Monitoring in Azure

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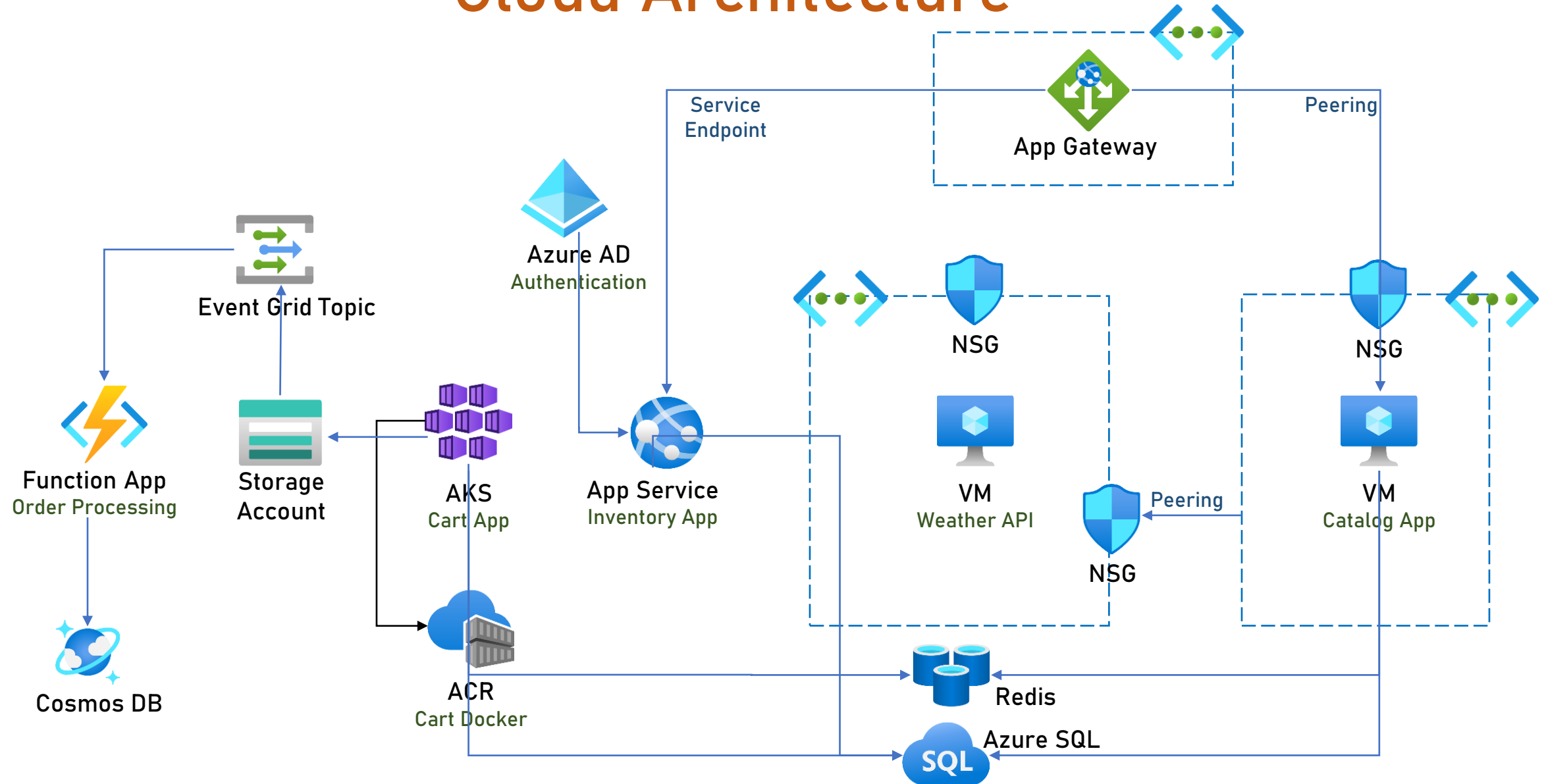
Monitoring

- A working app is not enough

- We must know its status, how it performs, and when it has problems

- This is done via monitoring

ReadIt!
Cloud Architecture

App Gateway

Service Endpoint

Peering

Azure AD
Authentication

NSG

Event Grid Topic

NSG

VM
Weather API

NSG

Function App
Order Processing

Storage Account

AKS
Cart App

App Service
Inventory App

Peering

VM
Catalog App

NSG

Cosmos DB

ACR
Cart Docker

Redis

Azure SQL

SQL

Monitoring in Azure

- Azure offers a lot of built in monitoring mechanisms

- It's a good idea to be familiar with as many as possible

- Also – a centralized monitoring hub where all monitoring data is streamed, and can be queried, or used for triggers

- Extremely cost effective

Monitoring in Azure

- Monitoring is based on two types of data:

Metrics → - Numeric values describing resource's aspect at a specific point in time
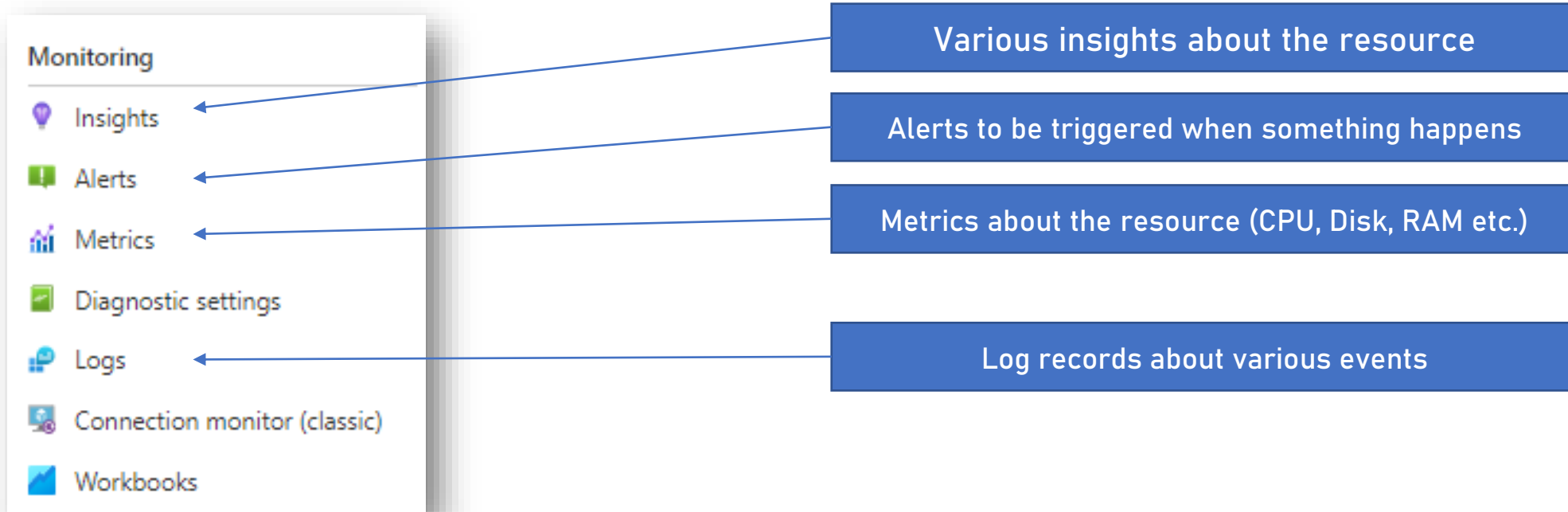- Examples: CPU, Disk, Response Time

Logs → - Events that occurred in the system
- Textual & numeric
- Examples: System started, Error occurred

Resource Monitoring

- Almost every resource in Azure has a "Monitoring" section

Monitoring	Various insights about the resource
💡 Insights	Alerts to be triggered when something happens
⚠ Alerts	Metrics about the resource (CPU, Disk, RAM etc.)
📊 Metrics	Log records about various events
📗 Diagnostic settings	
🔷 Logs	
🔷 Connection monitor (classic)	
📈 Workbooks	

Alerts

- Get notifications about events in your resources

- Examples:

  - VM's CPU goes above 90%

  - More than 20% of requests fails

  - Server error occurs in the last hour

Alerts Components

Condition ⟶ When to trigger the alert (ie. CPU goes above 90%)

Actions ⟶ What to do? Usually – send notifications. Notifications are sent to **Action Groups**.

Details ⟶ Contents of notification

Alerts Pricing

- Per metrics measured (0.10$ / metric)

- Per notification type

  - 1K email, 1K push notifications, 100K web hooks, 100 SMS in the US are included for free each month

- All in all – quite cost effective

Logs & Analytics Workspace

- Almost every Azure resource generate logs

- Might contain data about performance, events, errors etc.

- Logs records need central repository to be stored and viewed

- This is the Log Analytics Workspace

Log Analytics Workspace

- A central location for storing, organizing and analyzing logs

- Aggregates logs from all connected, monitored resources

- Uses specialized query language to query logs

- Located in a designated region

- Better be the same region of the resources to save costs

Log Analytics Workspace
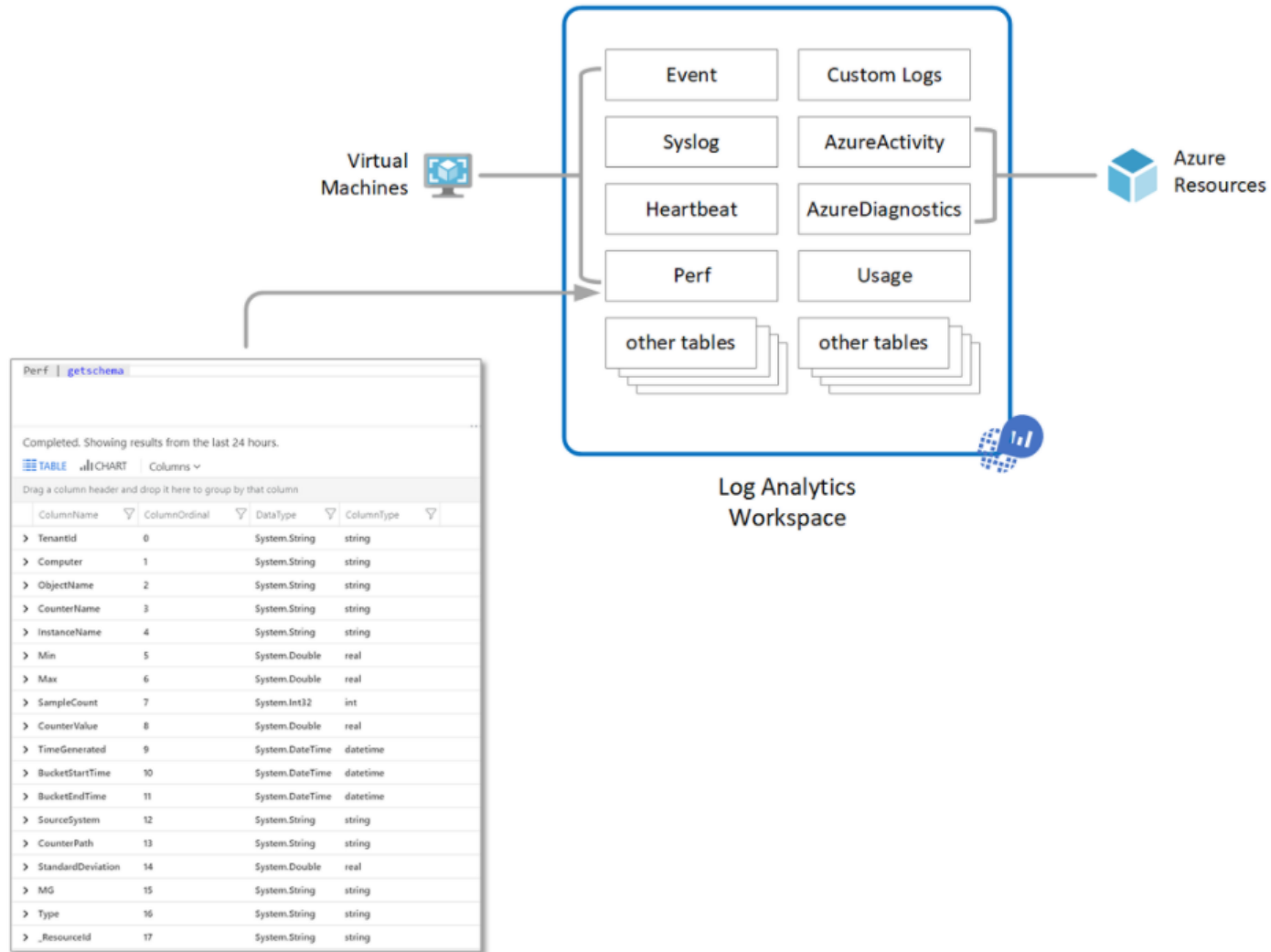
Insights

- A collection of metrics, statistics and insights about the resource

- Specific to resource type

- Generated automatically

- Code-based services (App Services, apps on VMs) can integrate Application Insights into the code and gain a lot of data about app usage, performance, etc.

Azure Monitor

- A central location for all the monitoring aspects of Azure's

  resources

- Provides access to metrics, logs, insights and more

- Has additional capabilities not found in the individual resources

Resource Tags

- Resources are organized into Resource Groups

- Sometimes we want more information about resources:

  - Which environment? Test? Production?

  - To which app it belongs?

  - Which group is responsible for it?

Resource Tags

- For this we have Resource Tags

- Tags help organize resources using name-value pairs

- Examples:

  - Environment: Test

  - App: readit

  - Group: the-A-team

Resource Tags

- Can be set during creation of resource or after that

- Useful for many scenarios:

  - Resource querying (show all resource of the A team)

  - Cost analysis (how much did the test environment cost last month?)

  - And more…

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Cloud Architecture