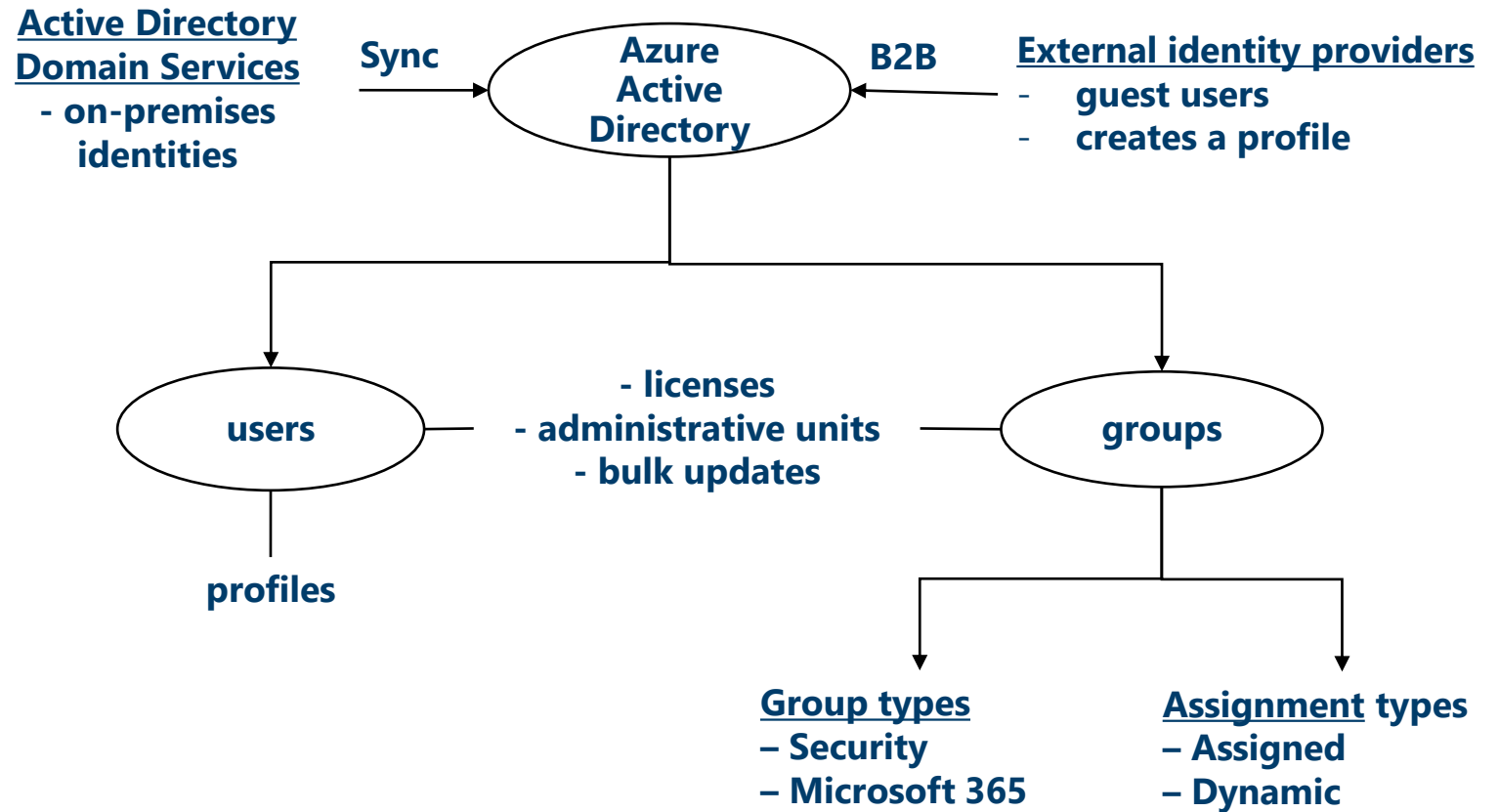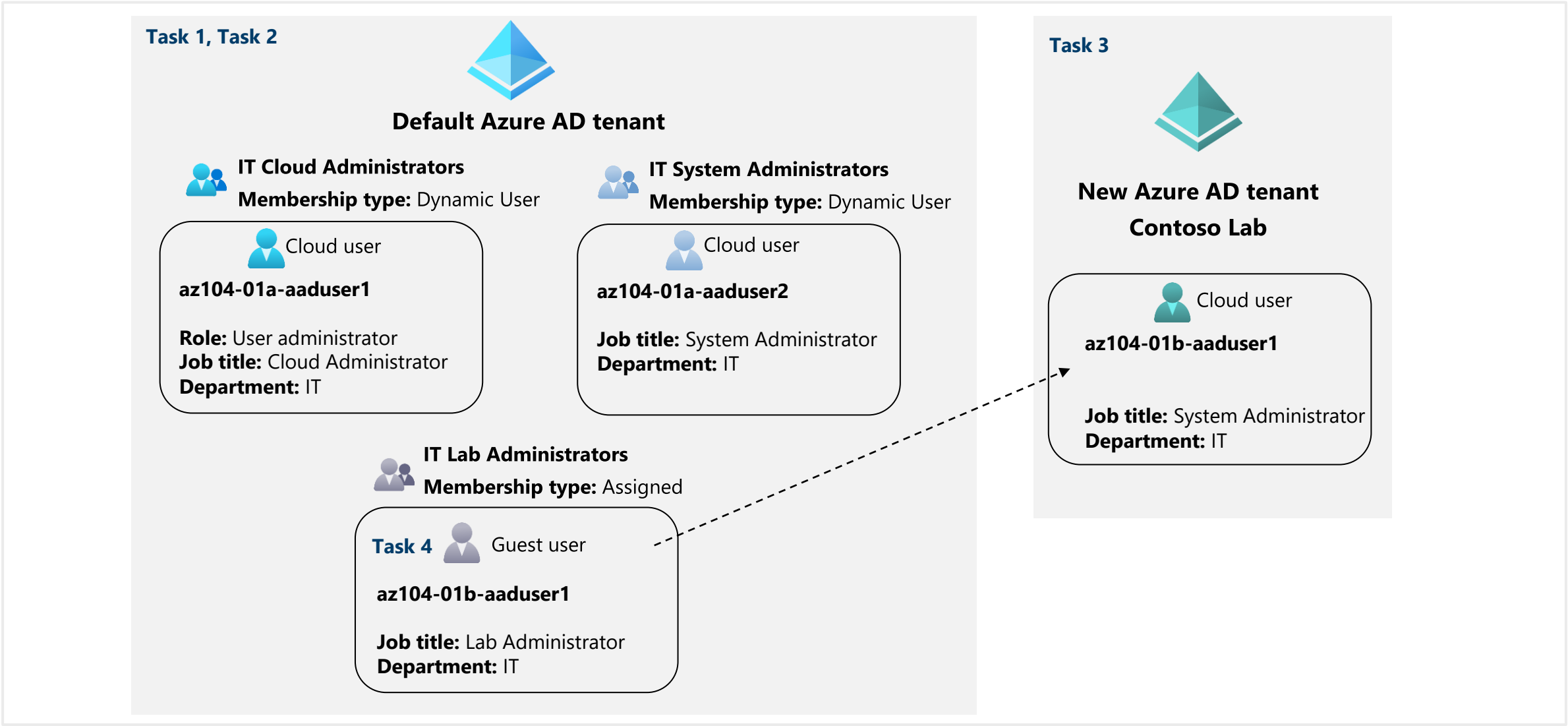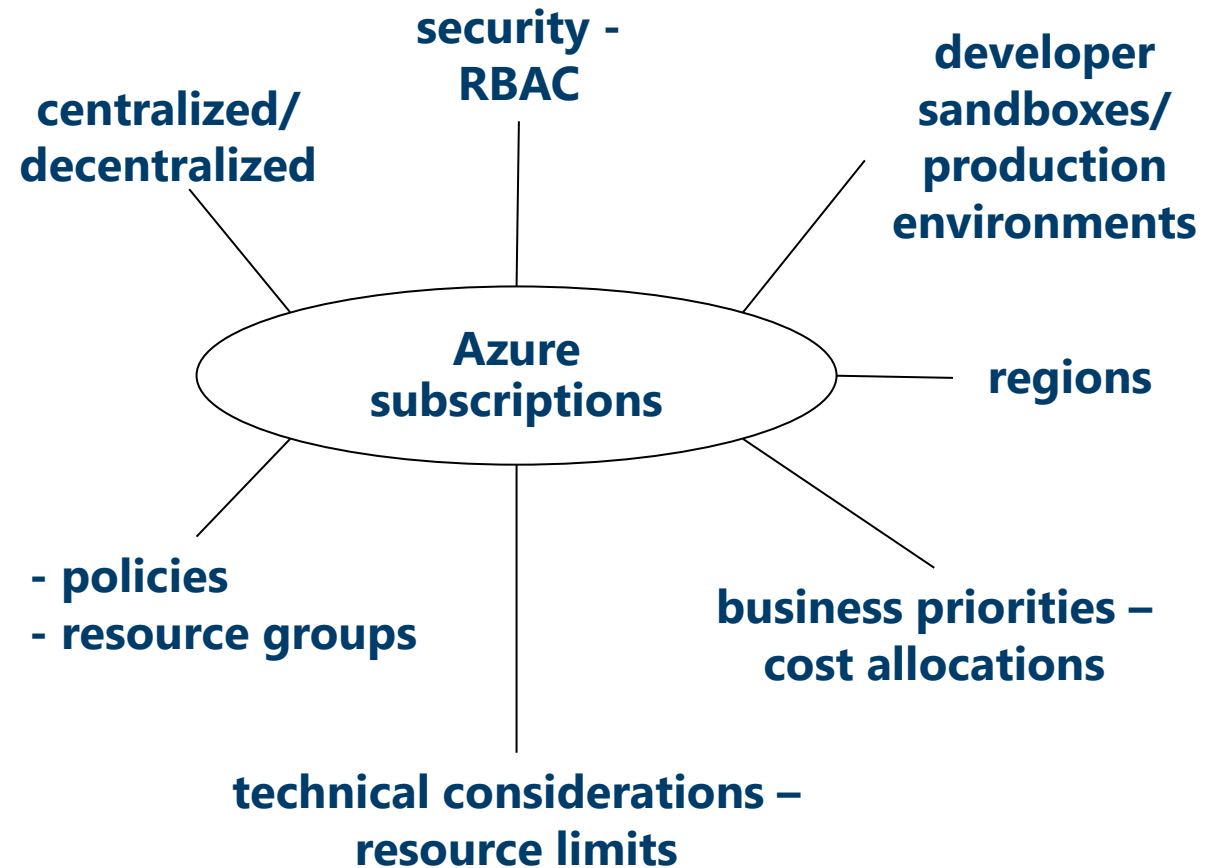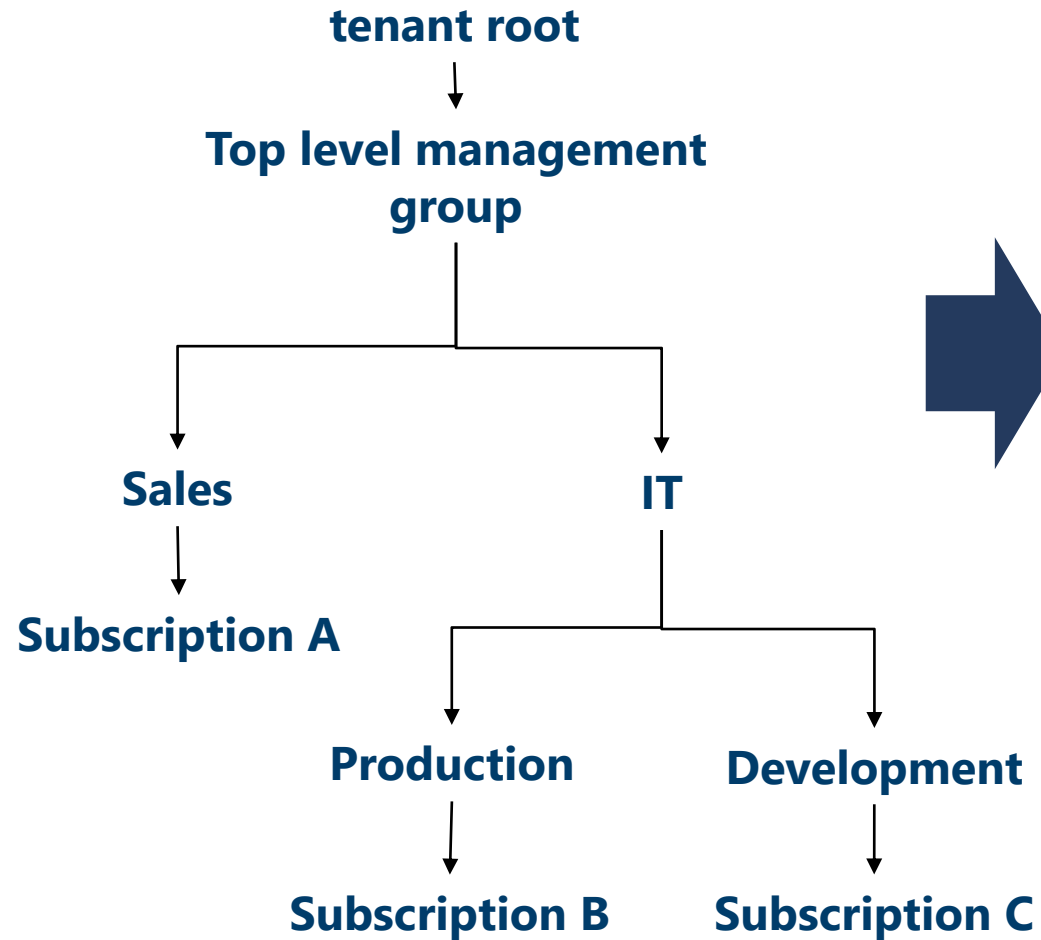# Administer Identity

- Describe identity and accounts (users and groups). How are these different?

- How is Azure Active Directory different from Azure Active Directory Domain Services?

- List three features of a user account and two ways a user can be assigned to group.

Active Directory Domain Services
- on-premises identities

Sync →

Azure Active Directory

B2B

External identity providers
- guest users
- creates a profile

users

- licenses
- administrative units
- bulk updates

groups

profiles

Group types
– Security
– Microsoft 365
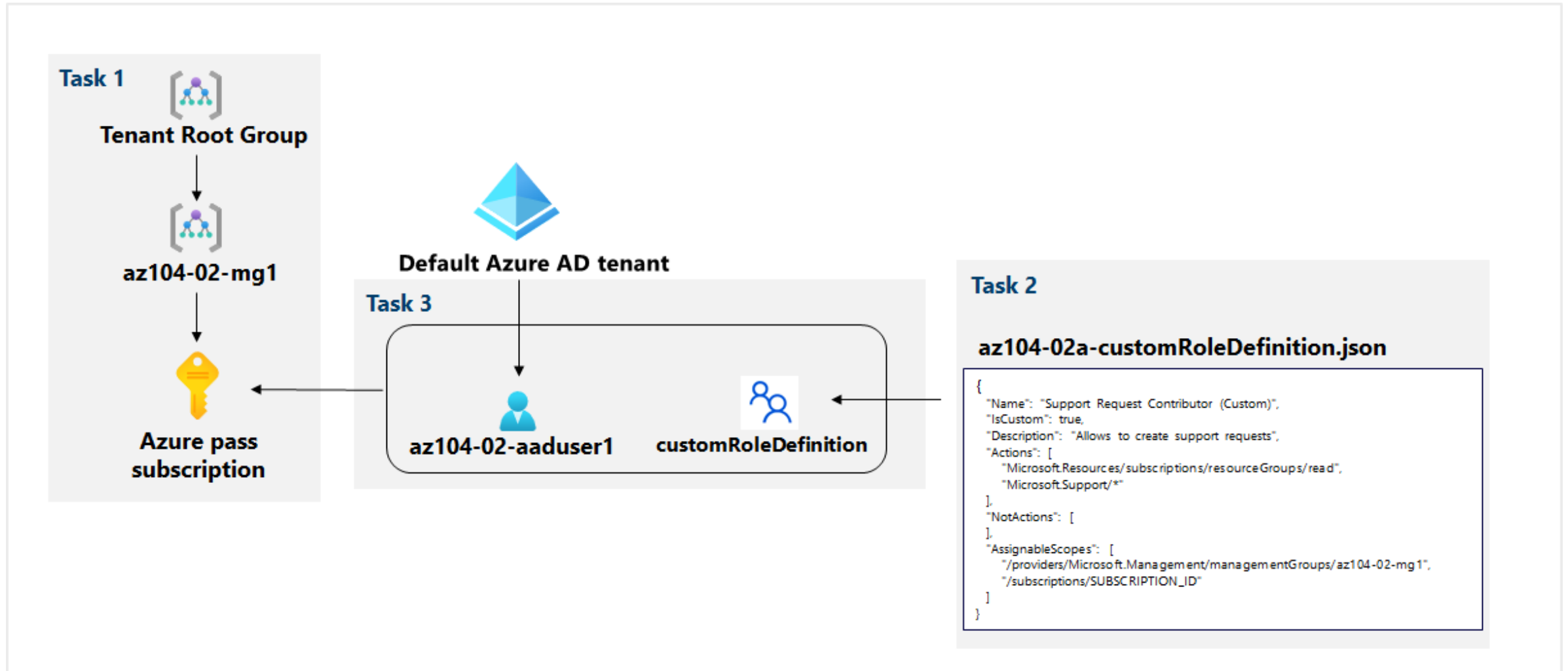
Assignment types
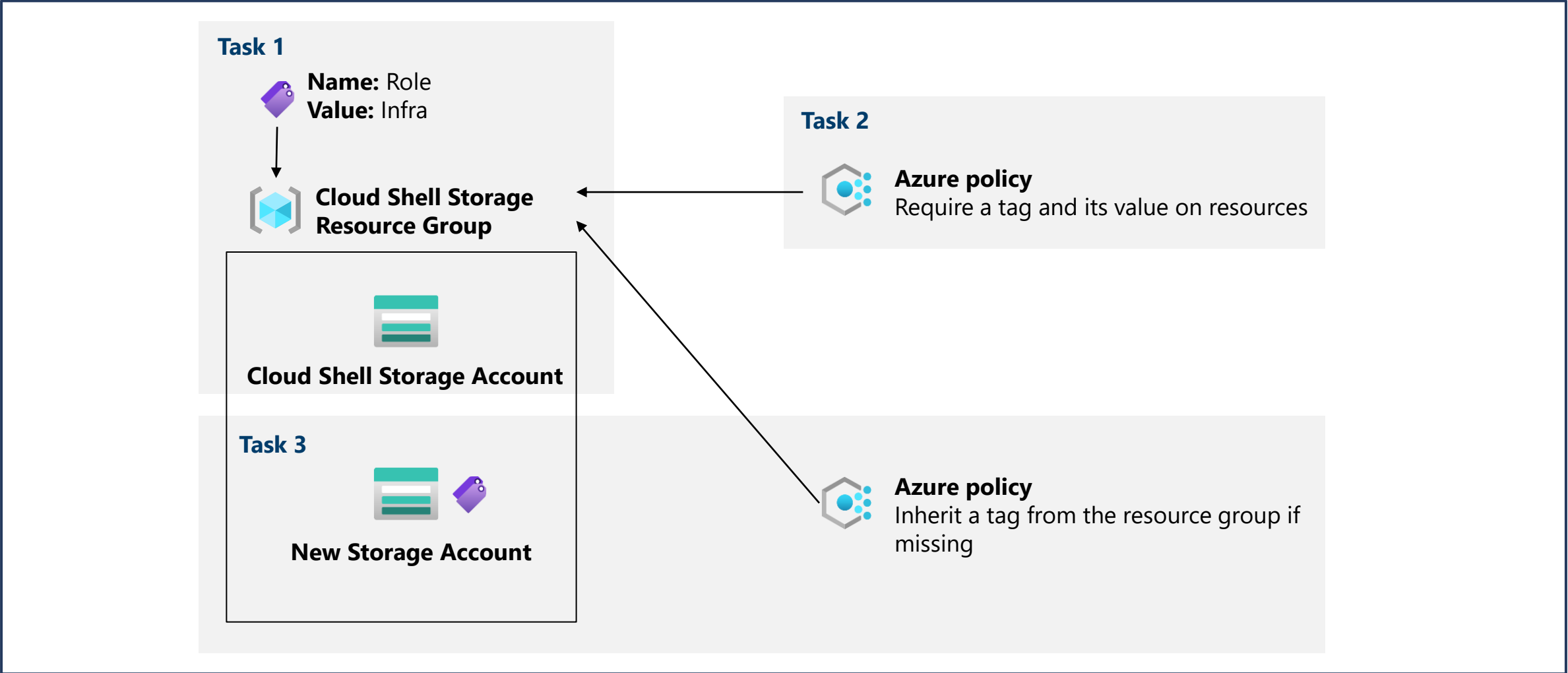– Assigned
– Dynamic

Lab 01 – Architecture diagram

Administer Governance and Compliance

Lab 02a – Architecture diagram

Lab 02b – Architecture diagram

Task 1

Name: Role
Value: Infra

Cloud Shell Storage Resource Group

Cloud Shell Storage Account

Task 3

New Storage Account

Task 2

Azure policy
Require a tag and its value on resources

Azure policy
Inherit a tag from the resource group if missing

Administrator Resources

Storage
- Storage Explorer
- Data Box
- Import/Export service
- AzCopy

Daily management
- Azure portal
- Azure Resource Manager templates
- Azure policy
- Azure backup
- Bicep
- Cloud Shell
- CLI
- PowerShell

Administrator tools

Networks
- Network Watcher

Virtual machines
- Azure Backup
- Bastion
- RDP
- SSH

App Services
- Application Insights
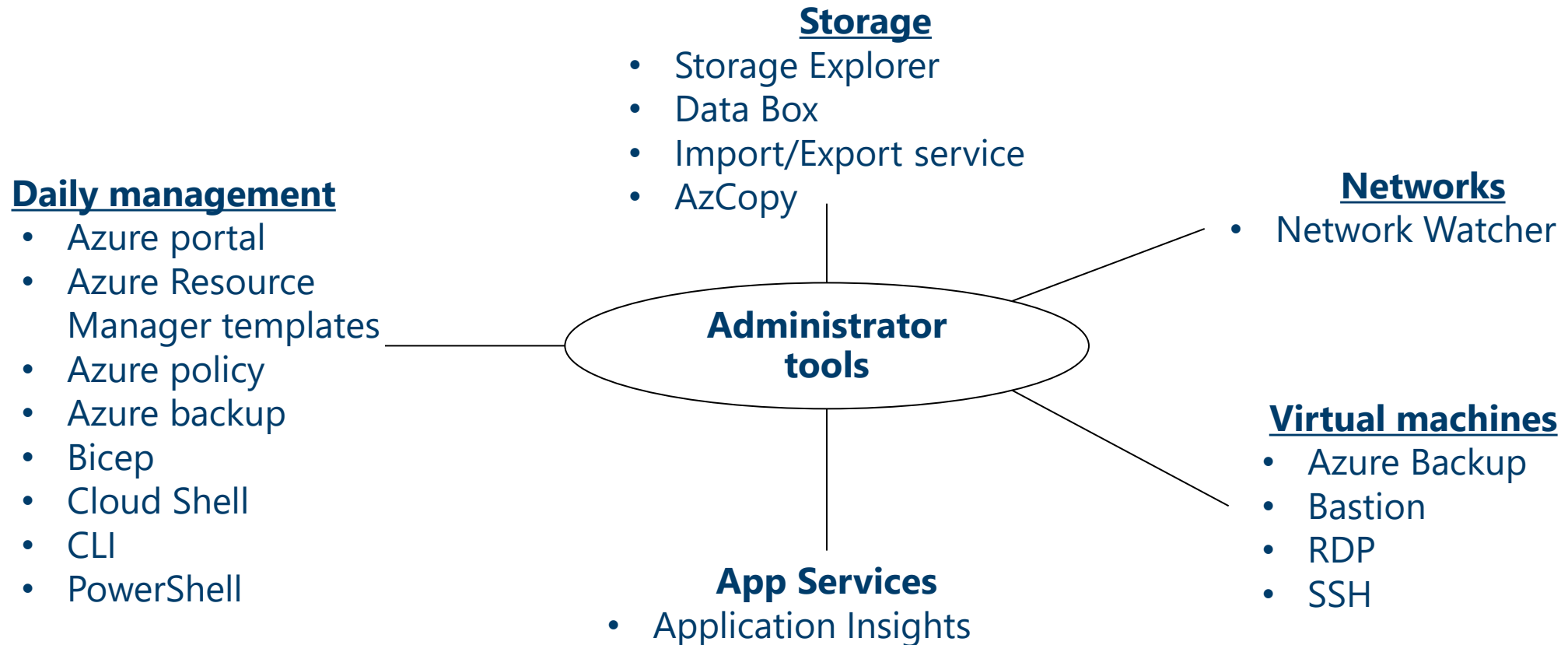
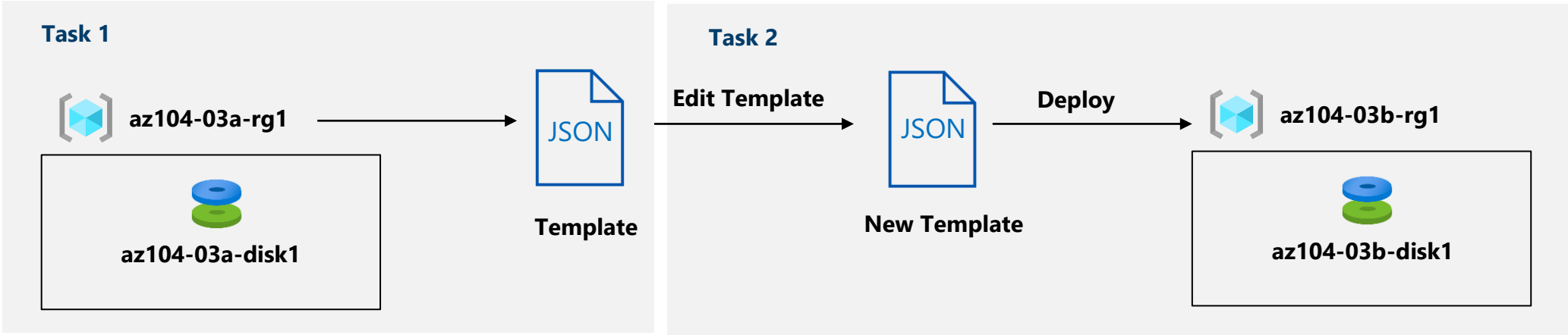# Lab 03a – Architecture diagram
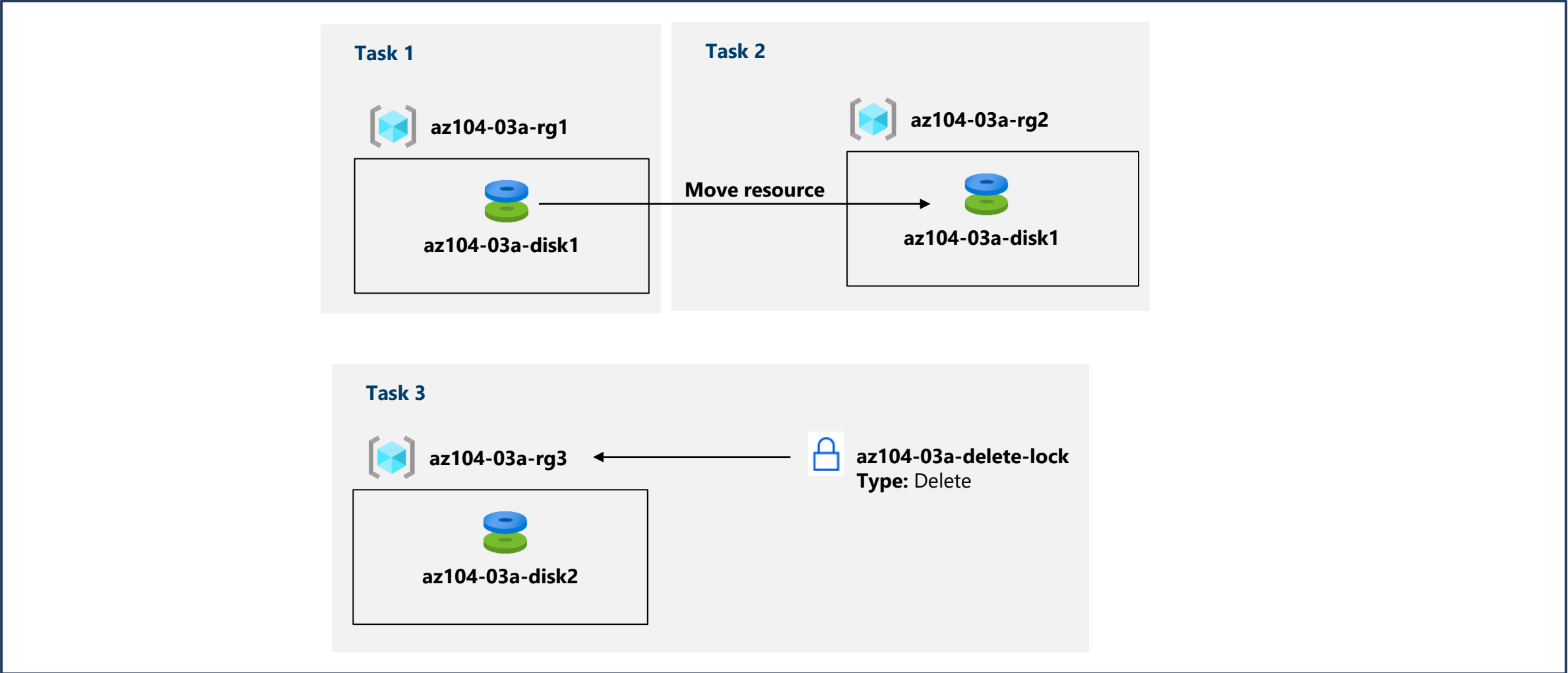
Lab 03b – Architecture diagram

Lab 03c – Architecture diagram

Task 1, Task 2, Task 3

az104-03c-rg1

az104-03c-disk1

Administer Virtual Networking

Connectivity
- On-premises
- Other virtual networks

Endpoints
- Service
- Private

Subnets

virtual networks

Traffic routing
- NSGs
- ASGs
- Azure Firewall

DNS
- zones
- custom names

IP addressing
- public
- private
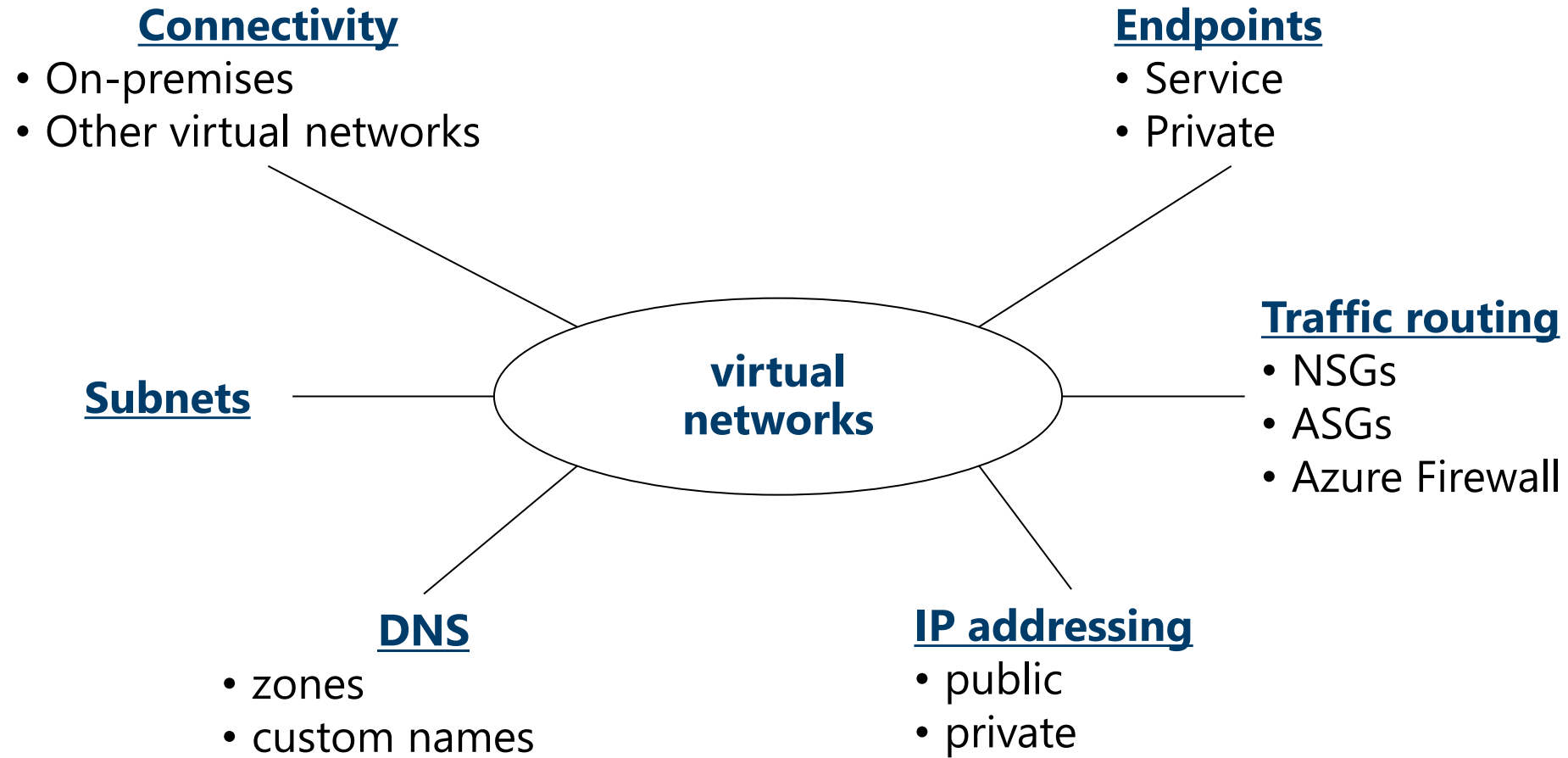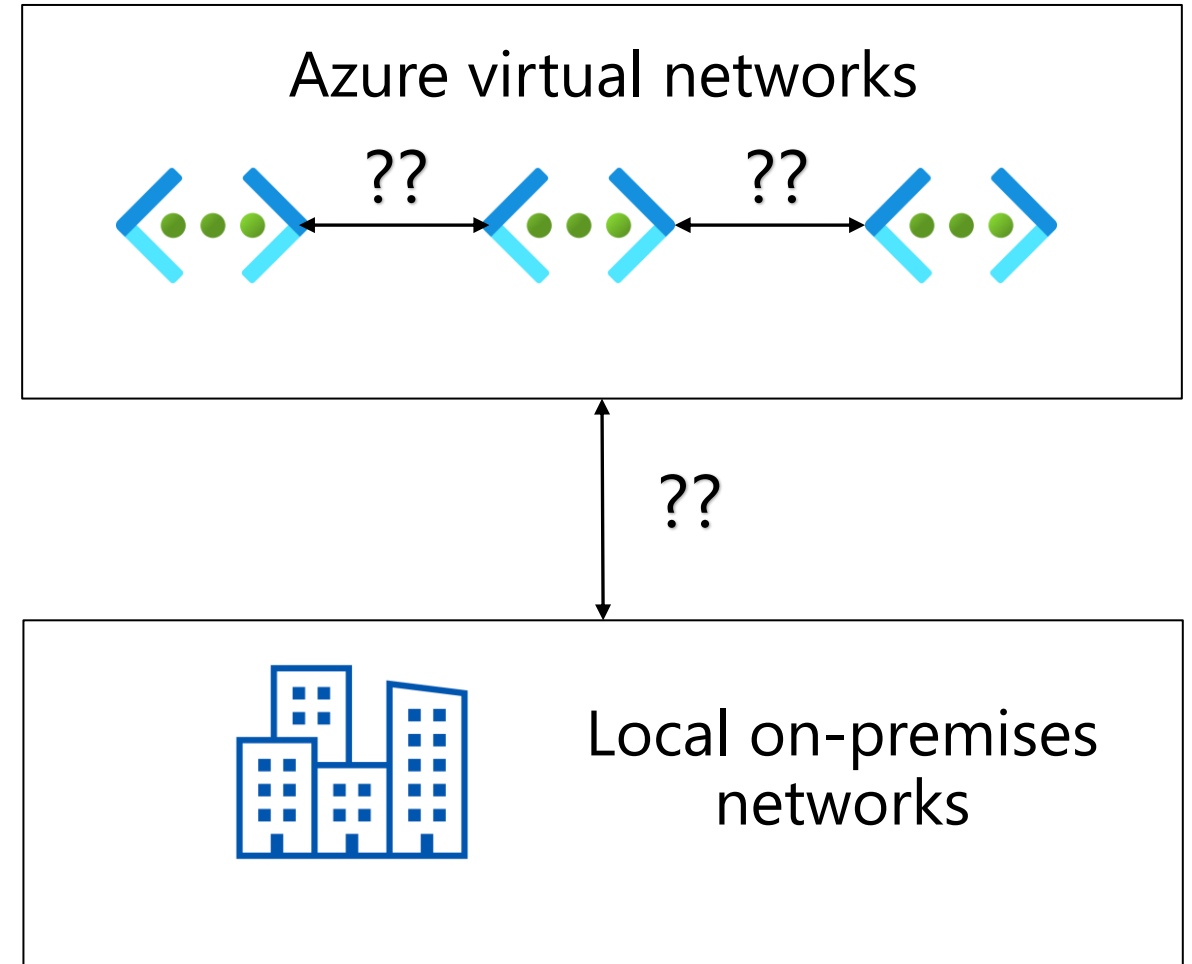
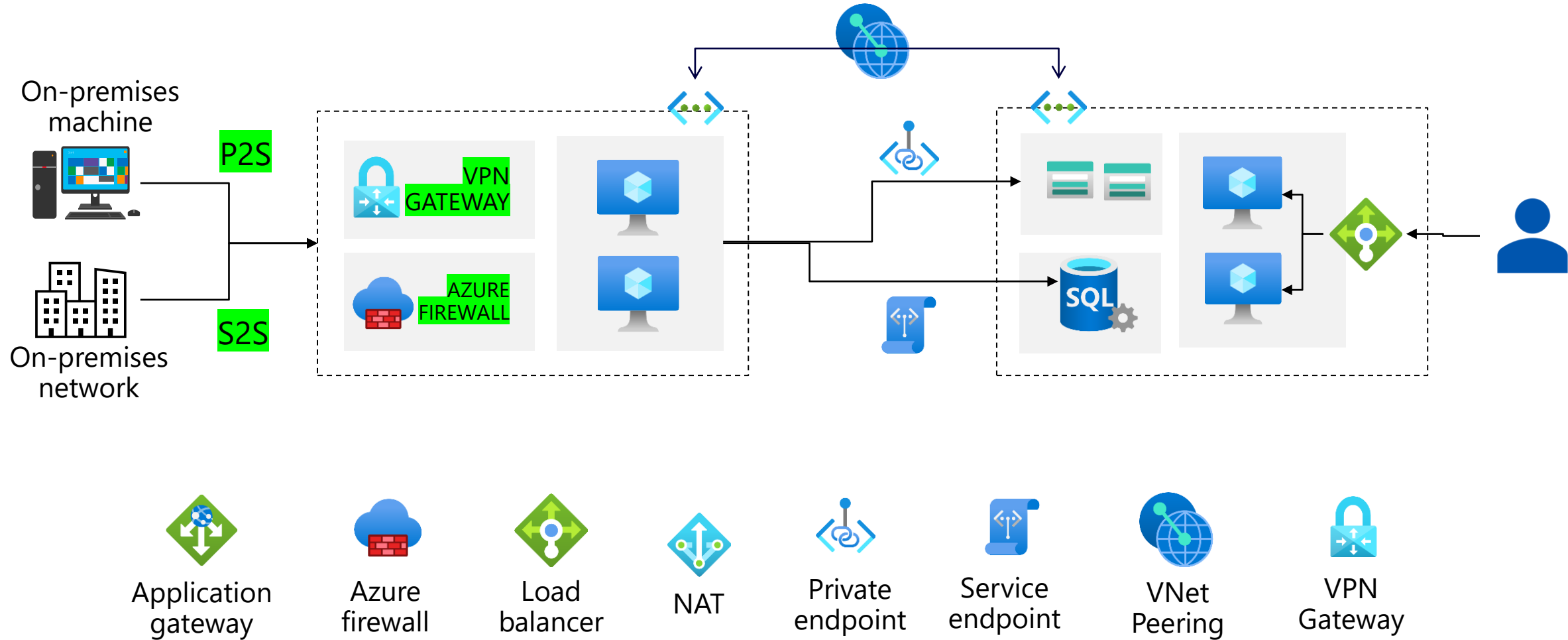# Lab 04 – Architecture diagram
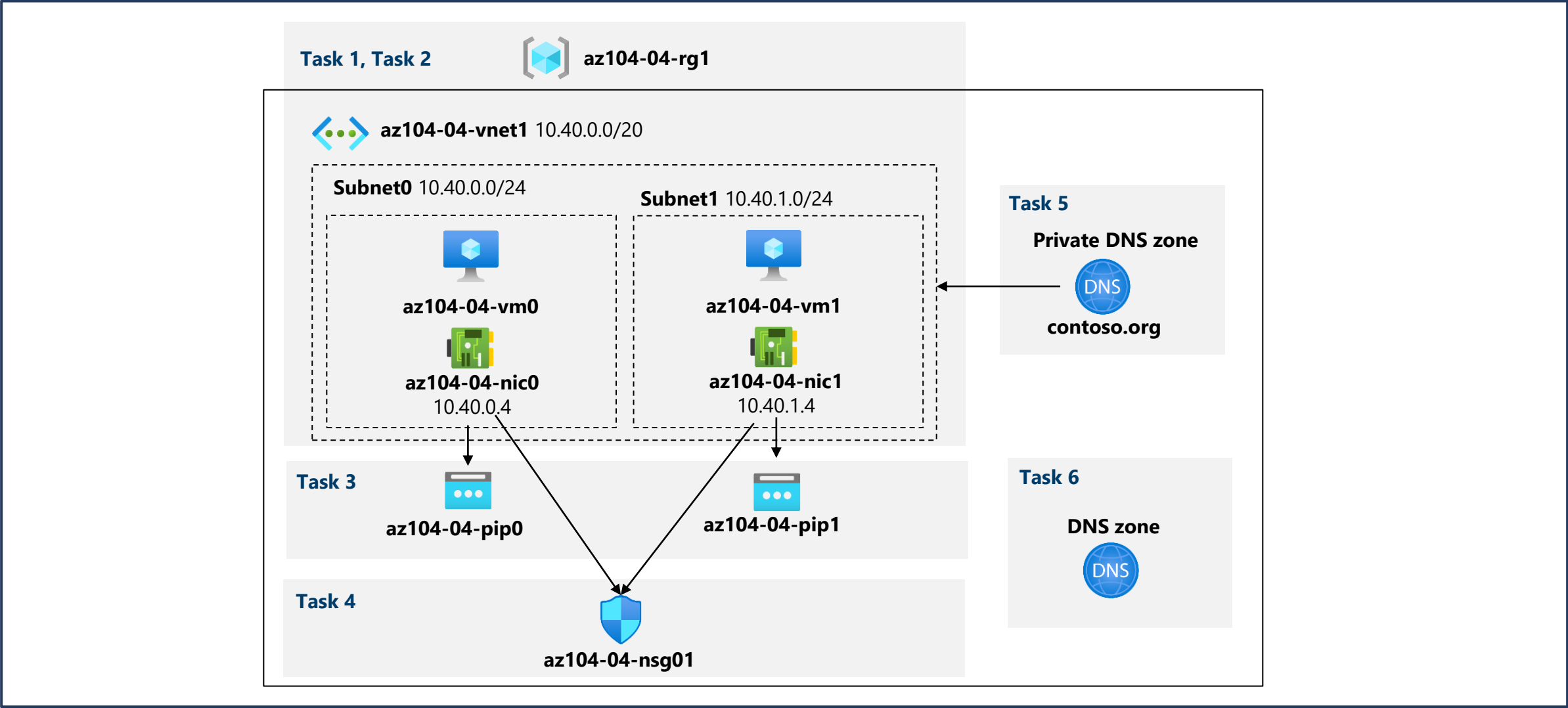
Administer Intersite Connectivity

- What is virtual network peering? Advantages?

- What is the difference between system-defined routes and user-defined routes?

- What is the difference between a service endpoint and a private endpoint?

Azure virtual networks

??   ??

??

Local on-premises networks

Module Review Activity

On-premises machine

On-premises network

P2S

S2S

VPN GATEWAY

AZURE FIREWALL

SQL

Application gateway

Azure firewall

Load balancer

NAT

Private endpoint

Service endpoint

VNet Peering

VPN Gateway

Lab 05 – Architecture diagram
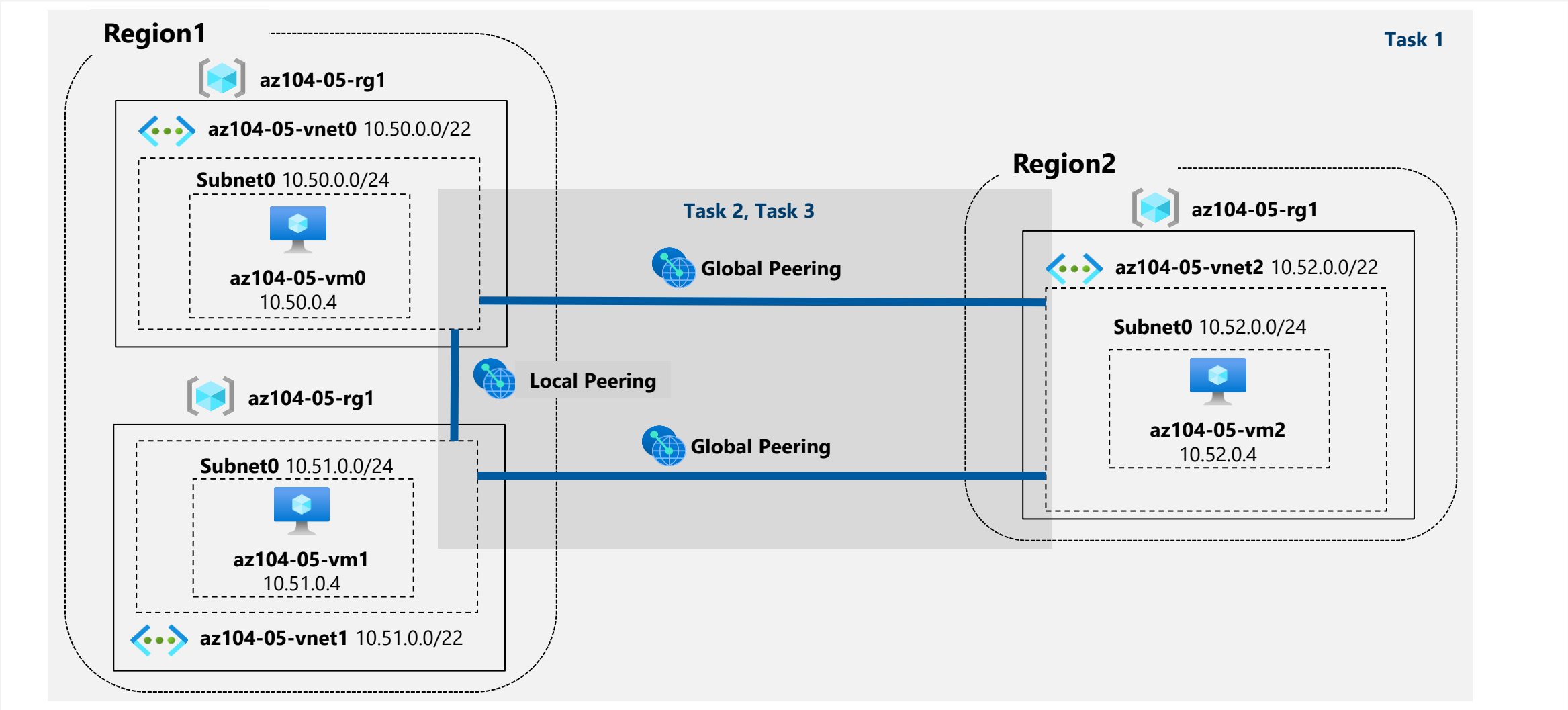
Administer Network traffic

- What is a load balancer and when should it be used?

- What are the four types of Azure load balancers? Describe the differences.

Summary of your business needs

Does your application use HTTP/HTTPS? No

Is your application public (internet facing)? No

We recommend this service

With Load Balancer, you can scale your applications and create highly available services. Load balancer supports both inbound and outbound scenarios. Load balancer provides low latency and high throughput, and scales up to millions of flows for all TCP and UDP applications.

Load Balancer
- Layer 4 load balancing
- Internal and public configurations
- High availability across zones

Summary of your business needs

Does your application use HTTP/HTTPS? Yes

Is your application public (internet facing)? Yes

Is your application deployed in multiple regions? No

We recommend this service

Application Gateway is a layer 7 regional load balancer, which means it works only with web traffic (HTTP, HTTPS, WebSocket, and HTTP/2). It supports capabilities such as WAF, TLS termination, cookie-based session affinity, and round robin for load-balancing traffic.

Application Gateway
- Internal and public configurations
- Regional layer 7 load balancer
- SSL/TLS offloading

The portal provides a *Help me Choose* questionnaire

Lab 06 – Architecture Diagram

Task6

az104-06-rg5

Task1

az104-06-rg1

az104-06-vnet01 10.60.0.0/22

Subnet0 10.60.0.0/24

az104-06-vm0
10.60.0.4

Subnet1 10.60.1.0/24

az104-06-vm1
10.60.1.4

Subnet-appgw 10.60.3.224/27

az104-06-appgw5

az104-06-pip5

Task2, Task3

Peering

Peering

Task4

Subnet0 10.62.0.0/24

az104-06-rt23

az104-06-vm2
10.62.0.4

az104-06-vnet2 10.62.0.0/22

az104-06-rg1

Task5

az104-06-lb4

az104-06-pip4

az104-06-rg4

Task4

Subnet0 10.63.0.0/24

az104-06-vm3
10.63.0.4

az104-06-rt32

az104-06-vnet3 10.63.0.0/22

az104-06-rg1

Storage Accounts and Blobs

Redundancy
- LRS/ZRS
- GRS/GZRS
- RA-GRS/RA-GZRS

Account types
- Standard general purpose v2
- Premium block blobs
- Premium file shares
- Premium page blobs

Authentication/authorization
- Storage endpoints
- Private vs anonymous
- Storage account keys
- Shared access signatures

Non-relational storage (storage accounts and blobs)

Data protection
- Soft delete
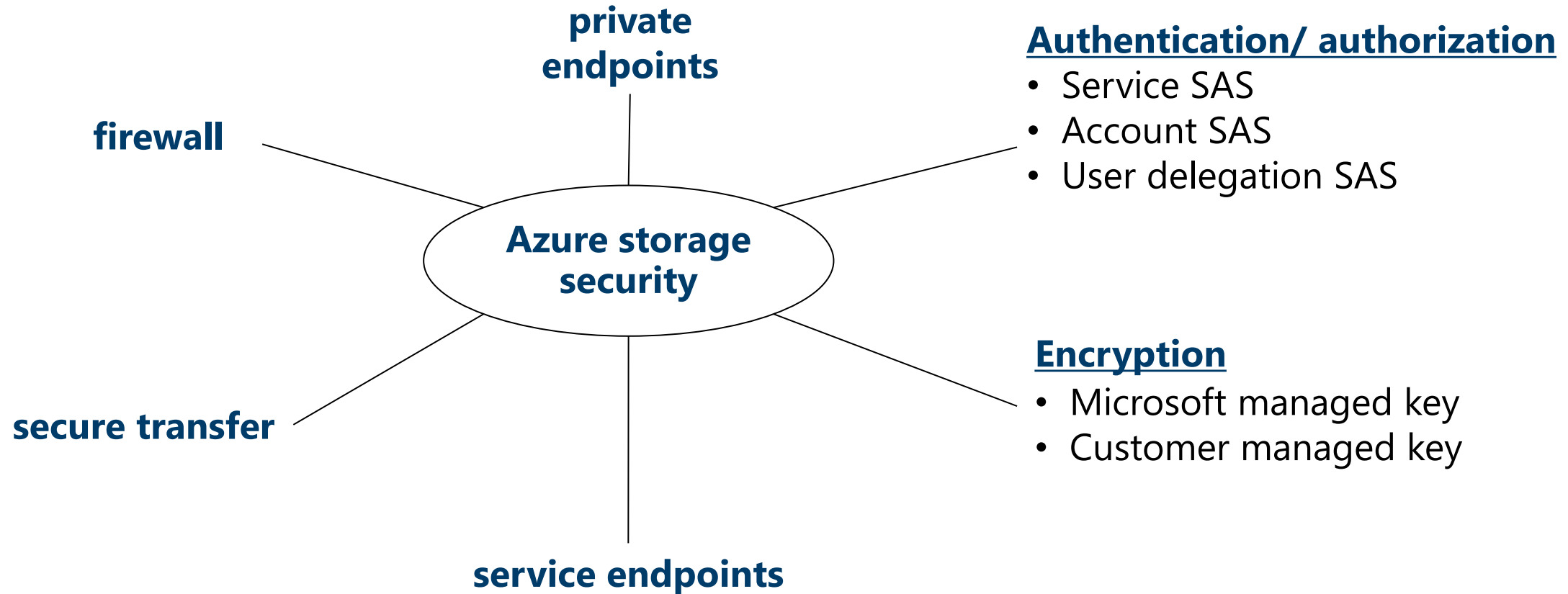- Blob versioning
- Point in time restore

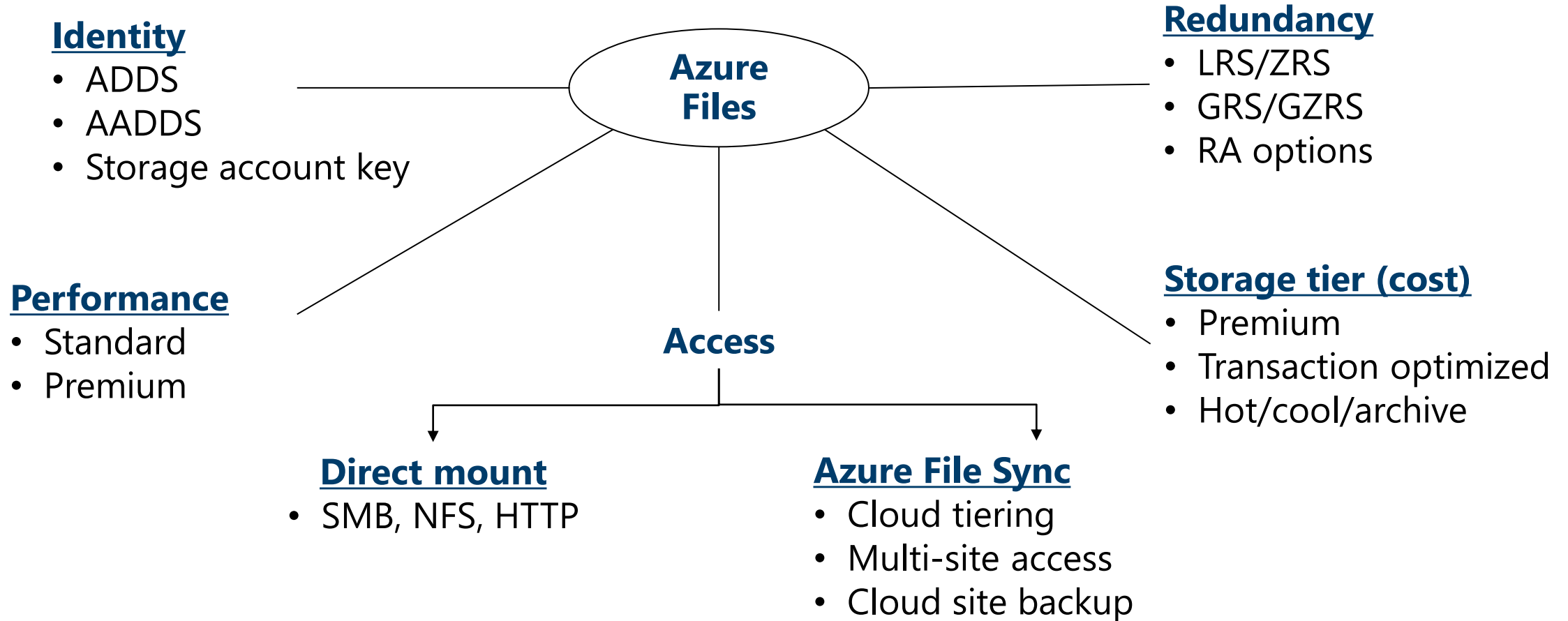**Storage tier (cost)**
- Premium
- Hot/cool/archive

Administration
- Object replication
- Lifecycle blob management
- Storage tools

Storage Security

private
endpoints

Authentication/ authorization
- Service SAS
- Account SAS
- User delegation SAS

firewall

**Azure storage
security**

secure transfer

Encryption
- Microsoft managed key
- Customer managed key

service endpoints

Azure Files

Identity
- ADDS
- AADDS
- Storage account key

Performance
- Standard
- Premium

Azure Files

Access

Direct mount
- SMB, NFS, HTTP

Azure File Sync
- Cloud tiering
- Multi-site access
- Cloud site backup

Redundancy
- LRS/ZRS
- GRS/GZRS
- RA options

Storage tier (cost)
- Premium
- Transaction optimized
- Hot/cool/archive

Administer Virtual Machines

Storage

Azure virtual machines

Name

Responsibilities

Image
- Ubuntu
- Windows
- Red hat
- SUSE
- .....
- Custom

Access
- Bastion
- RDP/SSH

Sizing/cost
- General purpose
- Compute optimized
- Memory optimized
- Storage optimized
- GPU
- HPC

Availability options
- Availability zones
- Availability sets
- VM scale sets
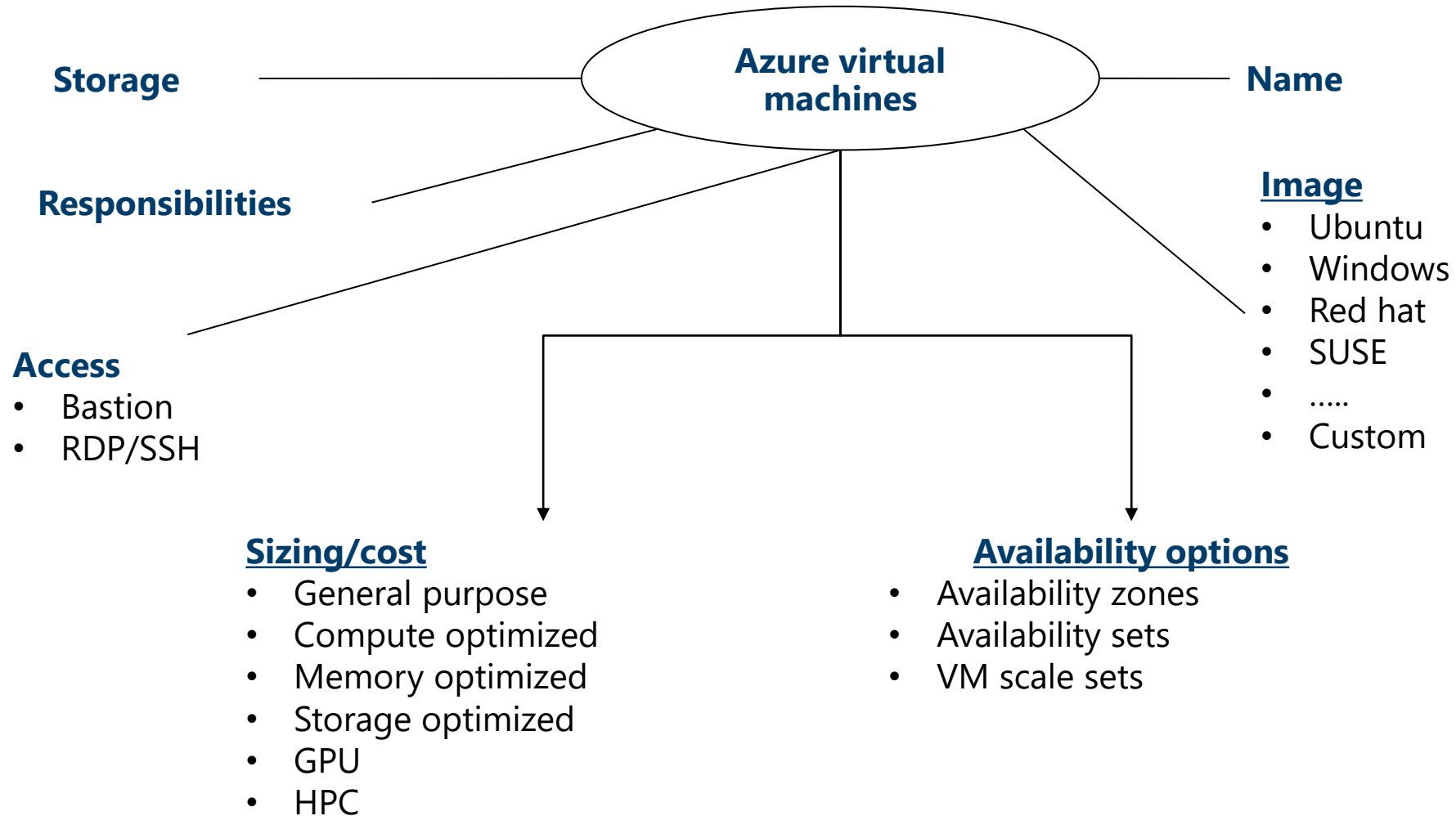
Lab 08 – Architecture diagram

Task 1

az104-08-rg01

az104-06-vnet01 10.80.0.0/20

Subnet0 10.80.0.0/24

az104-08-vm0
10.80.0.4

Zone1

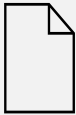az104-08-vm1
10.80.0.5

Zone2

Task 2

az10408rg01diag938

scripts

az104-08-install_IIS.ps1

Task 3, Task 4, Task 5, Task 6, Task 7

az104-08-rg02

az104-08-rg02-vnet 10.82.0.0/20

Subnet0 10.82.0.0/24
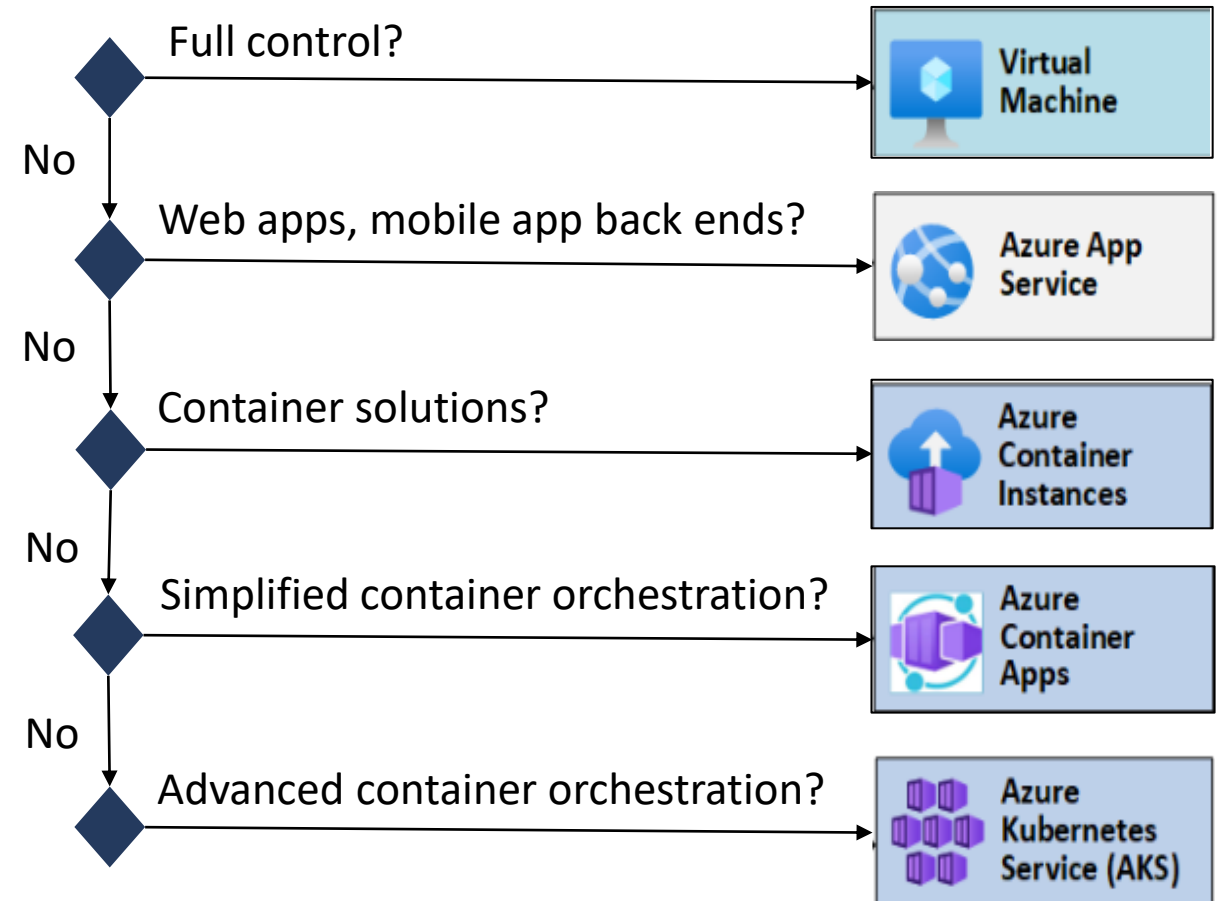
az10408vmss0

az10408vmss0-lb

az10408vmss0-nsg

az10408vmss0-ip

Administer PaaS Compute Options

- Describe the differences between containers and virtual machines.

- What is an App Service plan? Things to consider when selecting?

- What are deployment slots? Usage cases for slots?

- List at least three admin tasks for web apps.

Full control? → Virtual Machine

No

Web apps, mobile app back ends? → Azure App Service

No

Container solutions? → Azure Container Instances

No

Simplified container orchestration? → Azure Container Apps

No

Advanced container orchestration? → Azure Kubernetes Service (AKS)

Lab 09a – Architecture diagram
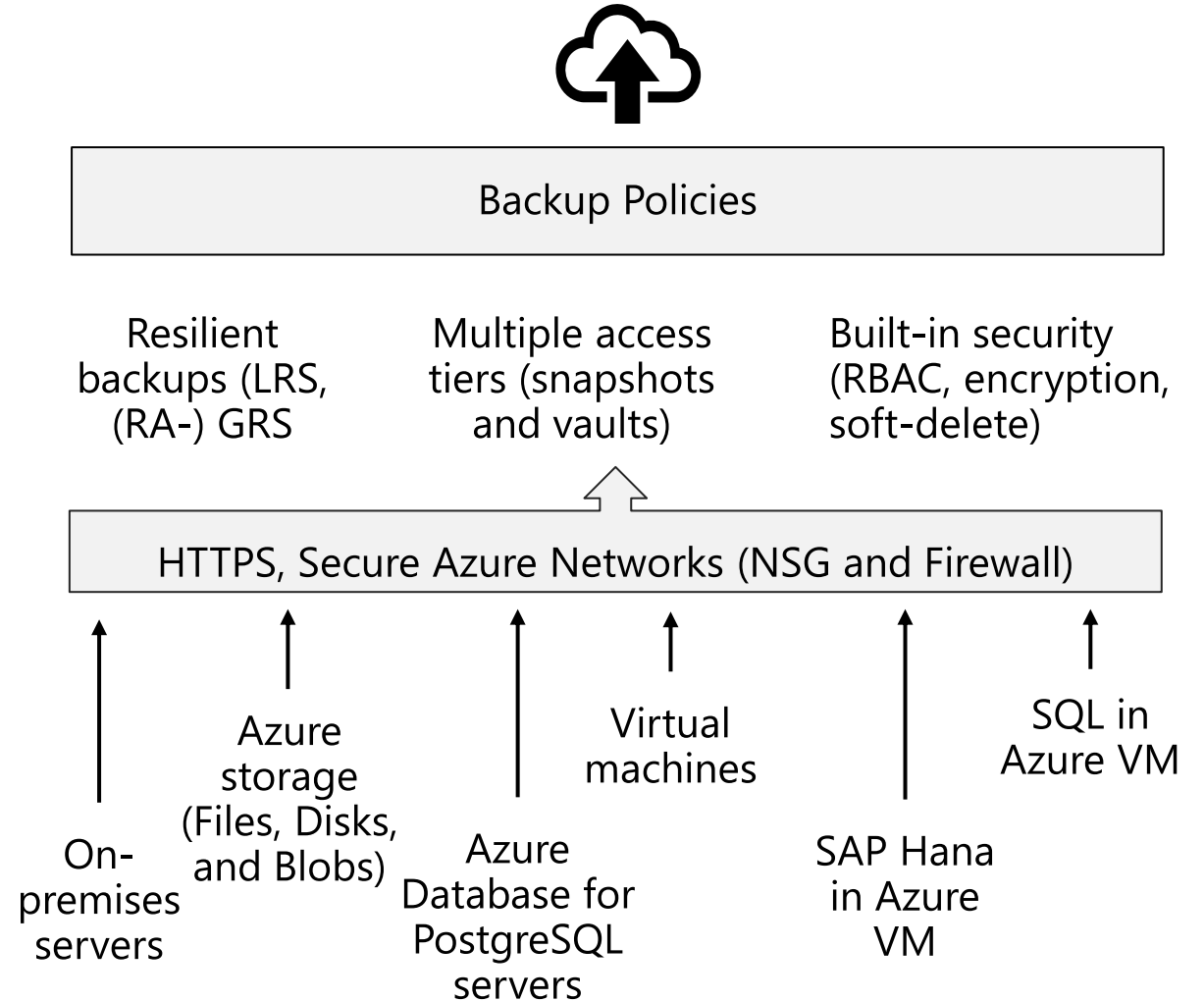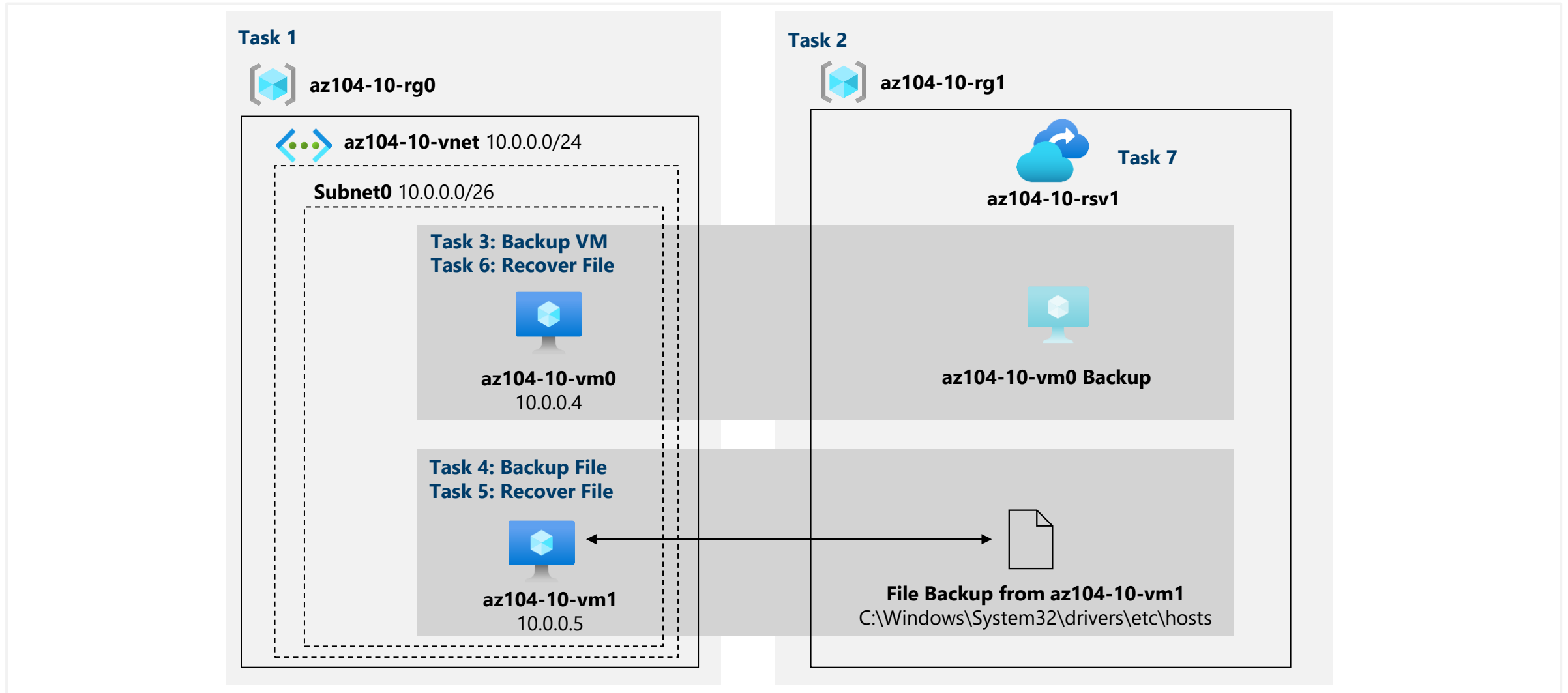
Administer Data Protection

- What workloads can Azure Backup protect?

- How would you configure file and folder backups?

- Name at least two ways to protect virtual machine data.

- Is there a way to recover virtual machine backups that have been deleted?

- What is the difference between Azure Backup and Azure Site Recovery?

Backup Policies		
Resilient backups (LRS, (RA-) GRS	Multiple access tiers (snapshots and vaults)	Built-in security (RBAC, encryption, soft-delete)

HTTPS, Secure Azure Networks (NSG and Firewall)

On-premises servers

Azure storage (Files, Disks, and Blobs)

Azure Database for PostgreSQL servers

Virtual machines

SAP Hana in Azure VM

SQL in Azure VM

Lab 10 – Architecture diagram

Administer Monitoring

- Name at least three data sources that can be used by Azure Monitor.

- How can you notify Help Desk personnel of an issue? What notification methods are available?

- You need to search the Windows Event log. What tool can you use? How would you search for *errors*?