

# AZ-104T00A

## Administer

## Monitoring



# Administer Monitoring Introduction



Configure Azure Monitor



Configure Azure Alerts



Configure Log Analytics

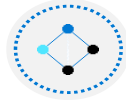


Lab 11 – Implement Monitoring

# Configure Azure Monitor



# Configure Azure Monitor Introduction



Describe Azure Monitor Key Capabilities



Describe Azure Monitor Components



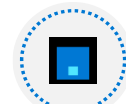
Define Metrics and Logs



Identify Data Types



Describe Activity Log Events



Query the Activity Log



Summary and Resources

# Describe Azure Monitor Key Capabilities



## Monitor & Visualize Metrics

Metrics are numerical values available from Azure Resources helping you understand the health, operation & performance of your systems.

[Explore Metrics](#)



## Query & Analyze Logs

Logs are activity logs, diagnostic logs and telemetry from monitoring solutions; Analytics queries help with troubleshooting & visualizations.

[Search Logs](#)



## Setup Alert & Actions

Alerts notify you of critical conditions and potentially take corrective automated actions based on triggers from metrics or logs.

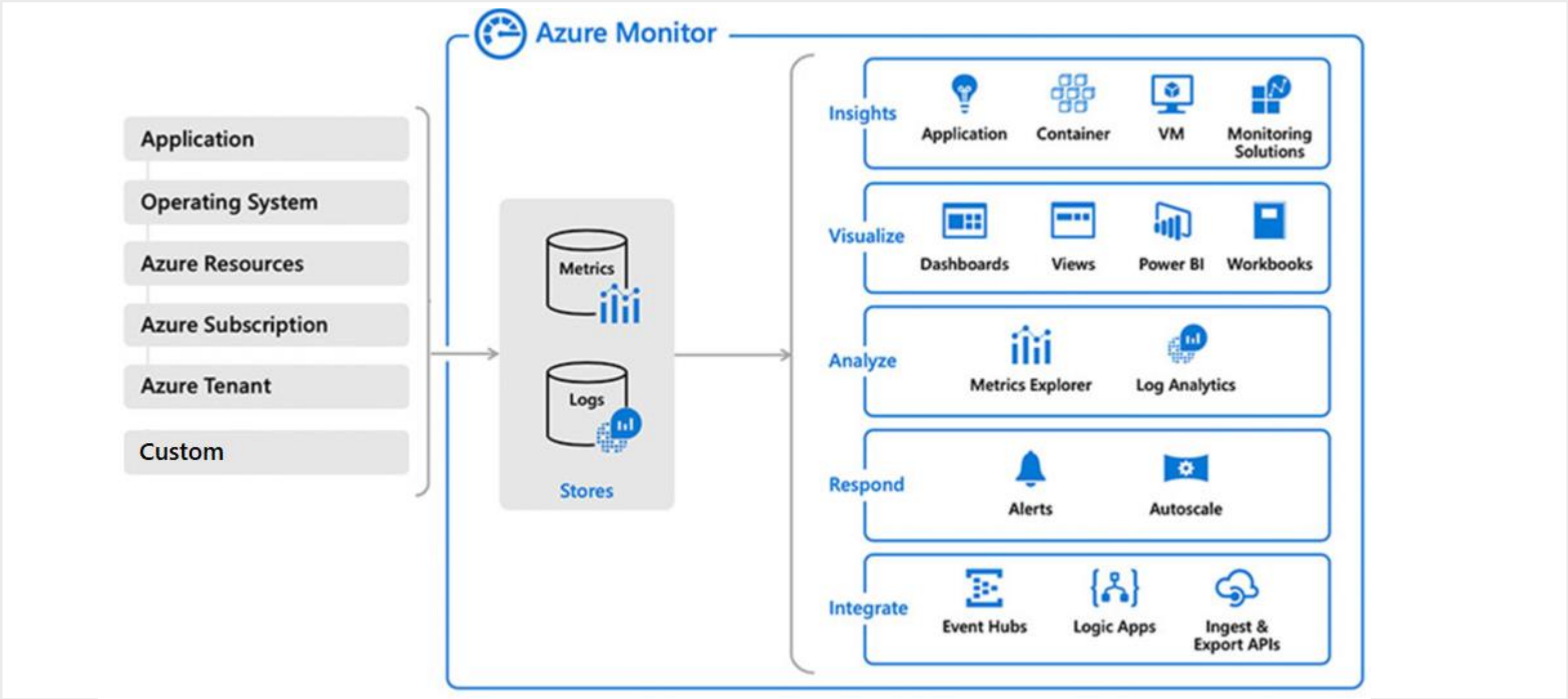
[Create Alert](#)

Core monitoring for  
Azure services

Collects metrics, activity  
logs, and diagnostic logs

Use for time critical alerts  
and notifications

# Understand Azure Monitor Components



# Define Metrics and Logs



- Metrics are numerical values that describe some aspect of a system at a point in time
- They are lightweight and capable of supporting near real-time scenarios

- Logs contain different kinds of data organized into records with different sets of properties for each type
- Telemetry (events, traces) and performance data can be combined for analysis

# Identify Data Types



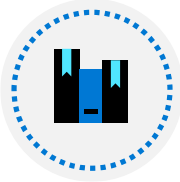
**Application monitoring data** – Performance and functionality of the code you have written, regardless of its platform

---



**Guest OS monitoring** – Azure, another cloud, or on-premises

---



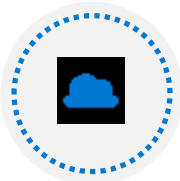
**Azure resource monitoring**

---



**Azure subscription monitoring** – Operation and management of an Azure subscription, as well as data about the health and operation of Azure itself

---



**Azure tenant monitoring** – Operation of tenant-level Azure services, such as Azure Active Directory



# Describe Activity Log Events

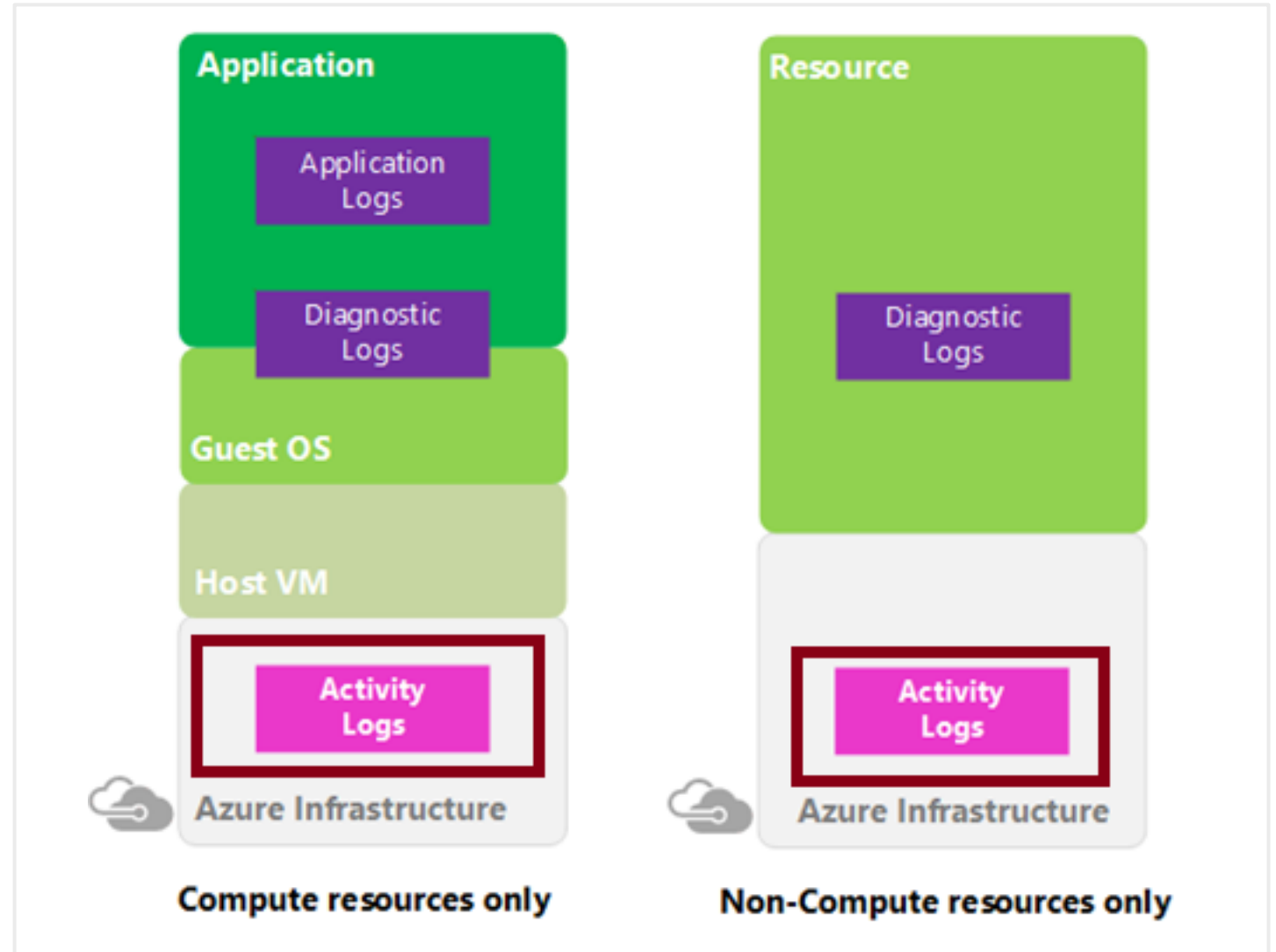
Send data to Log Analytics for advanced search and alerts

Query or manage events in the Portal, PowerShell, CLI, and REST API

Stream information to Event Hub

Archive data to a storage account

Analyze data with Power BI



# Query the Activity Log

Activity log

Edit columns

Refresh

Diagnostics settings

Download as CSV

Logs

Pin current filters

Search

Quick Insights

Add Filter

Management Group : None

Subscription : 2 selected

Timespan : Last 6 hours

Event severity : All

Operation name	Status	Time	Time stamp	Subscription
>  Create or Update Virtual Network Subnet	Failed	a minute ago	Thu Mar 12 ...	<a href="#">ASC DEMO</a>
>  Write GuestConfigurationAssignments	Succeeded	17 minutes ...	Thu Mar 12 ...	<a href="#">ASC DEMO</a>
>  Gets workflow recommend operation groups	Succeeded	29 minutes ...	Thu Mar 12 ...	<a href="#">ASC DEMO</a>

Filter by Management group, Subscription, Timespan, and Event Severity

Add a filter, like Event Category (Security, Recommendations, Alerts)

Pin current filters and download as CSV

# Summary and Resources – Configure Azure Monitor

## Knowledge Check Questions



## Microsoft Learn Modules ([docs.microsoft.com/Learn](https://docs.microsoft.com/Learn))

[Monitor, diagnose, and troubleshoot your Azure storage \(Sandbox\)](#)

---

[Analyze your Azure infrastructure by using Azure Monitor logs \(Sandbox\)](#)

---

[Monitor and report on security events in Azure AD Docs](#)

---

[Monitor the performance of virtual machines using Azure Monitor VM Insights \(Sandbox\)](#)

*A sandbox indicates a hands-on exercise.*

# Configure Azure Alerts



# Configure Azure Alerts Overview



Manage Azure Monitor Alerts



Create Alert Rules



Create Action Groups



Demonstration – Alerts



Summary and Resources

# Manage Azure Monitor Alerts

Alerts

+ New alert rule

Manage alert rules

Manage actions

View classic alerts

Refresh

Provide feedback

Total alerts

1179

Since 2/11/2020, 11:07:58 AM

Smart groups (Preview) ⓘ

3

99.75% Reduction

Total alert rules

9

Enabled 7

Action rules (preview) ⓘ

0

Enabled 0

Severity	Total Alerts	New	Acknowledged	Closed
Sev 0	0	0	0	0
Sev 1	0	0	0	0
Sev 2	0	0	0	0
Sev 3	1178	1178	0	0
Sev 4	1	1	0	0

Unified authoring experience

Displayed by severity

Categorized by New, Acknowledged, and Closed

# Create Alert Rules

**Scope:** Target selection, Alert criteria, and Alert logic

**Alert rule details:** name, description, and severity (0 to 4)

**Action group:** Notify your team via email and text messages or automate actions using webhooks and runbooks

[Home](#) > [Alerts](#) >

## Create alert rule

Rules management

Create an alert rule to identify and address issues when important conditions are found in your monitoring data. When defining the alert rule, check that your inputs do not contain any sensitive content.

### Scope

Select the target resource you wish to monitor.

Resource

No resource selected yet

[Select resource](#)

### Condition

Configure when the alert rule should trigger by selecting a signal and defining its logic.

Condition name

No condition selected yet

### Action group

Send notifications or invoke actions when the alert rule triggers, by selecting or creating a new action group

Action group name

No action group selected yet

# Create Action Groups

Configure the method in which users will be notified when the action group triggers

Configure the method in which actions are performed when the action group triggers

Notifications

Configure the method in which users will be notified when the action group triggers. Select notification types, provide receiver details and add a unique description. This step is optional.

Notification type ⓘ	Name ⓘ	Selected ⓘ
<div><div></div><div>Email Azure Resource Manager Role</div><div>Email/SMS message/Push/Voice</div></div>	<div></div>	

Actions

Configure the method in which actions are performed when the action group triggers. Select action types, fill out associated details, and add a unique description. This step is optional.

Action type ⓘ	Name ⓘ	Selected ⓘ
<div><div></div><div>Automation Runbook</div><div>Azure Function</div><div>ITSM</div><div>Logic App</div><div>Secure Webhook</div><div>Webhook</div></div>	<div></div>	



# Demonstration – Alerts



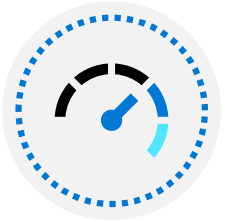
Create an alert rule

---



Explore alert targets

---



Explore alert conditions

---



Explore alert details

# Summary and Resources – Configure Azure Alerts

Knowledge Check Questions



Microsoft Learn Modules ([docs.microsoft.com/Learn](https://docs.microsoft.com/Learn))

[Improve incident response with alerting on Azure \(Sandbox\)](#)

---

[Configure for alerts and detections in Microsoft Defender for Endpoint](#)

---

[Manage alerts and incidents in Microsoft Defender for Endpoint](#)

---

[Remediate security alerts using Microsoft Defender for Cloud](#)

---

*A sandbox indicates a hands-on exercise.*

# Configure Log Analytics



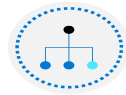
# Configure Log Analytics Introduction



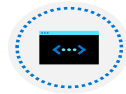
Determine Log Analytics Uses



Create a Workspace



Query Log Analytics Data



Structure Log Analytics Queries



Demonstration – Log Analytics



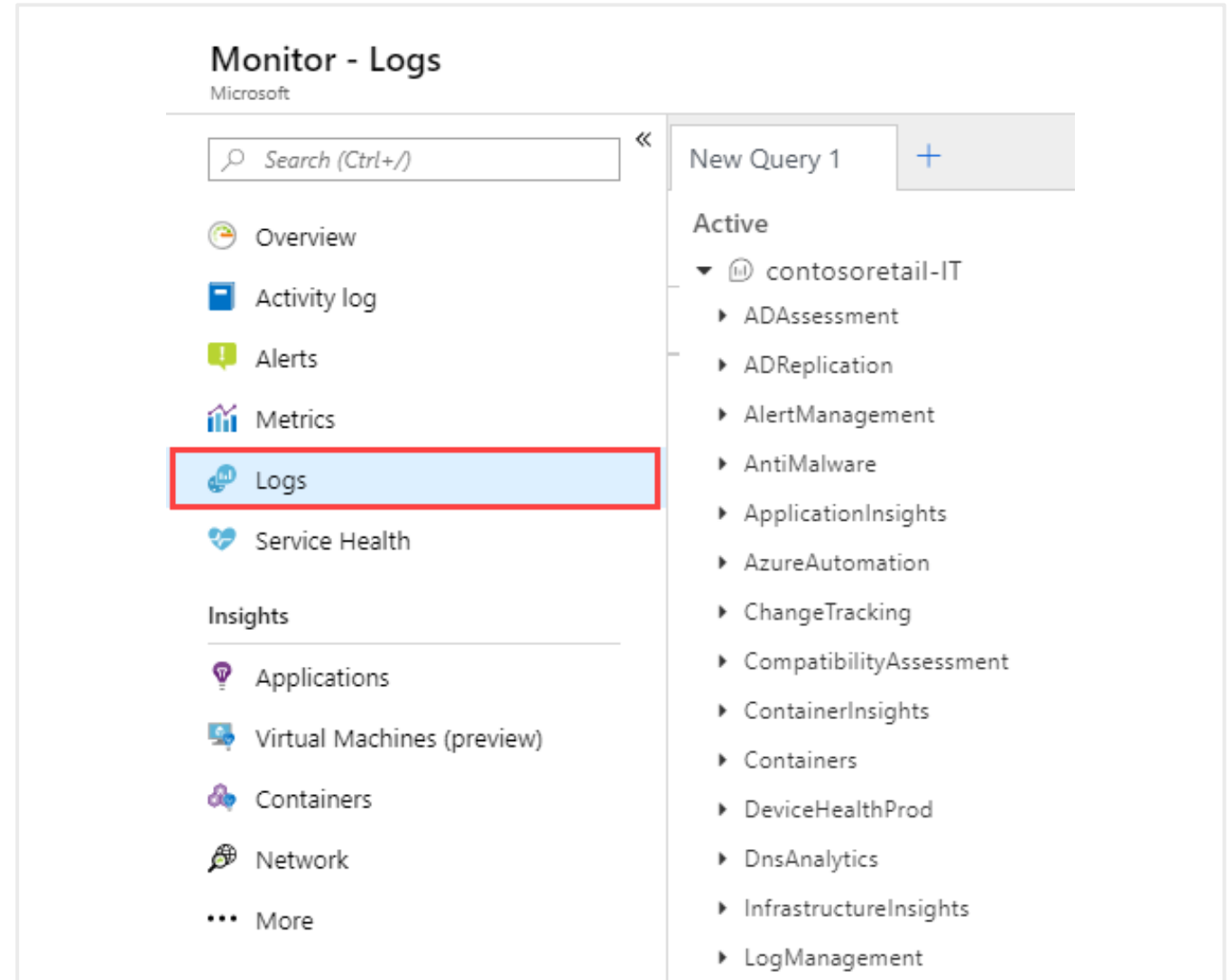
Summary and Resources

# Determine Log Analytics Uses

A service that helps you collect and analyze data generated by resources in your cloud and on-premises environments

Write log queries and interactively analyze their results

Examples include assessing system updates and troubleshooting operational incidents



# Create a Workspace

A workspace is an Azure resource and is a container where data is collected, aggregated, analyzed, and presented

You can have multiple workspaces per Azure subscription, and you can have access to more than one workspace

A workspace provides a geographic location, data isolation, and scope

Home > Log Analytics workspaces >

## Create Log Analytics workspace ...

Basics Tags Review + Create

**i** A Log Analytics workspace is the basic management unit of Azure Monitor Logs. There are specific considerations you should take when creating a new Log Analytics workspace. ×

With Azure Monitor Logs you can easily store, retain, and query data collected from your monitored resources in Azure and other environments for valuable insights. A Log Analytics workspace is the logical storage unit where your log data is collected and stored.

**Project details**

Select the subscription to manage deployed resources and costs. Use resource groups like folders to organize and manage all your resources.

Subscription \* **i** ASC DEMO ▼

Resource group \* **i** ▼

[Create new](#)

**Instance details**

Name \* **i**

Region \* **i** East US 2 ▼

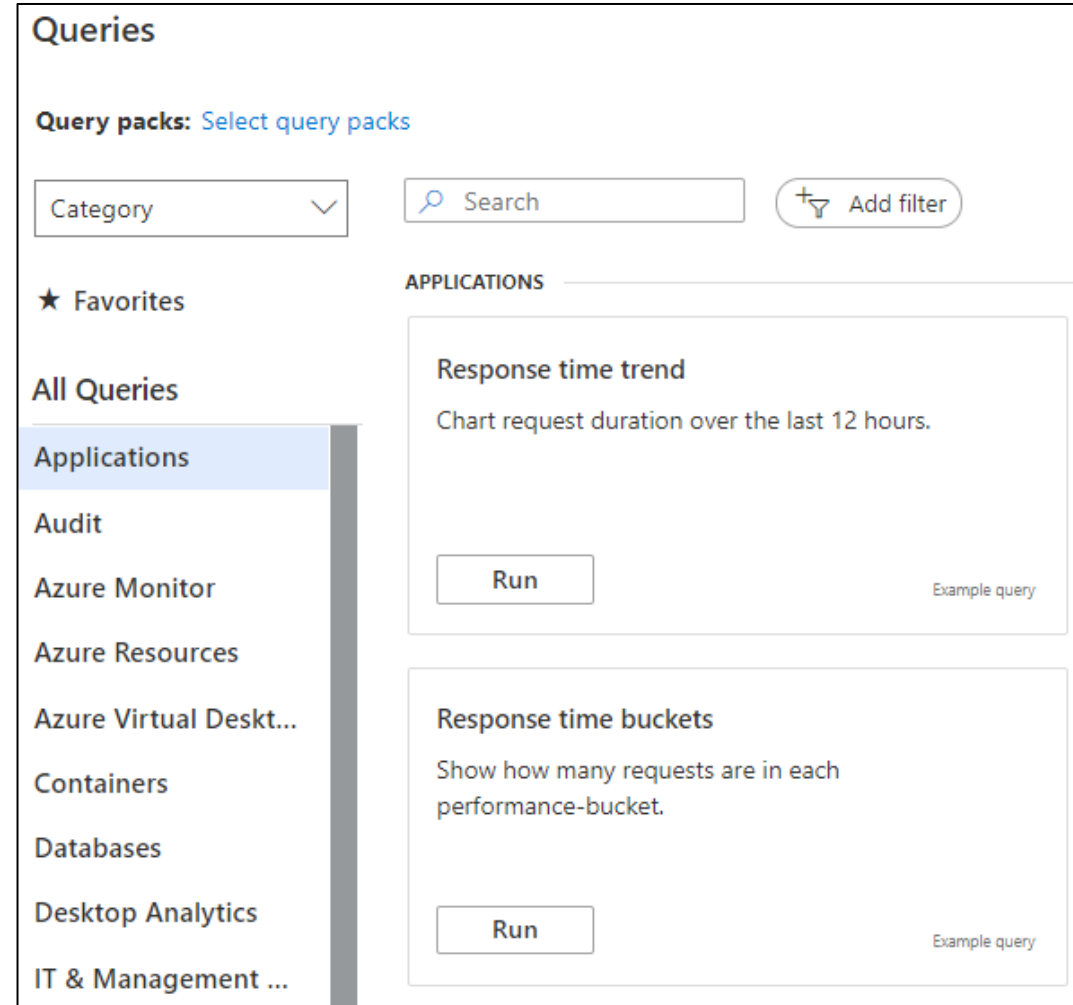
# Query Log Analytics Data

Common queries and a query language for custom searches

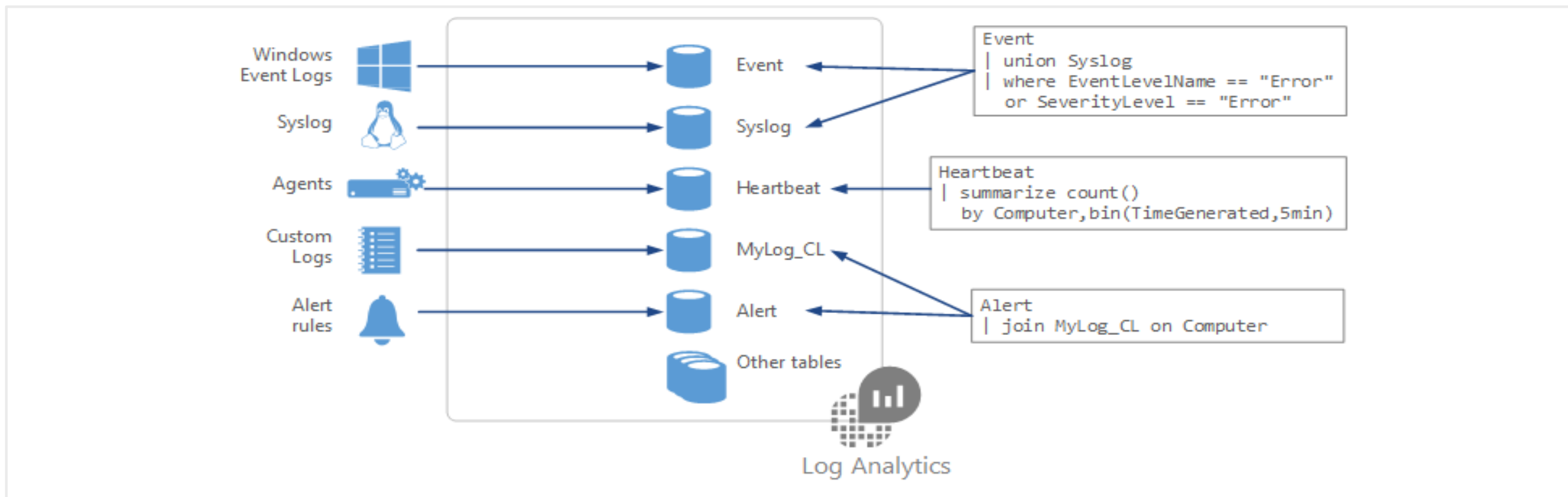
Quickly retrieve and consolidate data in the repository

Save or have log searches run automatically to create an alert

Export the data to Power BI or Excel



# Structure Log Analytics Queries



```
Event  
| where (EventLevelName == "Error")  
| where (TimeGenerated > ago(1days))  
| summarize ErrorCount = count() by Computer  
| top 10 by ErrorCount desc
```



# Demonstration – Log Analytics



**Access the  
demonstration  
environment**

**Use the  
Query Explorer**

# Summary and Resources – Configure Log Analytics

## Knowledge Check Questions



## Microsoft Learn Modules ([docs.microsoft.com/Learn](https://docs.microsoft.com/Learn))

[Analyze your Azure infrastructure by using Azure Monitor logs \(Sandbox\)](#)

---

[Monitor the performance of virtual machines using Azure Monitor VM Insights \(Sandbox\)](#)

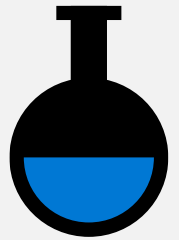
---

[Write your first query with Kusto Query Language](#)

---

*A sandbox indicates a hands-on exercise.*

# Lab 11 – Implement Monitoring



# Lab 11 – Implement monitoring

## Lab scenario

You need to evaluate Azure functionality that would provide insight into performance and configuration of Azure resources, focusing on Azure virtual machines. To accomplish this, you intend to examine the capabilities of Azure Monitor, including Log Analytics

## Objectives

### Task 1:

Provision the lab environment

### Task 2:

Create and configure an Azure Log Analytics workspace and Azure Automation-based solutions

### Task 3:

Review default monitoring settings of Azure virtual machines

### Task 4:

Configure Azure virtual machine diagnostic settings

### Task 5:

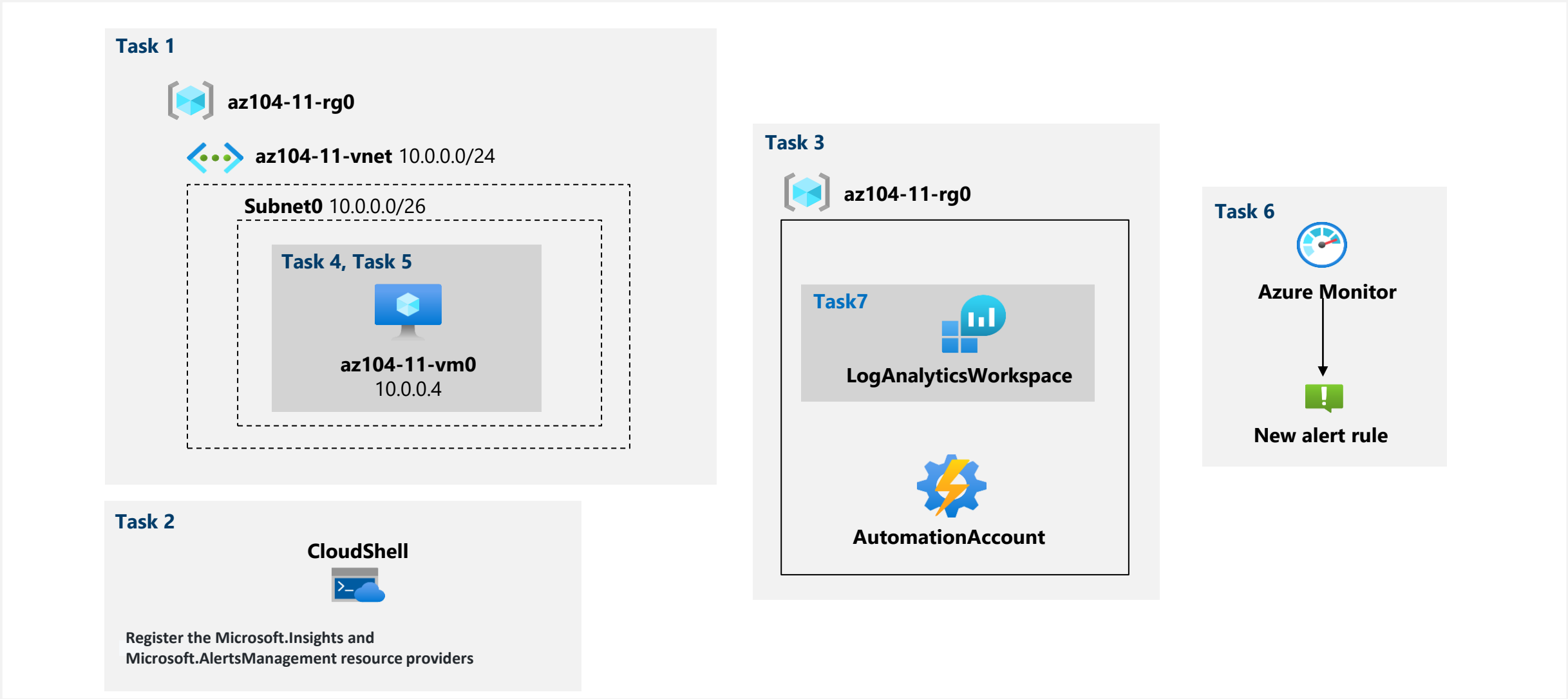
Review Azure Monitor functionality

### Task 6:

Review Azure Log Analytics functionality

Next slide for an architecture diagram 

# Lab 11 – Architecture diagram



# End of presentation



# Default Azure Active Directory Logs

## Activity Reports

Report	Azure AD Free	Azure AD Premium P1	Azure AD Premium P2
Audit logs	Seven days	30 days	30 days
Sign-ins	Seven days	30 days	30 days
Azure AD MFA usage	30 days	30 days	30 days

## Security Signals







Report	Azure AD Free	Azure AD Premium P1	Azure AD Premium P2
Risky users	No limit	No limit	No limit
Risky sign-ins	7 days	30 days	90 days

Features of Azure Monitor that are automatically enabled such as collection of standard metrics and activity logs are provided at **no cost**.

For more functionality such as longer retention, you should route the entries to another location based on your needs.

Entries in the Activity Log are system generated and cannot be changed or deleted.

# Default Subscription Logs

	 Start Virtual Machine	Succeeded	a day ago	Thu Jun 09 2022 08:18:40...			
>	 Start Virtual Machine	Succeeded	a day ago	Thu Jun 09 2022 08:18:14...			
>	 Health Event Resolved	Resolved	a day ago	Thu Jun 09 2022 08:17:02...			
	 Health Event Updated	Updated	a day ago	Thu Jun 09 2022 08:16:55...			
>	 Health Event Resolved	Resolved	a day ago	Thu Jun 09 2022 08:16:51...			
	 Health Event Updated	Updated	a day ago	Thu Jun 09 2022 08:16:44...			

Activity log events are retained in Azure for **90 days** and then deleted

There's **no charge** for entries during this time regardless of volume

For more functionality such as longer retention, you should route the entries to another location based on your needs



# Default Metrics



For most resources in Azure, platform metrics are stored for **93 days** at **no cost**. There are some exceptions.

You can only query (in the **Metrics** tile) for a maximum of **30 days** worth of data on any single chart.

You can send platform metrics for Azure Monitor resources to a Log Analytics workspace for long-term trending.