Microsoft

#techsummitCH

Mastering Azure Resources

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45 minutes only …

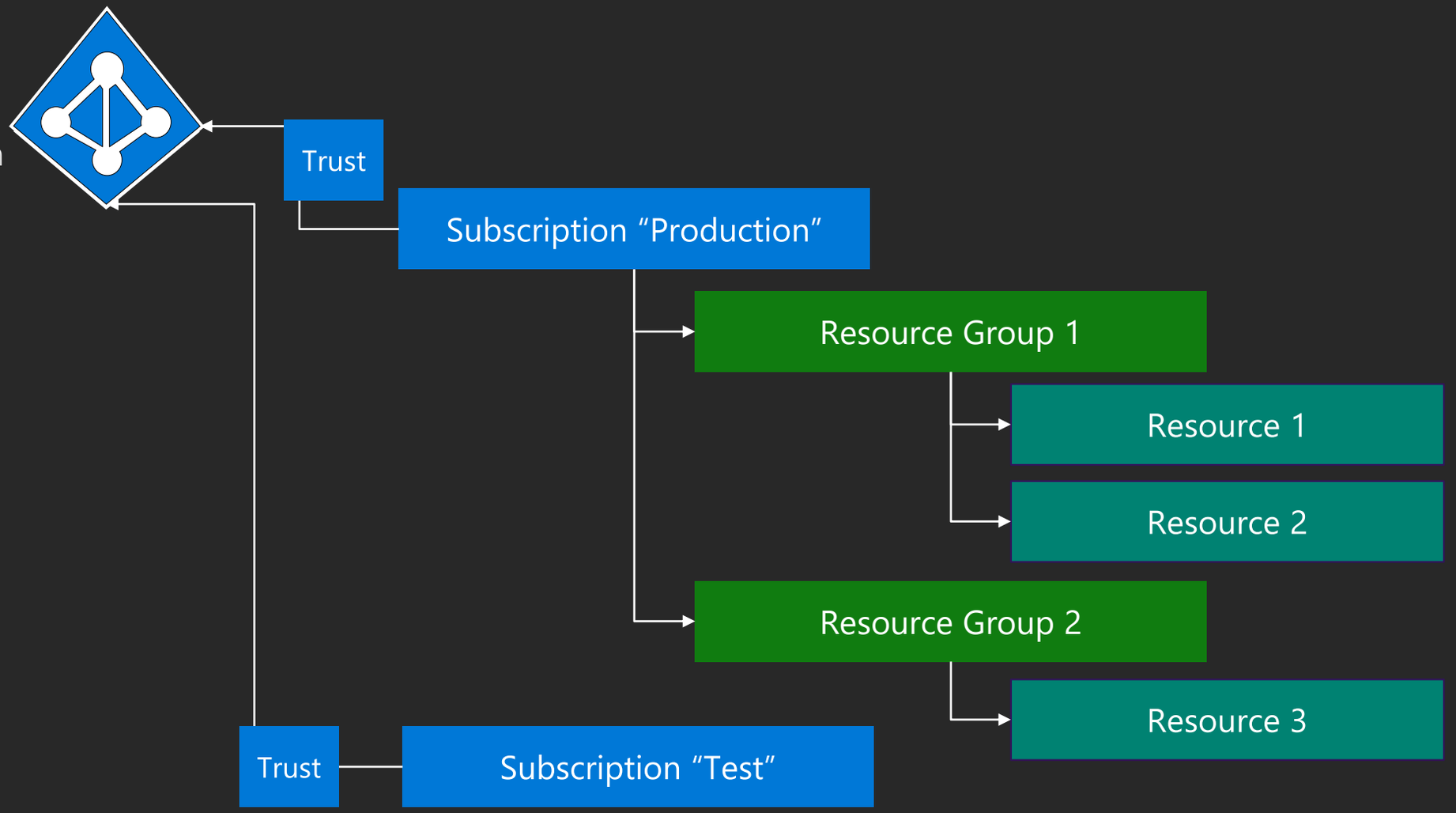
What I will cover

- Focus mainly on the technical part of things
- Foundation to manage Azure resources
  - Azure governance
- Resources provisioning options
- Azure Resource Manager (ARM)

What I will NOT cover

- Azure Service Management (ASM)
- Organizational management
  - EA portal
- Costs management

Hierarchy


Azure AD
marcelzehner.onmicrosoft.com
marcelzehner.ch
Trust
Subscription “Production”
Resource Group 1
Resource 1
Resource 2
Resource Group 2
Resource 3
Trust
Subscription “Test”

Subscriptions

- First container that is created
  - Global object, not bound to a region
  - Holds resource groups and resources
- Subscription trusts 1 Azure AD tenant
  - Used to assign management permissions to users & groups
- How many subscriptions? It depends …
  - Subscription limits that could be reach?
  - Trusted subscription owner?
  - Need to block specific resource providers?
  - Can RBAC be used to delegate access?

Subscription best practices

- Use as few subscriptions as possible
- Check subscription limits before defining your subscription strategy

Limitations

- Check out this article for limits details
  - https://docs.microsoft.com/en-us/azure/azure-subscription-service-limits
- Many default limits can be increased by creating a free support request

Resource Groups

- Every resource belongs to a resource group
  - Container for resources
  - Created in a region
    - Does not mean that all contained resources reside in the same region
    - During deployment, the region can be inherited by resources (not mandatory)
- How many resource groups? It depends …
  - Do resources share the same lifecycle?
  - Are resources managed by the same team?

Resource group best practices

- Create resource groups based on management access first, then lifecycle
- Use appropriate region

Limitations

- Check out this article for limits details
  - https://docs.microsoft.com/en-us/azure/azure-subscription-service-limits

Naming

- Naming convention for Azure objects
  - Better transparency
  - Key for automated resource provisioning
- Example naming definition
  - location-environment-type-name-number
- Examples
  - Subscription > tst-sub-playground-01
  - Resource Group > weu-prd-rg-webshop-01
  - Vnet > weu-prd-vnet-bern-01

Naming best practices

- Define naming conventions before anything gets deployed

https://docs.microsoft.com/en-us/azure/architecture/best-practices/naming-conventions

Limitations

- Length is restricted, varies by entity (resource type), check link
- Some entities need a globally unique name
  - E.g. storage accounts

Tagging

- Logically organize Azure objects
  - Resource groups and resources
- Name/value pairs
- No inheritance from resource group to resource
- Example tags
  - Owner: Marcel Zehner
  - Application id: WebShop
  - CostCenter: 145
  - Environment: Production

Tagging best practices

- Use tags for more transparency
- Search for untagged resources on a regular basis and update tags

Limitations

- Tags per RG/resource: 15
- Name length: 512 chars
  - 128 chars for storage accounts
- Value length: 256 chars

RBAC 1/2

- Assign permissions to Azure resources
  - Least privilege model
- Role definitions
  - Set of permissions
  - Can be used in multiple assignments
  - Example: “Reader”
- Role assignments
  - Associate role definitions with an identity at a scope
  - Example: Assign “Reader” to User “Marcel Zehner” on Subscription “Test”
- Permissions are inherited
  - Inheritance cannot be blocked

RBAC 2/2

- Three primary role definitions
  - Owner > Full access to resource, incl. the right to delegate access
  - Contributor > Create and manage resources
  - Reader > View-only
  - Available for all Azure resources
- Many resource specific role definitions
  - SQL DB Contributor
  - Site Recovery Operator
- Custom role definitions

RBAC best practices

- Least privilege model
- Organize resources to meet access management requirements
- Grant access at resource group level wherever possible
- Prefer existing over custom roles
- Use group instead of user assignments

Limitations

- Inherited permissions cannot be blocked or removed

Locks

- Lock down of subscriptions, resource groups and resources
- Preventing accidental deletion or modification
- 2 lock levels
  - CanNotDelete > Read & edit, not delete
  - ReadOnly > Read
- Locks are inherited
- The most restrictive lock wins

Locks best practices

- Use locks inheritance where it makes sense
- Configure RBAC first, then add locks where it makes sense

Limitations

- Max. 20 unique locks per scope

Policies 1/2

- Enforce rules and actions
  - To stay compliant (force)
  - Monitor compliance (audit)
- Examples
  - Restrict Azure regions
  - Restrict services
  - Enforce tagging
  - Enforce naming conventions

Policies 2/2

- Policy definitions
  - If/then definitions
    - Some are delivered by Microsoft
    - Own definitions can be created if needed
  - Can use parameters for flexibility
- Initiative definitions
  - Group of multiple policy definitions
- Policy & initiative assignment
  - Assign definitions to a scope
    - Subscription or resource group

Policies best practices

- Always use initiatives, not policies
- Implement at the highest possible level
- Implement in phases: Audit first, then deny
- Try out the new policy console (preview)

Demo

Tagging, RBAC, Locks, Policies

Provisioning 1/2

- Provisioning options
  - Azure Marketplace
  - Azure Service Catalog
  - PowerShell
  - Azure CLI
  - Cloud Shell
  - Azure Resource Manager (ARM) templates
- Manual or automated?
  - Manual > OK for test & play
  - Automated > Preferred for dev, QA and prod

Provisioning 2/2

- ARM templates
  - Declarative approach (JSON)
  - Full lifecycle management (create, update, delete)
  - Test inside out in dev, then deploy 1:1 into QA & prod
- Use release pipeline to automate deployments
  - Full technical deployment & testing process incl. approvals
- Integrate into ITSM solutions
  - Company self service catalog
  - Full business processes

Provisioning best practices

- No manual deployments in production
- Use ARM deployments wherever possible
- Use release pipelines

Demo

ARM Templates, Release Pipeline

Recap

- Address Azure governance first, then start deploying
  - Naming conventions
  - Tagging
  - RBAC
  - Locks
  - Policies
  - Etc.
- Deploy new resources into prod by using ARM templates & automation
  - Fewer errors, faster delivery and much better consistency

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