

Purpose

The purpose of this document is to highlight the significant changes to the AZ-104T00: Azure Administrator course from the previous release. This document is for Microsoft Certified Trainers and Instructors to prepare for teaching the class. This is not an error log or a supplement to the course materials. This document just provides additional context so that you can understand the major changes.

Most of the course materials in the MCT Download Center have been updated to fix typos, broken links, and formatting. So, **we recommend you always download the latest course materials**. Please read the Instructor Preparation Guide which provides the overall strategy for teaching this course.

Update – 16 July 2021

All modules - Titles

- Changed all the course titles (modules, lessons, topics) to include an action verb. For example, modules are now **Administer** xxx. Lessons are **Configure** xxxx. Topics are **Implement, Setup, Create, Determine, Define**, etc.
- Changed all the slide titles and course syllabus to match the new names.

All modules – Knowledge Checks

- The student Knowledge Check questions are now all multiple choice (single answer).
- The multiple answer (checkbox) questions in Microsoft Forms have not been removed so you can continue to use them in class. Learn more about Microsoft Forms in the Instructor Preparation Guide.

All Modules – Study Guide

- Updated the AZ-104 Study Guide, AZ-104T00A-ENU-StudyGuide, in the MCT DLC. There are many new Learn modules that will be helpful when studying for the exam.

All Modules – Demonstration Steps

- A Word document, AZ-104T00A-ENU-Demonstrations, with all the instructor led demonstrations is now available in the MCT DLC.

All Modules – Lab Architecture Diagrams

- The Lab architecture diagrams were added to the GitHub lab pages.
- The Module 05 lab diagram was updated.

Module 01, Administer Identity

- Lesson 02, Configure Users and Groups added a topic on Administrative Units. This is now part of the AZ-104 certification testing domain.

Module 03, Administer Azure Resources

- Reordered the lessons. The new order is **Configure Azure Resources with Tools, Use Azure Resource Manager** and **Configure Resources with ARM Templates**.
- Lesson 01, the Review PowerShell Cmdlets and Modules topic was removed. The slide is still available at the end of the lesson if you want to use it.

Module 06, Administer Network Traffic

- Lesson 01, Configure Network Routing and Endpoints. Consolidated the Routing Example onto one slide instead of three slides. The slides are still available at the end of the lesson if you want to use them.

Module 08, Administer Azure Virtual Machines

- Lesson 01, Configure Virtual Machines. Improved the Plan a Virtual Machine topic. Removed “marketing” slides on Windows and Linux machines. The slides are still available at the end of the lesson if you want to use them.
- Lesson 02, Configure Virtual Machine Availability added a demonstration to create scale in and scale out rules.

Module 09, Administer PaaS Compute Options

- Lesson 03, Configure Azure Container Instances, now has a demonstration.
- Lesson 04, Configure Azure Kubernetes Service has been reduced to a smaller set of the topics. The slides that were not included have been moved to the end of the module in case you still want to include them.

Module 10, Administer Data Protection

- Lesson 02, Configure Virtual Machine Backups, now has a demonstration.

Module 11, Administer Monitoring

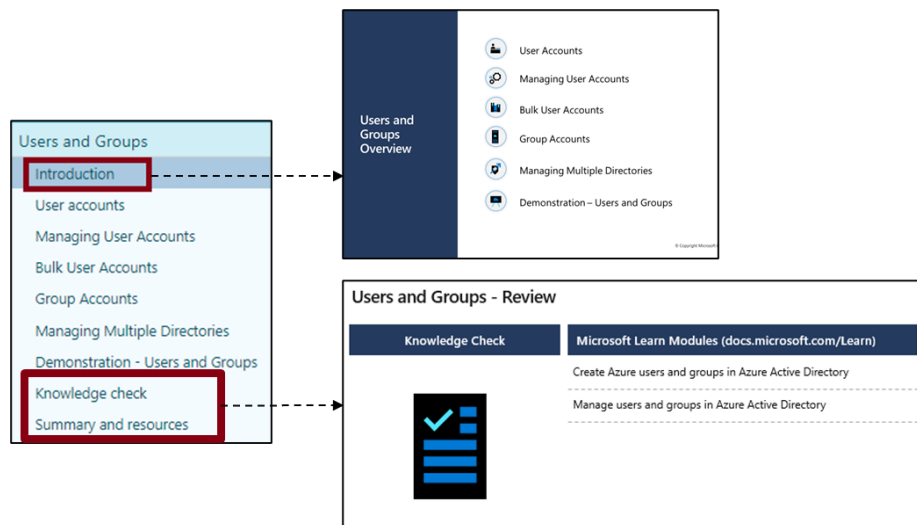
- Lesson 04, Configure Network Watcher has been reduced to a smaller set of slides. The slides that were not included have been moved to the end of the module in case you still want to include them.

Update – 21 May 2021

In this update we are making some student content changes and consolidating and streamlining some of the lessons.

There continues to be debate about the module order. Reminder that you may present the modules in the best order for your audience.

All modules



- **Introduction pages.** Added an Introduction page to each Skillpipe lesson. The page includes Scenario, Skills measured, Learning Objectives, and Prerequisites. Instructors can use this information on the Lesson Overview slide. Updated the Notes under the Lesson Overview slide to reflect the latest exam Skills Measured information.
- **Knowledge check questions.** Review questions are now at the Lesson level. Added more questions to round things out. Reminder that the questions are available in Office Forms. To access the questions, read more in the Instructor Preparation Guide. Office Forms is free, and you can make edits for your classes.
- **Summary and resource page.** Added a Summary and resource page to each Skillpipe lesson. This is the last page of the lesson. This page reviews the lesson objectives and provides resource references. The reference links include both Documentation and Learn modules. The 'For more information' reference links within the Lesson have been moved to this page. Learn references were updated to include new Learn content.
- **Summary and Resources slide(s).** Added a slide to the end of each lesson. This slide reminds students to complete the knowledge check questions and check out the Learn resources. This information used to be at the Module level now it is at the Lesson level.

Individual modules

- **Welcome lesson.** Updated the **Additional Study Resources** page to show the Learn Learning Paths for AZ-104. Removed the separate topic called **Learn Resources**.
- **Module 01, Lesson 02, Managing Multiple Directories.** Removed this topic. The topic is no longer in the testing domain.
- **Module 03 (Azure Administration).** Combined Lesson 02 (Azure Portal and Cloud Shell) with Lesson 03 (Azure PowerShell and CLI). New name of the lesson is Azure Administrator Tools.
- **Module 04 (Virtual Networking).** Combined Lesson 01 (Virtual Networks) with Lesson 02 (IP Addressing). The lesson is still named Virtual Networks. One slide, Virtual Networking Components, was moved to the end of the presentation as optional.
- **Module 06 (Traffic Management), Lesson 01 (Routing).** The Routing Example topic has been consolidated onto one slide. The removed slides are at the end of the presentation if you want to use them. There is a demonstration that could be used instead of the slide.
- **Module 07 (Storage), Lesson 01 (Account Kinds).** Updated based on new storage [Account Kinds](#).
- **Module 08 (Virtual Machines).** Combined Lesson 01 (VM Planning) with Lesson 02 (Creating VMs). The new Module is called Creating Virtual Machines. Several overview and marketing slides were moved to the end – Planning Checklist, Supported Operating Systems, Windows Virtual Machines, and Linux Virtual Machines. The student content for these slides were added to other pages.
- **Module 09.** This module has been renamed PAAS Compute Services. That better fits the content.
- **Module 10 (Data Protection).** The Backup Center topic was moved to Lesson 01 after Azure Backup is introduced.
- **Module 10 (Data Protection), Lesson 02.** The Workload Protection Needs and Azure to Azure Architecture topics were removed. Both slides are at the end of the slide deck if you want to put them back in. The student content was added to another topic.

Update – 26 March 2021

In this update we are making minor slide and student content changes including:

- All Modules. Student content was reviewed for readability and the content was updated. Examples of the updates are hyphenating words, adding commas, breaking long sentences into shorter sentences, replacing phrases with more concise single word terms, correcting plurals, and making the content less formal. **These changes did not**

affect the technical intent of the content. If a change, other than wordsmithing was made, it is listed in the next bullets.

- Module 00, Course Schedule (optional). Updated the course schedule slide. Added the graphic to the Trainer Preparation Guide.
- Module 01, Lesson 02, User Accounts. Changed the screenshot to show the new Directory Synced column.
- Module 01, Lesson 02, Bulk User Update. This feature is now available through the Azure Portal. Updated the slide and the student content.
- Module 03, Lesson 01, Moving Resources. You can now move resources between regions. Updated the screenshot on the slide and in the student content.
- Module 04, Lesson 04, Implementing Azure Firewall. Updated the graphic to match the documentation page.
- Module 07, Lesson 01, Azure Storage Services. Changed the graphic to be more descriptive.
- Module 07, Lesson 01, Replication Strategies. Replaced the existing one slide with two slides that makes it easier to explain.
- Module 07, Lesson 02, Blob Object Replication. This was added to the OD, now including a slide and student content.
- Module 08, Lesson 01, IaaS Cloud Services. Changed the Shared Responsibility graphic. Renamed the topic to IaaS – Shared Responsibility.
- Module 09, Serverless Computing. Changed the name of this module to PaaS Compute Services. This change was made in the module slide deck and in the course outline. The change was not propagated to public facing documents where the explain of what is in the module is descriptive enough.
- Module 09, Lesson 02, Securing an App Service. Updated the screenshots.
- Module 09, Lesson 02, Creating Deployment Slots. Updated the student content to show the latest swapped and unswapped settings.
- Module 09, Lesson 04, AKS Nodes and Clusters. Clarified the student content on the use of Docker and Moby for the different versions of the container runtime.
- Module 10, Lesson 02, Azure Backup Center. Added a new slide and associated student content for this new feature.
- Module 11, Lesson 01. Combined the Monitoring Data Platform and Logs topics into a single slide. The slide is named Metrics and Logs.

Update – 18 December 2020

In this update we are making minor slide and student content changes including:

- Added Estimated Lab timings to the PowerPoint Notes of each Lab slide.

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- Updated the Additional Study slides with new Learn modules such as [Connect to virtual machines through the Azure portal by using Azure Bastion](#).
- Updated Portal screenshots including Module 11 (Action Groups), Module 7 (Blob Life Cycle Management), Module 5 (Configure Virtual Networks).
- Updated technical content including Module 5 (Create the Local Network Gateway, Service Chaining).

Update – 23 October 2020

In this update we are making minor slide and student content changes including template updates (copyright footer), branding updates (Defender and Microsoft 365), updated Portal screenshots, new additional study Learn modules, and minor slide rewording. Here is a list of the more important updates.

All Modules

- For each lab, we added an Architecture Diagram. We previously had this for a few of the labs, but now it is provided for all the labs. You can use this diagram to explain what tasks the student will complete in the lab and how everything hooks together.
- This course now provides an interactive way to use Microsoft Forms for the review questions. Review question quizzes have already been created for you, the instructions and links are in the Instructor Preparation Guide. Feedback on this new feature is welcome.

Module 01

- Lesson 01, Azure AD Concepts. Reworded the definition of tenant and directory.
- Lesson 01, Azure AD Directory Editions. Updated SSO capabilities for the Free and 365 Apps. SSO is now Unlimited.

Module 02

- Lesson 01, Subscription Usage. Added CSP as a Subscription type.
- Lesson 03, Demonstration: Working with PowerShell. Added a note to change to TLSv2, if needed.

Module 04

- Lesson 01, Subnets. Added more specific information on the reserved IP addresses.
- Lesson 04, Implementing Firewalls. Reworked the content to show the recommended Hub-Spoke network topology.

Module 08

- Lesson 01, Virtual Machine Disks. Combined the disks and storage slides into one concise topic.

Module 10

- Lesson 02, Soft Delete. Reworked the student content to focus more on virtual machine soft delete.

Module 11

- Lesson 01, Azure Advisor. Removed this topic, which is covered in AZ-900.

Update – 7 Aug 2020

In this update we are releasing the PowerPoint slides with the new Worldwide Learning template, removing some content that does not align with the certification exam, adding Instructor PowerPoint Notes, and making minor technical updates. These last minor updates are not detailed, so it is recommended you download all the new materials.

Global Changes

- Updated all the PowerPoint slides to use the new Worldwide Learning template.
- Removed content that is not on the certification exam. This was done to shorten the course and make it easier to teach in the 4-day format. Also, to allow you to spend more time on certification topics. What was removed is itemized in the next sections. The content was removed from the slide decks and the student content.
- Updated the Course Outline with Description, Audience, and Objectives.
- Added an AZ-104 Study Guide to the MCT DLC.
- Added Documentation links to the PowerPoint Notes area.
- Added for each Lesson Overview slide (in the PowerPoint Notes area) the certification exam areas that are covered in that lesson.
- Minor updates for technical advances, like 60+ Azure regions.
- Updated the [Lab Recordings \(videos\)](#).

Module 01

- Removed slide on Multi-Factor Authentication.

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- Removed slides on Azure AD Connect and Azure AD Connect Health.
- Removed slide on Azure AD B2B and B2C.

Module 03

- Removed slide on Azure Mobile App.
- Removed slides on ARM Template Variables, Functions, Resources, and Outputs.
- Labs 03c and 03d are marked as optional.

Module 04

- Removed slide on Application Security Groups.

Module 06

- Removed Lesson 4 on Azure Traffic Manager.

Module 07

- Removed slide on Azure Data Box.
- Removed slide on Data Transfer Tool Selection.

Update – 15 May 2020

This list does not include typos and grammatical errors that were corrected.

Module 01

- **Lesson 01, Azure Multi-Factor Authentication, Student content.** Removed the discussion on deploying MFA on-premises or on Azure.

Module 02

- **Lesson 03, Slide 27, Azure RBAC Roles vs Azure AD Roles** - Header should read “Azure AD Roles” instead of “Azure AD Administrator Roles”. Additionally, Azure AD now supports Custom Roles.
- **Lesson 03, Demonstration – Azure RBAC** – Added a step to create a user.

Module 03

- **Lesson 02, Slide 15 – Azure Portal.** Updated the screenshot.

Module 05

- **Lesson 04, Review Questions – Review Question 1** – Removed.

Module 06

- **Lesson 02, Slide 17, Azure Load Balancer** – Removed the bullet “Extend Active Directory to the cloud”.
- **Lesson 02, Slide 20 and student content, Load Balancer SKUs** - Removed “Load Balancer frontends are not accessible across global virtual network peering”. This is now possible with recent changes to Azure.
- **Lesson 02, Slide 23, Session Persistence** – Added the default selection and added Client IP explanation.
 - ~~Client~~ None (default) - requests may be handled by any virtual machine
 - Client IP - requests will be handled by the same virtual machine
- **Lesson 03, Application Gateway Routing, Student Content** – Switched the graphics. The slide is correct.

Module 08

- **Lesson 03, Availability Sets, Slide 25 – Reworded.** Two or more instances in ~~two or more~~ an Availability Sets = 99.95%”
- **Lesson 03, Scaling Concepts, Slide 28 – Reworded.** Horizontal scaling (scale out and scale in) is the process of increasing or decreasing ~~power to a single instance~~ the number of instances of a workload; frequently automated. Fixed bolding of headings and added better directional arrows to the graphics.
- **Lesson 04, Custom Script Extensions, Slide 36** – Recent portal change on script location. Changed the graphic.

Module 09

- **Lesson 02, Creating an App Service, Slide 13** – Replaced the graphic. Changed the bullet from **Publish Docker Image** to **Publish Docker Container**.

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- **Lesson 03, AKS Terminology** – Added this new slide to review Nodes, Pools, Pods, Deployments, and Manifests.
- **Lesson 03, Container Groups, Content, Reworded.** One container listens on port 80, while the other listens on port ~~5000~~ 1433. Updated graphic.
- **Lesson 03, Docker, Content, Reworded.** Once deployed to the Azure Cloud, the application can easily be scaled up and down using the Azure Container ~~Service (AKS)~~ Instances (ACI).
- **Lesson 02, Continuous Deployment, Slide 14** – Changed "Visual Studio Team Services" to "Azure DevOps"
- **Lesson 04, AKS Clusters and Nodes, Reworded.** "An AKS cluster contains one or more nodes (Azure Virtual Machines) that run the Kubernetes node components and the container runtime."

Update – 27 March 2020

Note: All the AZ-103 content was reviewed and if necessary updated. We recommend you browse through every slide and SkillPipe topic to ensure you are prepared to teach the course.

Module Content

- Course content has been restructured to provide a better flow. The order has been greatly debated. You may choose to do something different.
- Content for exam items that are no longer on the exam has been minimized or removed.
- Content for exam items that are now included in the exam has been added.
- Module review questions have been updated.
- Each module has an Additional Study topic, at the end, that shows the applicable Microsoft Learn modules.
- Updated the technical content.
- Updated the Azure Portal screenshots.

Lab Content

- New labs are provided for each module. The labs are more portal-based and less command line and scripting focused. The labs better align with the course content.
- There is a new [AZ-104 Microsoft Learning GitHub repository](#).

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- Minimized or removed content that covered code examples.

Module 01 - Identity Solutions

In this module, you will learn how to secure identities with Azure Active Directory and implement users and groups. This module includes:

- Azure Active Directory
- Users and Groups
- Lab 01 - Manage Azure Active Directory Identities

Comments

- ✓ Security was minimized on the new exam because there is now a Security certification. So, we have minimized the security content as well.
- ✓ One lab task, assigning dynamic groups, requires a premium license. This is the only lab in the course with this requirement, and it is marked as optional.
- ✓ Added a topic on Azure AD B2B and B2C to introduce users and groups.
- ✓ Added a discussion on rule-based group assignments.
- ✓ Included content that may not be on the certification test but rounds out the student's knowledge.
- ✓ There was a lot of debate about leading with Identity. You may decide to start the course with the next module, Governance and Compliance, instead.

Module 02 – Governance and Compliance

In this module, you will learn about managing your subscriptions and accounts, implementing Azure policies, and assigning permissions with role-based access control. This module includes:

- Subscriptions and Accounts
- Azure Policy
- Role-based Access Control (RBAC)
- Lab 01a - Manage Subscriptions and RBAC
- Lab 01b - Manage Governance via Azure Policy

Comments

- ✓ Added a Regions topic to help introduce the concept of subscriptions and accounts.
- ✓ Added a Cost Management topic.
- ✓ Added a Cost Savings topic (Reservations, Hybrid Benefit, Credits).
- ✓ Moved Management Groups to the Azure Policy lesson.
- ✓ Removed Group and Group Owner PowerShell topics.

Module 03 – Azure Administration

In this module, you will learn about the tools an Azure Administrator uses to manage their infrastructure. This includes the Azure Resource Manager, Azure Portal, Cloud Shell, Azure PowerShell, CLI, and Azure Resource Manager Templates. This module includes:

- Azure Resource Manager
- Azure Portal and Cloud Shell
- Azure PowerShell and CLI
- ARM Templates
- Lab 03a - Manage Azure resources by Using the Azure Portal
- Lab 03b - Manage Azure resources by Using ARM Templates
- Lab 03c - Manage Azure resources by Using Azure PowerShell (optional)
- Lab 03d - Manage Azure resources by Using Azure CLI (optional)

Comments

- ✓ Reordered the lessons to start with Azure Resource Manager.
- ✓ Changed the Resource Group Deployment graphic.
- ✓ Moved Check Resource Limits to this module.
- ✓ Added ARM Template topics on Template Functions, Template Resources, and Template Outputs.
- ✓ There are a lot of labs in this module. Marked Lab 03c and Lab 03d as optional.

Module 04 – Virtual Networking

In this module, you will learn about basic virtual networking concepts like virtual networks and subnetting, IP addressing, network security groups, Azure Firewall, and Azure DNS. This module includes:

- Virtual Networks
- IP Addressing
- Network Security groups
- Azure Firewall
- Azure DNS
- Lab 04 - Implement Virtual Networking

Comments

- ✓ Moved virtual networking content before storage and compute content.
- ✓ Removed the Multiple NICs in virtual machines topic and demonstration.
- ✓ Updated the Application Gateway static IP addressing capability.
- ✓ Changed the Service Endpoints graphic to show the actual endpoint services.
- ✓ Added an Azure Firewall lesson.

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- ✓ Moved endpoints to the Traffic Management Routing lesson.
- ✓ Added a Private Links topic in the DNS lesson.

Module 05 – Intersite Connectivity

In this module, you will learn about intersite connectivity features including VNet Peering, VPN Gateways, and ExpressRoute and Virtual WAN. This module includes:

- VNet Peering
- Virtual Network Gateways
- ExpressRoute and Virtual LAN
- Lab 05 - Implement Intersite Connectivity

Comments

- ✓ Lesson 02 renamed to VPN Gateways. Reworked the content to be more about VPN Gateways instead of VNet-to-VNet connections.
- ✓ Updated the VPN Gateway SKU topic to include Generation 2 VPN Gateways.
- ✓ Added a High Availability Scenarios topic to review active/standby and active/active VPN Gateway configurations.
- ✓ Lesson 03 renamed to ExpressRoute and Virtual WAN. Changed the focus to these topics.
- ✓ Added an Intersite Connections topic on how to select an intersite connectivity solution.
- ✓ Added a Virtual WAN topic.

Module 06 – Network Traffic Management

In this module, you will learn about network traffic strategies including network routing, Azure Load Balancer, Azure Application Gateway, and Traffic Manager. This module includes:

- Network Routing and Endpoints
- Azure Load Balancer
- Azure Application Gateway
- Traffic Manager
- Lab 06 - Implement Traffic Management

Comments

- ✓ Added a lesson on Application Gateways including routing and components.
- ✓ Minimized the lesson on Traffic Manager since it is no longer part of the exam.
- ✓ Added a Distributing Network Traffic topic which compares the solutions in this module.

Module 07 – Azure Storage

In this module, you will learn about Azure storage including storage accounts, blob storage, storage security, Azure files and File Sync, and managing storage (tooling). This module includes:

- Storage Accounts
- Blob Storage
- Storage Security
- Azure Files and File Sync
- Managing Storage
- Lab 07 - Manage Azure storage

Comments

- ✓ Where appropriate, changed Blob service to Container service.
- ✓ Updated storage account kinds (types) to reflect new naming.
- ✓ Moved data Replication Strategies to this module and minimized the content to a single topic.
- ✓ Moved Security Storage Endpoints topic and demonstration to this module. Originally in the networking module.
- ✓ Consolidated Azure File and File Sync into a single lesson.
- ✓ Added a Managing Storage lesson and moved tooling (Storage Explorer, AZCopy, Import/Export, and Data Box) topics to this lesson.
- ✓ Minimized coverage on Import/Export and Data Box.
- ✓ Added a Data Transfer Tool selection topic to compare the solutions in this module.

Module 08 – Azure Virtual Machines

In this module, you will learn about Azure virtual machines including planning, creating, availability and extensions. This module includes:

- Virtual Machine Planning
- Creating Virtual Machines
- Virtual Machine Availability
- Virtual Machine Extensions
- Lab 08 - Manage Virtual Machines

Comments

- ✓ Removed topics on using PowerShell to create virtual machines.
- ✓ Updated the Virtual Machine Sizing topic.

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- ✓ Added a Virtual Machine Connections topic to overview the connection choices. This includes the Bastion service.
- ✓ Minimized the connect on creating virtual machines connections; covered in the lab.
- ✓ Added a Scaling Concepts topic to introduce vertical and horizontal scaling.

Module 09 - Serverless Computing

In this module, you will learn how to administer serverless computing features like Azure App Service Plan, Azure App Service, Container Services, and Azure Kubernetes Service.

- Azure App Service Plans
- Azure App Service
- Container Services
- Azure Kubernetes Service
- Lab 09a - Implement Web Apps
- Lab 09b - Implement Azure Container Instances
- Lab 09c - Implement Azure Kubernetes Service

Comments

- ✓ Everything in this module is new.

Module 10 – Data Protection

In this module, you will learn about backing up files and folders, and virtual machine backups. This module includes:

- File and Folder Backups
- Virtual Machine Backups
- Lab 10 - Implement Data Protection

Comments

- ✓ This module is now only about backups.
- ✓ Added a topic on Soft Delete.

Module 11 – Monitoring

In this module, you will learn about monitoring your Azure infrastructure including Azure Monitor, alerting, and log analytics. This module includes:

- Azure Monitor
- Azure Alerts
- Log Analytics

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- Network Watcher
- Lab 11 - Implement Monitoring

Comments

- ✓ Minimal content changes from AZ-103.