Overview of Architectural Components

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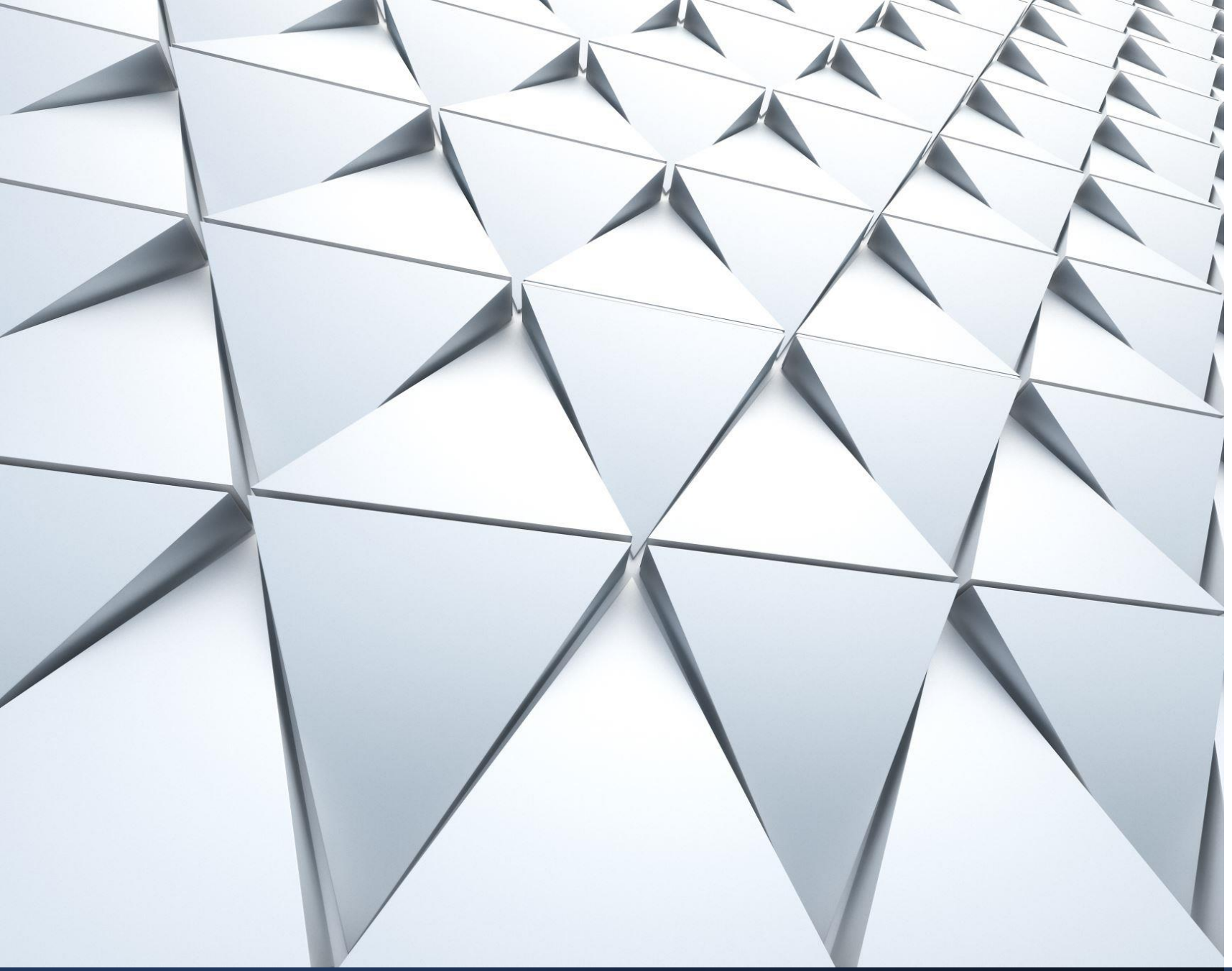

Architectural components: Building blocks that make up the Azure platform

Types of Core Architectural Components

Physical Infrastructure

Management Infrastructure

Physical Infrastructure

- Datacenters
- Regions
- Region Pairs
- Sovereign Regions
- Availability Zones

Management Infrastructure

- Resources
- Resource Groups
- Subscriptions
- Management Groups

Azure Regions and Region Pairs

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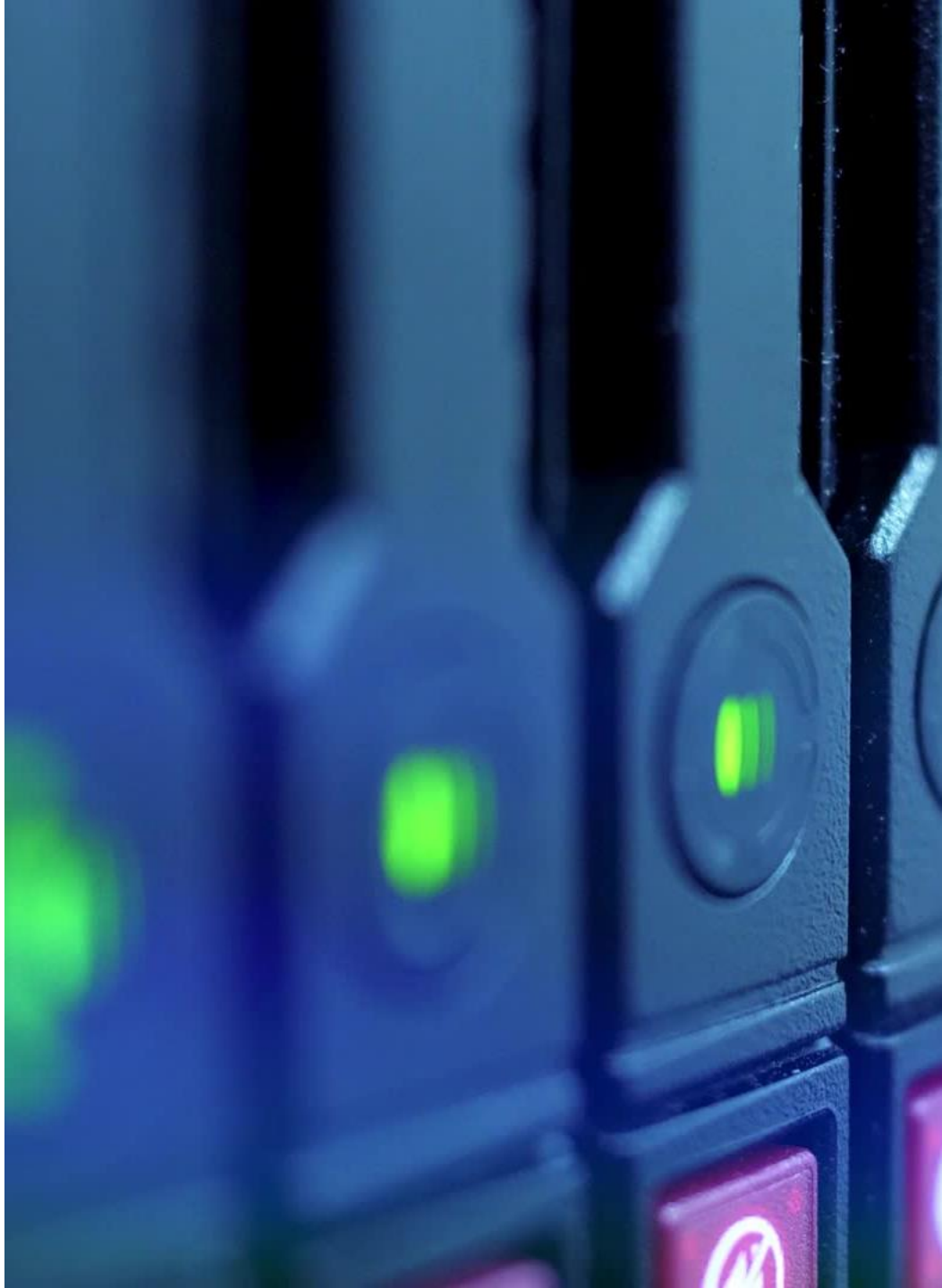
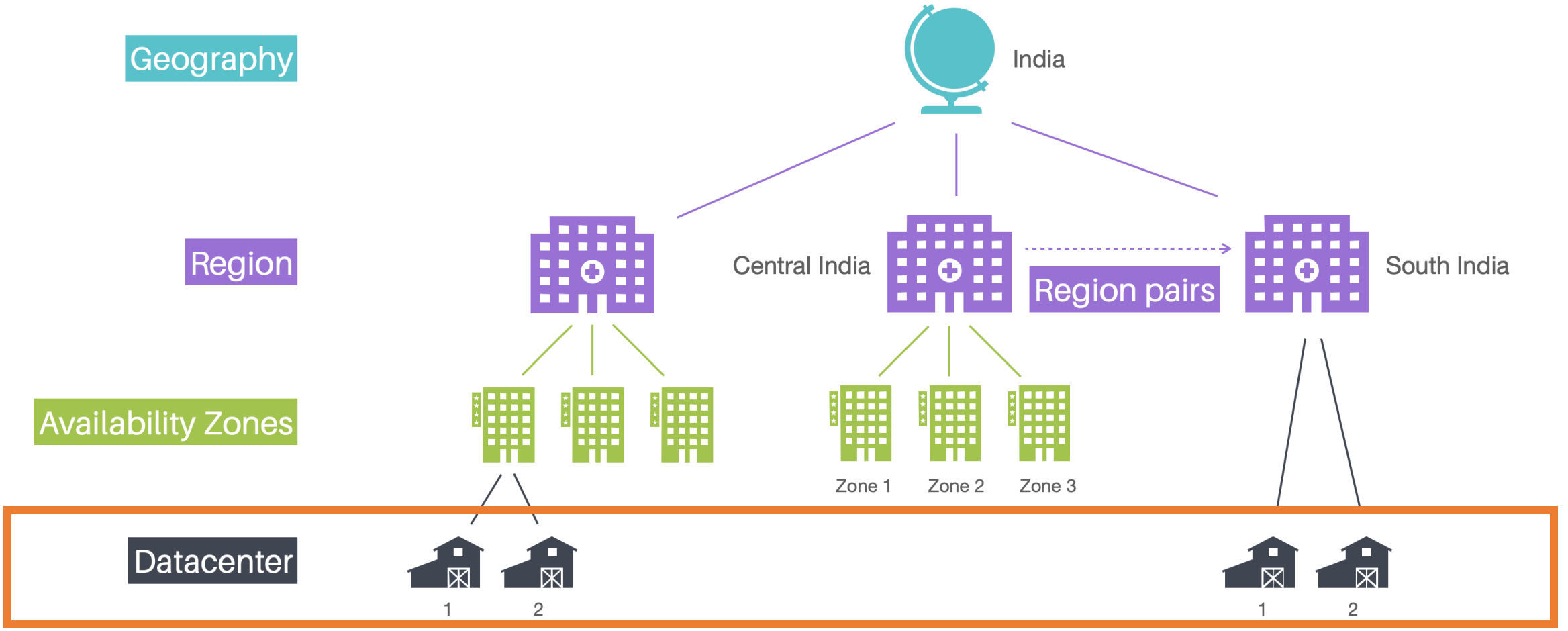
Datacenter

- Azure has multiple datacenters across the world
- Server racks with power, cooling & networking
- You can’t directly access the datacenter



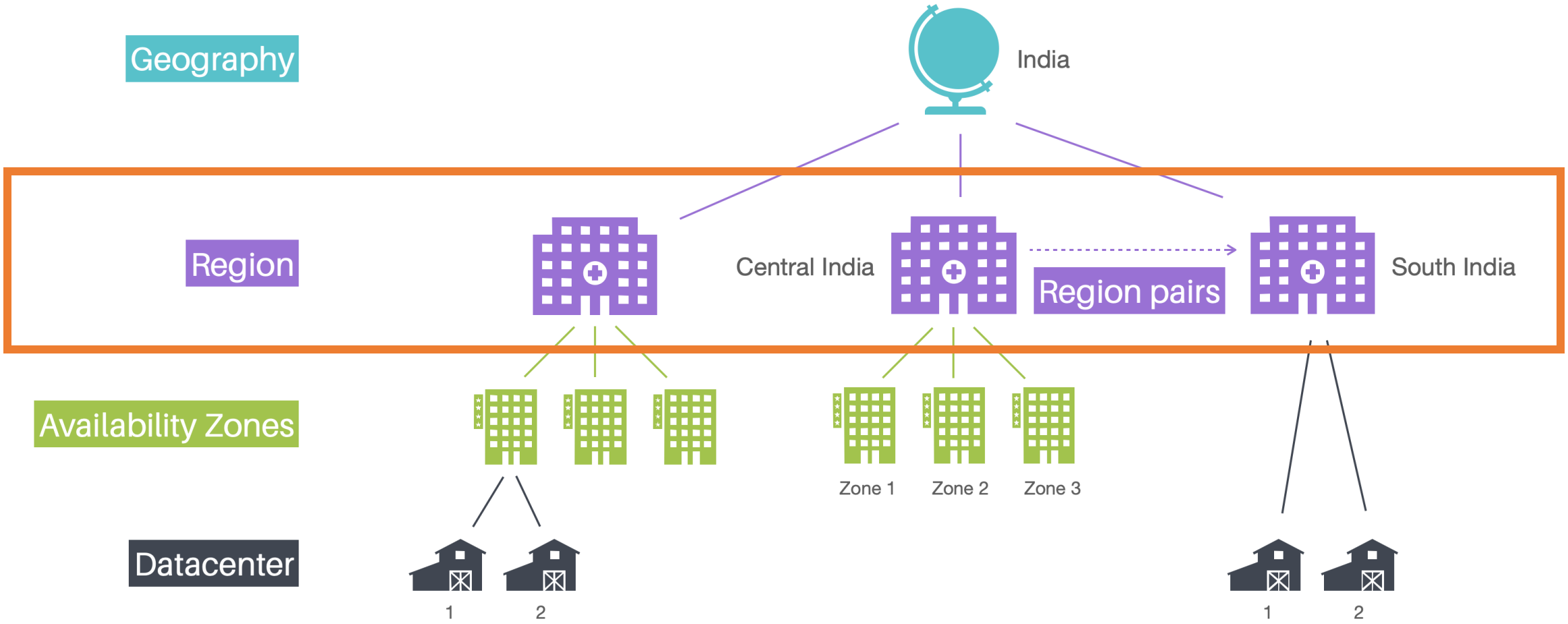
Azure Physical Infrastructure



Region

- Geographical area with at least 1 datacenter
- You select region while creating a resource
- Certain Azure features are region specific

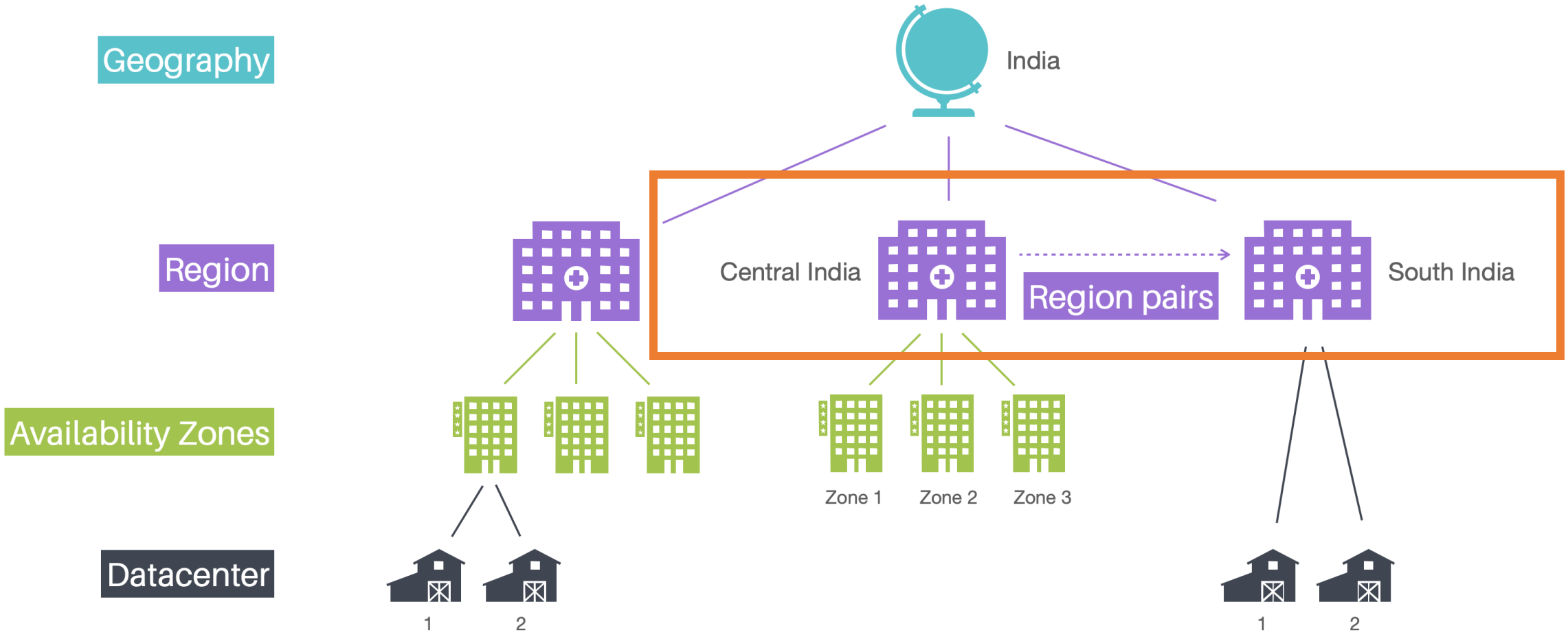
Azure Physical Infrastructure



Region Pairs

- Region paired with another within same geography
- 300 miles apart
- Most regions are paired bi-directional; not all
- Purpose: Natural disasters, power outages, Azure outages, Azure updates

Azure Physical Infrastructure



Availability Zones

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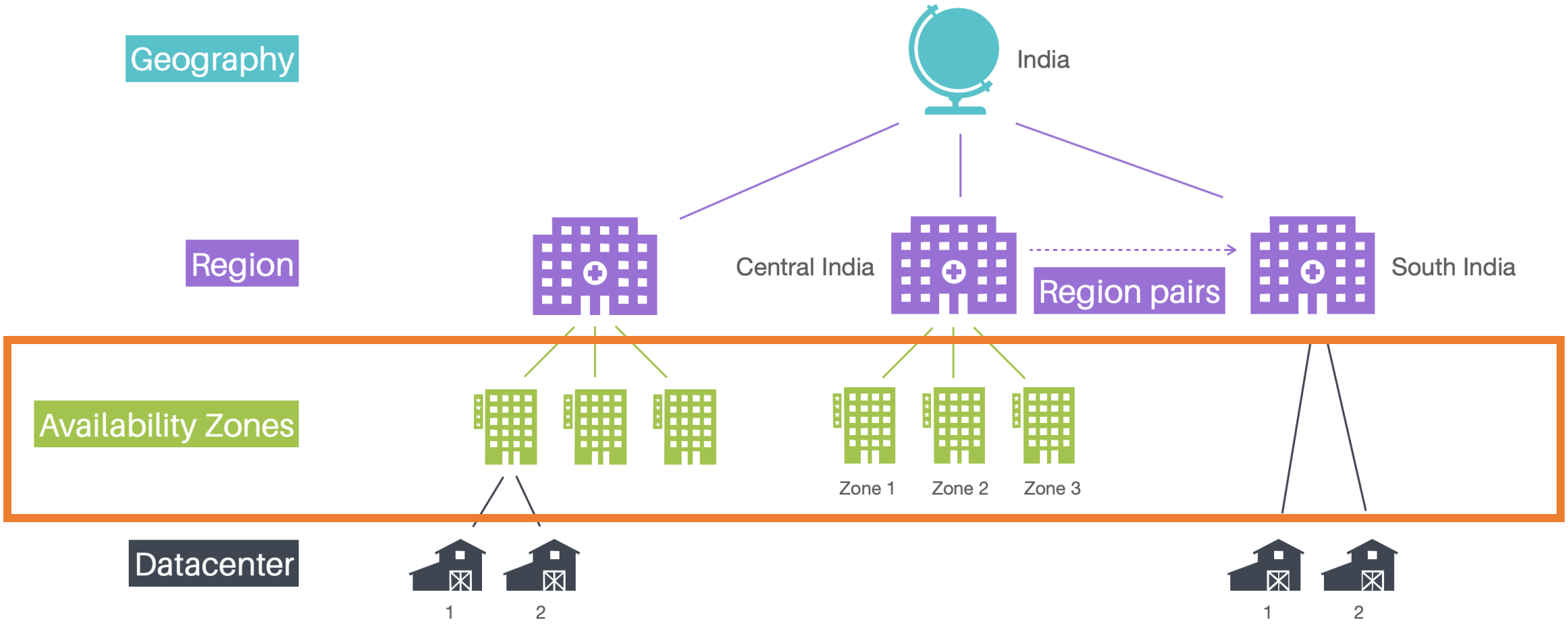
Availability Zones:

Physically separate datacenters in a region with independent power, cooling & networking

Availability Zones

- Connected with high-speed fiber-optics
- Minimum 3 availability zones
- Not all regions support availability zones
- Use cases: High-availability, Mission-critical applications

Azure Physical Infrastructure



Availability Zones – Azure Services

- VMs
- Managed disks
- Load balancers
- SQL databases

Azure Sovereign Regions

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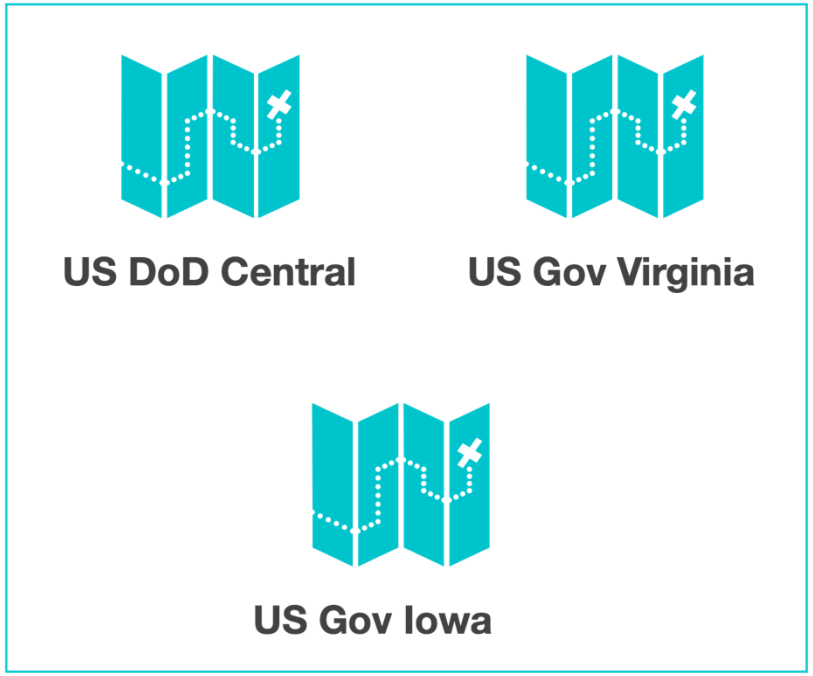
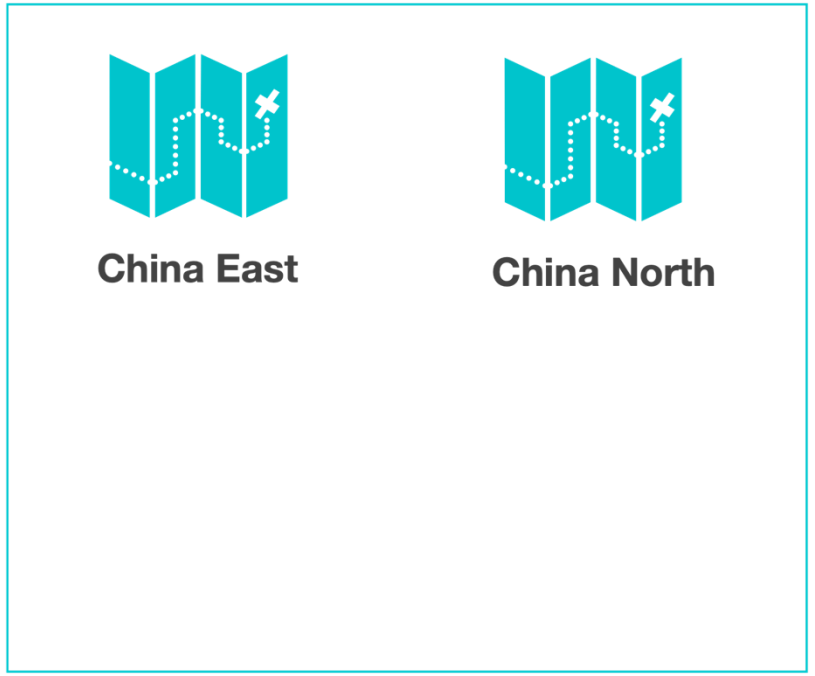
Sovereign Regions:

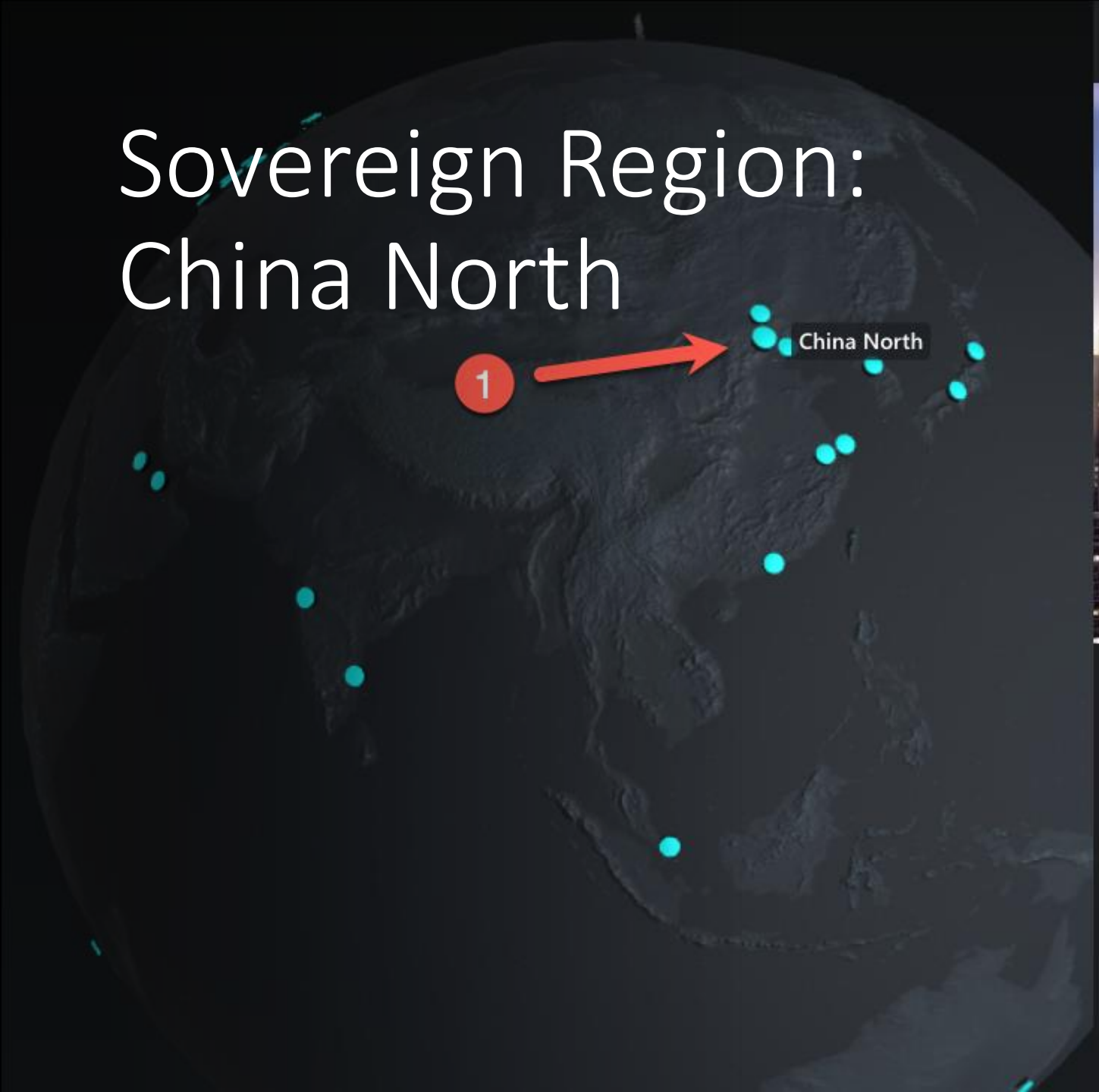
Region that is isolated from the main Azure for compliance purposes

Azure Sovereign Regions





Sovereign Region: China North



China North
Region

2

Location

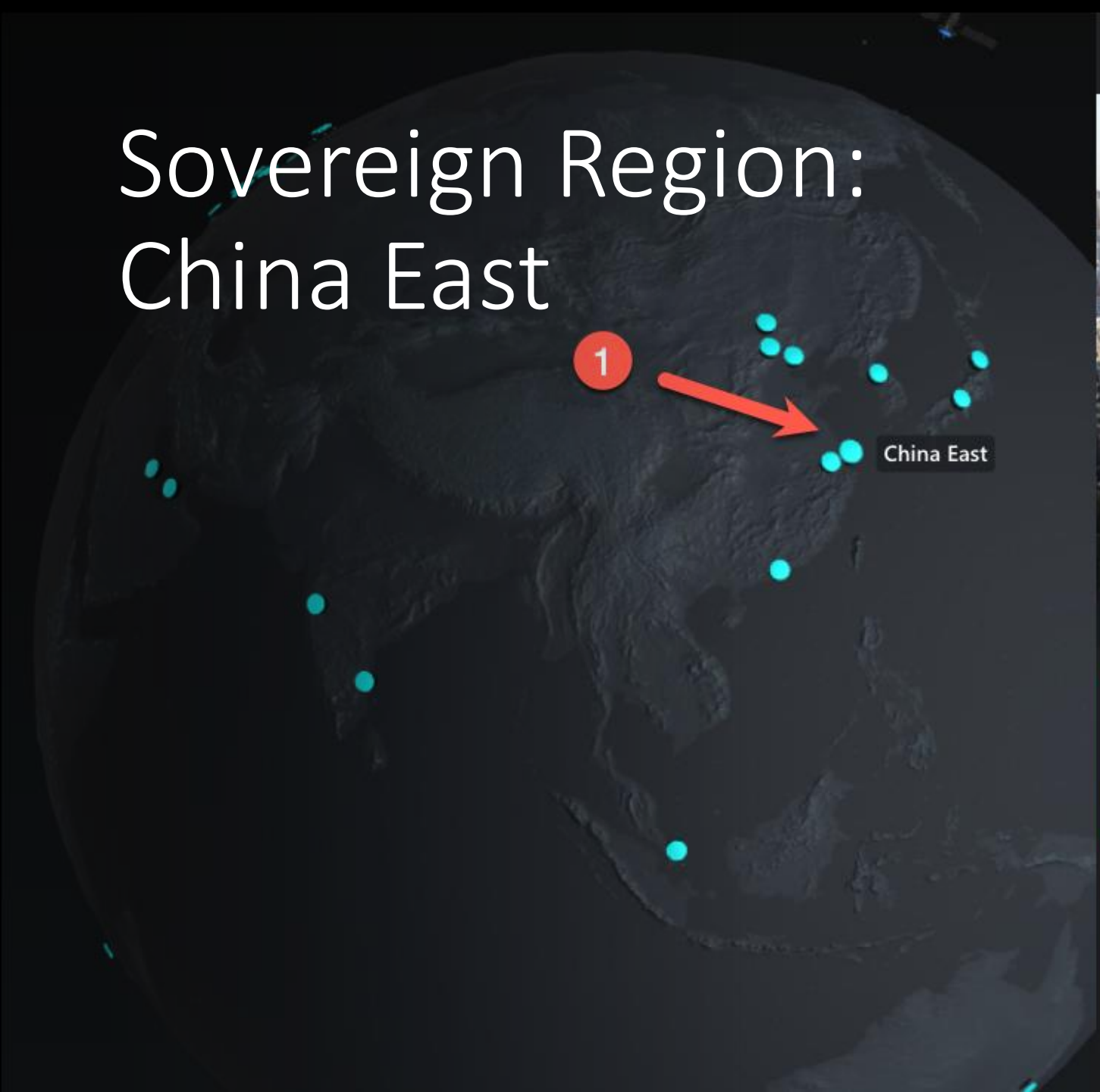
Beijing

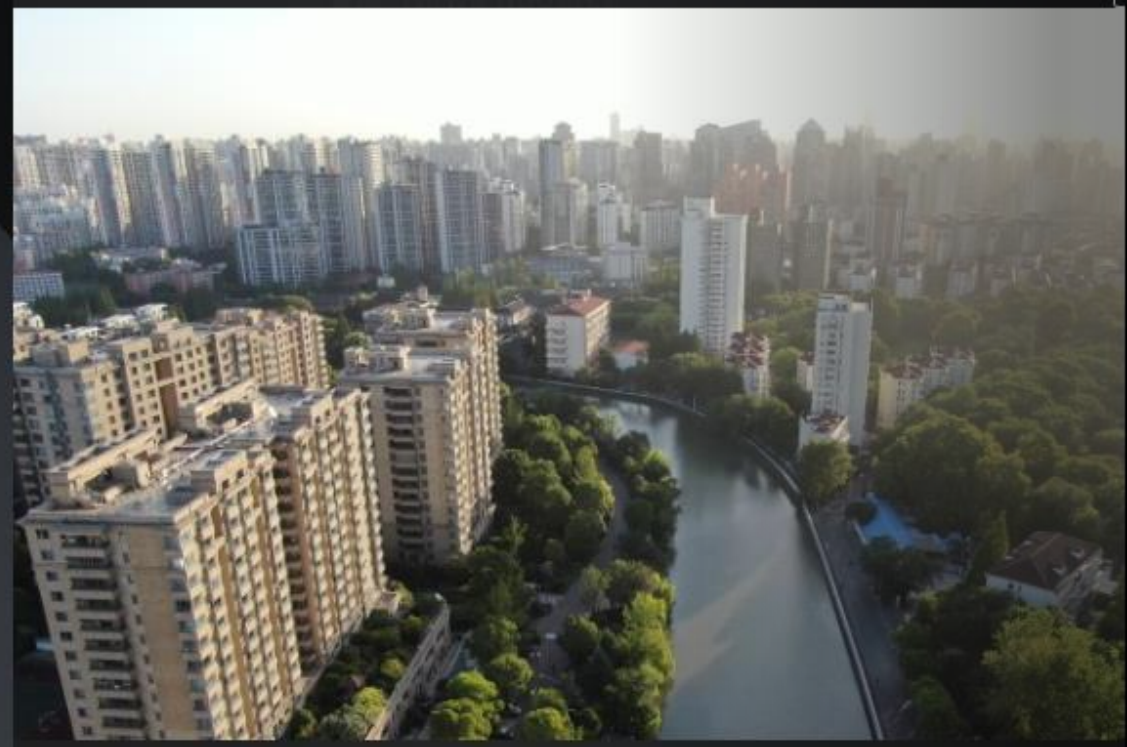
Data residency

A sovereign offering: independent, dedicated network within China
Learn more

3

Sovereign Region: China East





China East
Region

2

Location

Shanghai

3

Data residency

A sovereign offering: independent, dedicated network within China

Learn more

Azure Geography

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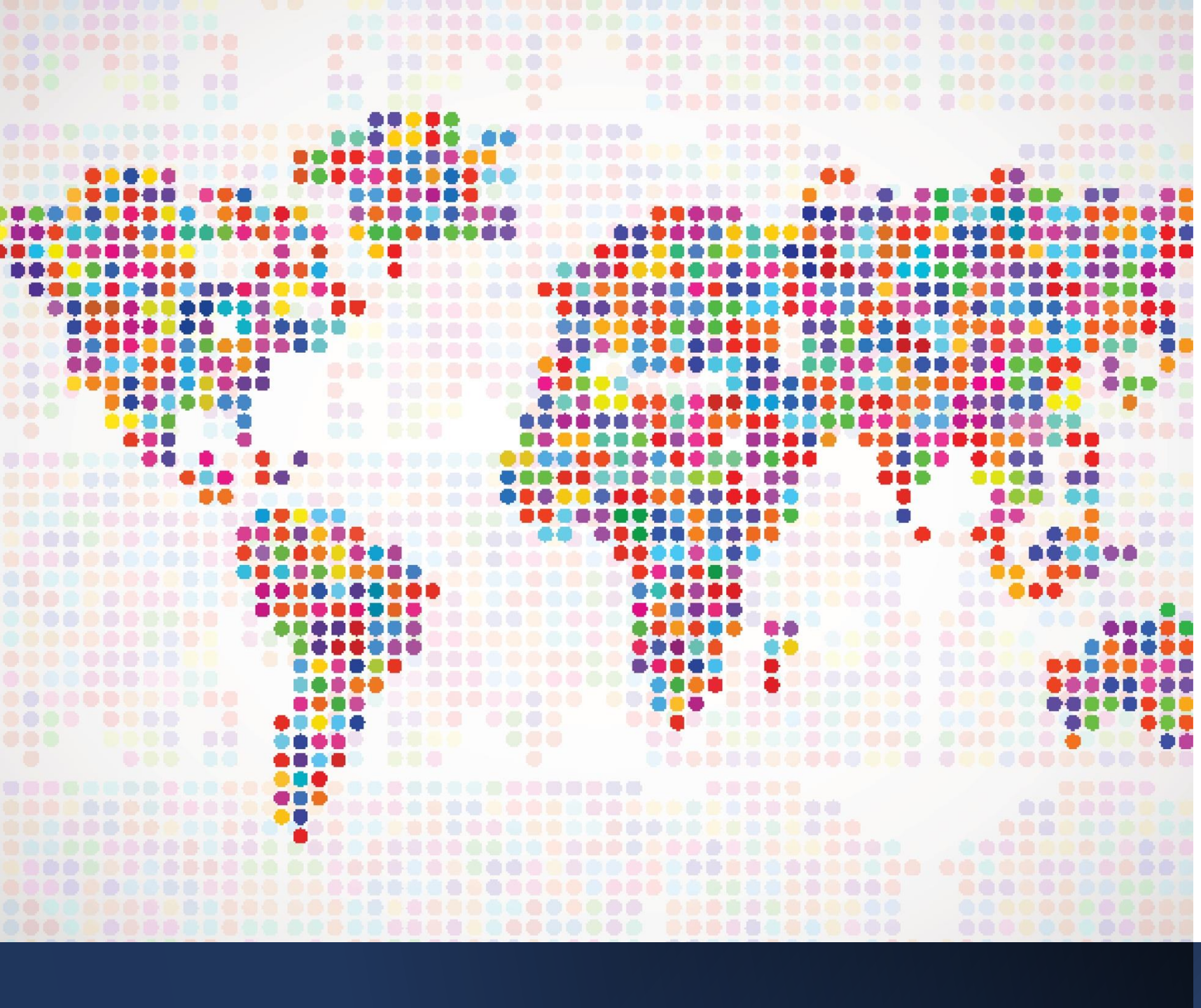


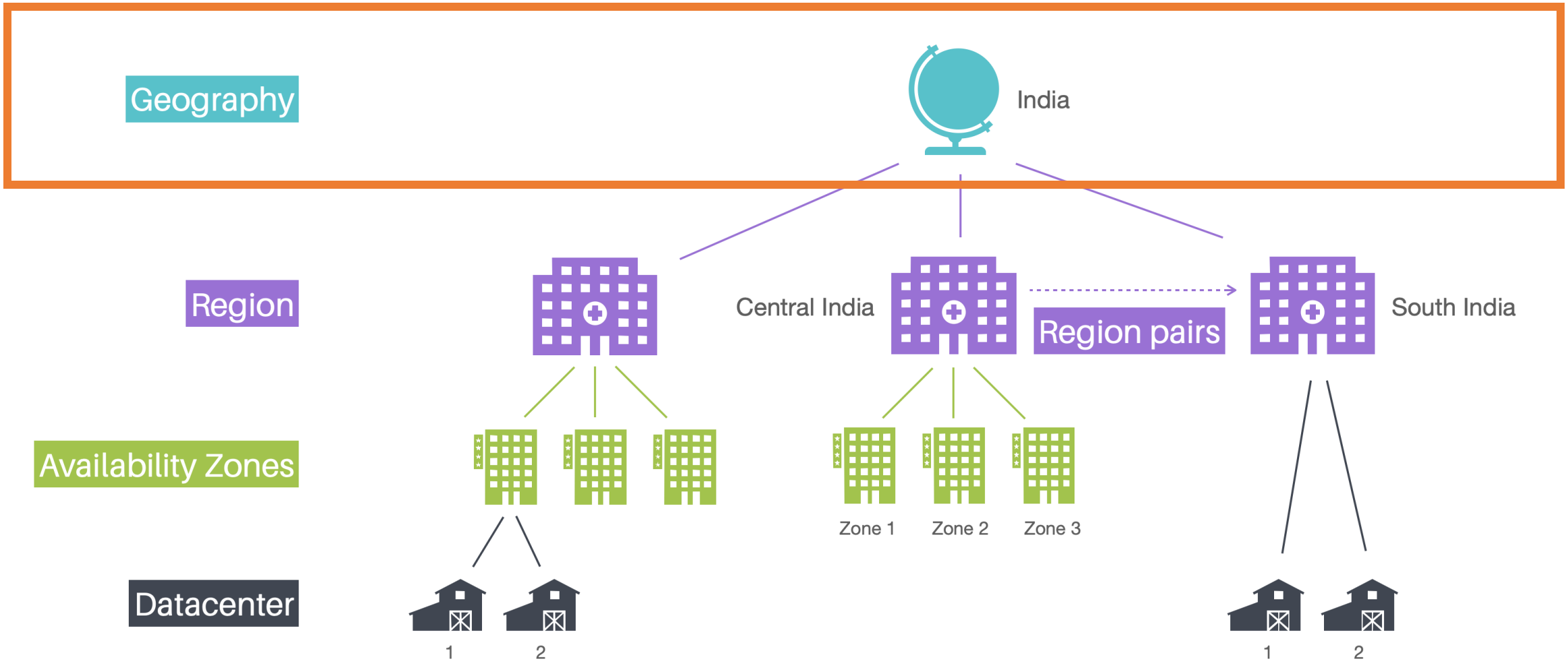
Geography:

Group of one or more regions that share the same physical location

Geography

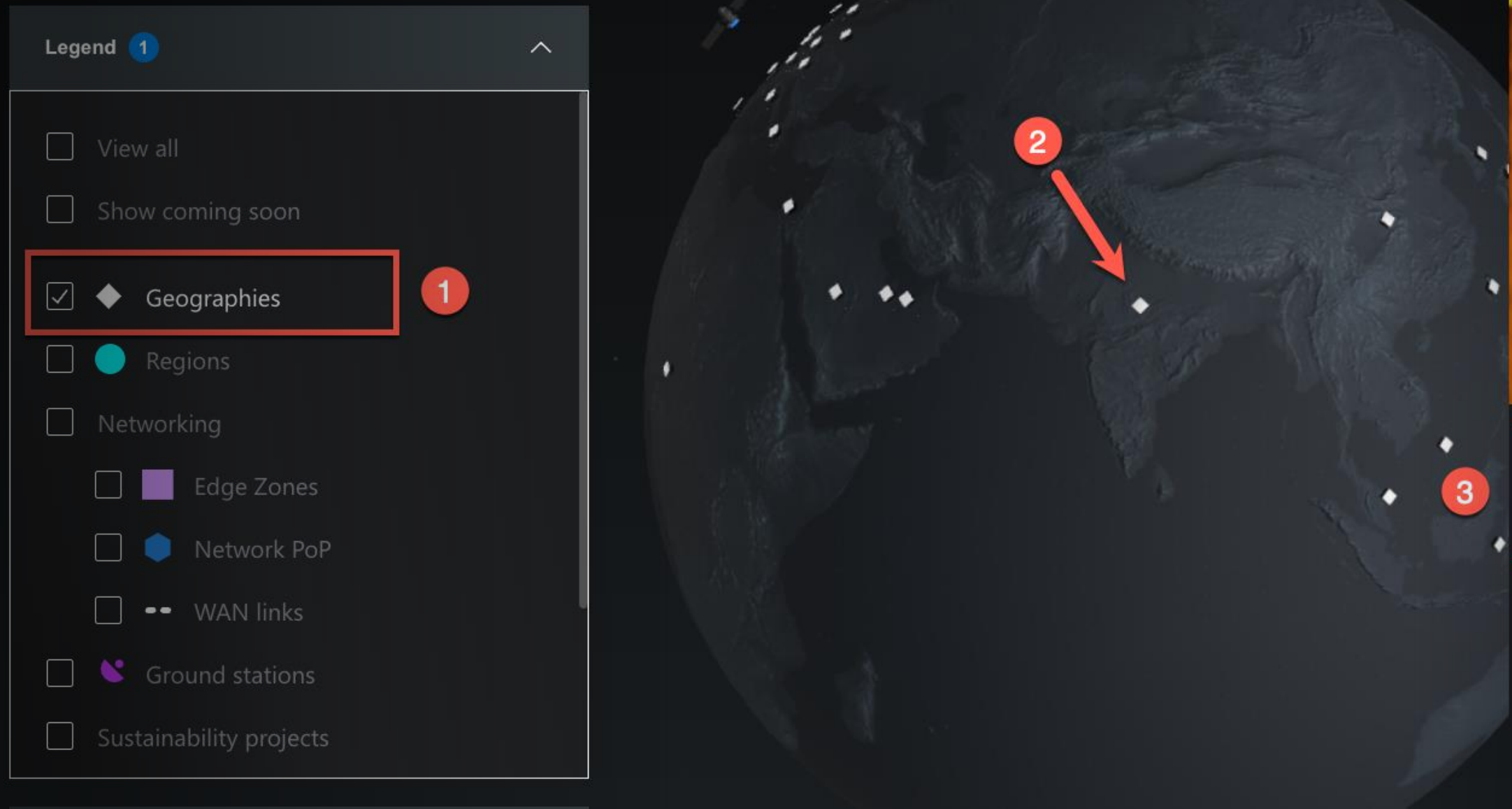
- Compliance and data residency
- Service availability
- Pricing

Azure Physical Infrastructure

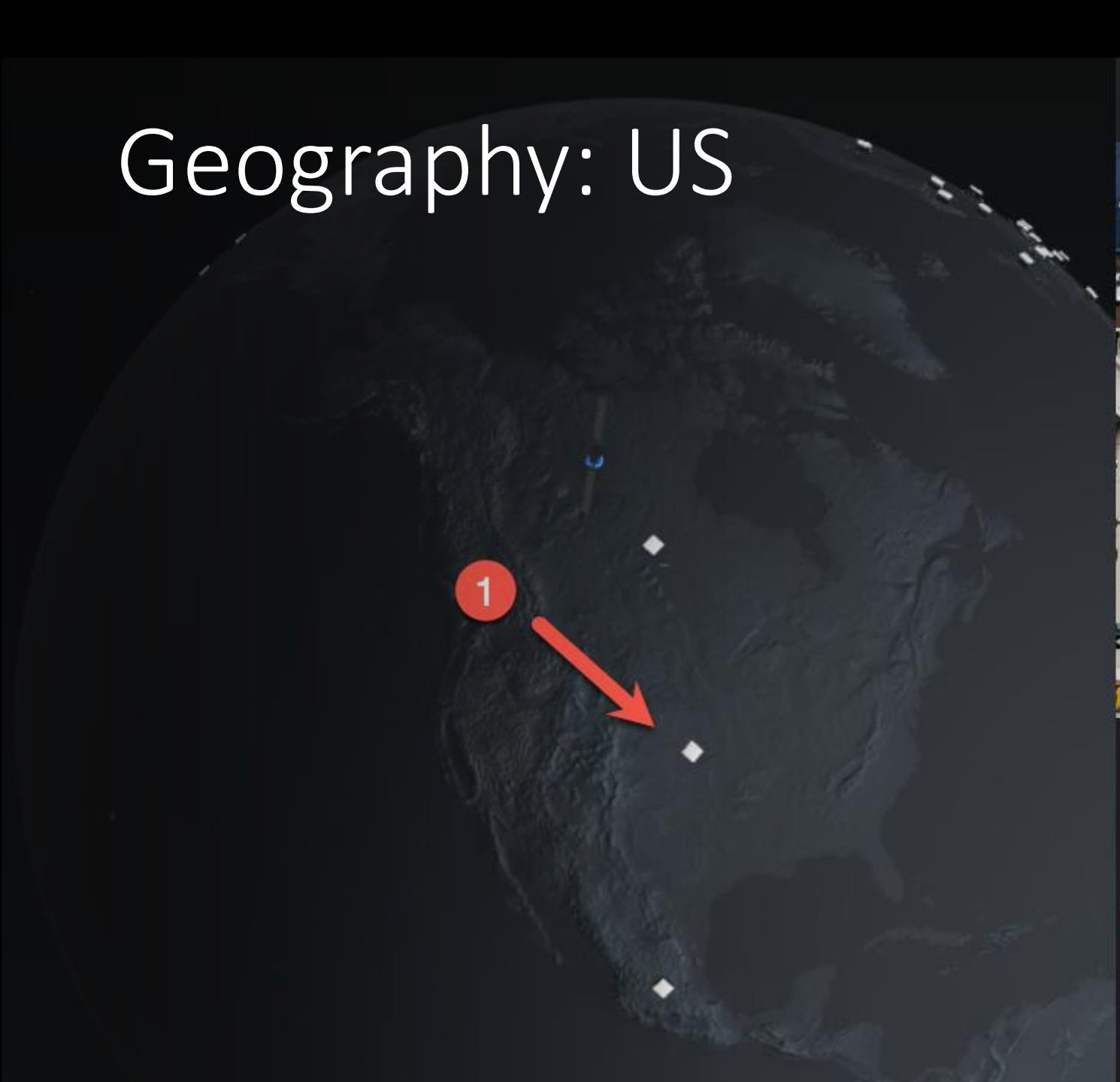


Microsoft Datacenters

Geography: India



Geography: US



Home

United States
Geography

2

Regions
9 Available

Sustainability projects
19

Resources and Resource Groups

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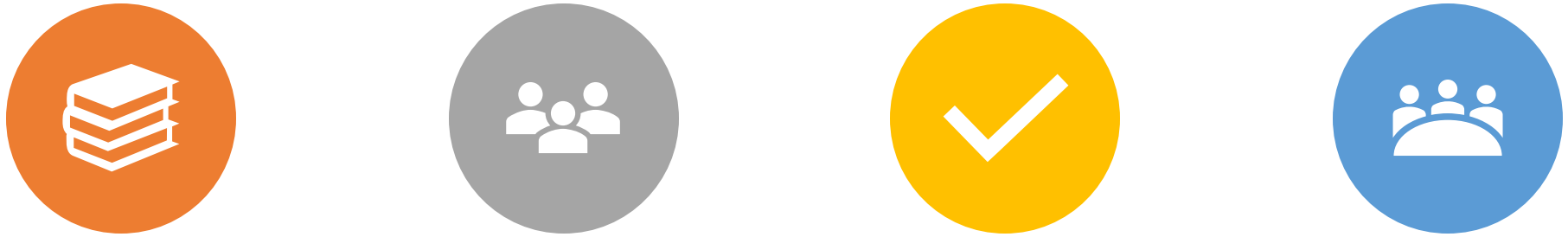
Management Infrastructure



RESOURCES

RESOURCE GROUPS

SUBSCRIPTIONS

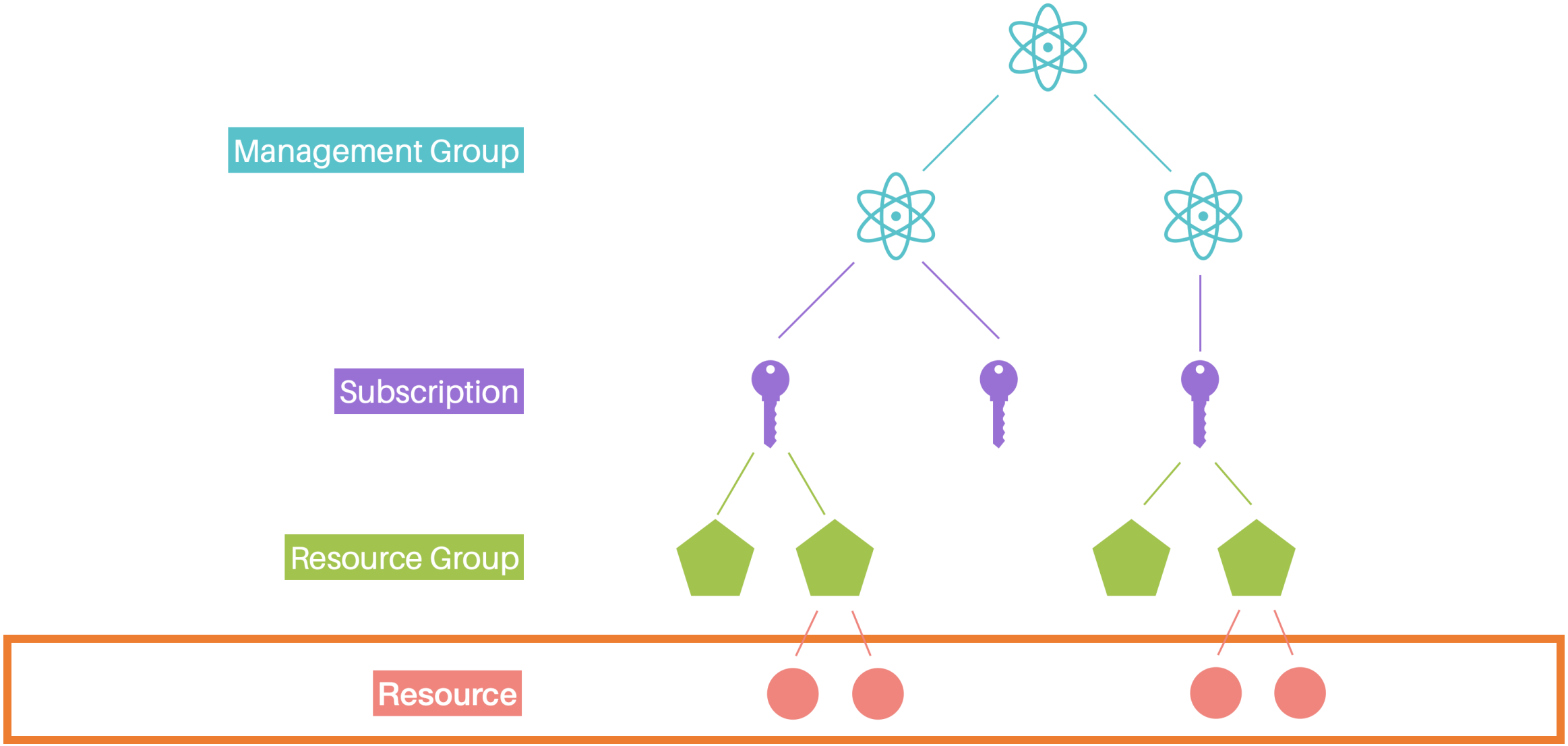
MANAGEMENT GROUPS

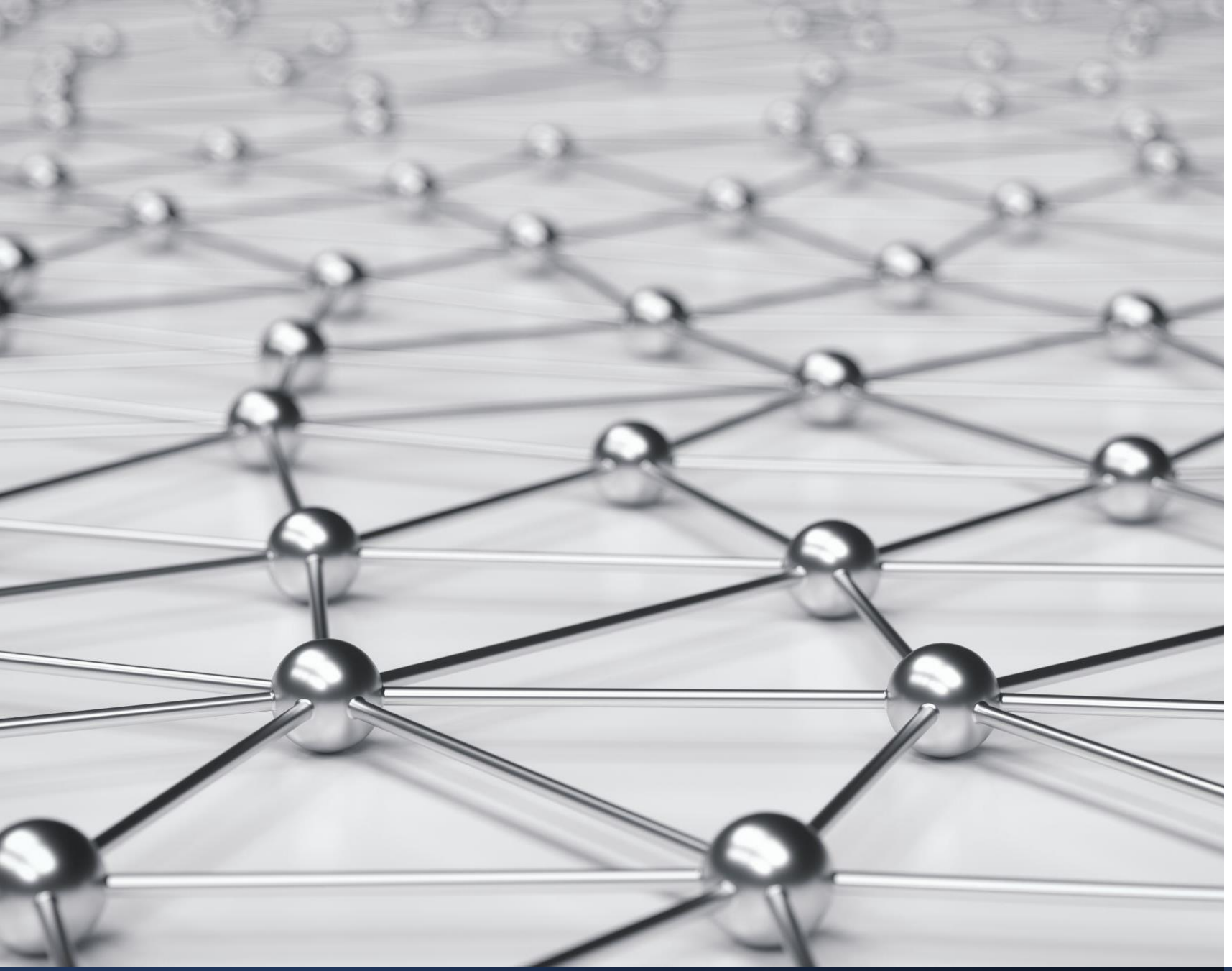
Resource:

The building block of Azure

E.g., VM, virtual networks, databases, storage accounts, etc.

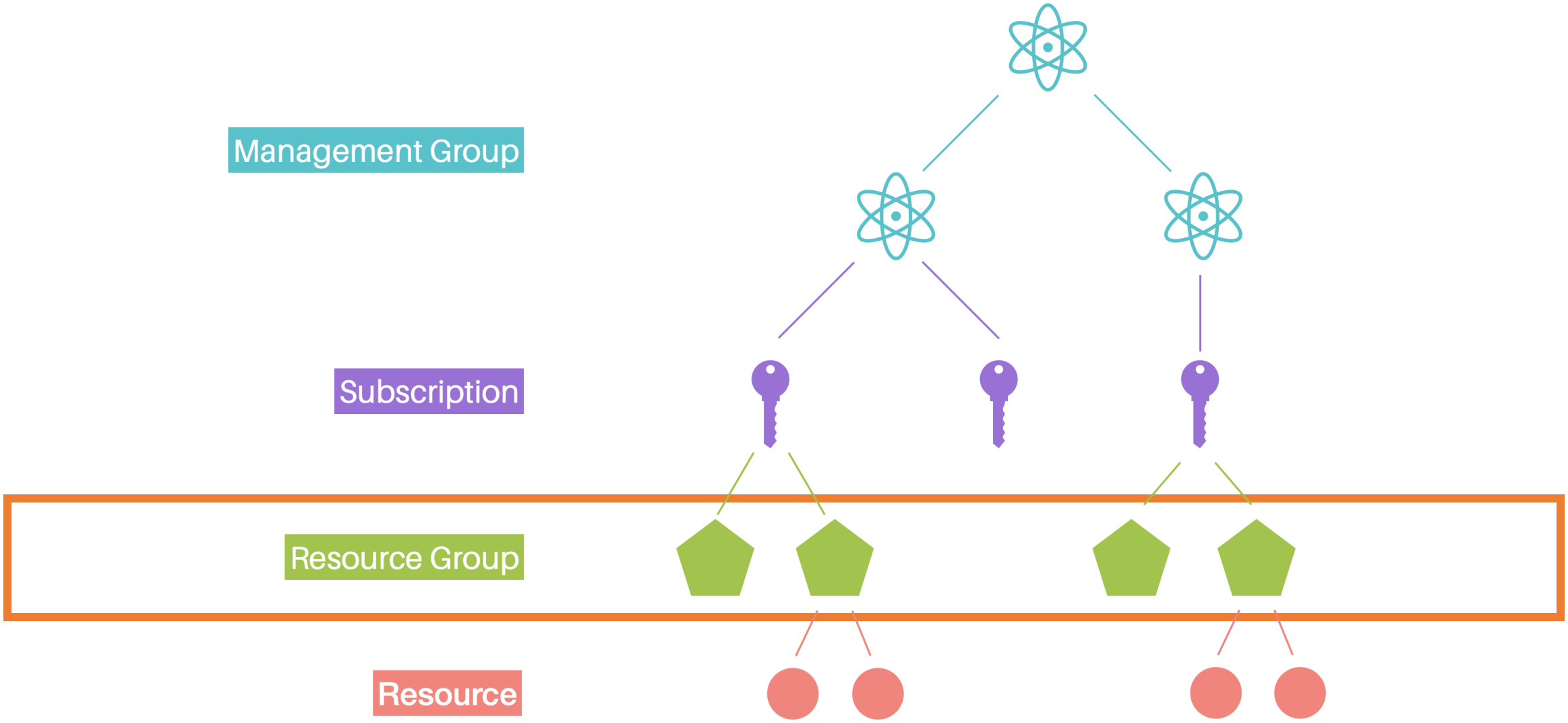
Azure Management Infrastructure





Resource Groups: A group of resources

Azure Management Infrastructure



Resource Groups

- Action applied to resource group applies to all its resources.
- A resource must be in a resource group.
- A resource group can contain many resources.
- Move resources between resource groups.

Resource Group: Typical Use Cases

Access control

Environment

Azure Subscriptions

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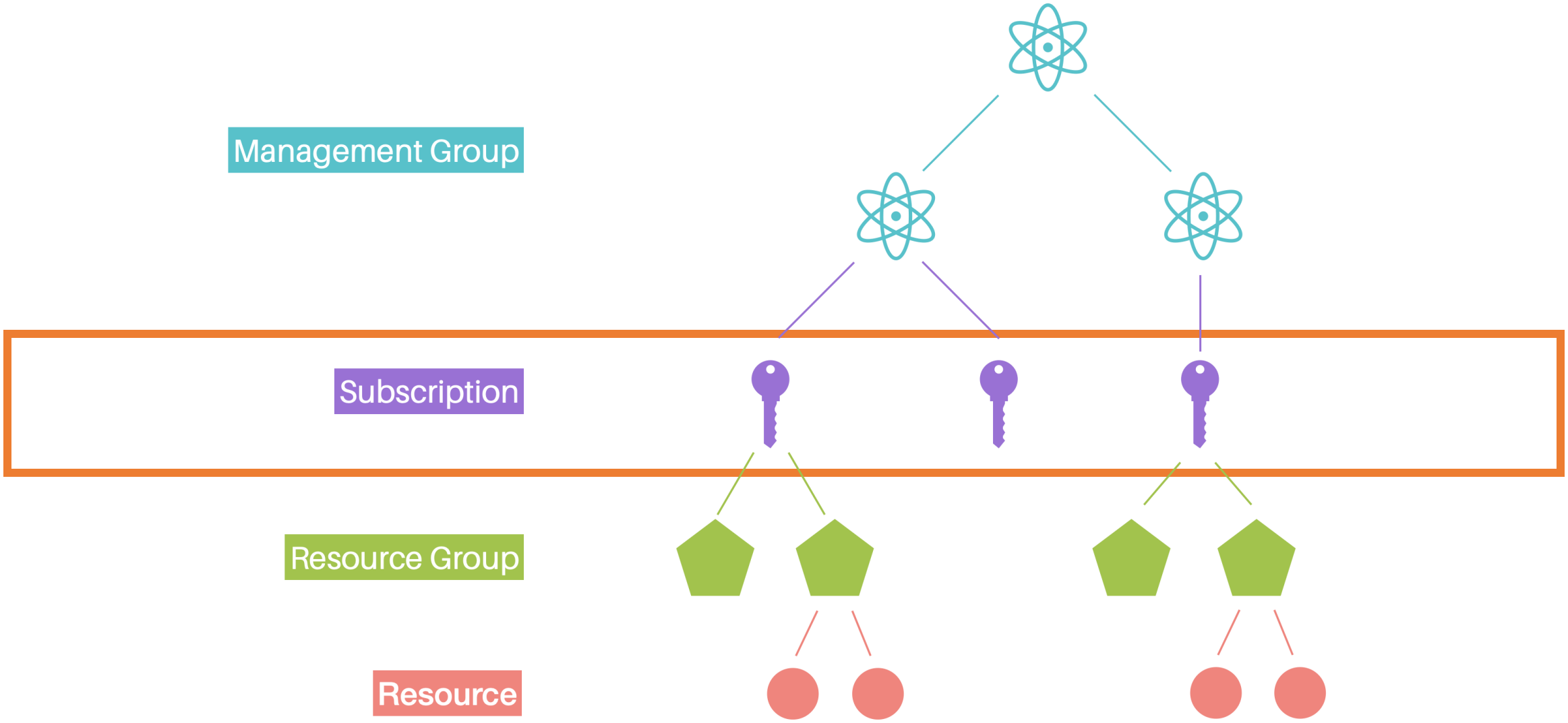
Subscriptions: A unit of management, billing and scale, that logically organizes the resource groups.

Azure Management Infrastructure



Subscriptions

- A subscription is needed to use Azure services.
- Accounts refer to Azure Active Directory (Azure AD).

Subscriptions: Typical Use Cases

- Billing boundary
- Access control boundary
- Environment

Management Groups

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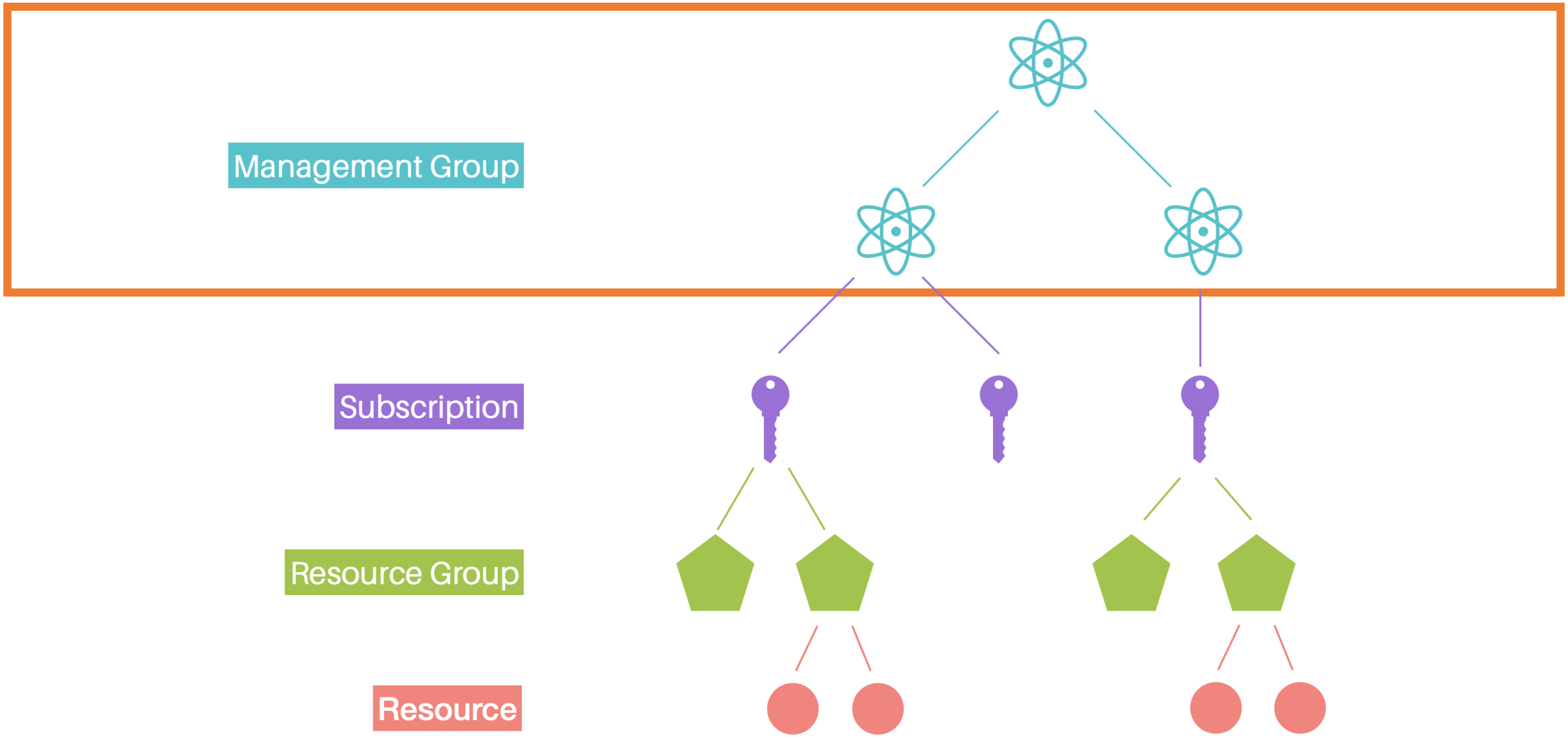
Management Group: A group of subscriptions

Azure Management Infrastructure

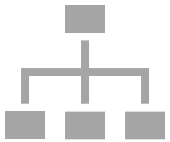


Management Groups

- Useful when you have multiple subscriptions.
- You can create a hierarchy of management groups; up to 6 levels excluding root level.
- Single directory can have max 10000 management groups.
- It can have only 1 parent.

Management Groups: Typical Use Cases

Access control.



Governance conditions.