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I am a Microsoft Data Platform MVP, For 17 years, I have worked with the Microsoft Data Platform and MongoDB, both on-premises and cloud.

I currently work at "GMO LLC" as a Database Solutions Manager, focusing on cloud migration, automation, improving, and streamlining operational workflow.

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Topics Covered

🚩 Provisioning

🚩 Migration

🚩 Monitoring - Performance Tuning

🚩 Security

🚩 Alerting

🚩 Network

🚩 Cost Control

Responsibility | SaaS | PaaS | IaaS | On-prem

Responsibility always retained by the customer

Responsibility	SaaS	PaaS	IaaS	On-prem
Information and data	Customer	Customer	Customer	Customer
Devices (Mobile and PCs)	Customer	Customer	Customer	Customer
Accounts and identities	Customer	Customer	Customer	Customer

Responsibility varies by type

Responsibility	SaaS	PaaS	IaaS	On-prem
Identity and directory infrastructure	Shared	Shared	Customer	Customer
Applications	Microsoft	Shared	Customer	Customer
Network controls	Microsoft	Shared	Customer	Customer
Operating system	Microsoft	Microsoft	Customer	Customer

Responsibility transfers to cloud provider

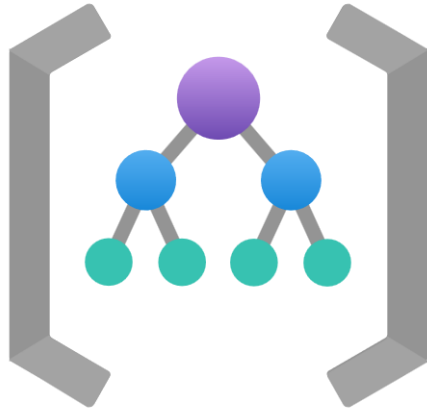| Responsibility	SaaS	PaaS	IaaS	On-prem
Physical hosts	Microsoft	Microsoft	Microsoft	Customer
Physical network	Microsoft	Microsoft	Microsoft	Customer
Physical datacenter	Microsoft	Microsoft	Microsoft	Customer

Legend: ■ Microsoft ■ Customer ◨ Shared

https://learn.microsoft.com/en-us/training/modules/describe-cloud-service-types/2-describe-infrastructure-service

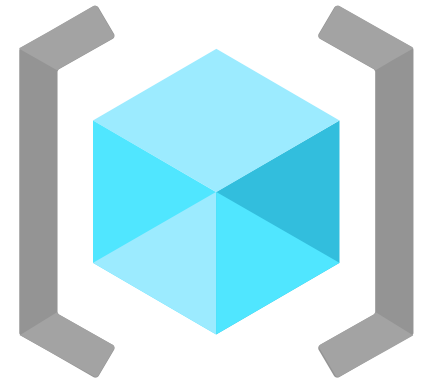PASS Data Community SUMMIT 2023

Provisioning

Region (Availability Zones)

Management Group

Subscription

Resource Group

Provisioning

Management groups

Subscriptions

Resource groups

Resources

https://www.javatpoint.com/what-is-microsoft-azure-subscription
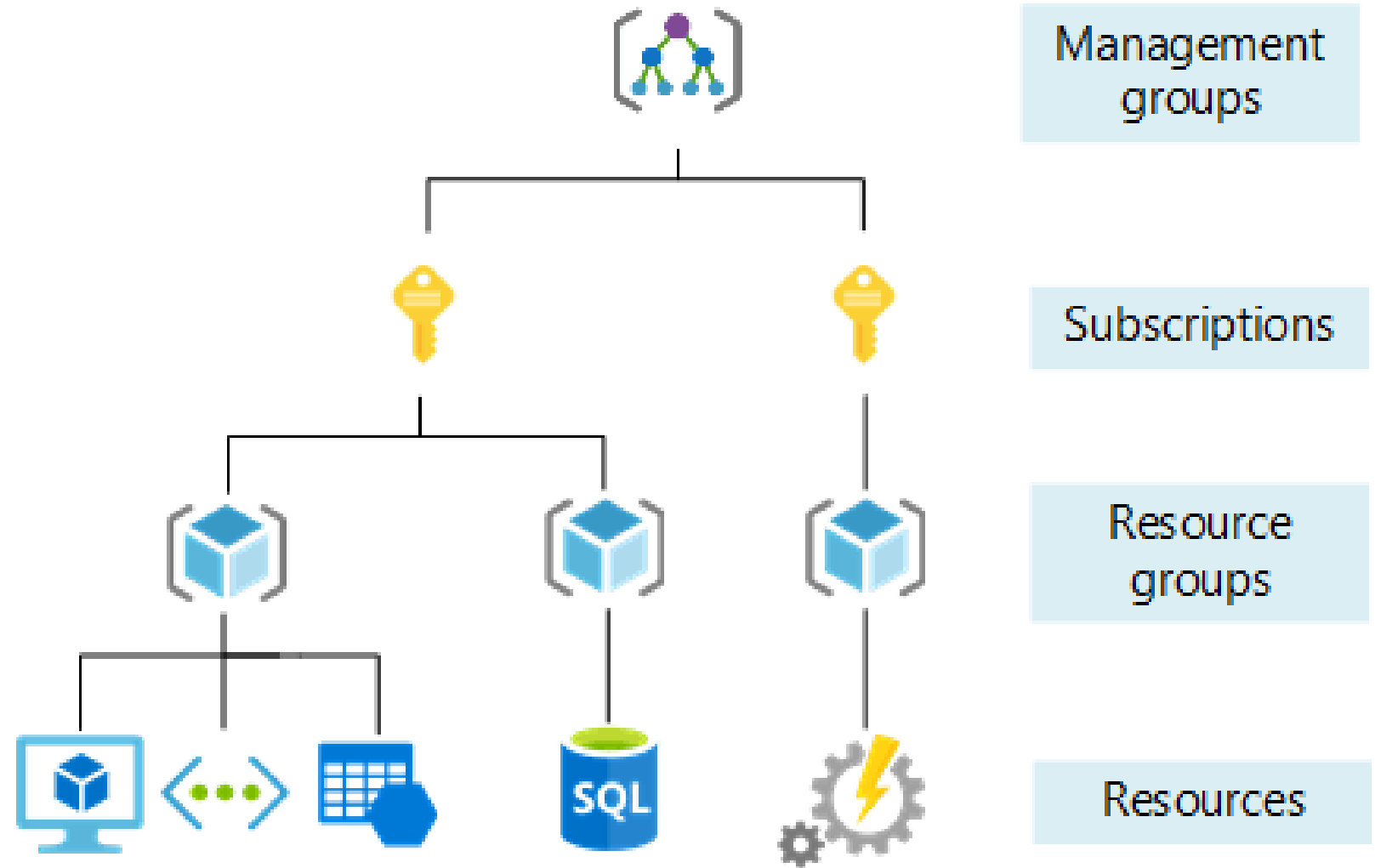
Provisioning
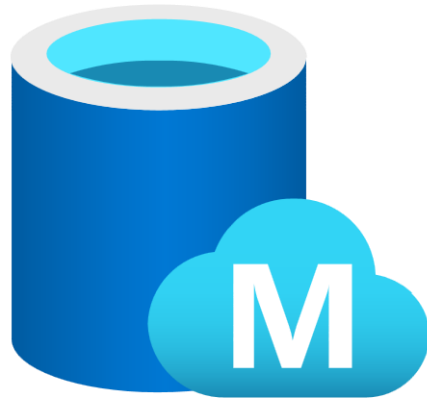
SQL on Azure VM

Azure SQL Managed Instance

Azure SQL Database

Azure SQL Edge

Provisioning

SQL on Azure VM

Deployment

- Marketplace
- Install your own
- Lift and Shift with Azure Migrate

Control over OS & SQL Version

SSAS, SSRS, SSIS availability

IaaS Extension

- Automated Backup
- Security updates

Scale up and Down, Shut down and only pay for storage

Can use all HA/DR solution as on premises

Provisioning

Azure SQL Database

Fully managed and always on the latest version of SQL

Need to know

- Purchase Model
- Compute options
- Hardware choice
- Reserved data storage

Point In Time and Long-Term backup retention

Scale up and down/Auto Pause

Built in HA/DR – Is that enough for you?

Understand log rate limits

Migration

SQL Server

SQL Server (upgrade)

Azure SQL Database

Azure SQL Managed Instance

SQL Server on Azure VMs

Azure Synapse Analytics

Migration

Azure Migrate

Azure Migrate appliance, deploy on-premises.

Azure Readiness

Azure Sizing

Azure Cost Estimation

Dependency Analysis

Migration

Azure Database Migration Services

Azure Database Migration Service

- Azure SQL Migration Extension for Azure Data Studio
- Azure Portal
- PowerShell
- Azure CLI

Database Migration Service (classic)

- Older version of DMS (Do not use for SQL Migration)

https://learn.microsoft.com/en-us/azure/dms/dms-overview#compare-versions

Migration

Other Migration Tools

BACPAC

DACPAC

Transactional Replication

Bulk Copy

Azure Data Factory

SQL Data Sync

Migrating your Data to the Cloud

Track: Database Management

Level: 100

📅 November 16   🕐 10:15 AM-11:30 AM   ⌂ 3AB

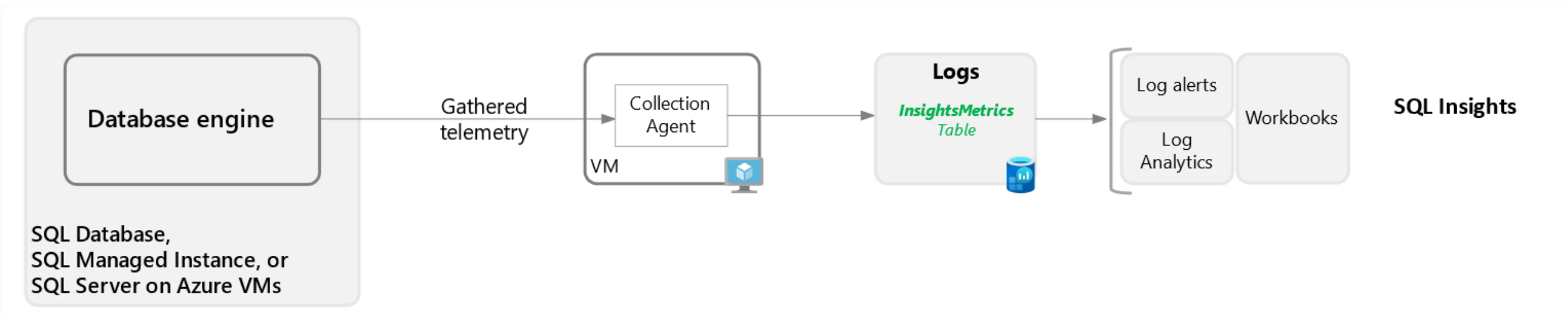**Matt Gordon**
Senior Architect

Monitoring - Performance Tuning

Monitoring and diagnostic telemetry

https://learn.microsoft.com/en-us/azure/azure-sql/database/monitor-tune-overview?view=azuresql
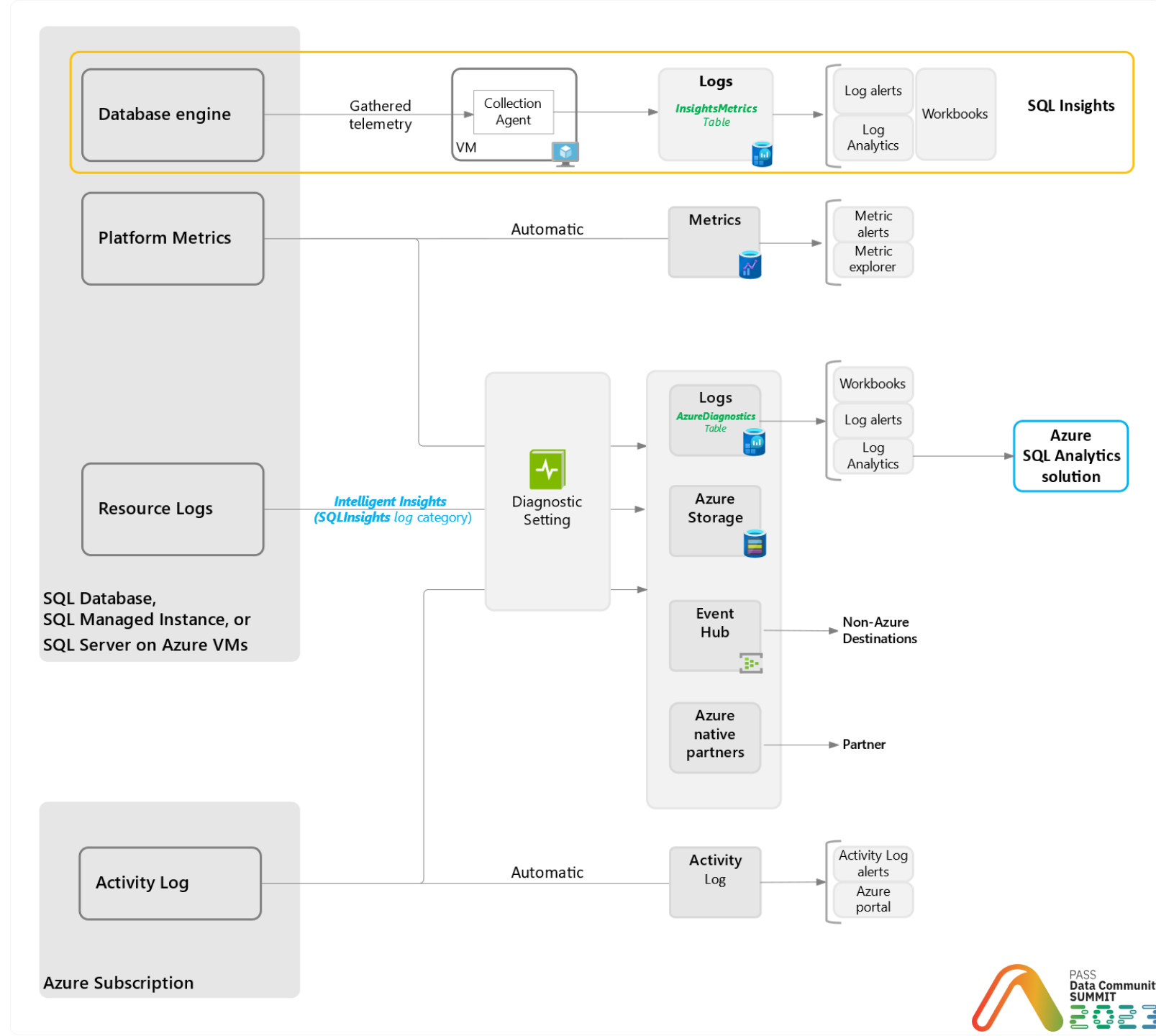
Monitoring – Performance Tuning

SQL Insight (preview)

Monitoring – Performance Tuning

Built into Portal

Metrics

Performance Overview

Performance Recommendations

Query Performance Insight

Automatic Tuning

Security

NETWORK SECURITY

ACCESS MANAGEMENT

THREAT PROTECTION

INFORMATION PROTECTION

CUSTOMER DATA

https://learn.microsoft.com/en-us/azure/azure-sql/database/security-overview?view=azuresql
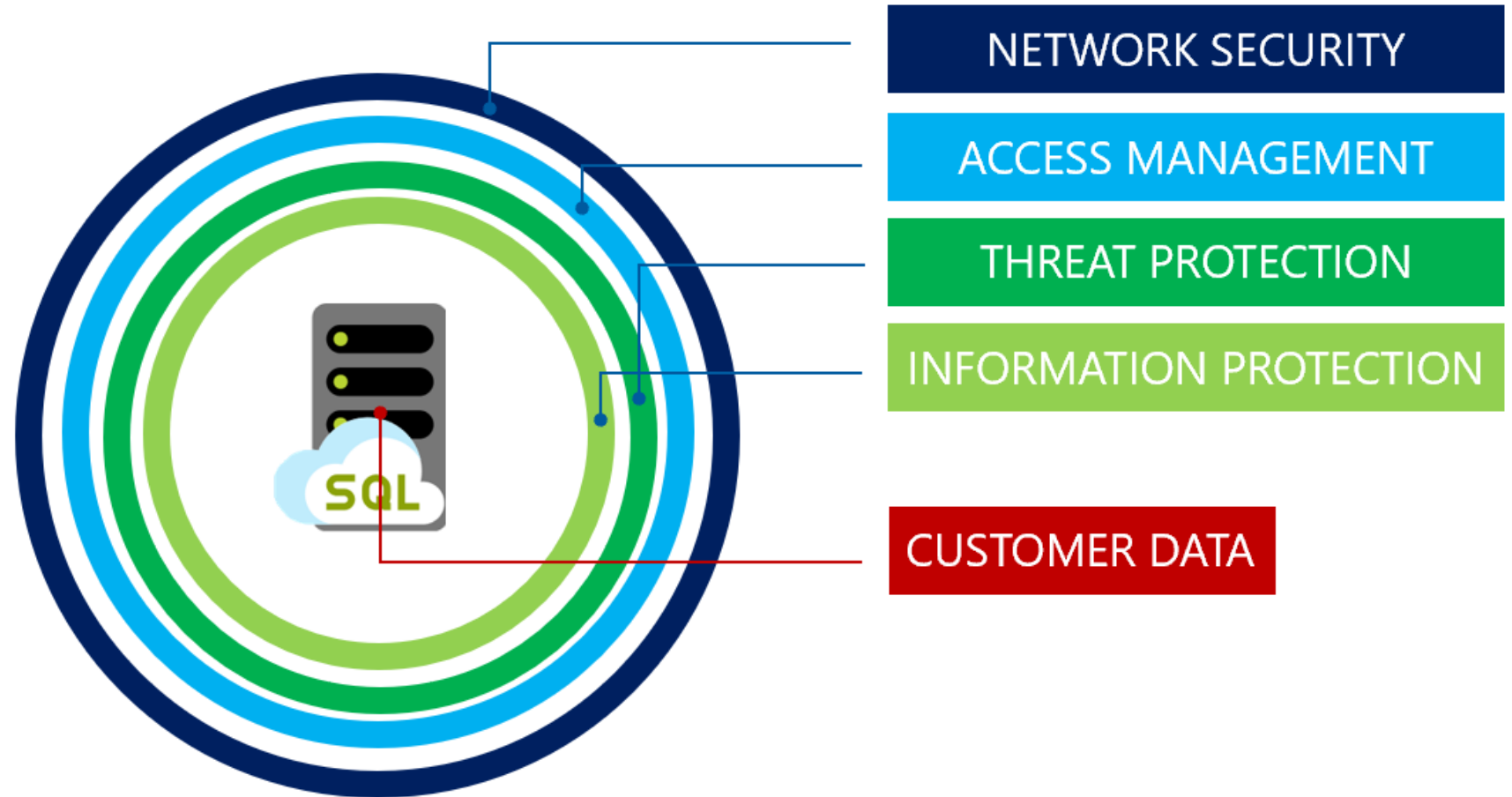
Security

Database Security

Network Security
- Firewalls
- Private Endpoint

Access Management
- Authentication
- Authorization
- Access Control

Threat Protection
- Auditing
- Threat detection

Information Protection
- Data Encryption
- Database backup
- Physical Security

Security

Tools

Azure SQL Auditing

Ledger

Data Discovery & Classification

Defender for Cloud

- SQL vulnerability assessment
- SQL Advanced Threat Protection

User-Assigned Managed Identity

Encryption

- TDE
- Always Encrypted

Security

Azure role-based access control

- Azure roles
- Azure AD roles
- Database specific roles
- Custom roles
- Allow technologists access to Database management plane and not data plane.

Microsoft Entra Privileged Identity Management

Tools

Learning Pathway
Securing your Data in the Cloud

Track: Architecture

Level: 100

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Melody Zacharias
Director Solutions and Strategy

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Alerting

https://learn.microsoft.com/en-us/azure/azure-monitor/alerts/alerts-overview
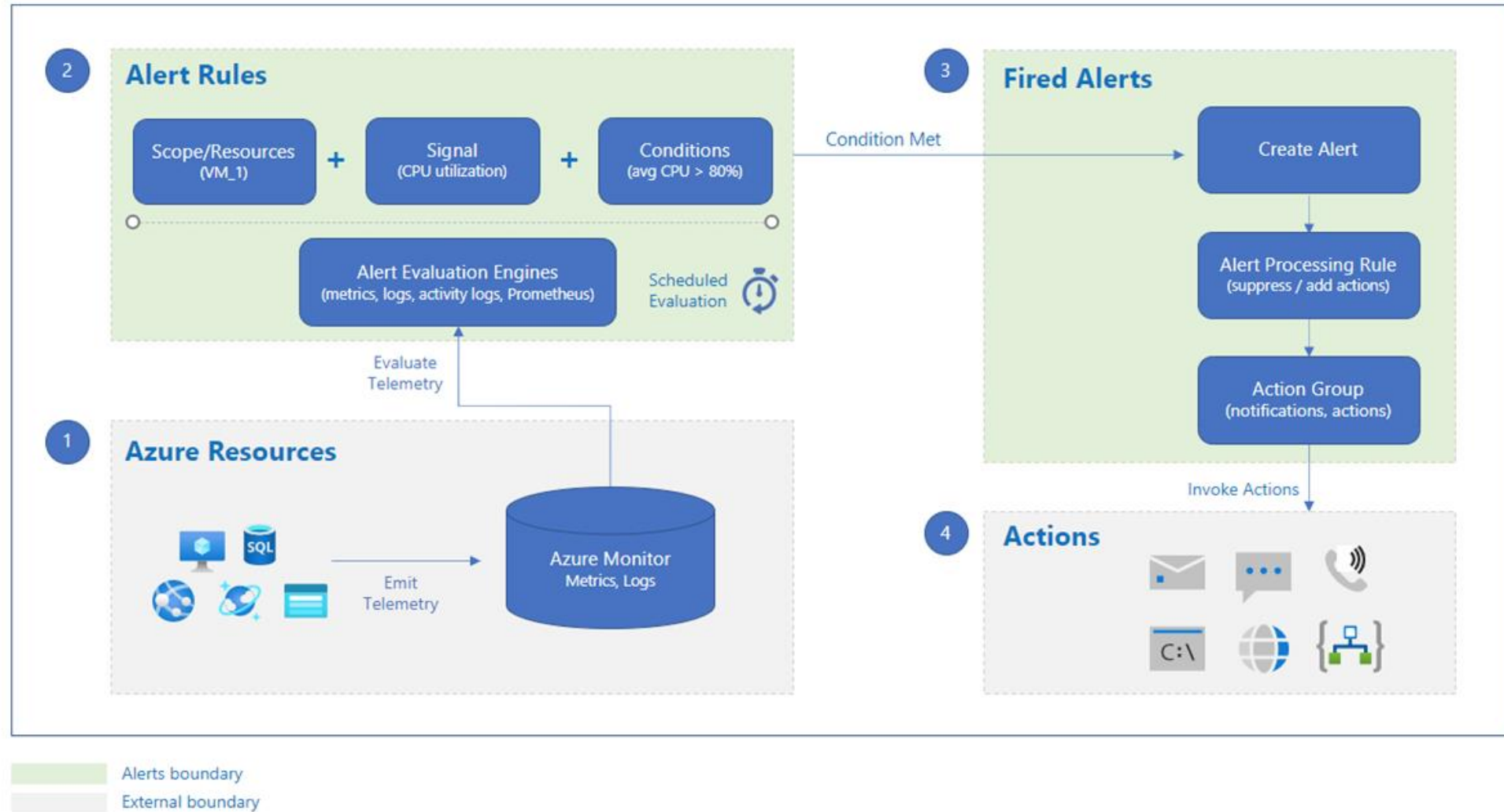
Alerting

Alerts and Actions

Metrics

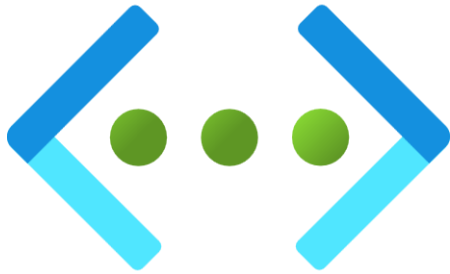**Diagnostic Settings**

Logs
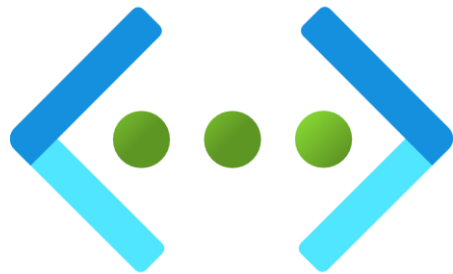
Networking

Connectivity Services

- Azure Virtual Network
- Azure Virtual Network Manager
- ExpressRoute
- VPN Gateway
- Azure Virtual WAN
- Azure DNS
- Azure Bastion
- Virtual network NAT Gateway
- Route Server
- Peering Service

Networking

Application protection services

- DDoS Protection
- Azure Private Link
- Azure Firewall
- Web Application Firewall
- Network security groups
- Service endpoints

Application delivery services

- Azure Front Door
- Traffic Manager
- Load Balancer
- Application Gateway
- Content Delivery Network

Network monitoring services

- Azure Network Watcher
- Azure Monitor
- ExpressRoute Monitor
- Network Insights

Networking

Azure SQL Database

Public Endpoint: *yourservername.database.windows.net*

Public Access

- Public network access
- Virtual networks
- Firewall rules
  - Server-level IP firewall rules
  - Database-level IP firewall rules
- Allow Azure Services and Resources to access this server

Private Access / Endpoints

Connectivity

- Outbound networking
- Outbound firewall rules
- Connection Policy (cannot change in dedicated SQL pool)
- Encryption in transit (Minimum TLS version)

Cost Control
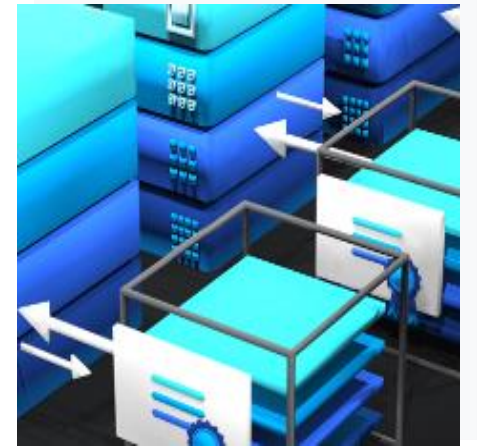

Cost Management And Billing

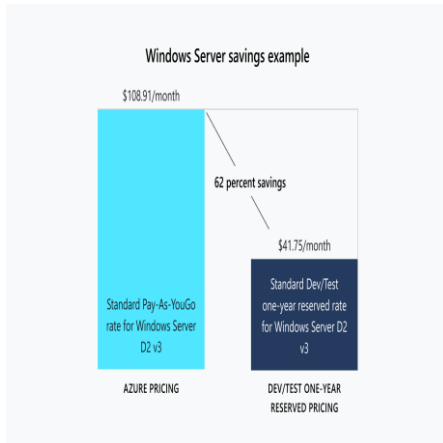**Azure Reservations**

Savings Plans for Compute

Azure Hybrid Benefit

Cost Control
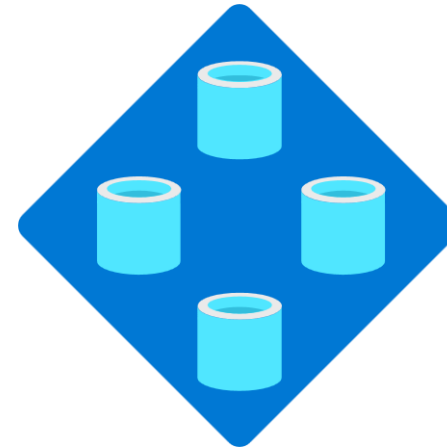

Dev/Test Pricing

Auto Scale

Elastic Pools

Azure Advisor

Cost Control

Calculator

Pricing Calculator

- https://azure.microsoft.com/en-us/pricing/calculator/

Azure Hybrid Benefit Savings Calculator

- https://azure.microsoft.com/en-us/pricing/hybrid-benefit/

Total Cost of Ownership (TCO) Calculator

- https://azure.microsoft.com/en-us/pricing/tco/calculator/

Learning Pathway

How do I Control my Cloud Costs?

Track: Database Management

Level: 100

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Joseph Dantoni
Principal Consultant

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Thank you

Attend other sessions of this
Learning Pathway

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