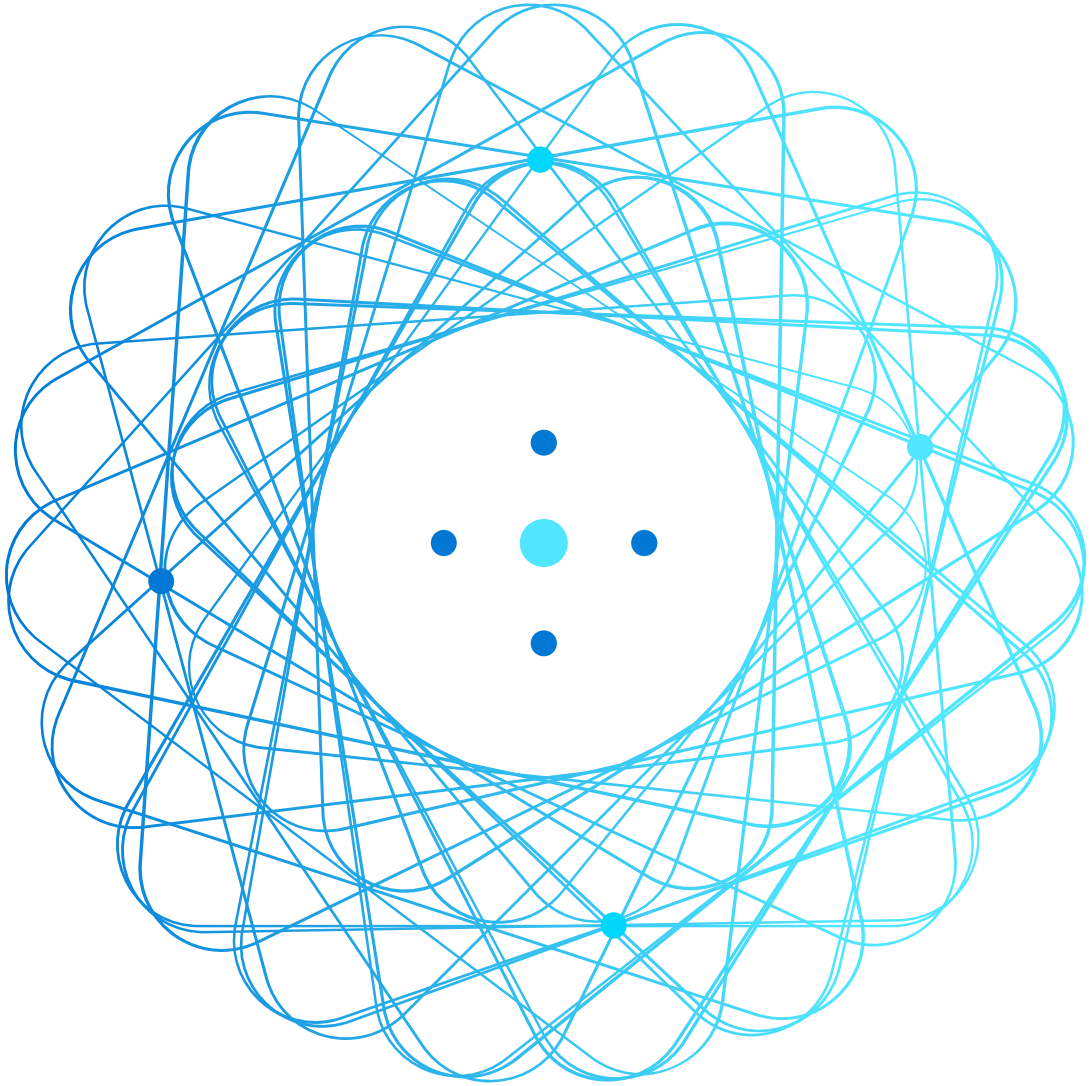
Microsoft Azure

AZ-305

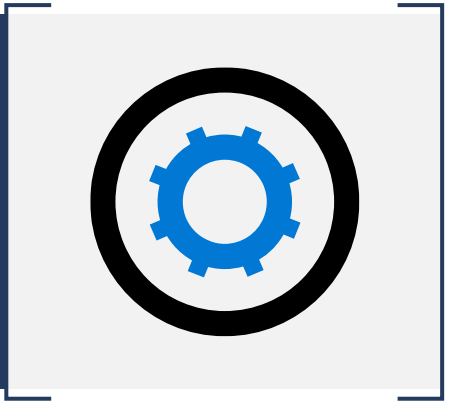
Designing Microsoft Azure Infrastructure Solutions



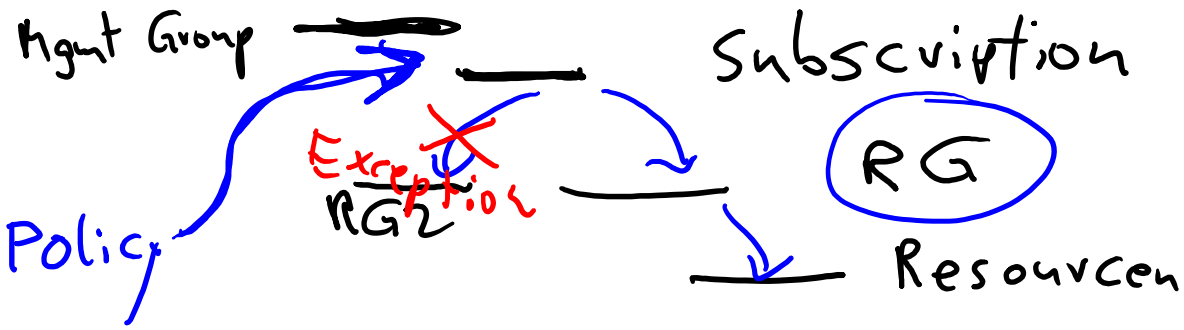
AZ-305 Agenda

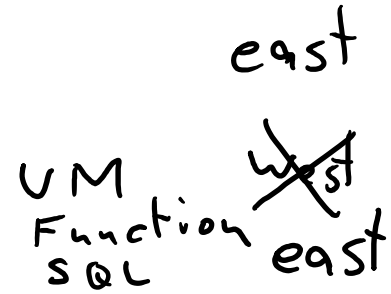
Module 01 Design a governance solution
Module 02 Design a compute solution
Module 03 Design a non-relational data storage solution
Module 04 Design a data storage solution for relational data
Module 05 Design a data integration solution
Module 06 Design an application architecture solution
Module 07 Design Authentication and Authorization Solutions
Module 08 Design a solution to log and monitor Azure resources
Module 09 Design a network infrastructure solution
Module 10 Design a business continuity solution
Module 11 Design a migration solution

Module 01: Design a governance solution



Introduction



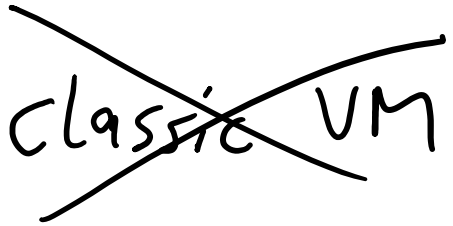


- Design for governance
- Design for management groups
- Design for Azure subscriptions
- Design for resource groups
- Design for resource tagging
- Design for Azure Policy and RBAC
- Design with Azure Blueprints
- Case study
- Summary and resources

AZ-305: Design Identity, Governance, and Monitoring Solutions (25-30%)

Design Governance

- Recommend an organizational and hierarchical structure for Azure resources
- Recommend a solution for enforcing and auditing compliance

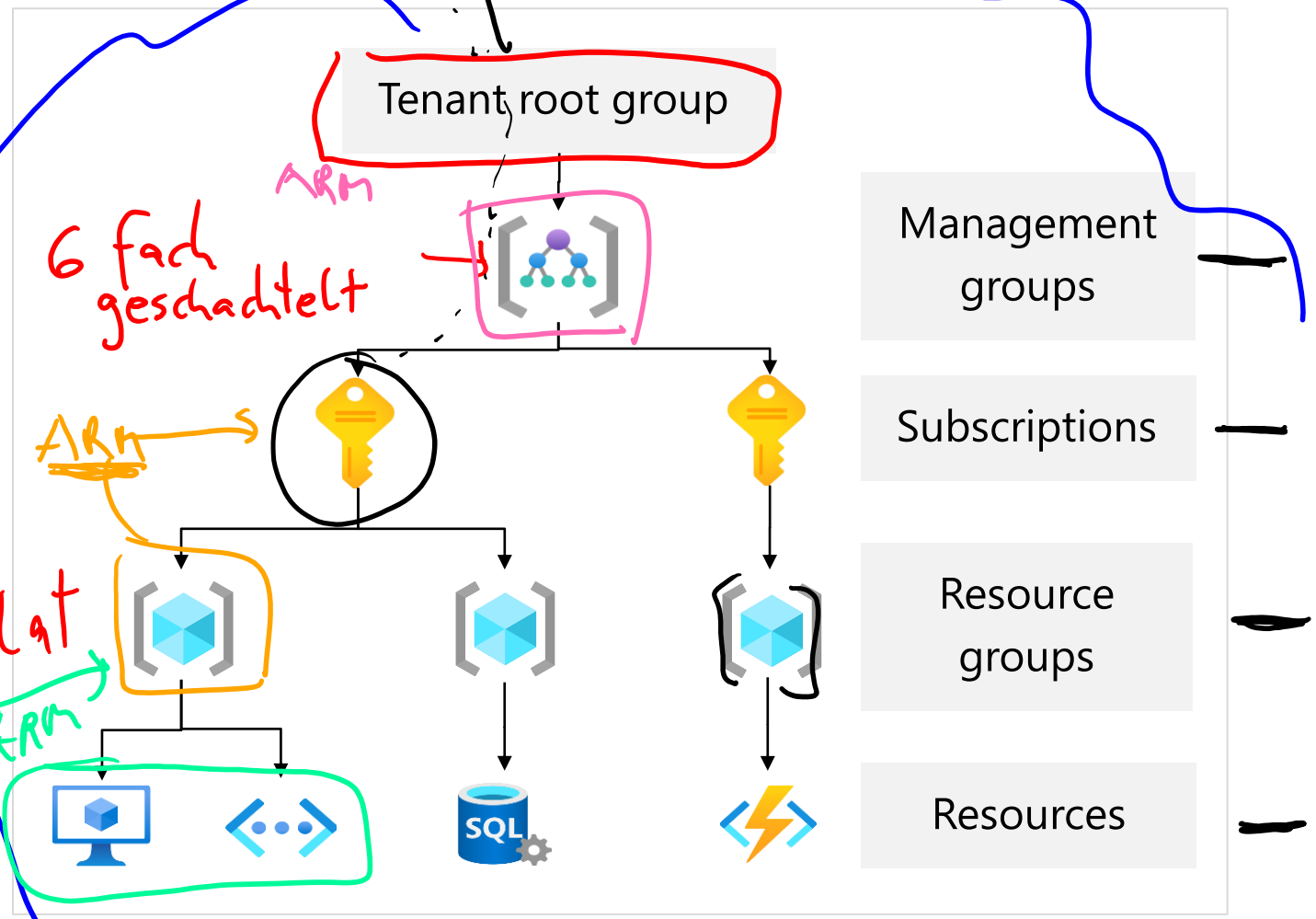


Design for governance

Govern resources in Azure

Governance provides mechanisms and processes to maintain control over your applications and resources in Azure.

- Determine your requirements, plan your initiatives, and set strategic priorities
- Plan for governance at every level
  - Management groups
  - Subscriptions
  - Resource groups
  - Resources



ARM json

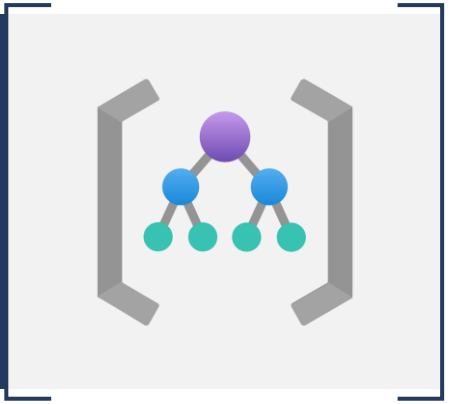
idempotent
declative

Bicep DSL

Infrastructure as Code IaC

Everything as Code *aC

Design for management groups

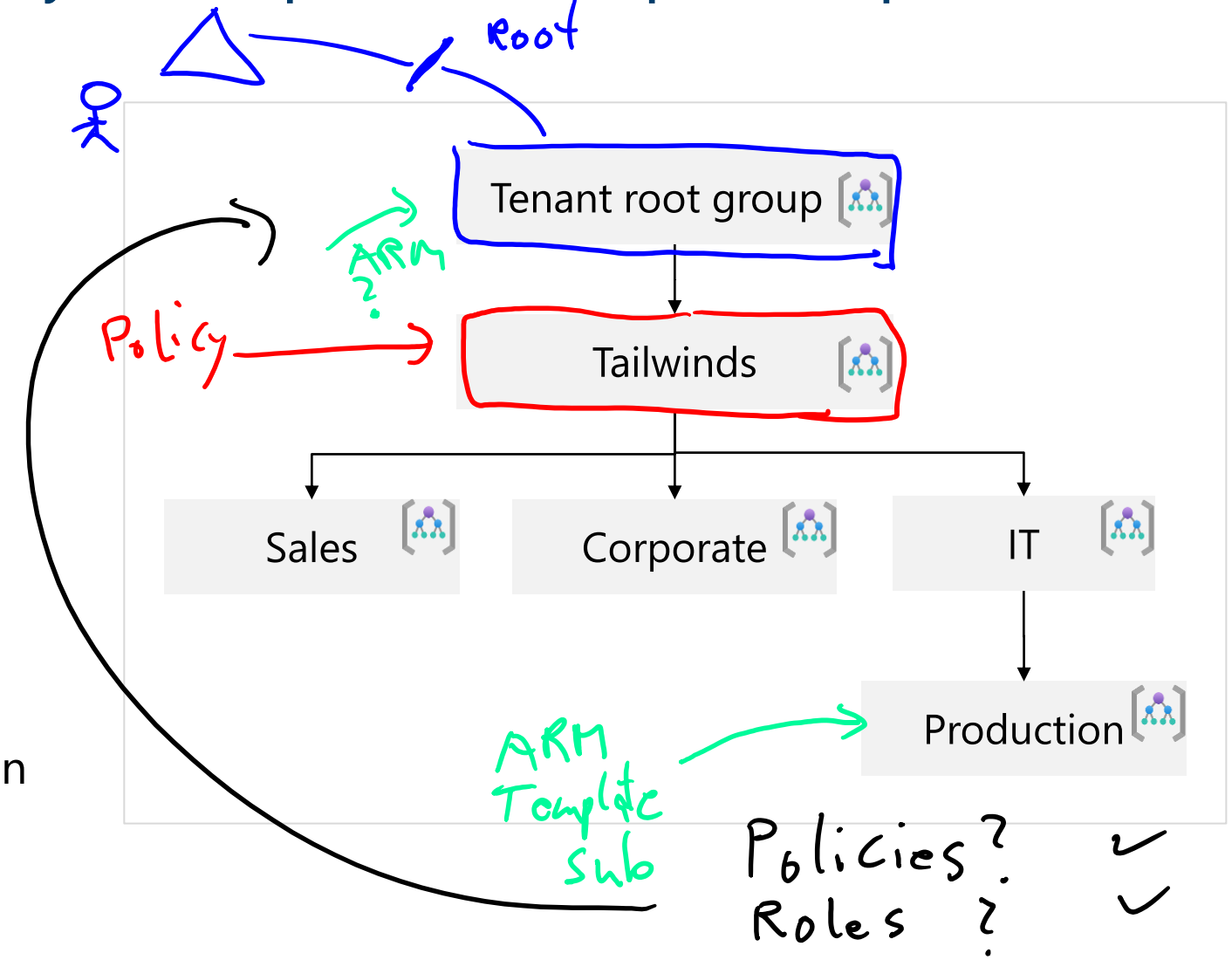


VS Code

Plan your management groups

Management groups manage access, policy, and compliance for multiple subscriptions.

- Keep the management group hierarchy reasonably flat
- Consider a top-level management group
- Consider an organizational or departmental structure
- Consider a geographical structure
- Consider a production management group
- Consider a sandbox management group
- Consider isolating sensitive information in a separate management group



Design for Azure subscriptions

Designing for multiple subscriptions

Azure subscription are logical containers for management and billing.

Align your subscriptions with business needs and priorities – consider billing and cost reporting

Consider subscription scale limits – specialized workloads, IoT, SAP

Consider administrative management – centralized or decentralized

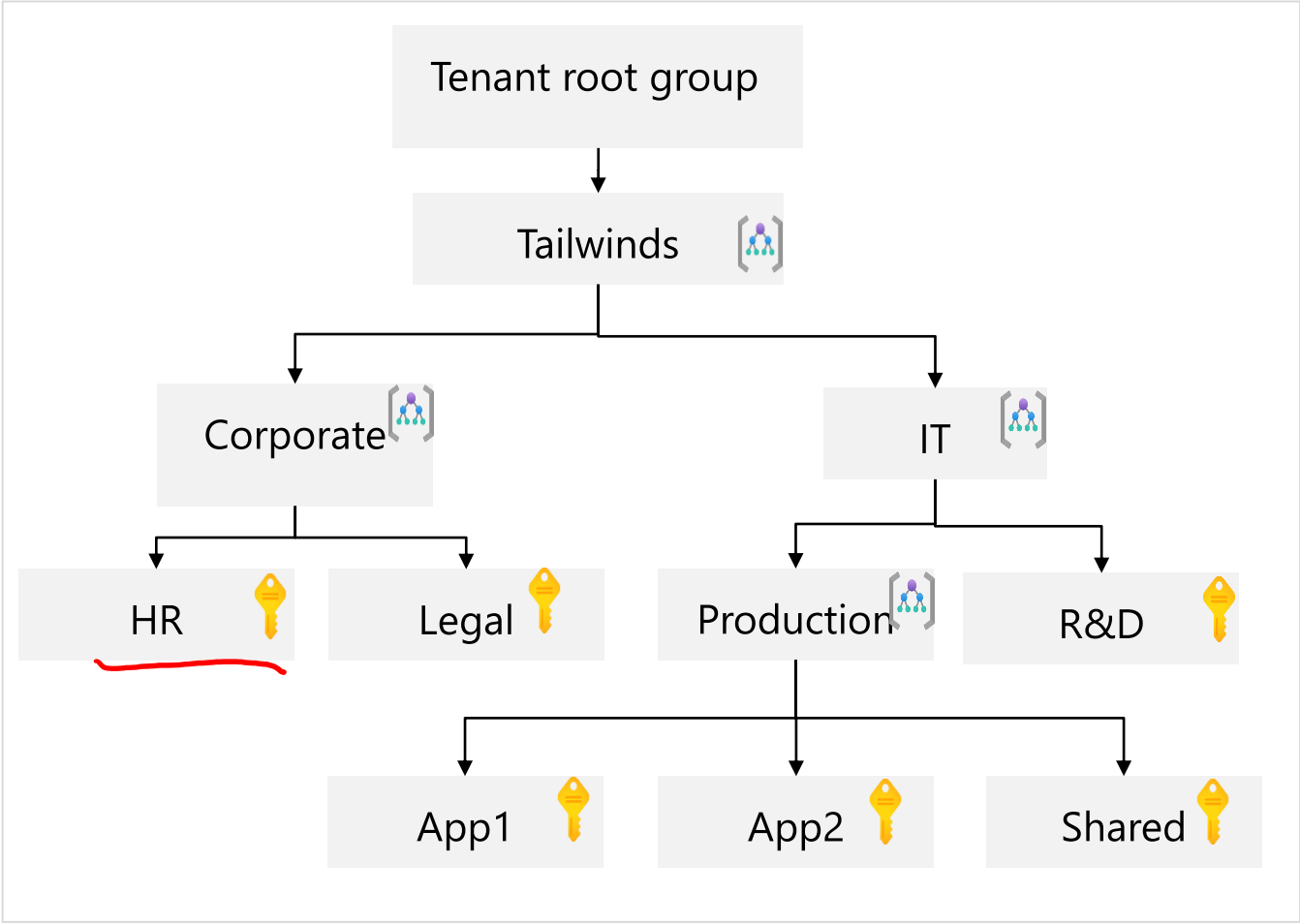
Consider a dedicated shared services subscription – common services everyone shares

Group subscriptions together under management groups – apply common policies and role assignments.

Make subscription owners aware of their roles and responsibilities

When to use subscriptions - example

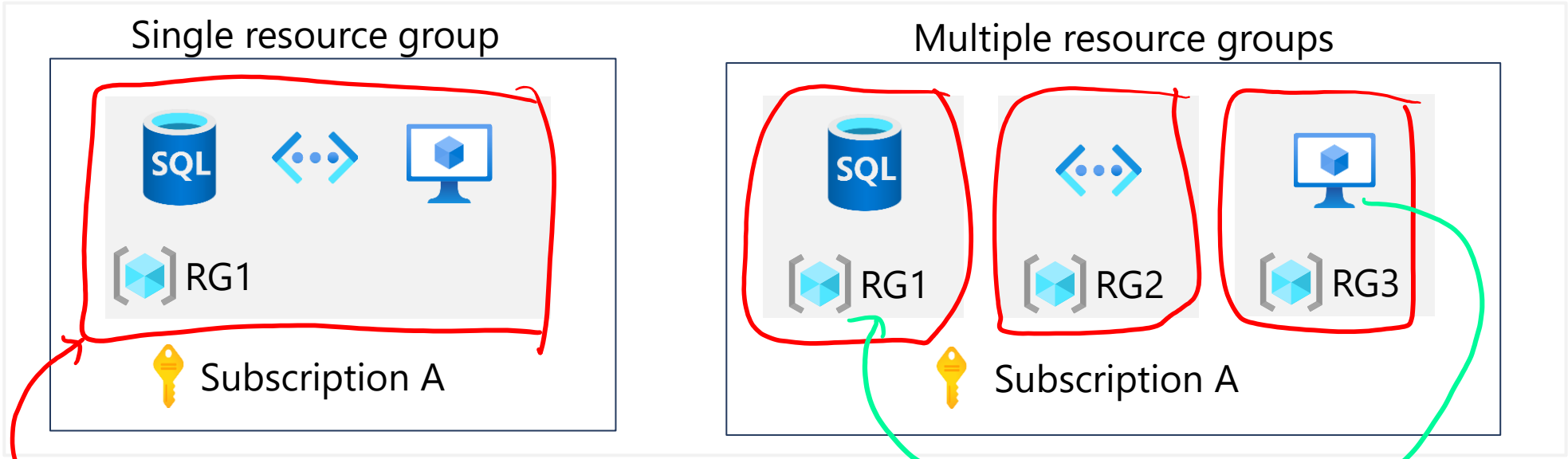
- Secure workloads that require additional policies and role-based access control to achieve compliance
- Specialized workloads and the need to scale outside the subscription limits
- Manage and track costs for your organizational structure
- Identify different environments such as development, test, and production that are often isolated from a management perspective



Design for resource groups

Plan your resource groups

A resource group is a container that holds related resources for an Azure solution.



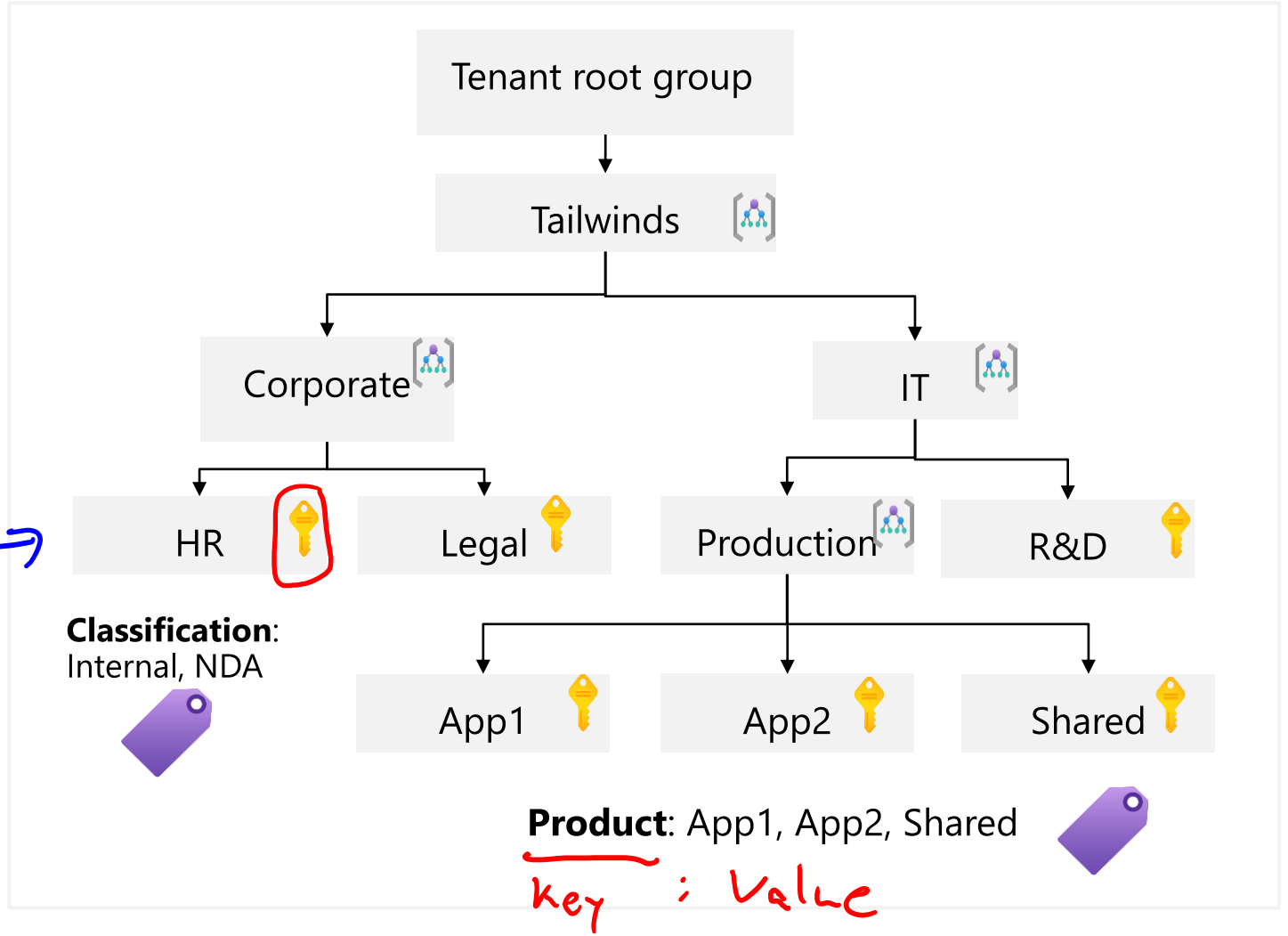
- Group resources that share the same life cycle
- Group by type, app, department, location, or billing
- Apply RBAC and policies to a group of resources
- Use resource locks to protect individual resources from deletion or change

Design for resource tagging

Plan your resource tagging

Resource tagging can be business-aligned or IT-aligned

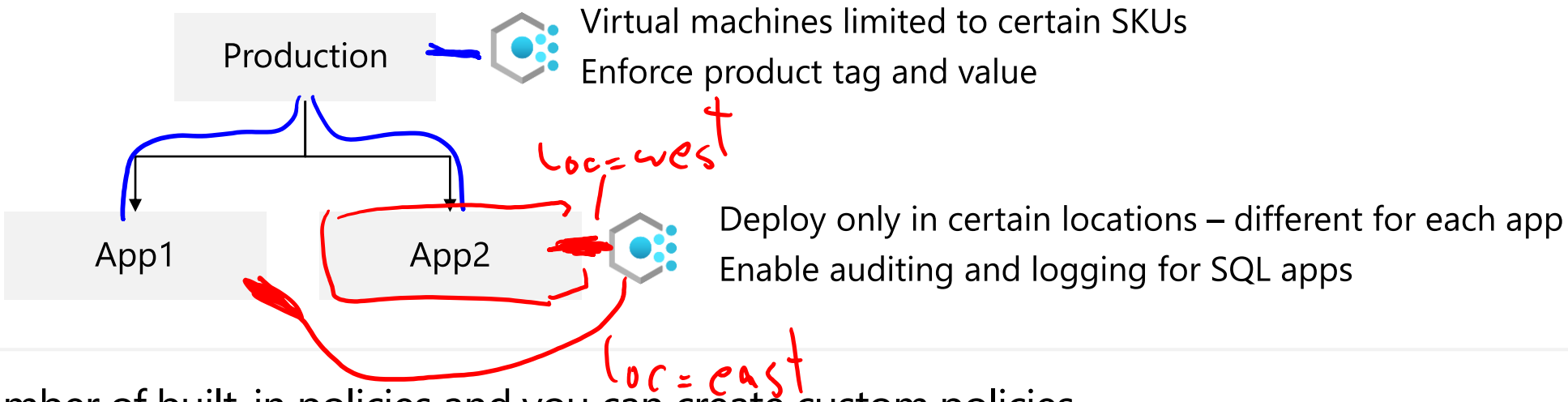
- Consider your organization's taxonomy
- Determine the reason for the tagging - functional, classification, accounting, partnership, or purpose
- Start with a few tags (mission-critical resources) and then scale out
- Policies could be used to apply tags and enforce tagging rules and conventions - mimic inheritance



Design for Azure Policy and RBAC

When to use Azure Policy

Azure Policy helps to enforce organizational standards and to assess compliance at-scale.



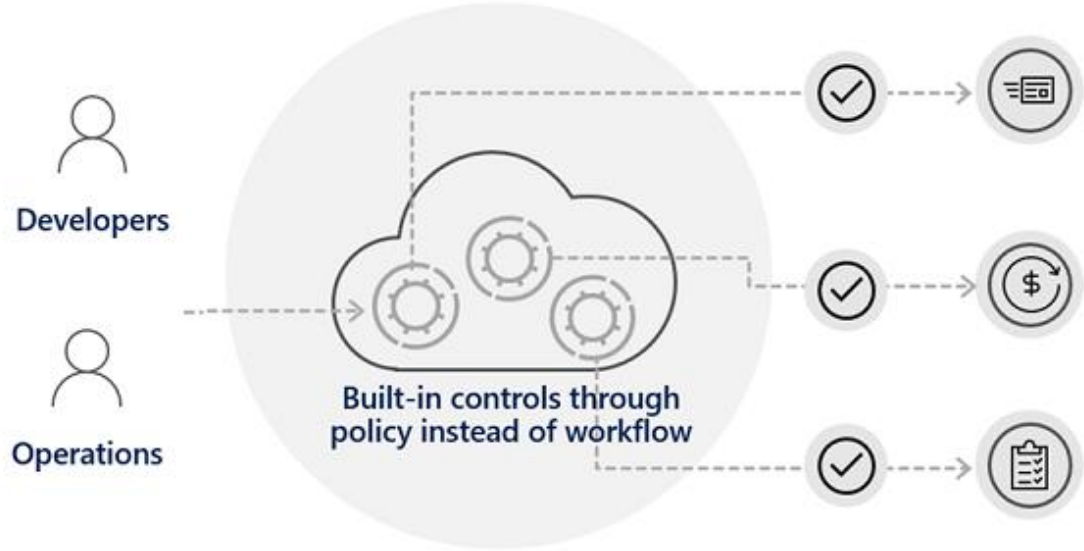
- Large number of built-in policies and you can create custom policies

Examples

- Allow only certain virtual machines sizes for your project
- Ensure all resources are correctly tagged – if not, apply the tag
- Recommend system updates on your servers
- Enable multifactor authentication for all subscription accounts

Considerations for Azure Policy

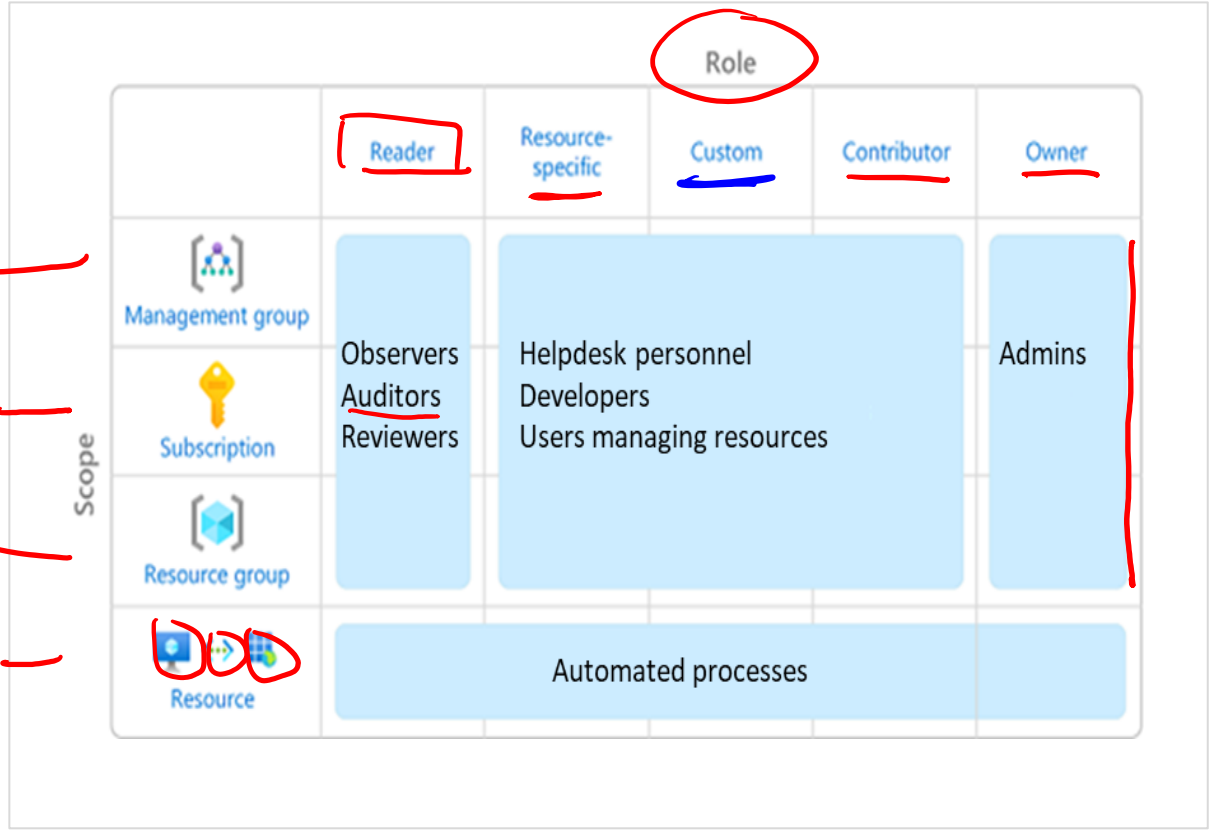
- Apply policy at the highest scope possible
- Know when policies are evaluated
- Decide what to do if a resource is non-compliant
- Consider when to automatically remediate non-compliant resources
- Use the Azure policy compliance dashboard for auditing and review
- Effectively combine Azure policy with RBAC (next slide)



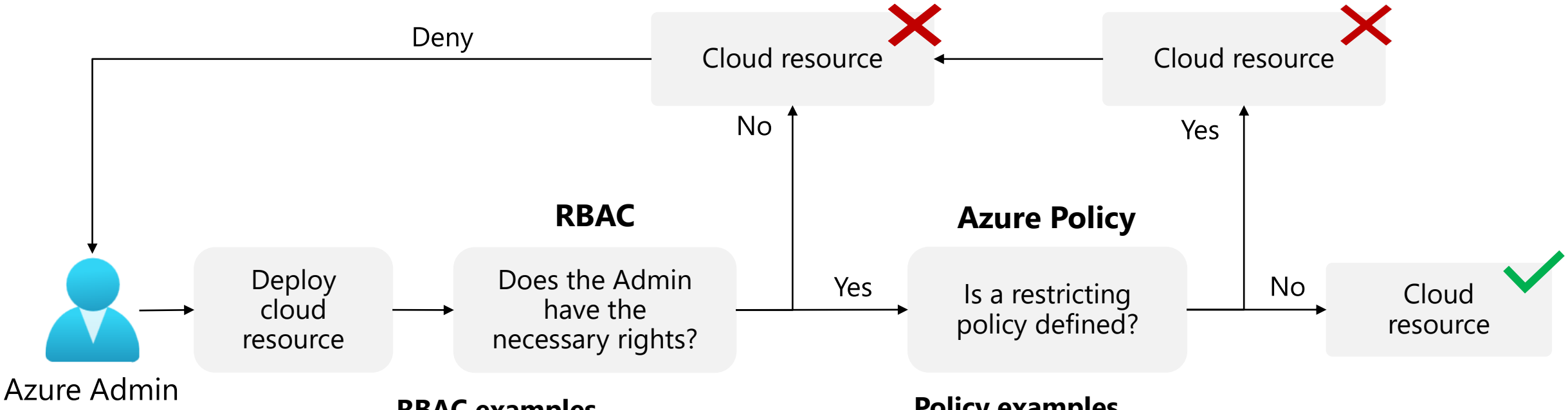
Design for Azure role-based access control (RBAC)

Azure RBAC allows you to grant access to Azure resources that you control.

- Only grant users the access they need
- Assign at the highest scope level that meets the requirements
- Assign roles to groups, not users
- Know when to create a custom role
- Consider what happens if you have overlapping role assignments



When to combine Azure Policy and Azure RBAC



RBAC examples

- Does the Admin have the right to deploy?
- Does the Admin have the right to deploy this resource type?
- Does the Admin have the right to deploy this resource group?

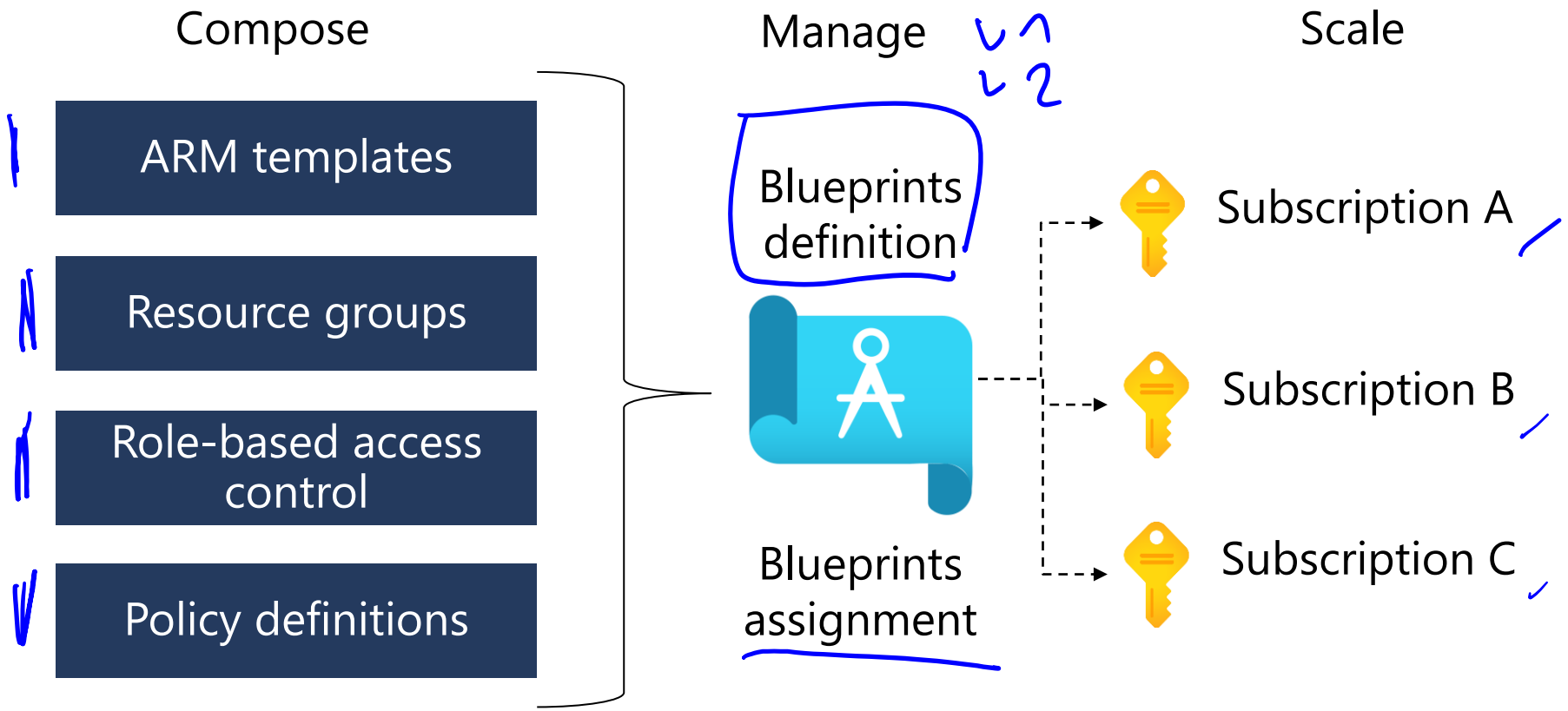
Policy examples

- Is the region restricted?
- Is the resource type restricted?
- Should a tag be applied?

Design for Azure Blueprints

Design with Azure Blueprints

Azure Blueprints lets you define a repeatable set of governance tools and standard Azure resources that your organization requires.



Review

Case study – Cost and accounting

- Tailwind Traders has two main business units that handle Apparel, and Sporting Goods.
- Each of the business units consist of three departments: Product Development, Marketing, and Sales.
- Each business unit and subunit will be responsible for tracking their Azure spend.
- The Enterprise IT team will be responsible for providing company-wide Azure cost reporting.

- What are different ways Tailwind Traders could organize their subscriptions and management groups. Which would be the best to meet their requirements?
- Design two alternative hierarchies and explain your decision-making process.

Case study – New development project

- The company has a new development project for customer feedback.
- The CFO wants to ensure all costs associated with the project are captured.
- For the testing phase workloads should be hosted on lower cost virtual machines.
- The virtual machines should be named to indicate they are part of the project.
- Any instances of non-compliance with resource consistency rules should be automatically identified.

- What are the different way Tailwind Traders could track costs for the new development project?
- How are you ensuring compliance with the requirements for virtual machine sizing and naming?
- Propose at least two ways of meeting the requirements. Explain your final decision.

Summary and resources

Check your knowledge	Microsoft Learn Modules (docs.microsoft.com/Learn)
	Control and organize Azure resources with Azure Resource Manager Describe core Azure architectural components Build a cloud governance strategy on Azure

Optional hands-on exercise - List access using Azure RBAC and the Azure portal

End of presentation