Designing Microsoft Azure Infrastructure Solutions

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About this course

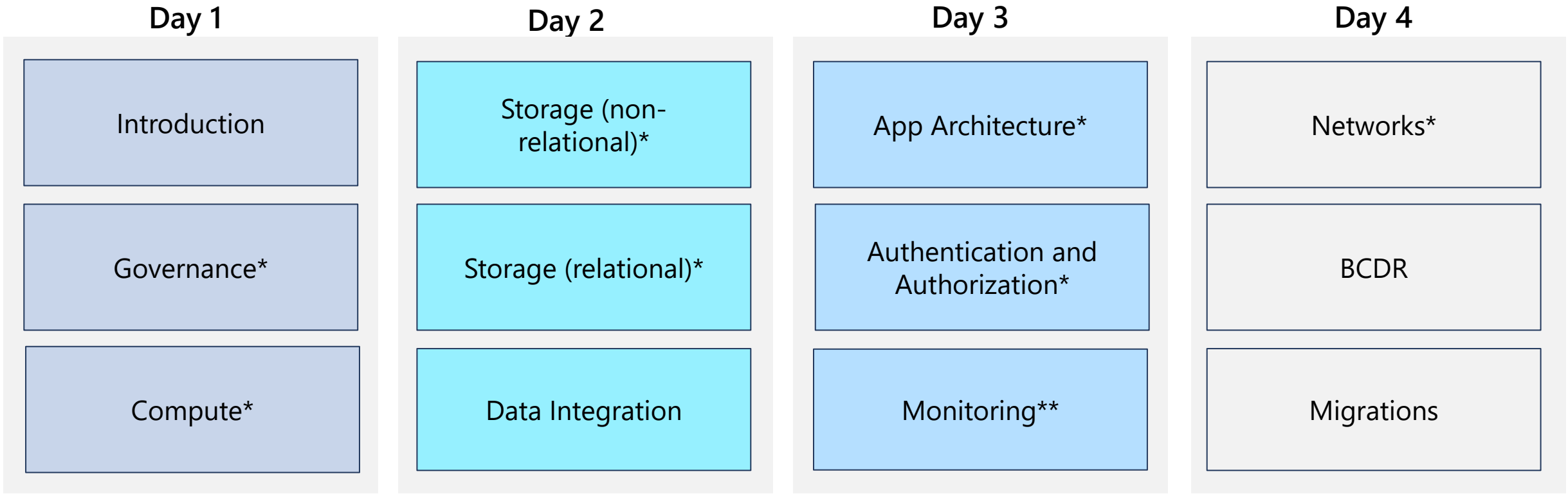
Purpose – Azure Architects

- Subject matter expertise in designing cloud and hybrid solutions
- Expertise includes compute, networking, storage, application services, data solutions, monitoring and security.

Prerequisites

- Working knowledge of networking technologies including connectivity services, application delivery services, and network architectures.
- Working knowledge of storage technologies including relational and non-relational data solutions.
- Working knowledge of compute technologies including virtual machines, containers, and PaaS compute solutions. .
- Experience architecting solutions including security, migration, and business continuity.

Course schedule



* Case study

** Fabrikam Residences case study

Get ready for your Microsoft Certification exam

Exam AZ-305: Designing Microsoft Azure Infrastructure Solutions

Understand the skills measured by the exam

Study area	Percentage
Design identity, governance, and monitoring solutions	25-30%
Design data storage solutions	20-25%
Design business continuity solutions	15-20%
Design infrastructure solutions	30-35%

Build confidence in your skills

Find in the exam page resources to help prepare

- Watch exam prep videos
- Review the exam study guide
- Take a practice assessment

Case studies

- Tailwind Traders is modernizing its infrastructure and moving to the cloud -
- You have been asked to recommend and suggest new cloud architectures - requirements and tasks are provided in case studies
- Make sure to actively participate in small groups or individually
- Become familiar with the Azure Architecture Center, Azure Charts, and the Azure Documentation.
- Consider the Cloud Adoption Framework and Well Architected Framework as you design your case study solutions (next slides)
- Optional sandboxes are provided on Learn

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AZ-305T00A Designing Microsoft Azure Infrastructure Solutions

Design a governance solution

Learning Objectives

- 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
- Case study
- Learning recap

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

Design Governance

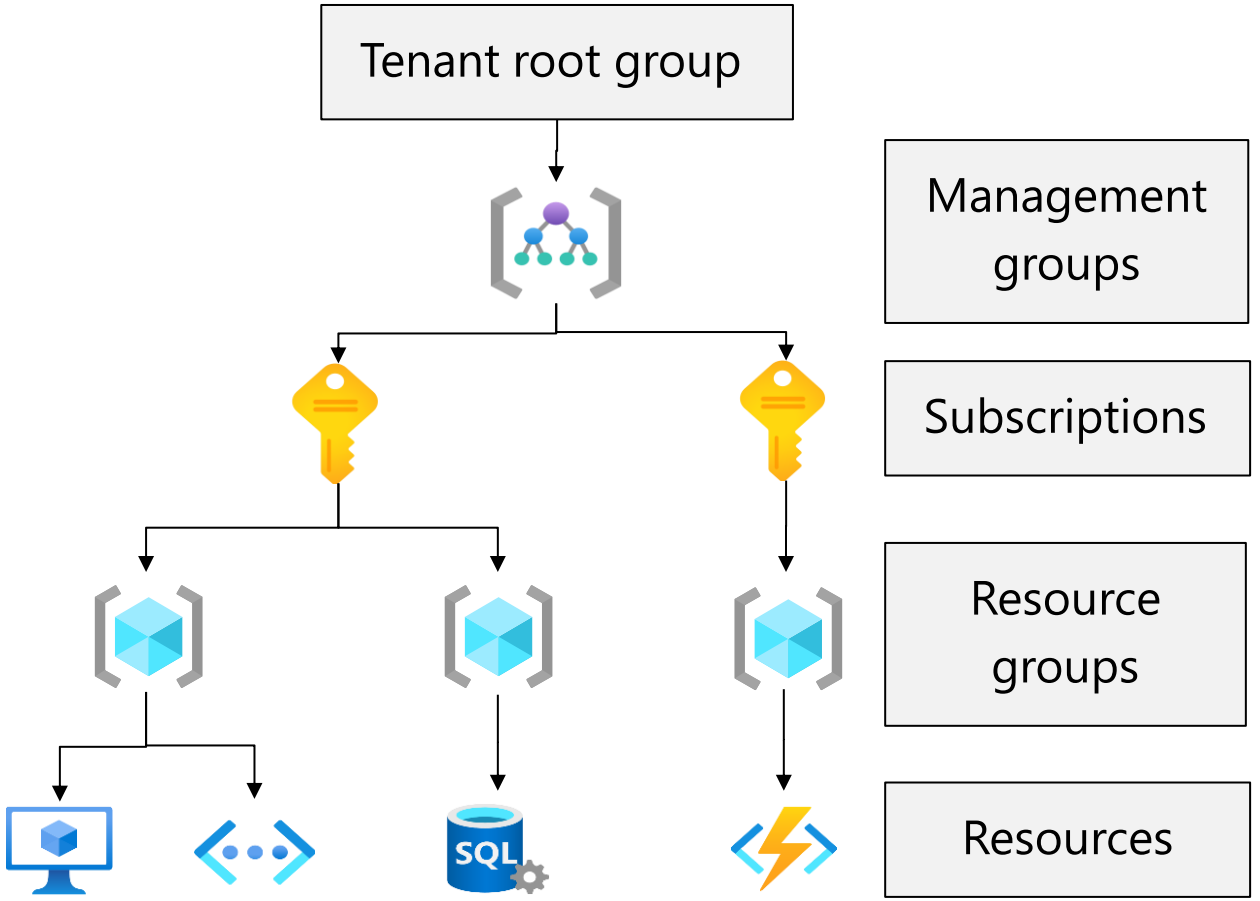
- Recommend a structure for management groups, subscriptions, and resource groups, and a strategy for resource tagging
- Recommend a solution for managing compliance
- Recommend a solution for identity governance

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

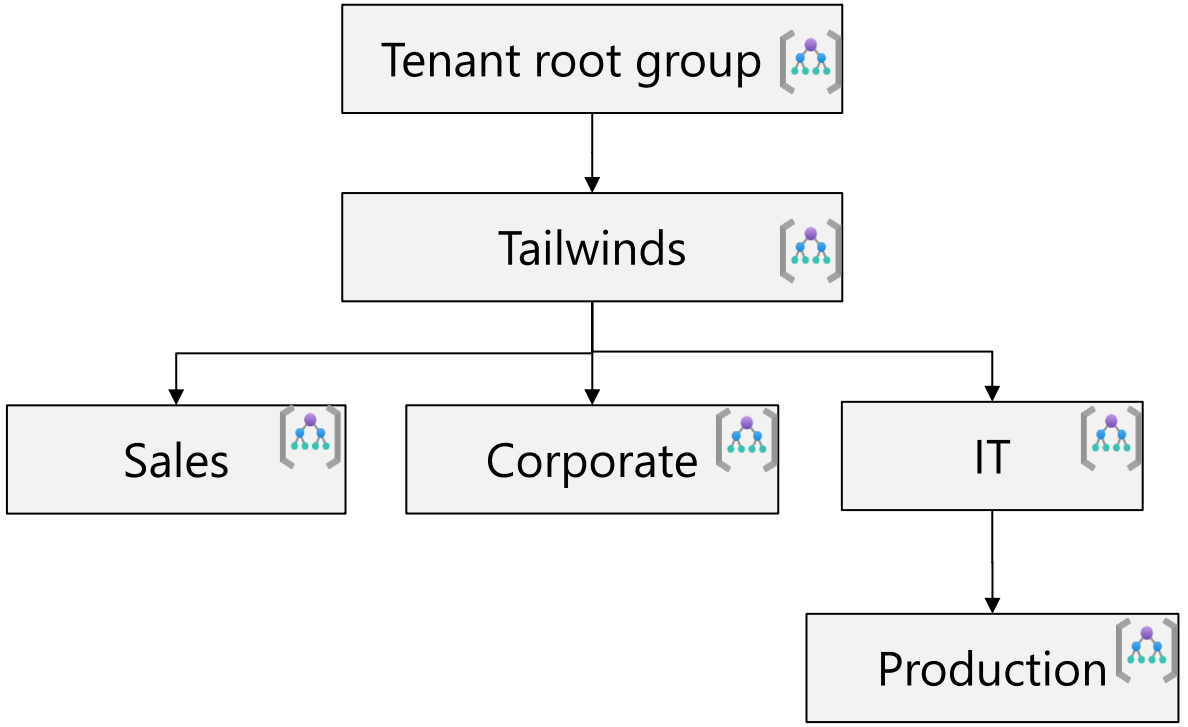


Design for management groups

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

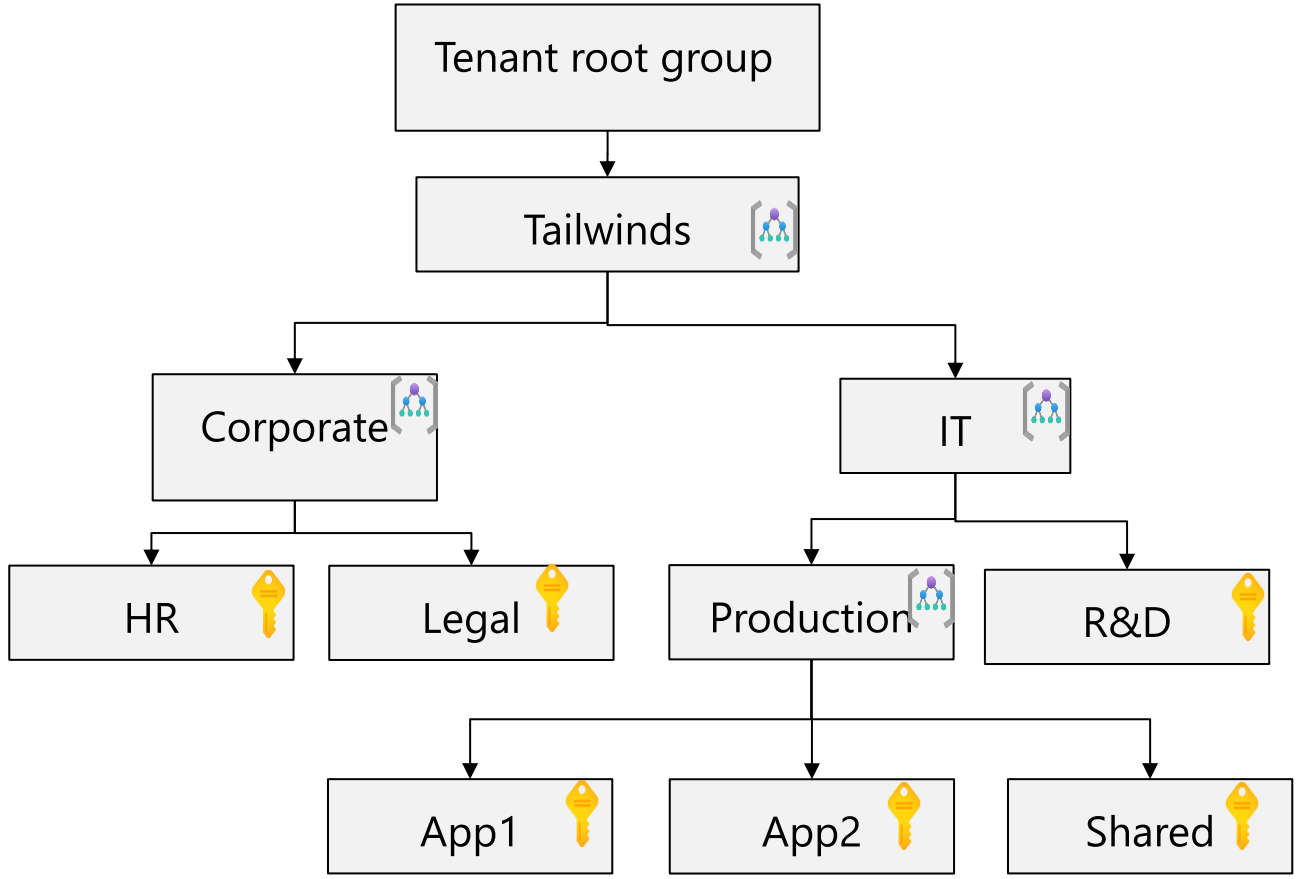
Consider a dedicated shared services subscription – common services everyone shares

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

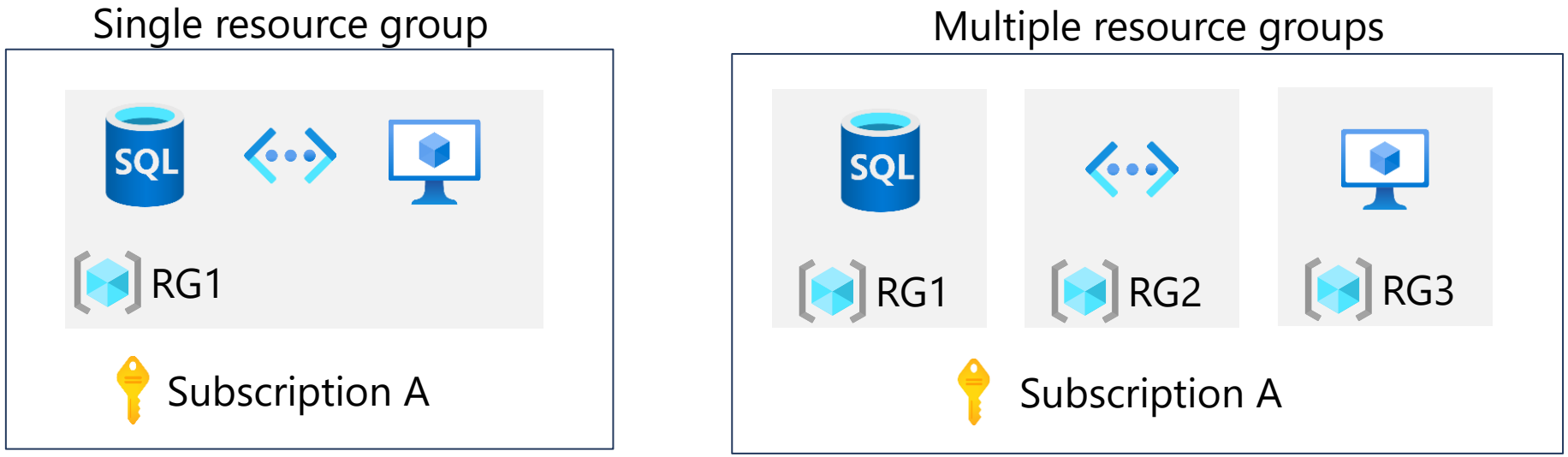
- Secure workloads that require additional policies and role-based access control to achieve compliance
- Specialized workloads and the need to scale outside the subscription limits
- Manage and track costs for your organizational structure
- Identify different environments such as development, test,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



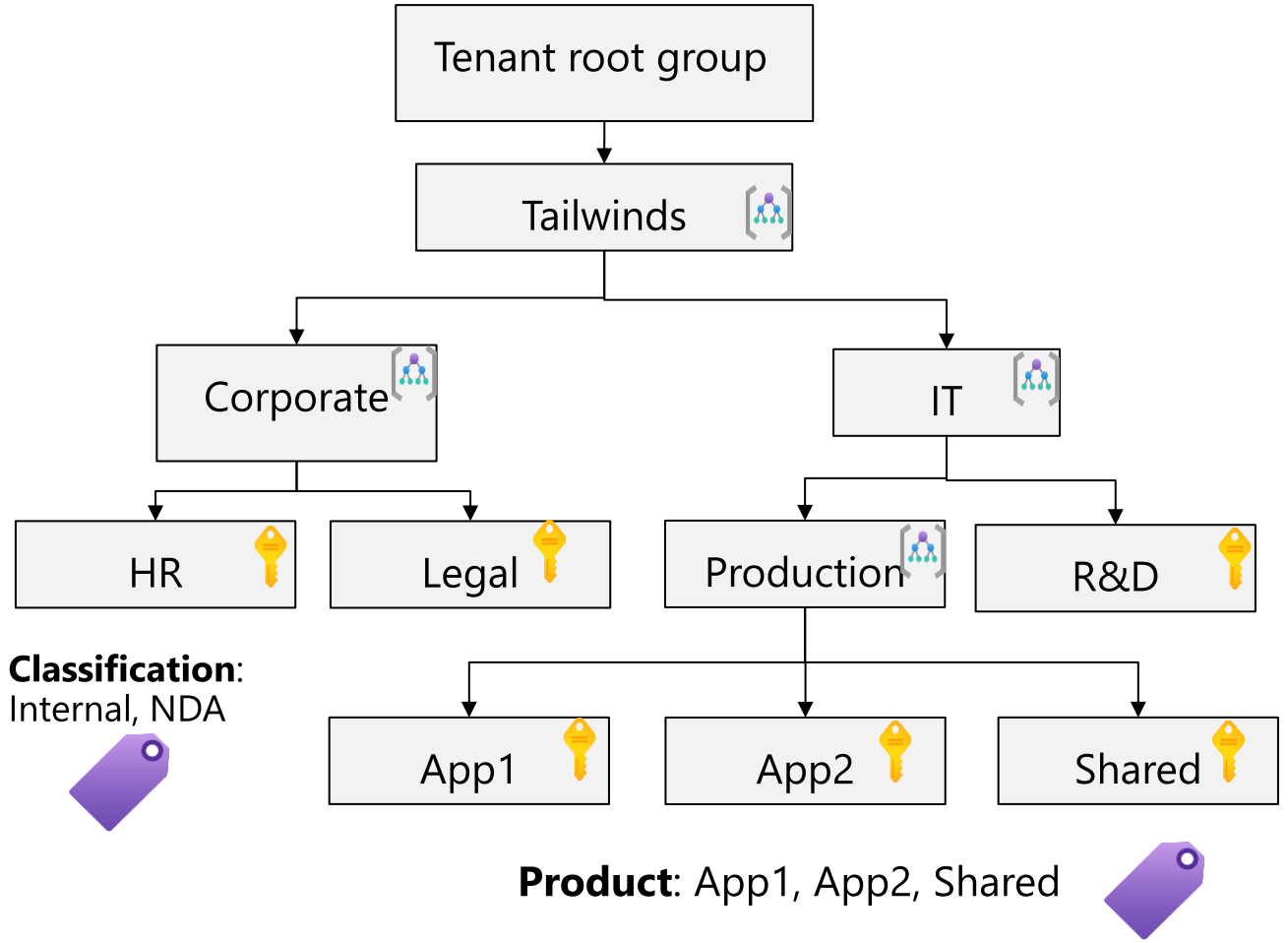
- Group resources that share the same life cycle
- Group by type, app, department, location, or billing
- Apply RBAC and policies to a group of resources
- Use resource locks to protect individual resources from deletion or change

Design for resource tagging

Plan your resource tagging

Resource tagging can be business-aligned or IT-aligned

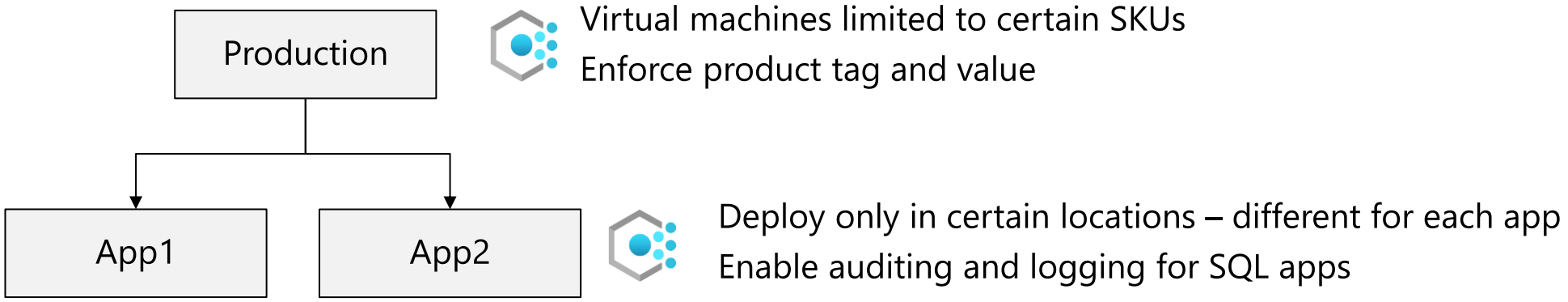
- Consider your organization's taxonomy
- Determine the reason for the tagging - functional, classification, accounting, partnership, or purpose
- Start with a few tags (mission-critical resources) and then scale out
- Policies could be used to apply tags and enforce tagging rules and conventions - mimic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



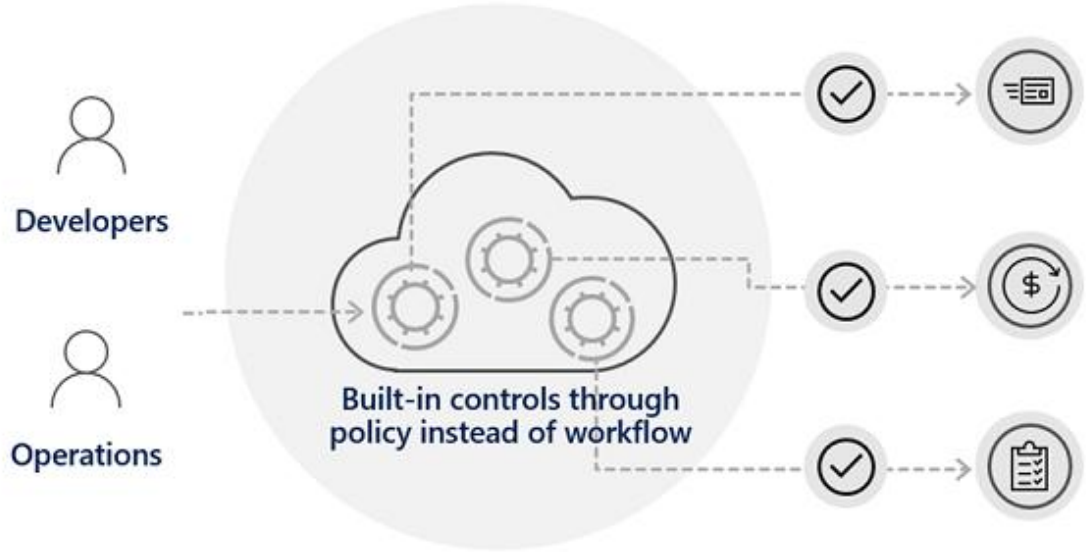
- Large number of built-in policies and you can create custom policies

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

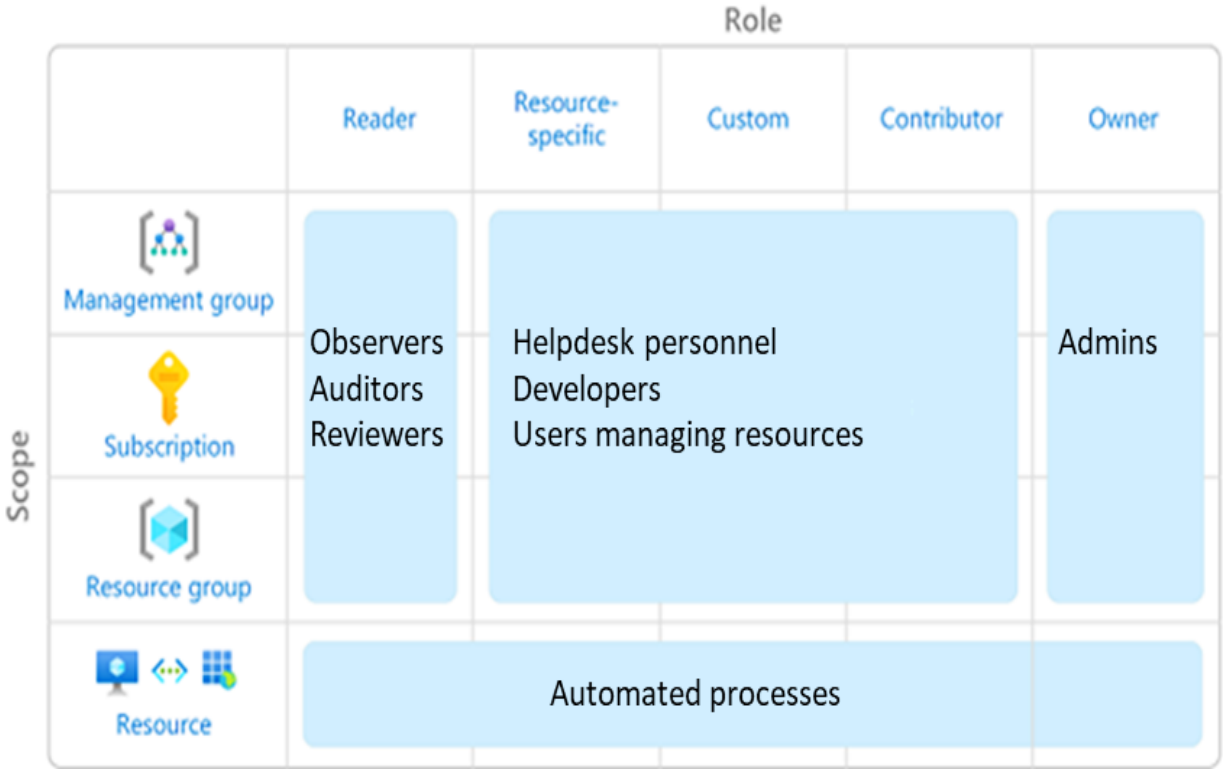
- Apply policy at the highest scope possible
- Know when policies are evaluated
- Decide what to do if a resource is non-compliant
- Consider when to automatically remediate non-compliant resources
- Use the Azure policy compliance dashboard for auditing and review
- Effectively combine Azure policy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



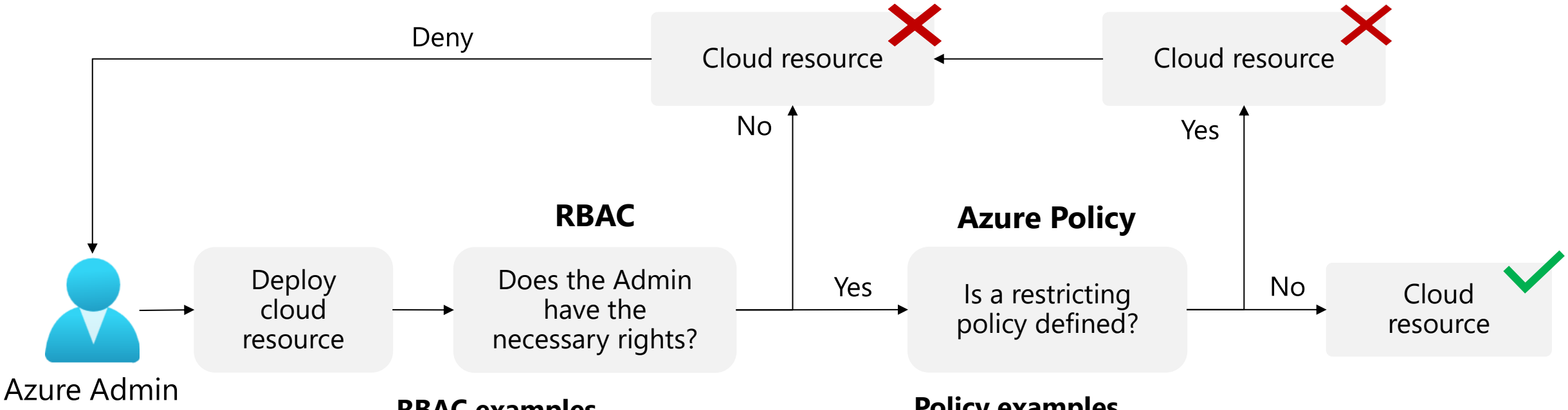
Design for Azure role-based access control (RBAC)

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?

Case Studies and 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.

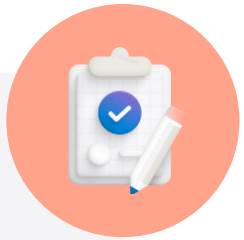
- What are different ways Tailwind Traders could organize their subscriptions and management groups. Which would be the best to meet their requirements?
- Design two alternative hierarchies and explain your decision-making process.

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.

Learning Recap – Governance solutions



Module references

- Control and organize Azure resources with Azure Resource Manager
- Describe core Azure architectural components
- Build a cloud governance strategy on Azure
- Introduction to the Microsoft Azure Well-Architected Framework

Check your knowledge questions and review

End of presentation