

Tag 3
Guten Morgen!

AZ-104

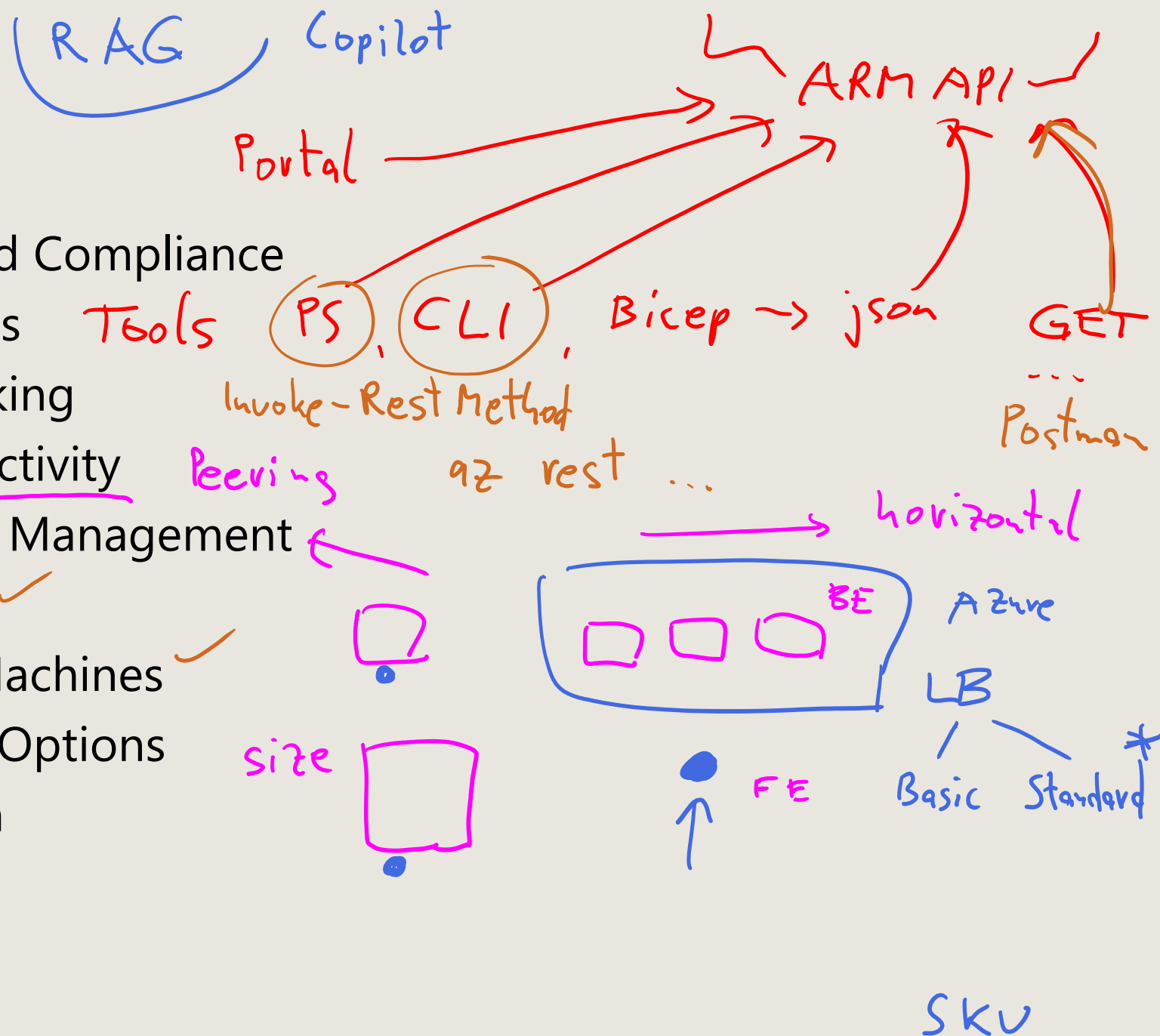
Administer Network Traffic

(module 6)



AZ-104 Course Outline

- 01: Administer Identity
- 02: Administer Governance and Compliance
- 03: Administer Azure Resources
- 04: Administer Virtual Networking
- 05: Administer Intersite Connectivity
- 06: Administer Network Traffic Management
- 07: Administer Azure Storage ✓
- 08: Administer Azure Virtual Machines ✓
- 09: Administer PaaS Compute Options
- 10: Administer Data Protection
- 11: Administer Monitoring



Learning Objectives - Administer Network Traffic

- [Configure Azure Load Balancer](#) ✓
- [Configure Application Gateway](#) ✓
- [Configure Network Watcher](#) ✓
- [Lab 06 – Implement Traffic Management](#) !

Configure Azure Load Balancer



Choose a Load Balancer Solution

Basic Standard

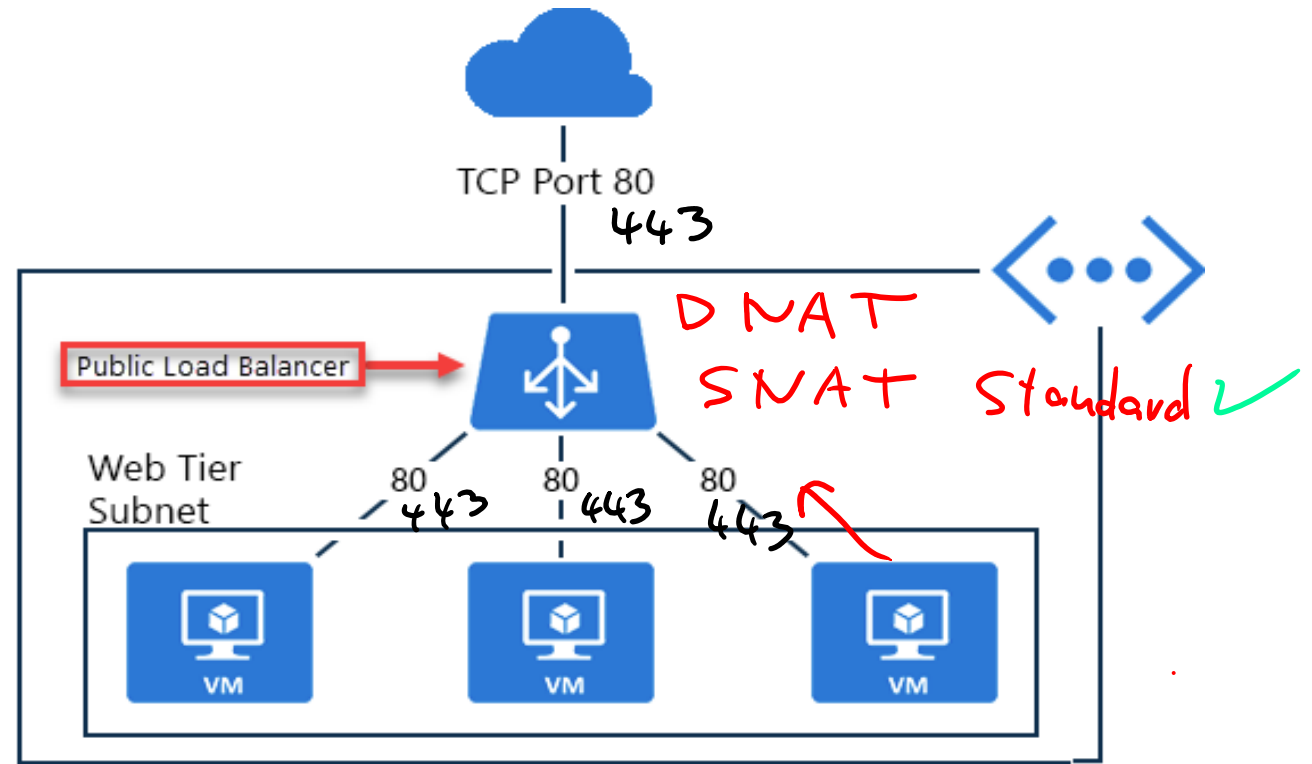
Zone
DNS

Feature	Application Gateway	Front Door	Load Balancer	Traffic Manager
Usage	Optimize delivery from application server farms while increasing application security with web application firewall.	Scalable, security-enhanced delivery point for global, micro service-based web applications.	Balance inbound and outbound connections and requests to your applications or server endpoints.	Distribute traffic to services across global Azure regions, while providing high availability and responsiveness.
Protocols	HTTP, HTTPS, HTTP2	HTTP, HTTPS, HTTP2	TCP, UDP	Any
Private (regional)	Yes		Yes	
Global		Yes		Yes
Env	Azure, non-Azure cloud, on premises	Azure, non-Azure cloud, on premises	Azure	Azure, non-Azure cloud, on premises
Security	WAF	WAF, NSG	NSG, NAT	

VM
VMSS

Implement a Public Load Balancer

- Maps public IP addresses and port number of incoming traffic to the VM's private IP address and port number, and vice versa
- Apply load balancing rules to distribute traffic across VMs or services

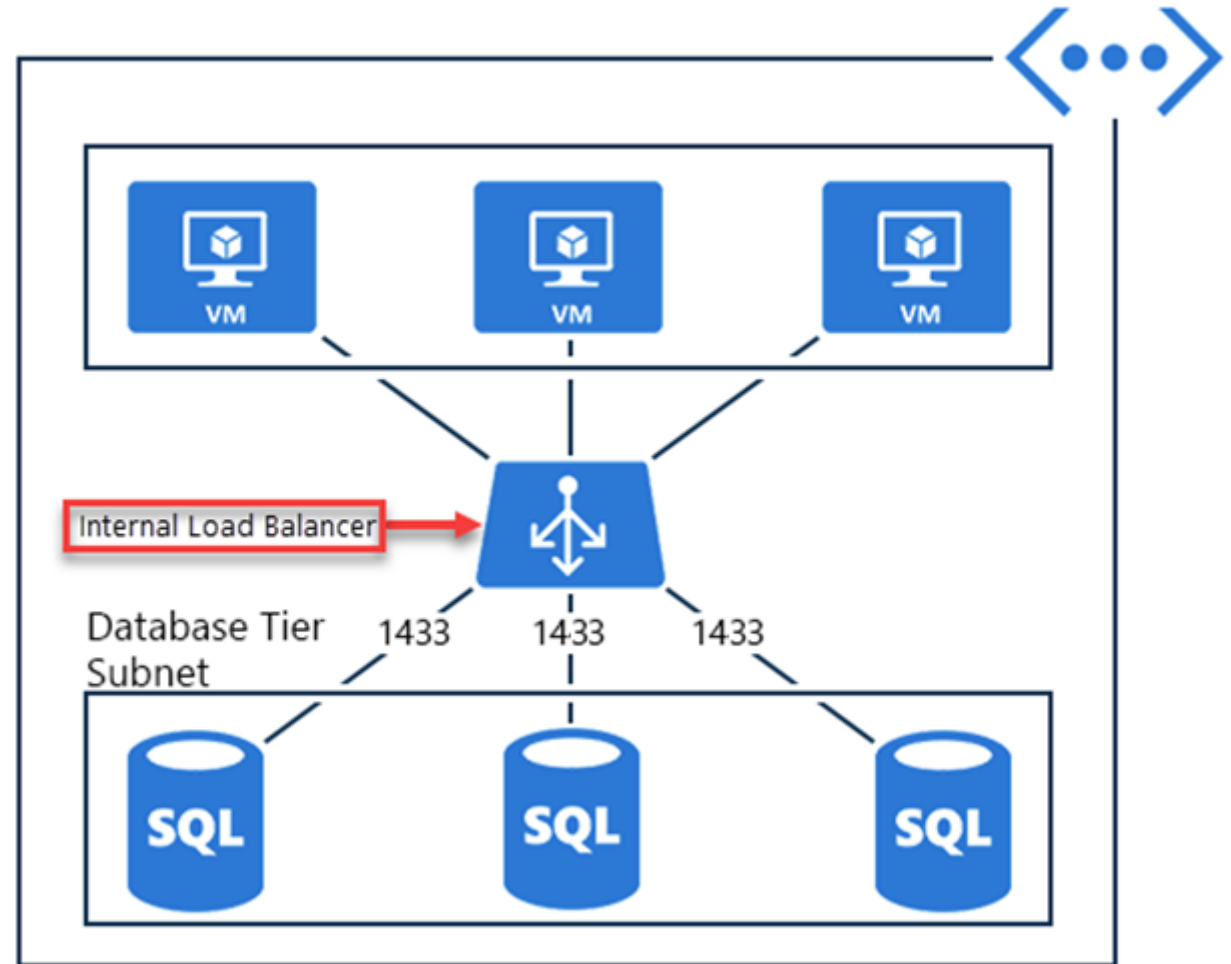


Implement an Internal Load Balancer

Directs traffic only to resources inside a virtual network or that use a VPN to access Azure infrastructure

Frontend IP addresses and virtual networks are never directly exposed to an internet endpoint

Enables load balancing within a virtual network, for cross-premises virtual networks, for multi-tier applications, and for line-of-business applications



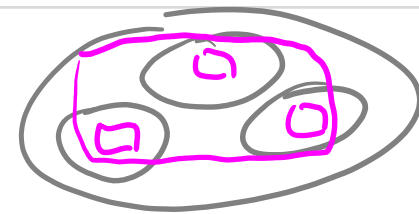
Determine Load Balancer SKUs

Free

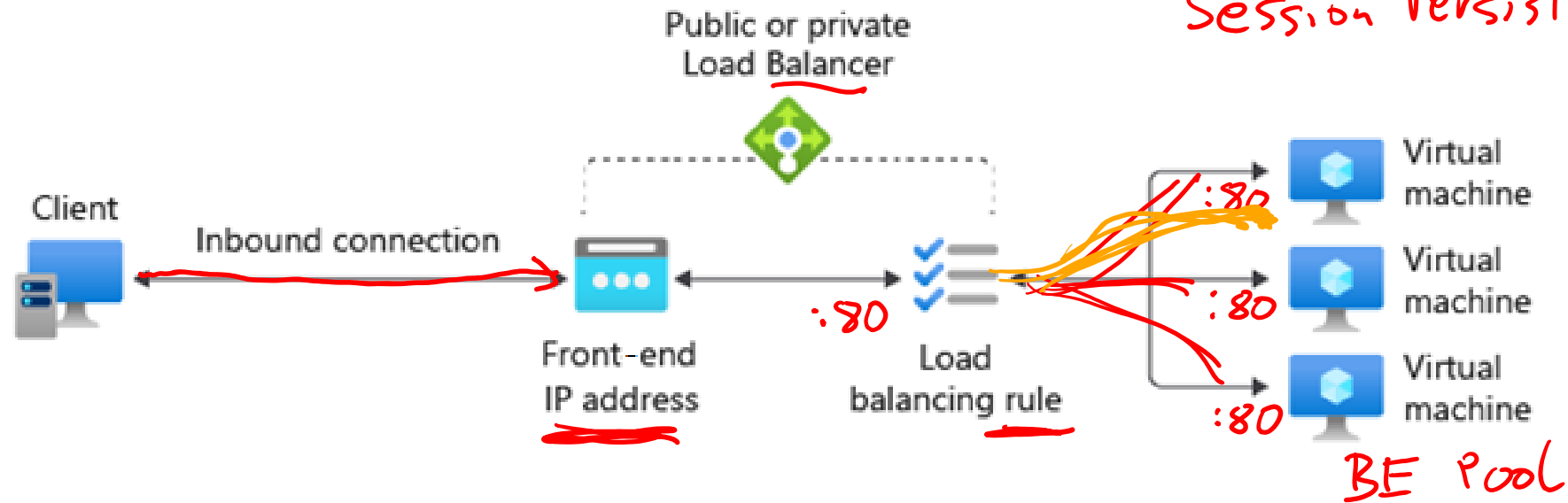


Feature	Basic SKU	Standard SKU
Backend pool size	300 IP configurations, single availability set	Up to 5000 instances
Health probes ←	TCP, HTTP ✓ ICMP	TCP, HTTP, HTTPS ✓
Availability zones	Not available	Zone-redundant and zonal frontends for inbound and outbound traffic
Multiple frontends	Inbound only	Inbound and outbound
Secure by default	By default, open to the internet	Closed to inbound connections unless opened by NSGs
SLA	Not available /	99.99%

Avail zones



Create load balancer rules



Maps a frontend IP and port combination to a set of backend pool and port combination

Rules can be combined with NAT rules

A NAT rule is explicitly attached to a VM (or network interface) to complete the path to the target

Configure Azure Application Gateway

Region

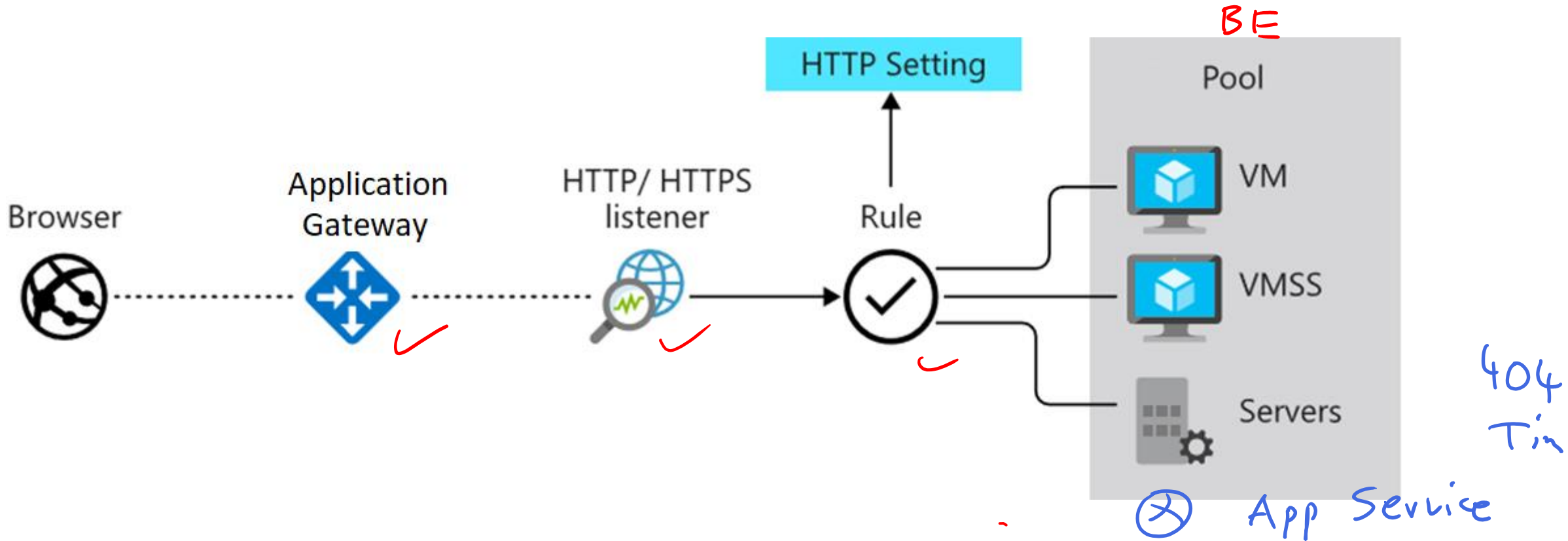
Order

Front Door

Global
CDN



Implement Application Gateway



Manages web app requests

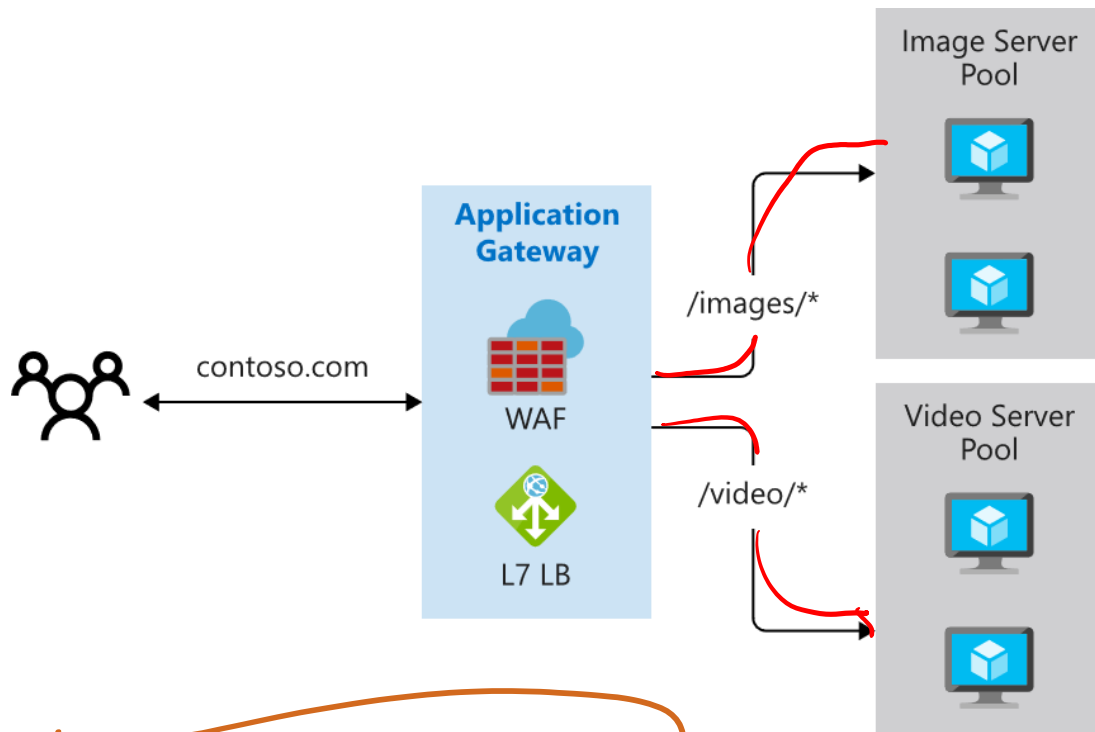
Routes traffic to a pool of web servers based on the URL of a request

The web servers can be Azure virtual machines, Azure virtual machine scale sets, Azure App Service, and even on-premises servers

Determine Application Gateway Routing

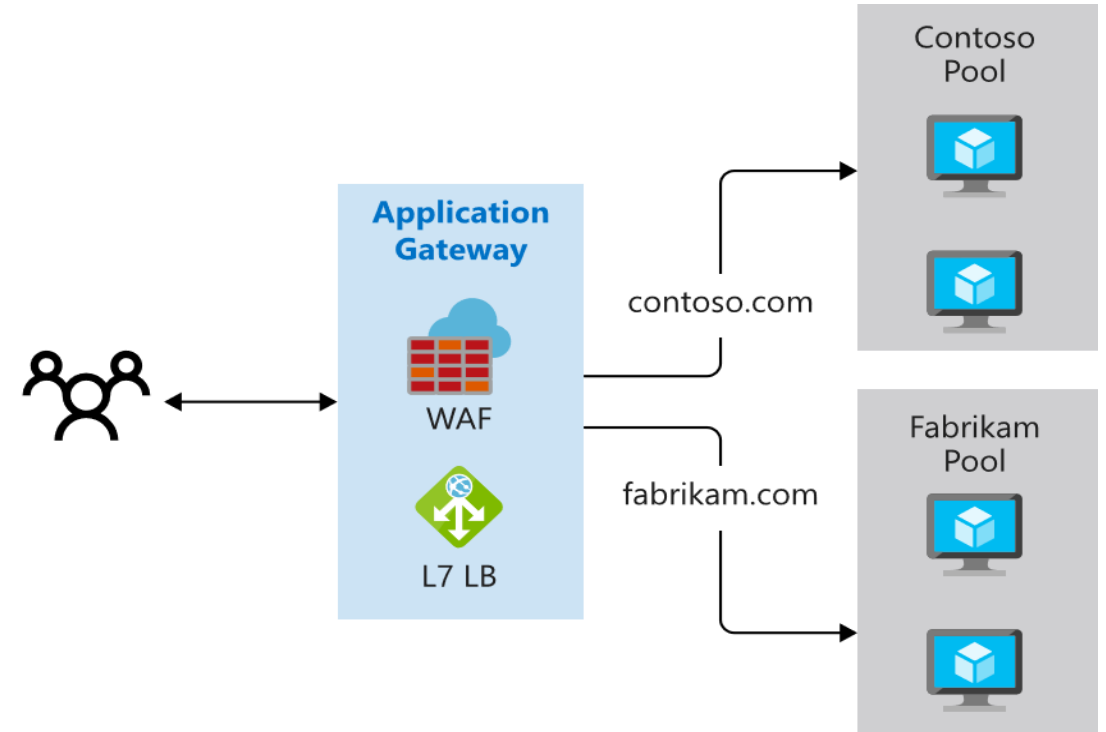
+ URL Rewriting

Path-based routing



AZ-700

Multiple-site routing



2024 Regex
URL
...

Traffic Manager

https://contoso.com

URL

TM Profile

contoso.com

@ CNAME tm
tm A

App 1

App 2

App 3

App 1
2
3

50
Asia

50
Europe

5
America

20ms

100ms

10ms

Configure Network Watcher

Geo

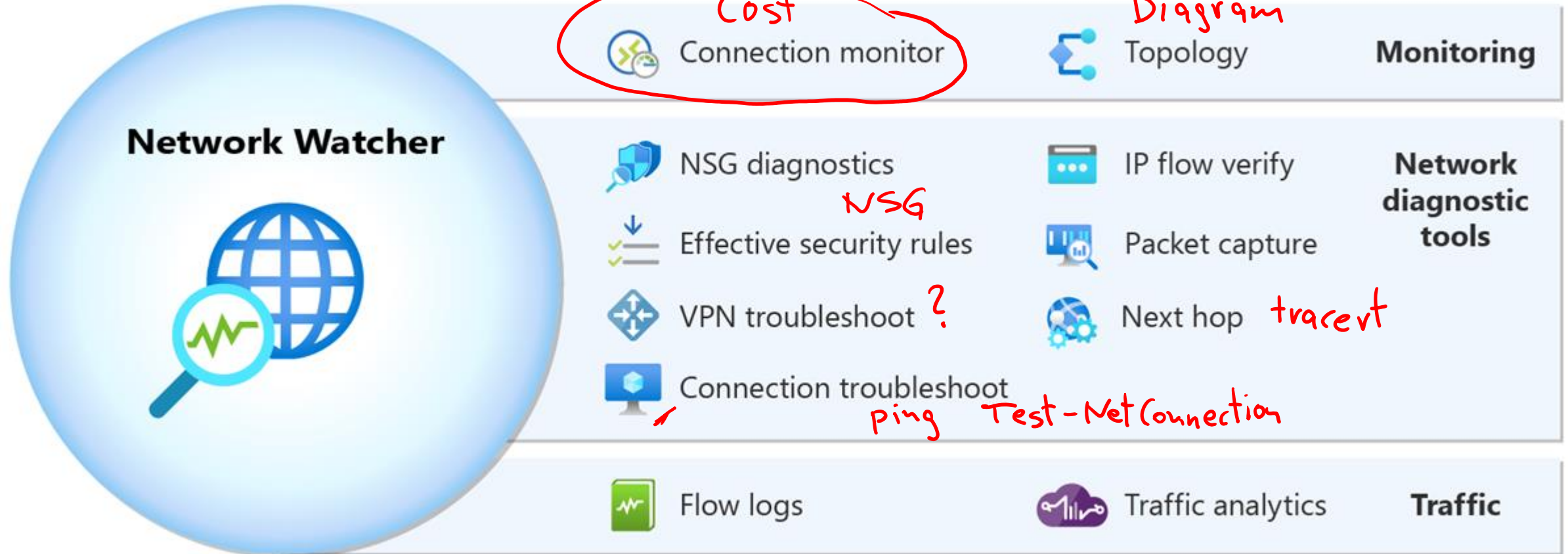
TM profile 1


Prio

tm 2

Describe Network Watcher Features

A regional service with various network diagnostics



Network Watcher Agent →  vh

Review IP Flow Verify Diagnostics

Checks if a packet is allowed or denied to or from a virtual machine

Network diagnostic tools

- IP flow verify
- Next hop
- Effective security rules
- VPN troubleshoot
- Packet capture
- Connection troubleshoot

Metrics

- Usage + quotas

Logs

- NSG flow logs
- Diagnostic logs
- Traffic Analytics

Packet details

Protocol

☒ TCP ☐ UDP

Direction

☒ Inbound ☐ Outbound

Local IP address * ⓘ

10.1.1.4

Local port * ⓘ

3389

Remote IP address * ⓘ

13.24.35.46

Remote port * ⓘ

3389

Check

✖ Access denied

Security rule
DenyAllInBound

Review Next Hop Diagnostics

Helps with determining whether traffic is being directed to the intended destination by showing the next hop

Subscription * ⓘ

MSDN Platforms Subscription

Resource group * ⓘ

Demo

Virtual machine * ⓘ

vm01

Network interface *

vm01165

Source IP address * ⓘ

10.1.1.4

Destination IP address * ⓘ

13.24.35.46

Next hop

Result


Next hop type

None

IP address

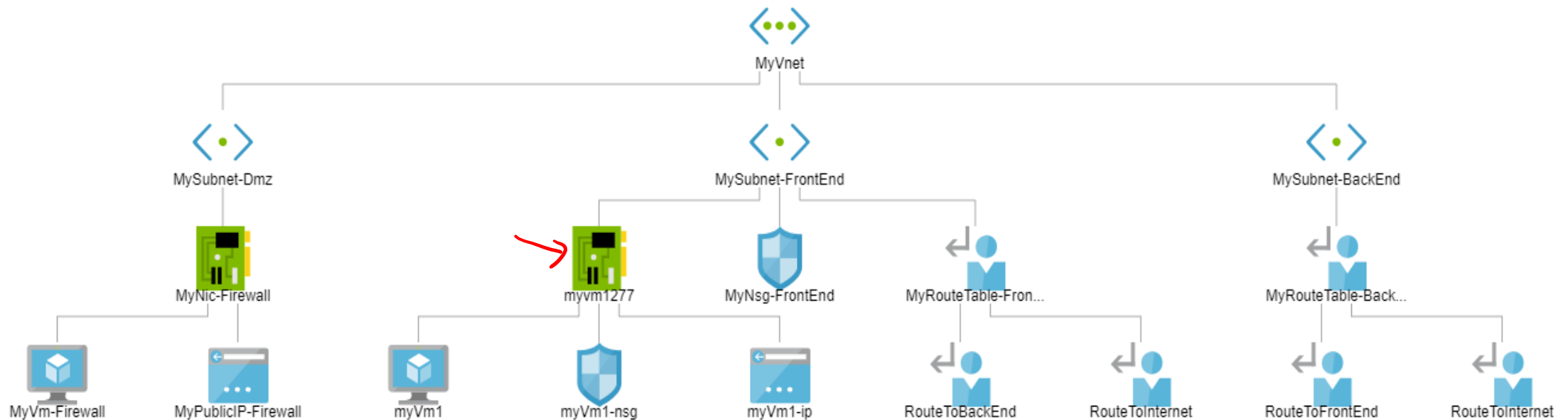
10.1.1.100

Route table ID

/subscriptions/2301e3a0-8420-... 

Visualize the Network Topology

Diagram



Provides a visual representation of your networking elements

View all the resources in a virtual network, resource to resource associations, and relationships between the resources

The Network Watcher instance in the same region as the virtual network

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Lab – Implement Traffic Management



Lab 06 – Implement traffic management



You are tasked with implementing a hub spoke topology for network traffic. The topology should include an Azure Load Balancer and Azure Application Gateway.

Objectives

Task 1: Provision the lab environment

Task 2: Configure the hub and spoke network topology

Task 3: Test transitivity of virtual network peering

Task 4: Configure routing in the hub and spoke topology

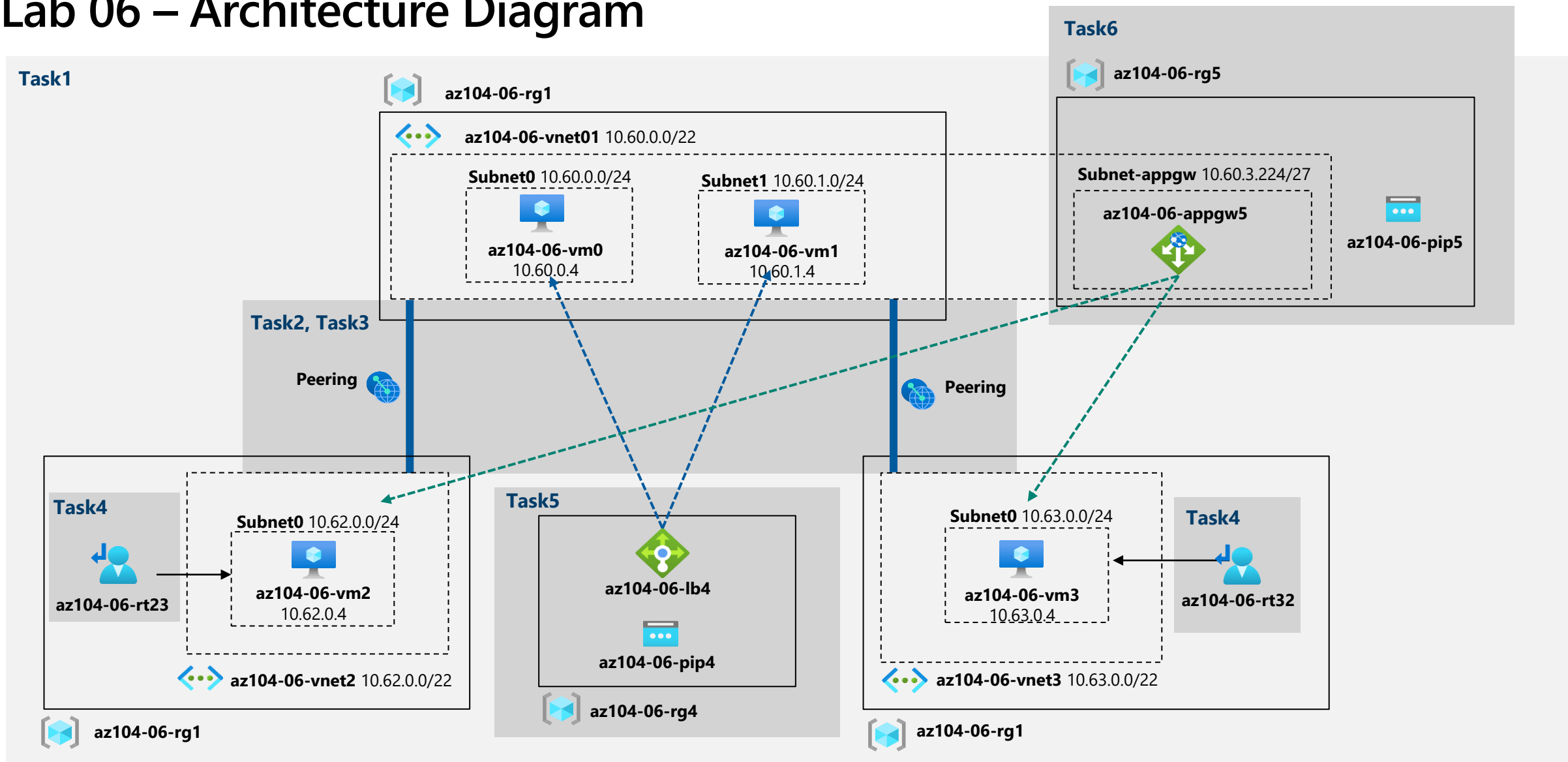
Task 5: Implement Azure Load Balancer ←

Task 6: Implement Azure Application Gateway ←

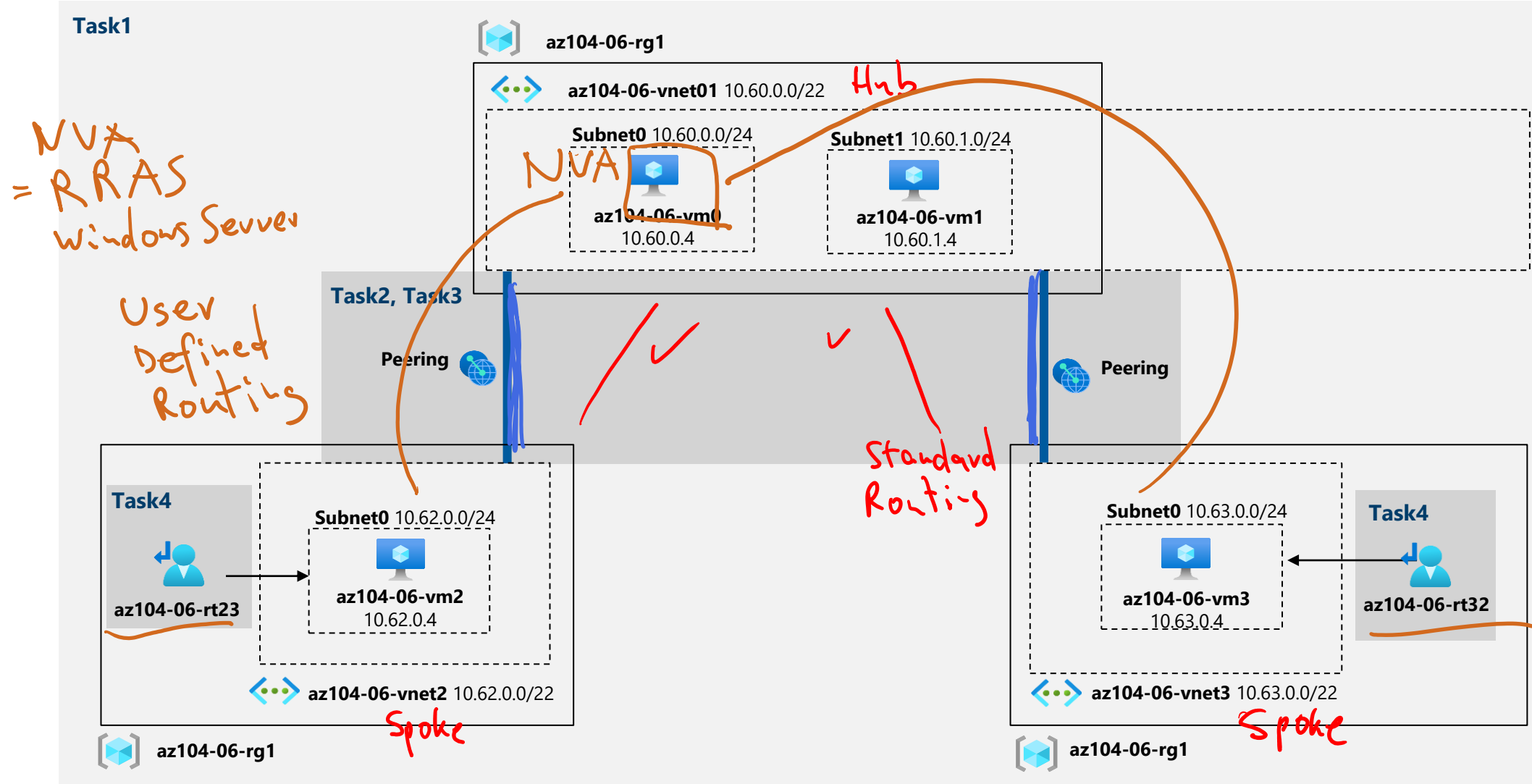


Next slide for an architecture diagram →

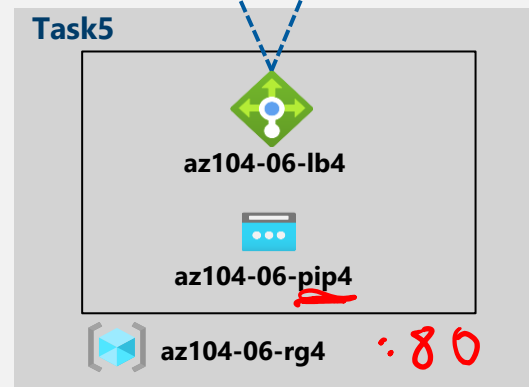
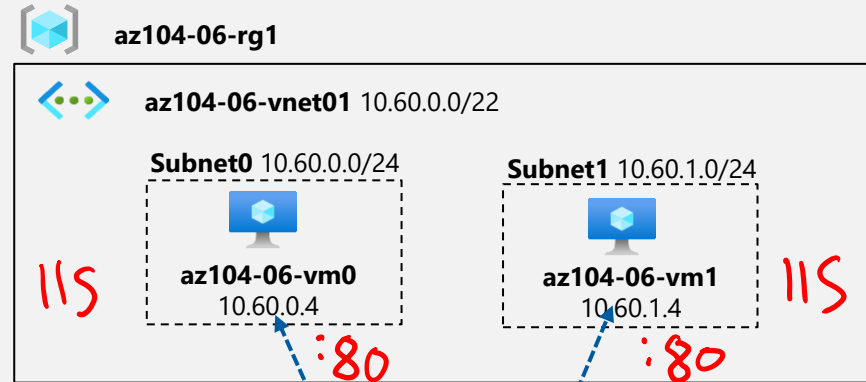
Lab 06 – Architecture Diagram



Lab 06 – Architecture Diagram



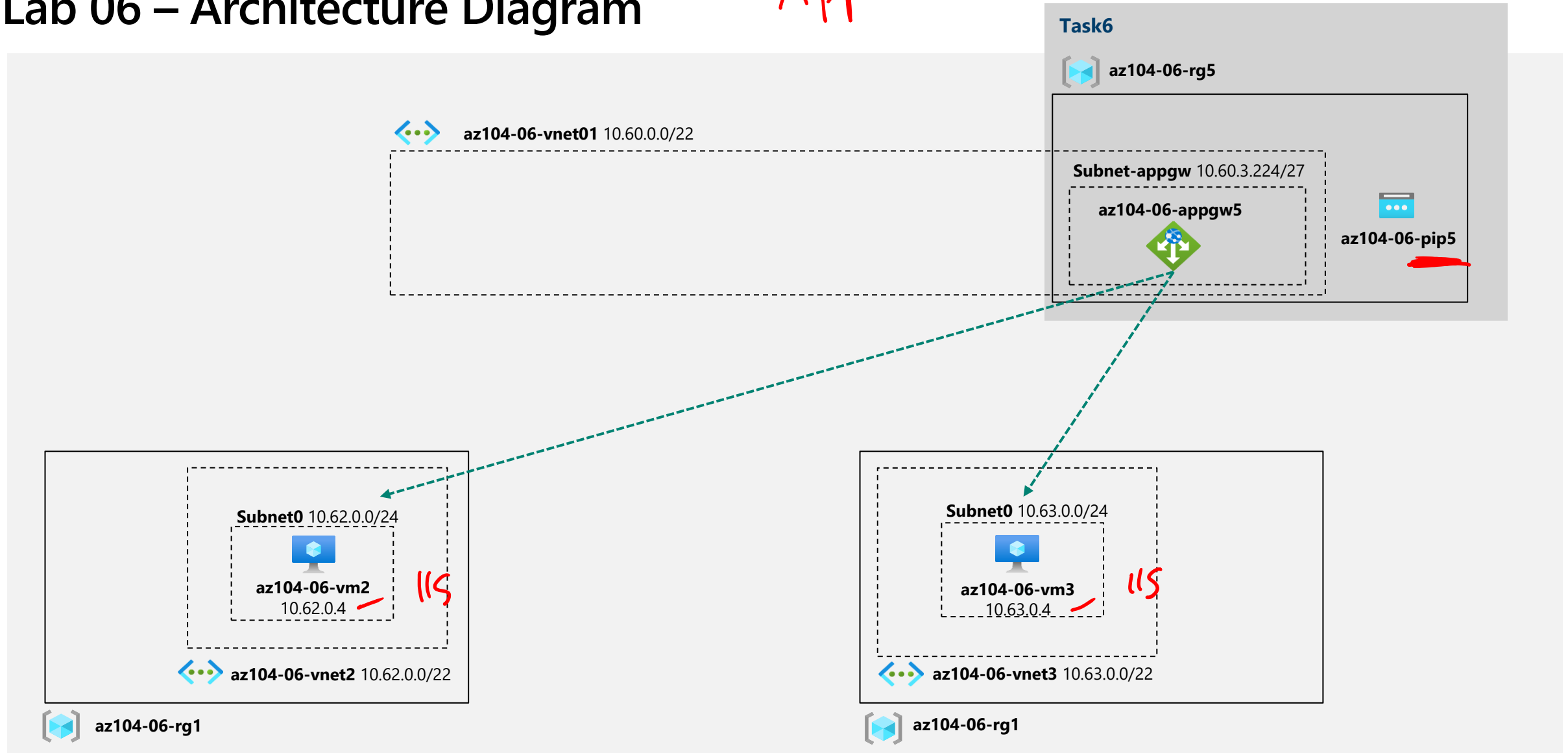
Lab 06 – Architecture Diagram



Standard
Load Balancer

Lab 06 – Architecture Diagram

App GW



End of presentation

