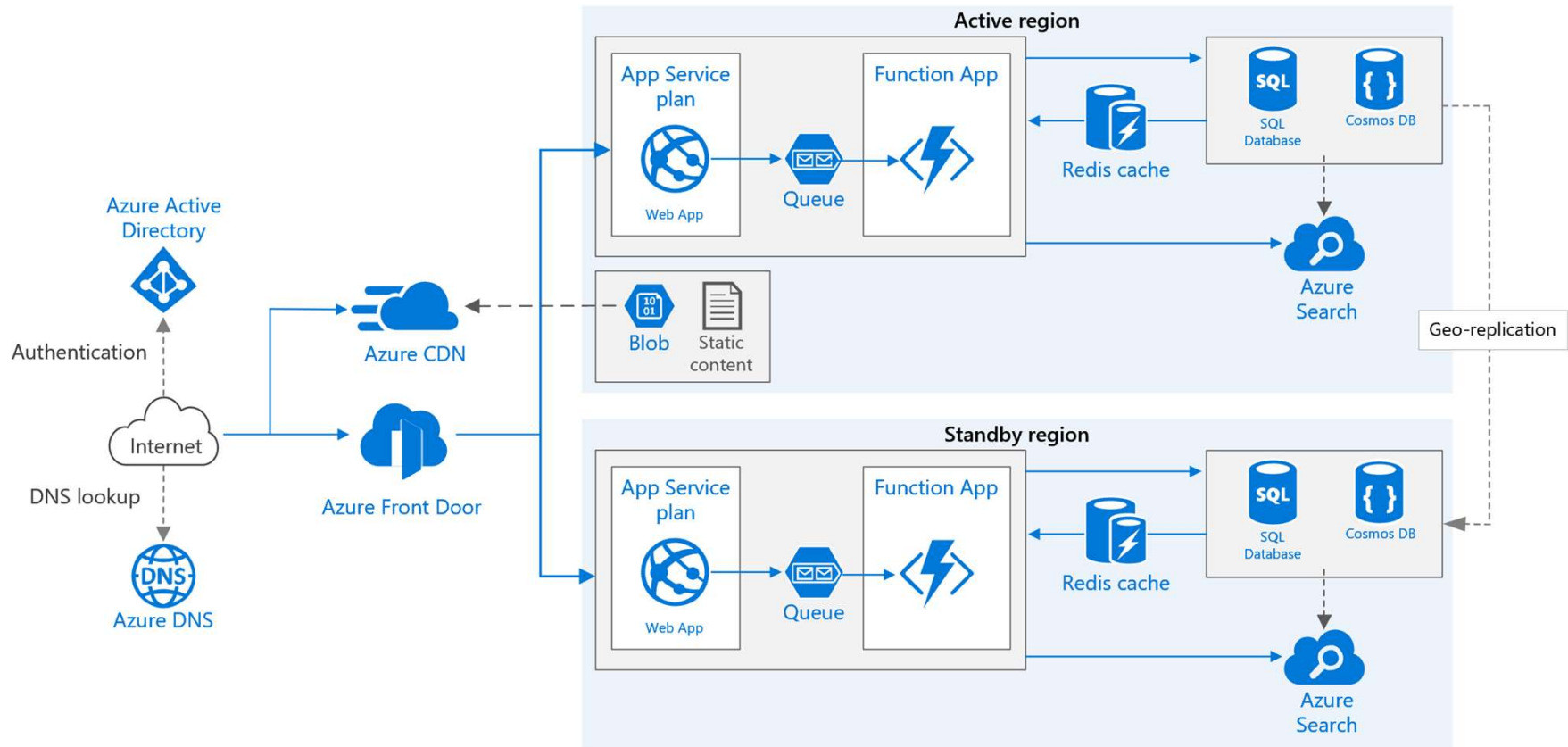
Azure Firewall Manager



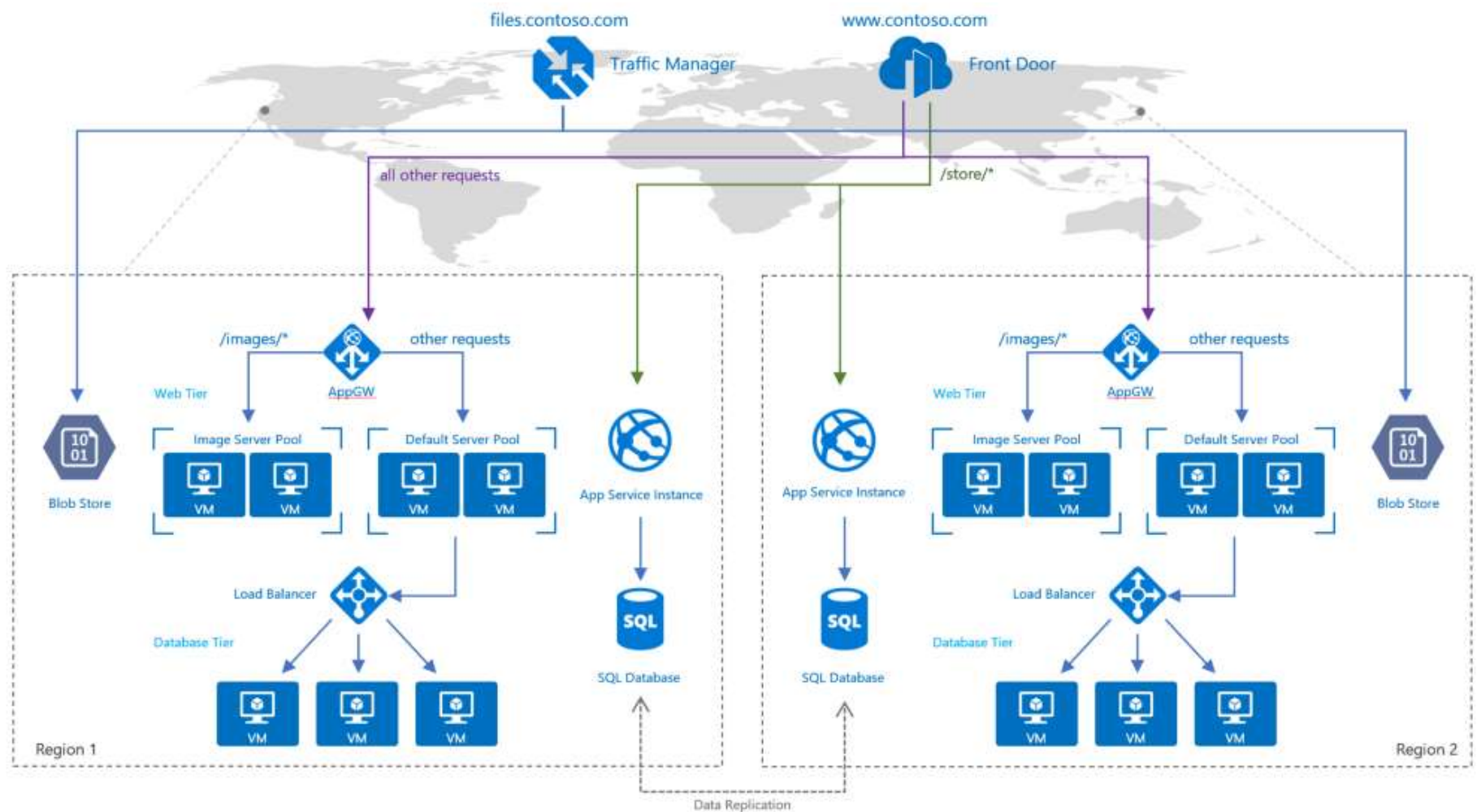
Traffic Manager



Front Door Service




Traffic Manager vs Front Door



A high-angle, close-up shot of a person with dark hair and glasses, focused on their work. They are wearing a dark long-sleeved shirt and are positioned over a laptop. The scene is dramatically lit with cool blue and purple hues, creating a tech-savvy or professional atmosphere. The person's hands are visible on the laptop keyboard. The word "Demo" is overlaid in white text on the left side of the image.

Demo



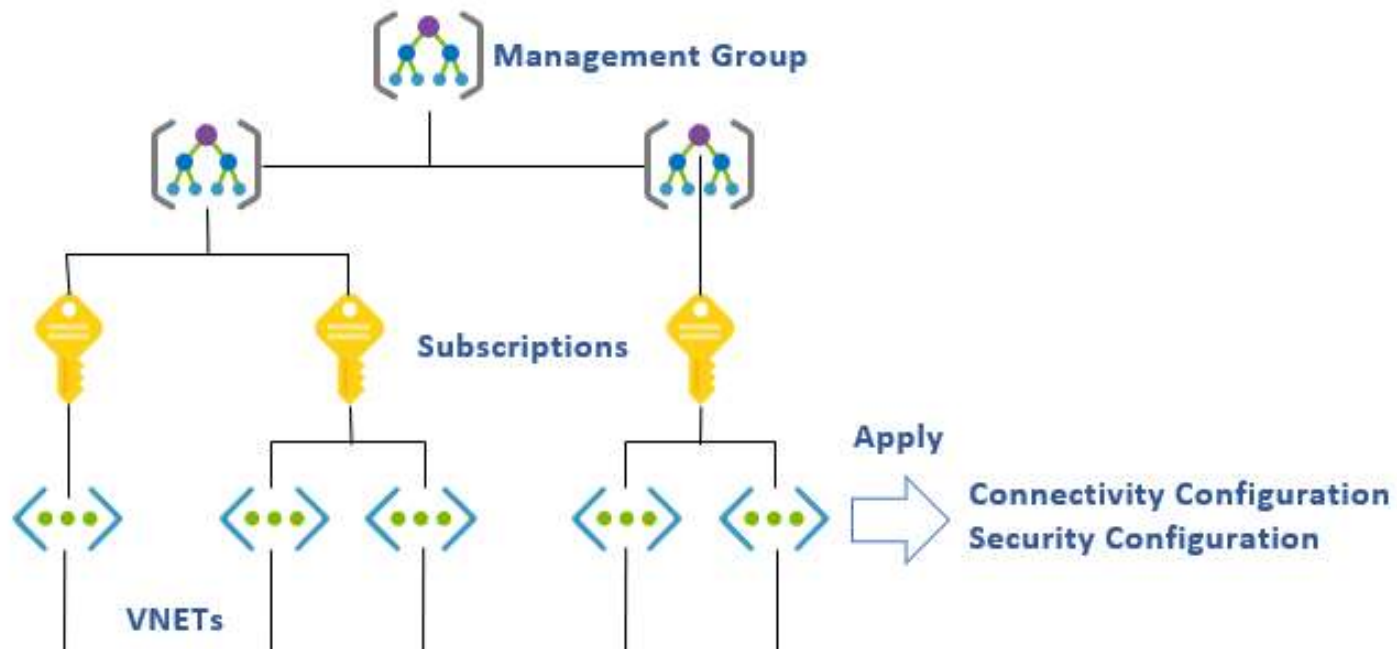


Day 3: Governance, Monitoring, and Troubleshooting

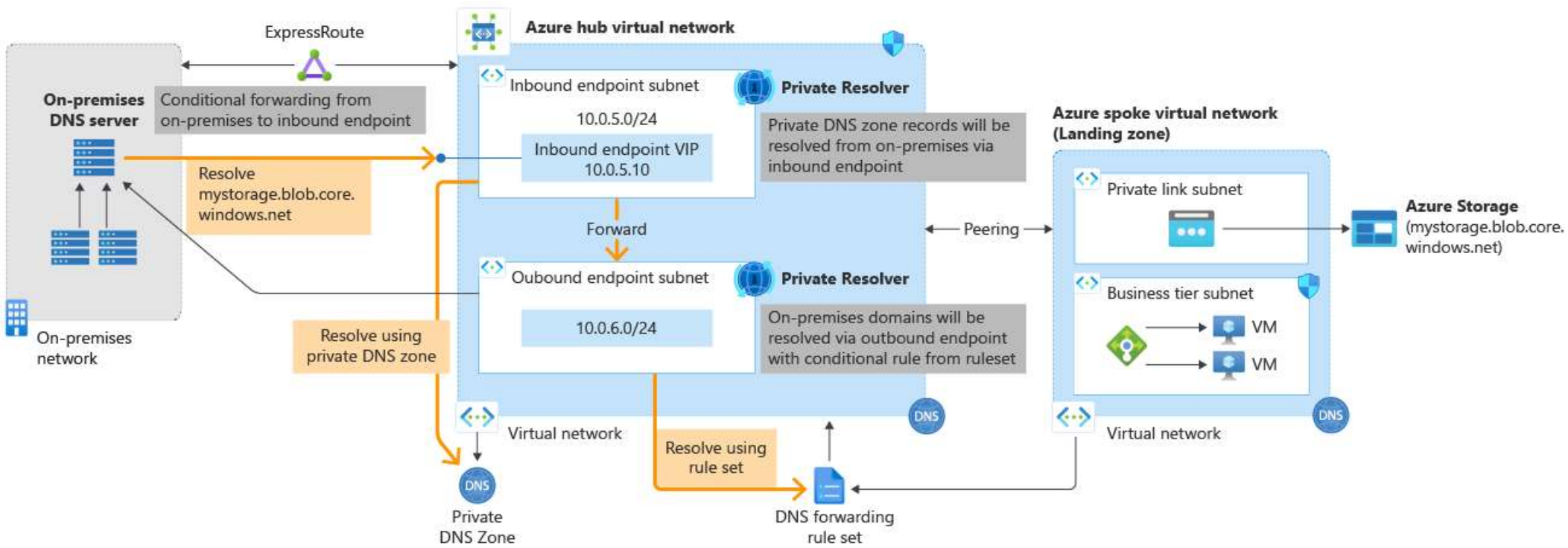
Day 3 Learning Goals

- + Azure Policy
- + Azure Virtual Network Manager
- + Azure DNS Private Resolver
- + Network Watcher
- + NSG Flow logs and Traffic Analytics

Azure Virtual Network Manager

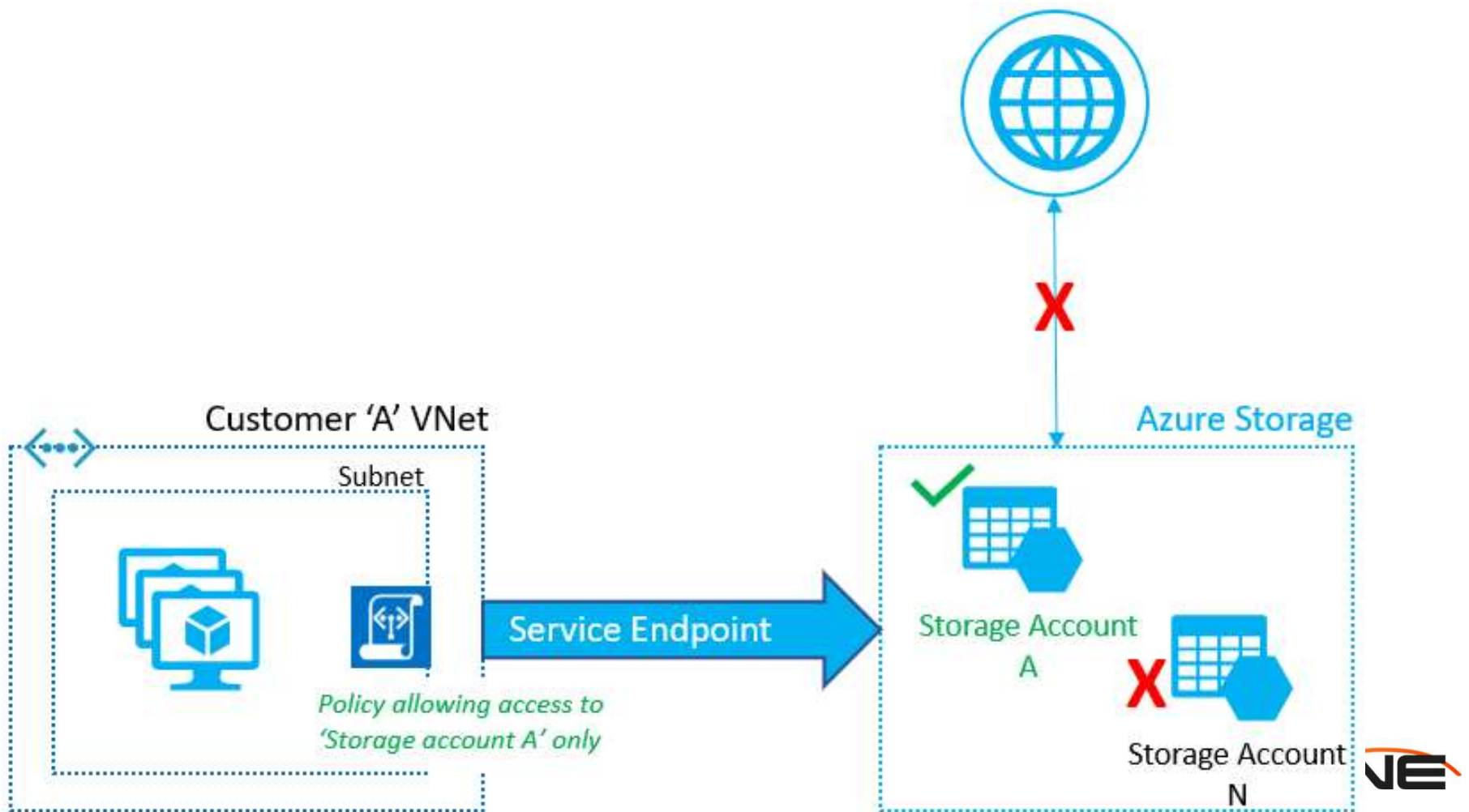


Azure DNS Private Resolver

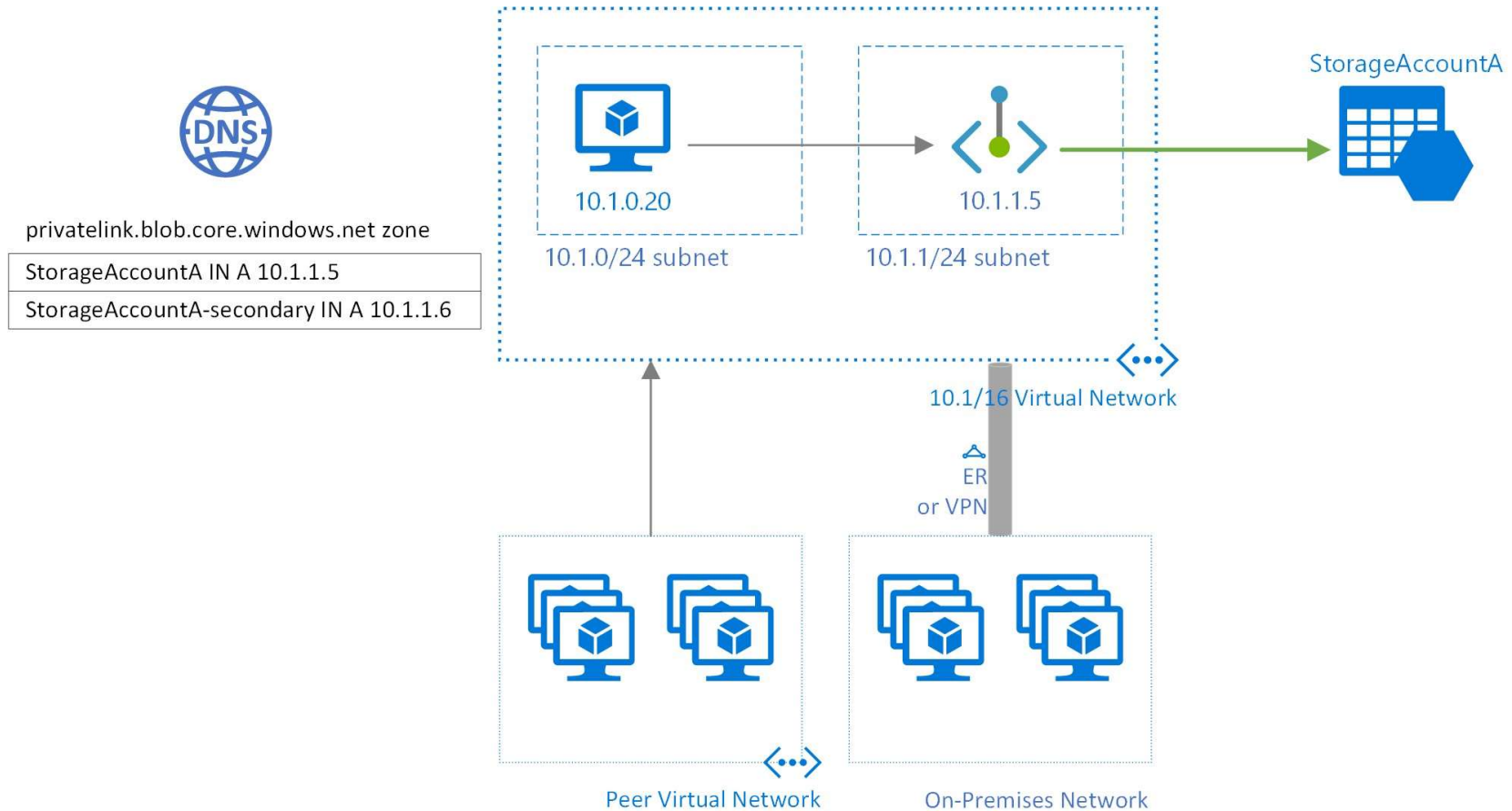


Citation: timw.info/7o8

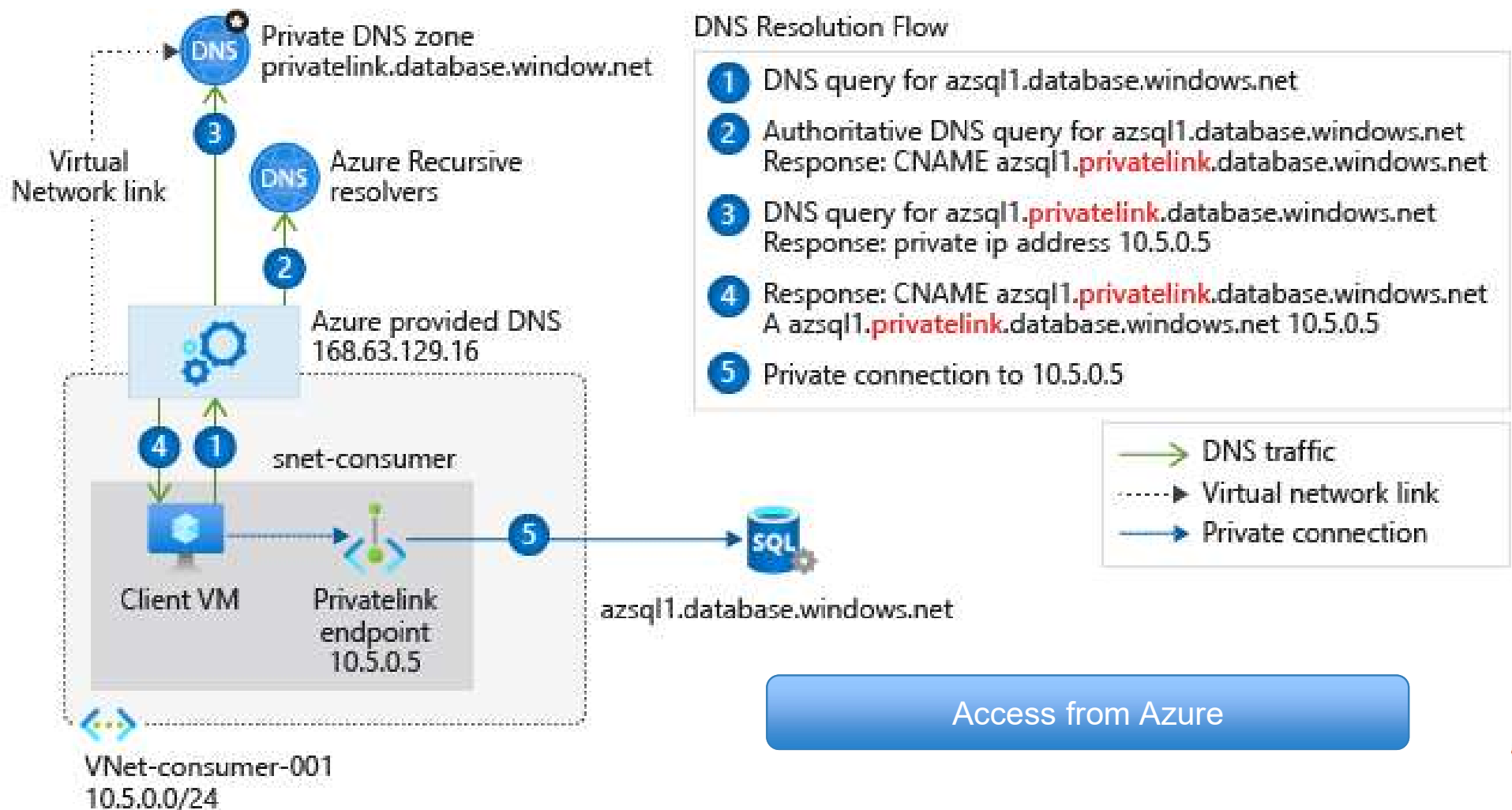
Service Endpoints



Private Endpoints



Private Endpoint DNS Config

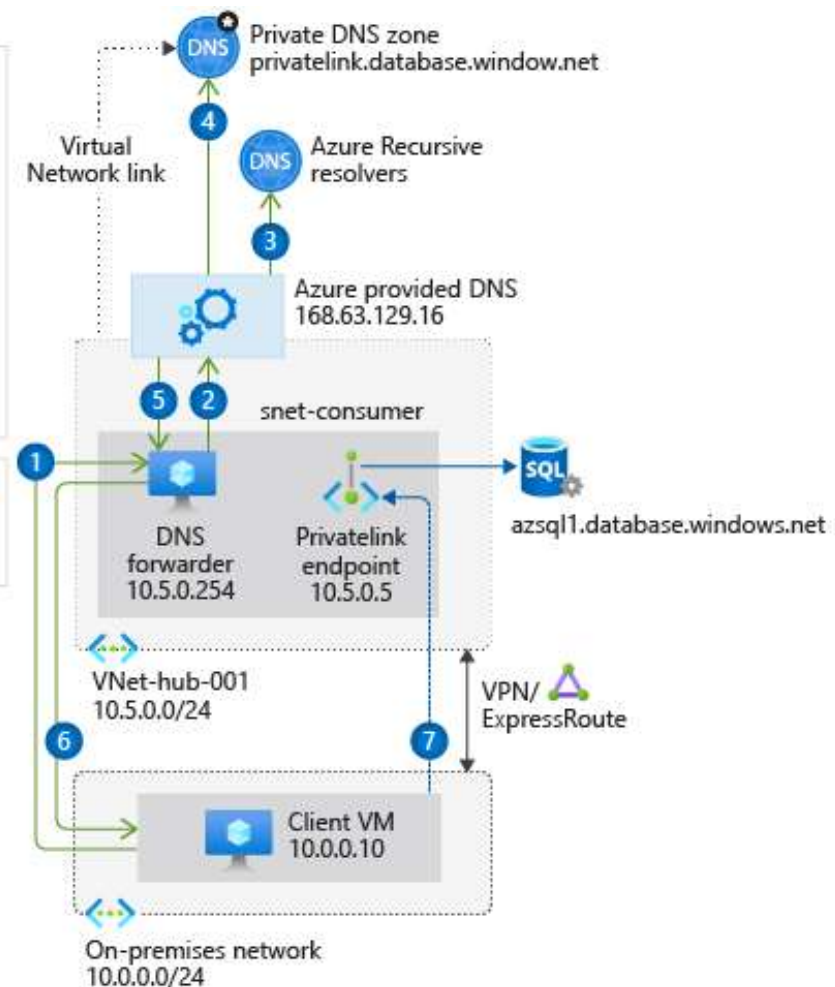


Private Endpoint DNS Config

DNS Resolution Flow

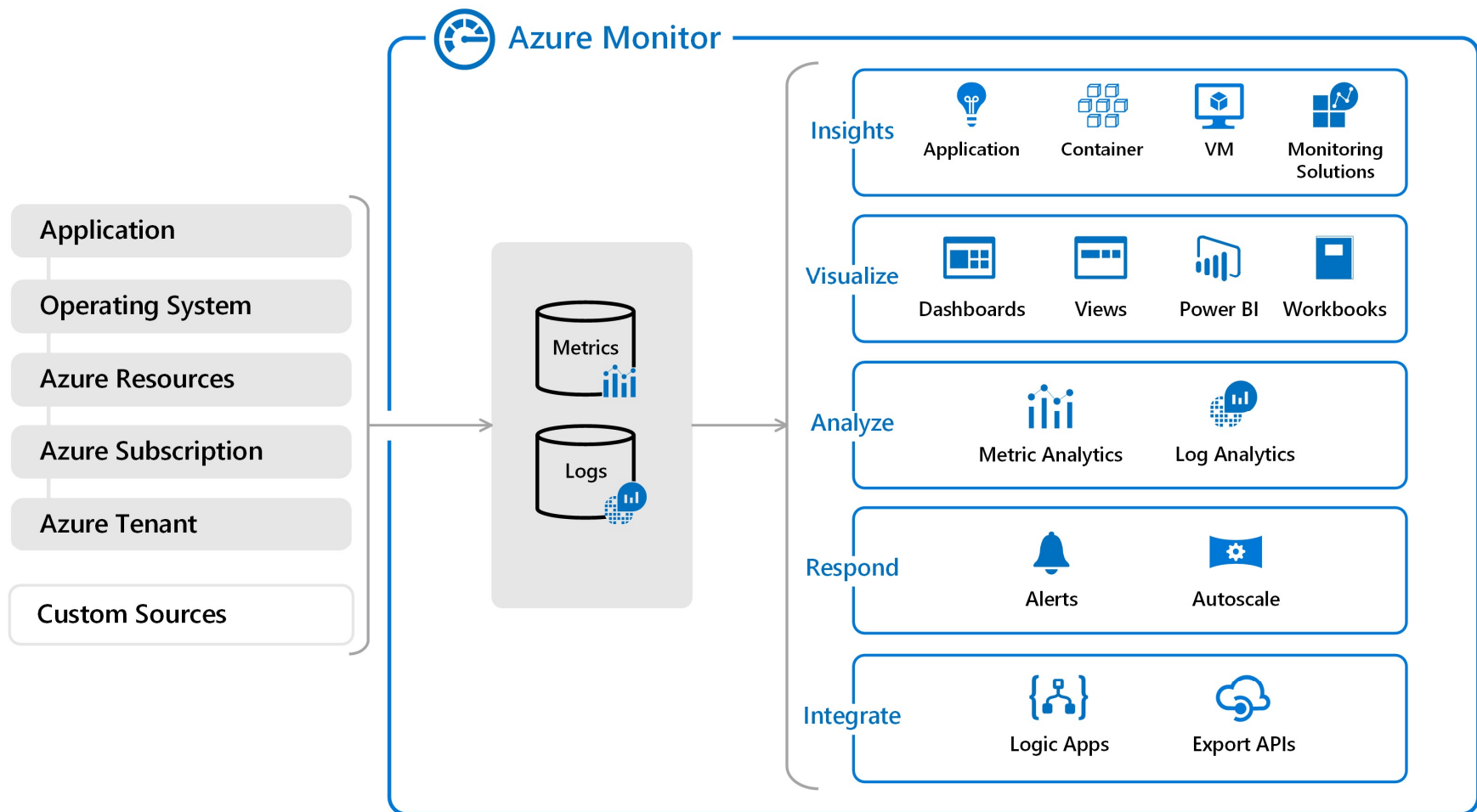
- 1 DNS query for azsql1.database.windows.net
- 2 Server level forwarder to 168.63.129.16
- 3 Authoritative DNS query for azsql1.database.windows.net
Response: CNAME azsql1.**privatelink**.database.windows.net
- 4 DNS query for azsql1.**privatelink**.database.windows.net
Response: private ip address 10.5.0.5
- 5 6
Response: CNAME azsql1.**privatelink**.database.windows.net
A azsql1.**privatelink**.database.windows.net 10.5.0.5
- 7 Private connection to 10.5.0.5

- DNS traffic
- Virtual network link
- Private connection

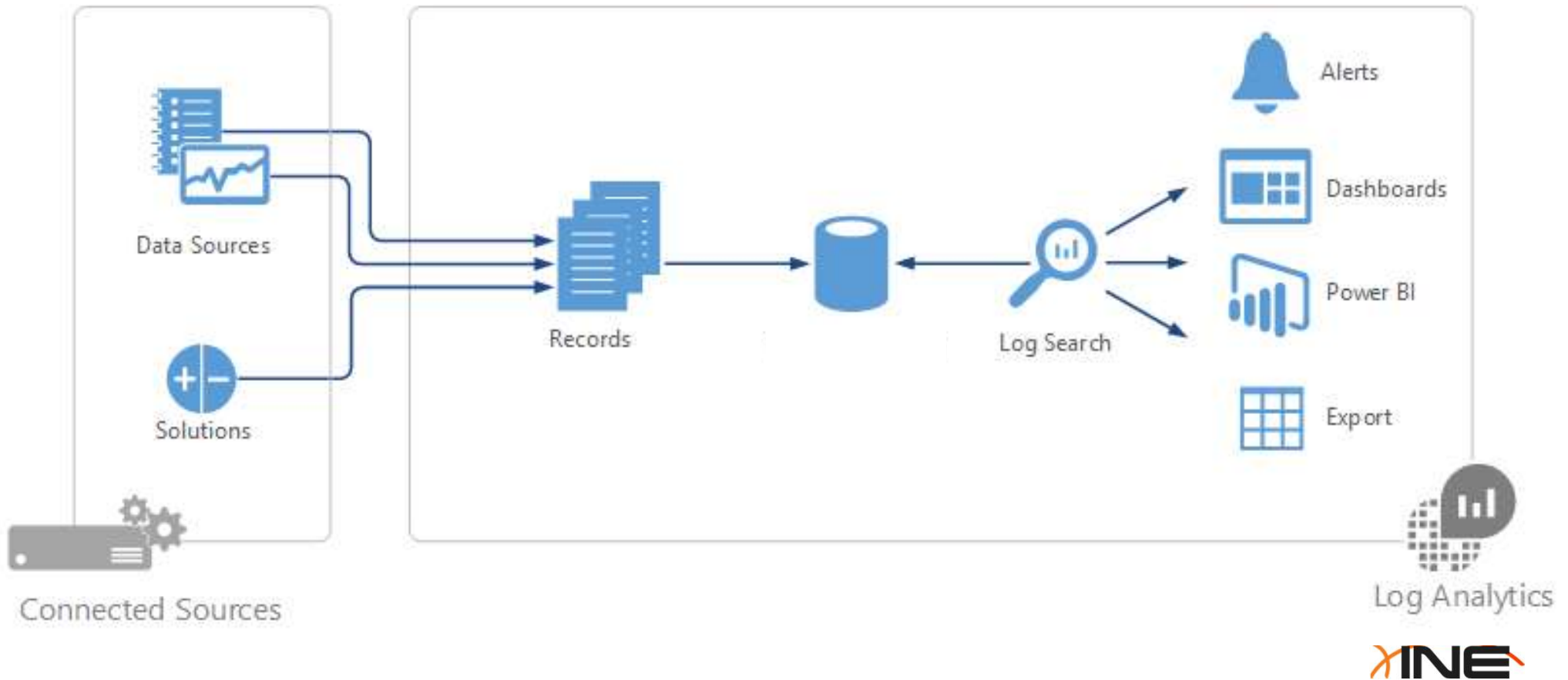


Access from on-premises

Azure Monitor



Log Analytics



A high-angle, close-up shot of a person with dark hair and glasses, wearing a dark shirt, focused on their work. They are sitting at a desk, and their hands are visible typing on a laptop keyboard. The scene is dramatically lit with cool blue and purple tones, creating a tech-savvy or professional atmosphere. The person's face is partially illuminated by the light from the screen. The background is dark and out of focus.

Demo

