Module 11

Using Microsoft Azure-based management, monitoring, and automation

Module Overview

- Using Azure-based monitoring and management solutions
- Implementing Automation
- Implementing Automation runbooks
- Implementing Automation–based management

Lesson 1: Using Azure-based monitoring and management solutions

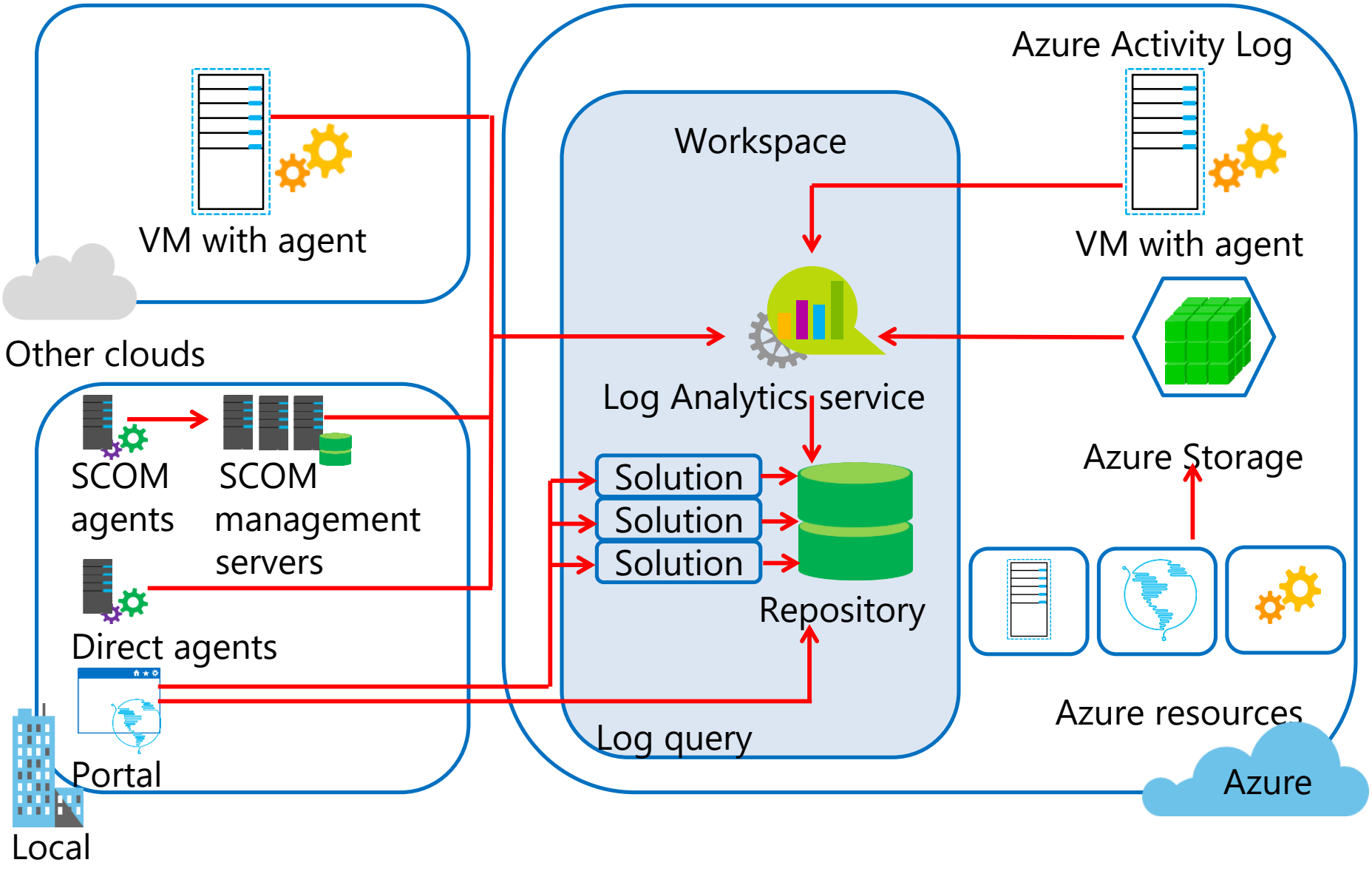
- Demonstration: Preparing the lab environment
- Introducing Log Analytics
- Log Analytics as a component of Azure
- Implementing Log Analytics solutions
- Demonstration: Implementing Log Analytics solutions
- Monitoring and managing security with Security Center
- Monitoring cloud and on-premises resources with Monitor
- Implementing Azure governance with Azure Resource Manager

Demonstration: Preparing the lab environment

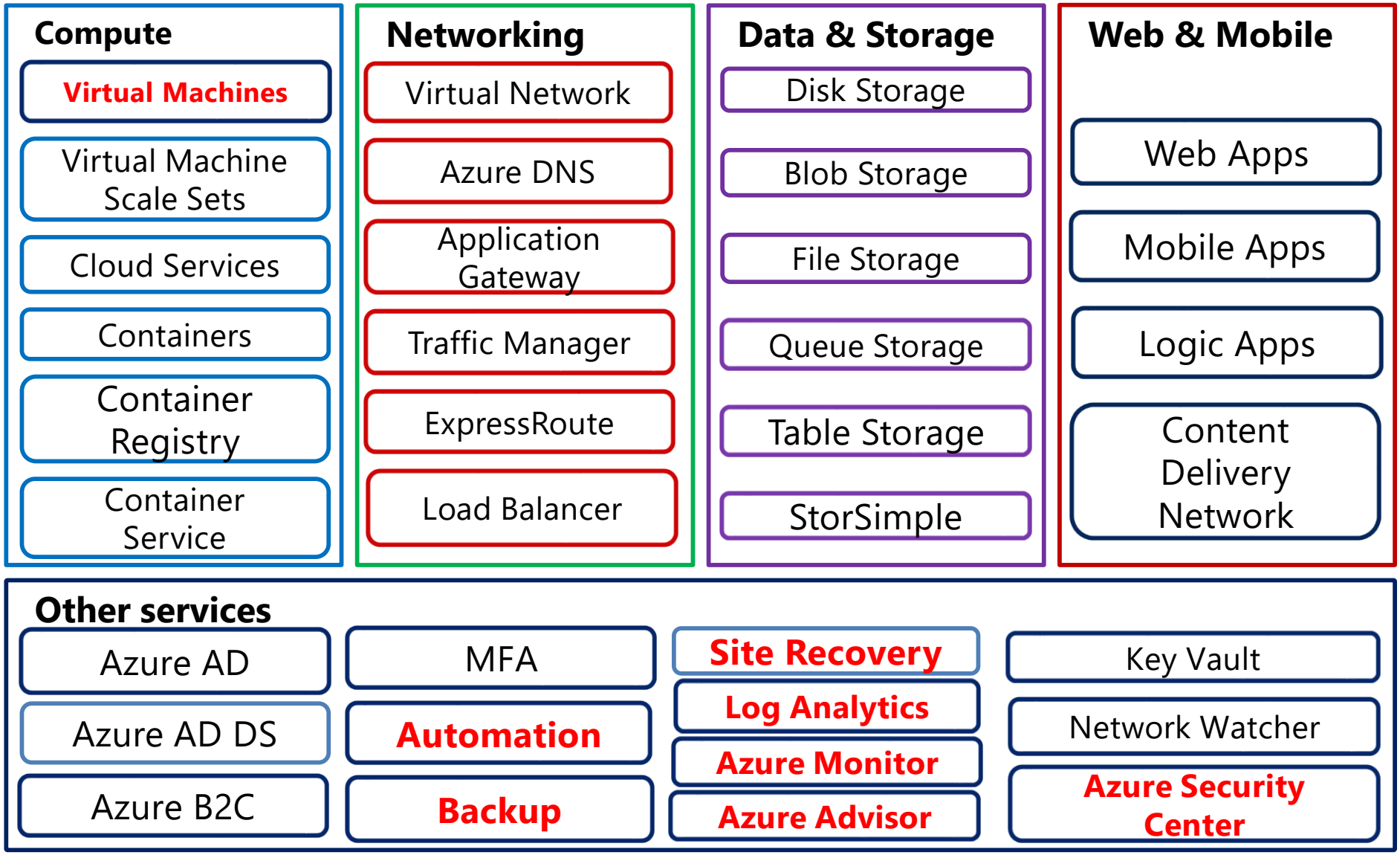
In this demonstration, you will learn how to prepare the lab environment

Note: To prepare the lab environment for this module, you must complete this task

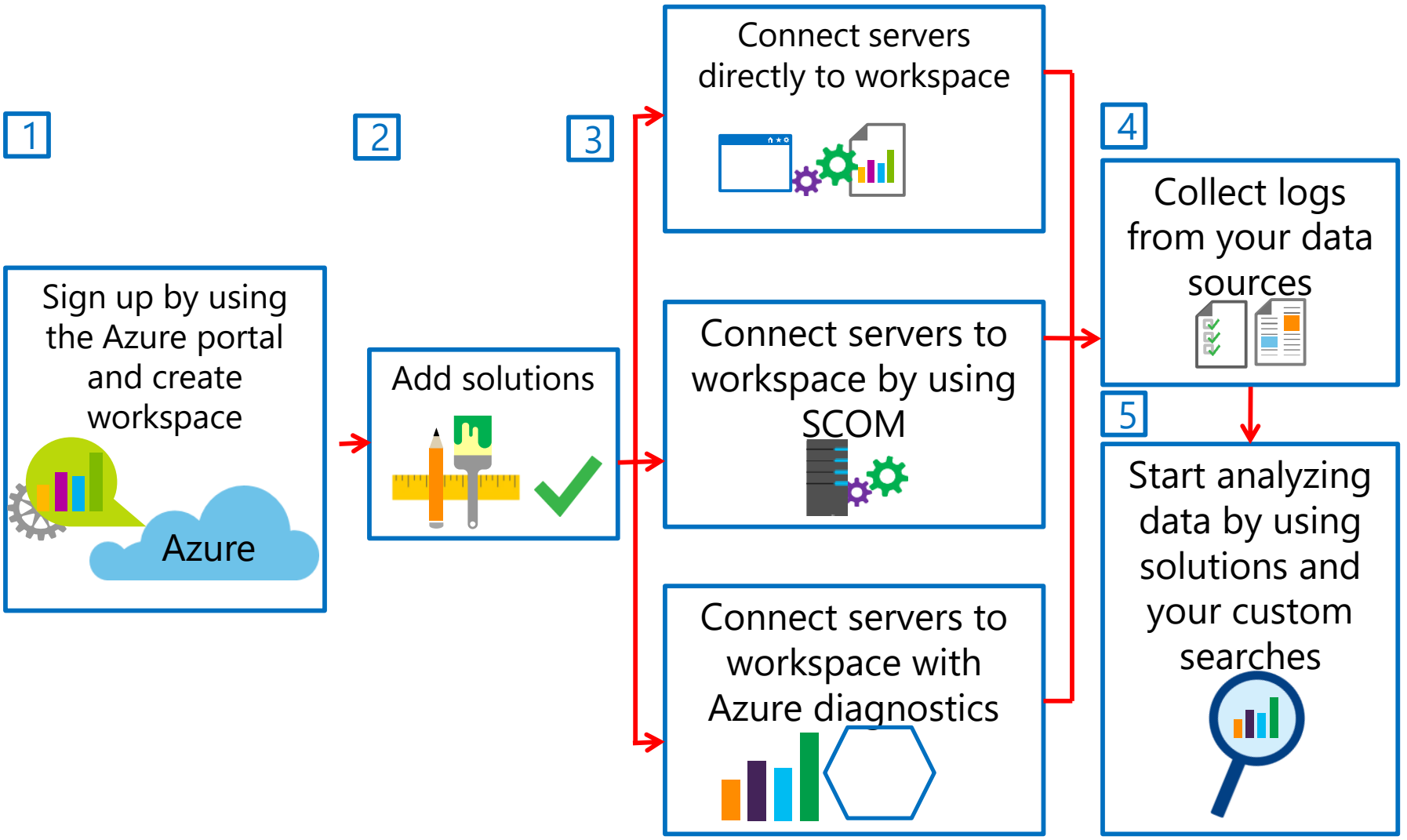
Introducing Log Analytics



Log Analytics as a component of Azure



Implementing Log Analytics solutions



Demonstration: Implementing Log Analytics solutions

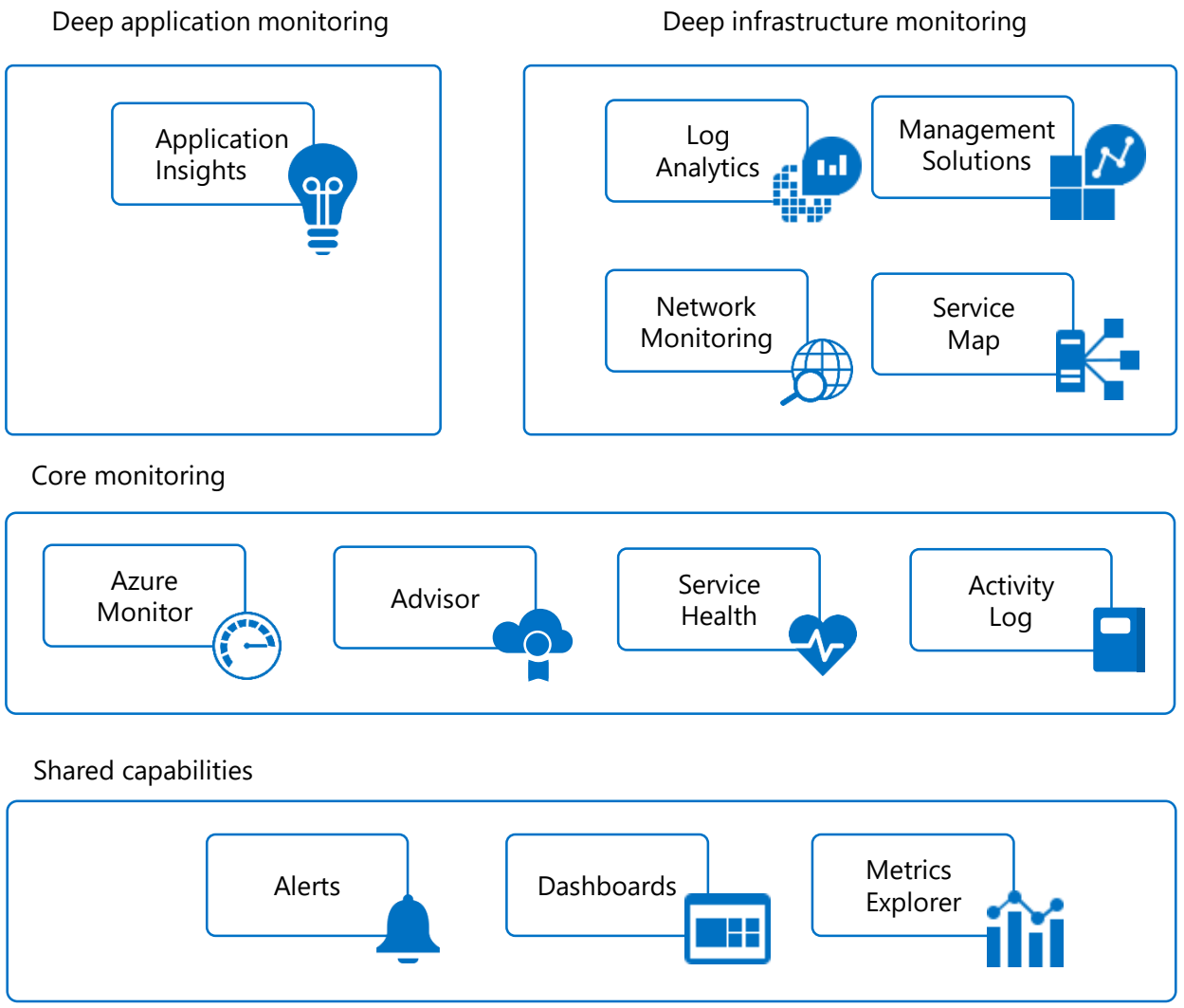
In this demonstration, you will see how to:

- Create an Operations Management Suite workspace
- Install the Log Analytics VM extension on an Azure VM
- Add solutions to Log Analytics
- Perform searches of collected data
- Configure log collection

Monitoring and managing security with Security Center

- Configure security policy:
  - Enable Data Collection
  - Choose security policy recommendations
  - Set email notifications
  - Select pricing tier:
    - Free
    - Standard
- Implement remediation actions
- Evaluate security status:
  - Events dashboard
  - Search dashboard
  - Identity & Access dashboard
  - Threat intelligence dashboard

Monitoring cloud and on-premises resources with Monitor



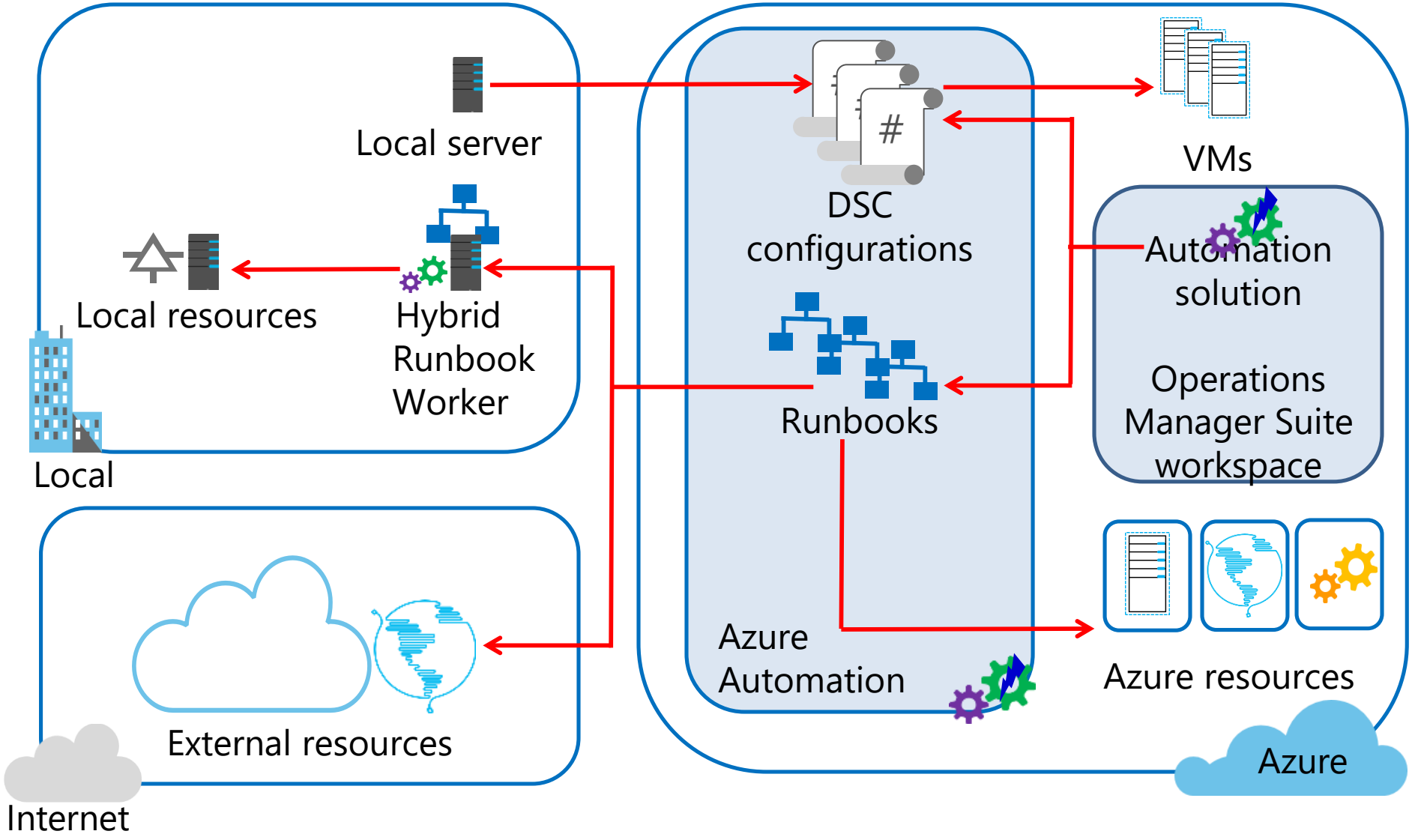
Implementing Azure governance with Azure Resource Manager

- To implement Role-Based Access Control:
  - Select a built-in role or create a custom one
  - Specify an Azure AD user, group, service principal, or MSI
  - Designate a scope of delegation
- To implement a policy:
  - Use a built-in policy definition or create a custom one
  - Assign the policy assignment to a scope
  - View compliance status
- To implement a lock:
  - Select a ReadOnly or CanNotDelete lock
  - Assign the lock to a scope

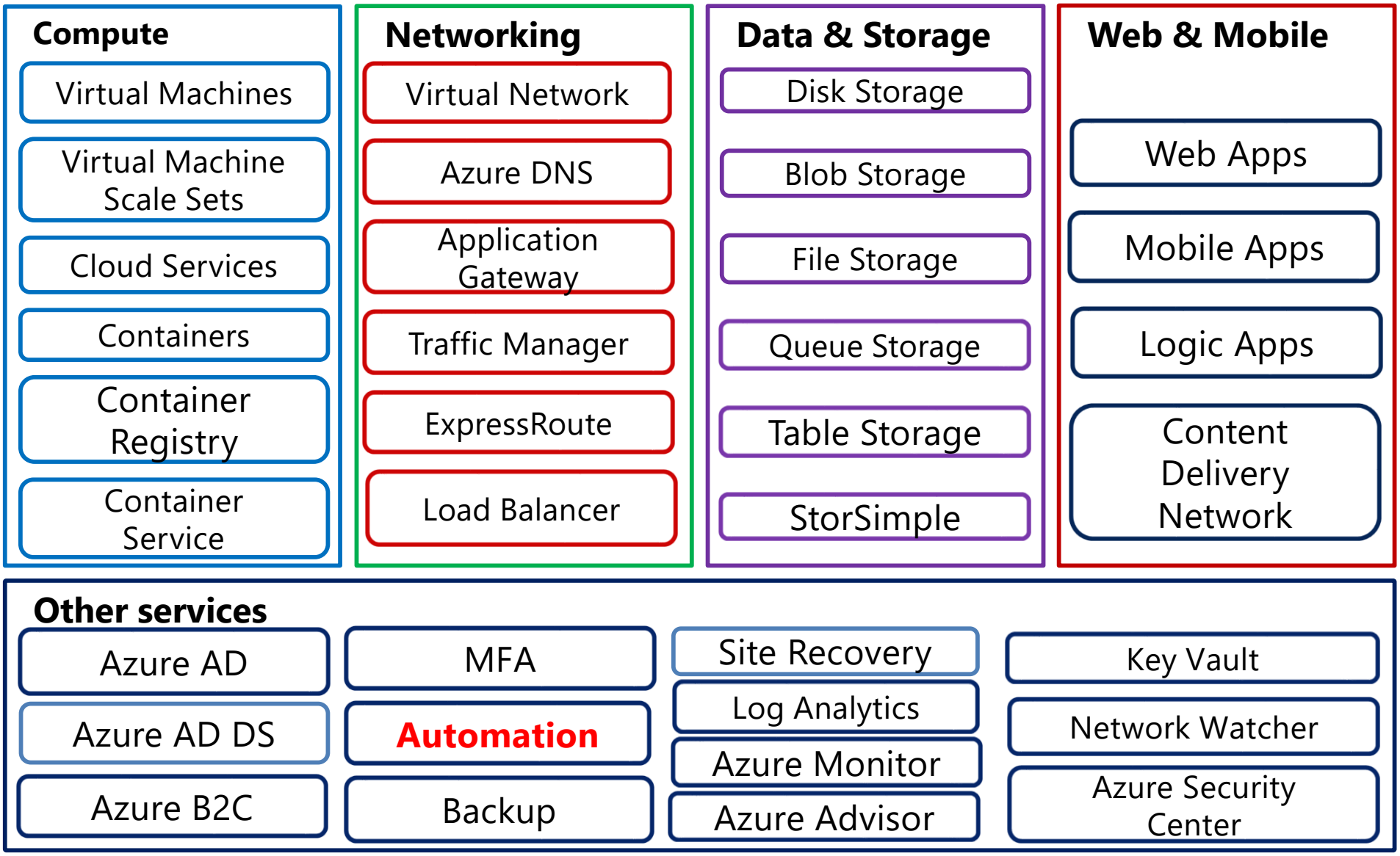
Lesson 2: Implementing Automation

- Introducing Automation
- Automation as a component of Azure
- Creating Automation accounts and assets
- Using Automation runbooks on-premises
- Demonstration: Creating an Automation account and assets

Introducing Automation



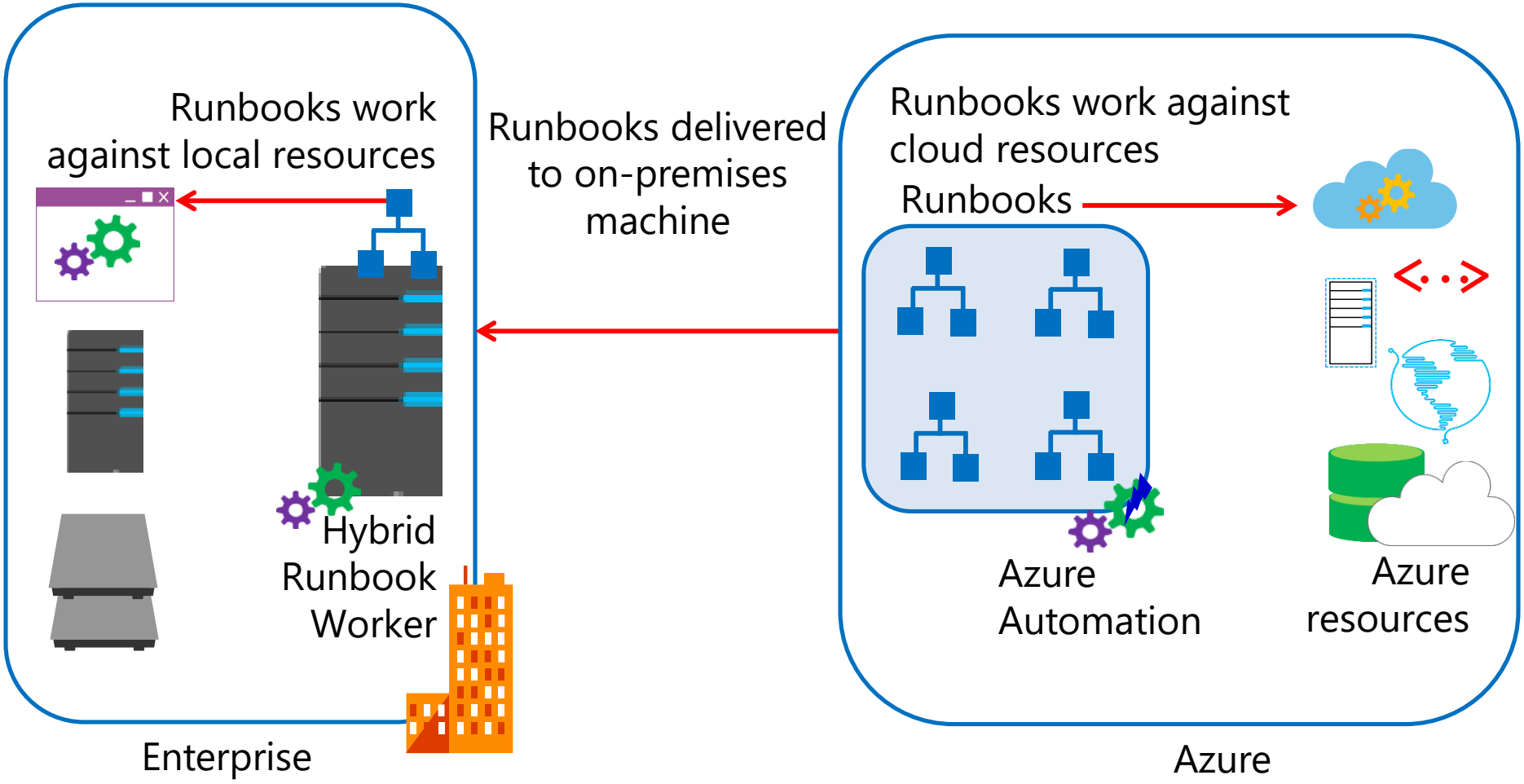
Automation as a component of Azure



Creating Automation accounts and assets

- Create an Automation account by using:
  - Automation & Control from the Azure Marketplace
  - Automation service from the Azure Marketplace
  - Log Analytics management solutions
- Azure Automation shared resources are grouped into the following categories:
  - Modules
  - Schedules
  - Certificates
  - Connections
  - Variables
  - Credentials

Using Automation runbooks on-premises



Demonstration: Creating an Automation account and assets

In this demonstration, you will see how to:

- Create an Automation account
- Create an Automation Variable asset
- Create an Automation Schedule asset

Lesson 3: Implementing Automation runbooks

- Introduction to Automation runbooks
- Graphical authoring of Automation runbooks
- Overview of PowerShell workflows
- Textual authoring of PowerShell workflow runbooks
- Textual authoring of PowerShell runbooks
- Implementing Automation DSC
- Demonstration: Graphical authoring of Automation runbooks

Introduction to Automation runbooks

- Graphical runbooks:
  - Based on PowerShell workflows or PowerShell scripts
  - Edited by using the graphical editor in the Azure portal
- Textual runbooks:
  - Based on PowerShell workflows or PowerShell scripts
  - Edited by using the textual editor in the Azure portal or imported from workflows and scripts created on-premises
- Converting runbook types:
  - No support for converting between graphical and textual
  - Support for converting between graphical workflows and runbooks during import

Graphical authoring of Automation runbooks

Overview of PowerShell workflows

Workflows support:

- Long-running activities
- Repeatable activities
- Frequently executed activities
- Running activities in parallel across one or more machines
- Interruptible activities that you can stop and restart

Textual authoring of PowerShell workflow runbooks

Workflow syntax/keywords:

- **Parallel**
- **Foreach –parallel**
- **Sequence**
- **InlineScript**
- **Checkpoint-workflow**
- **Suspend-workflow**

```
workflow test {
InlineScript { Code }
 parallel {
   Command A
   Command B
    sequence {
      Command C
      Command D
    }
  }
}
```

Textual authoring of PowerShell runbooks

To create Automation PowerShell scripts:

- Write code in textual editor
- Add PowerShell cmdlets from integration modules imported into the Automation account
- Reference Automation assets
- Add runbooks

Implementing Automation DSC

Configurations

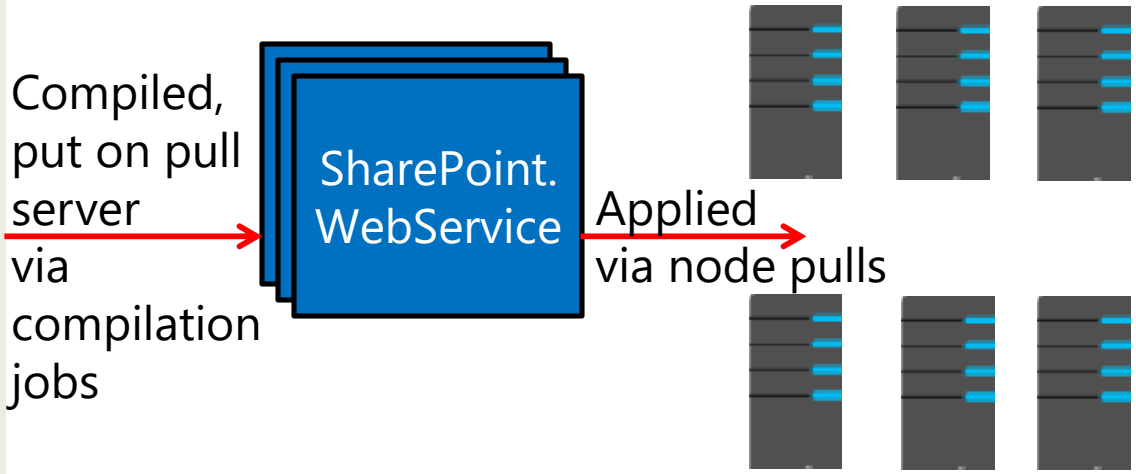
```
Configuration SharePoint {

  Node WebService {

    #Install the IIS Role
    WindowsFeature IIS {
    Ensure = “Present”
    Name – “Web-Server”
    }
    #Install ASP.NET 4.5
    WindowsFeature ASP {
    Ensure = “Present”
    Name – “Web-Asp-Net45”
    }
  }
}
```

Node configurations (.mof configuration documents)

Nodes



One or more per Automation account

One or more per configuration

One or more per node configuration

Demonstration: Graphical authoring of Automation runbooks

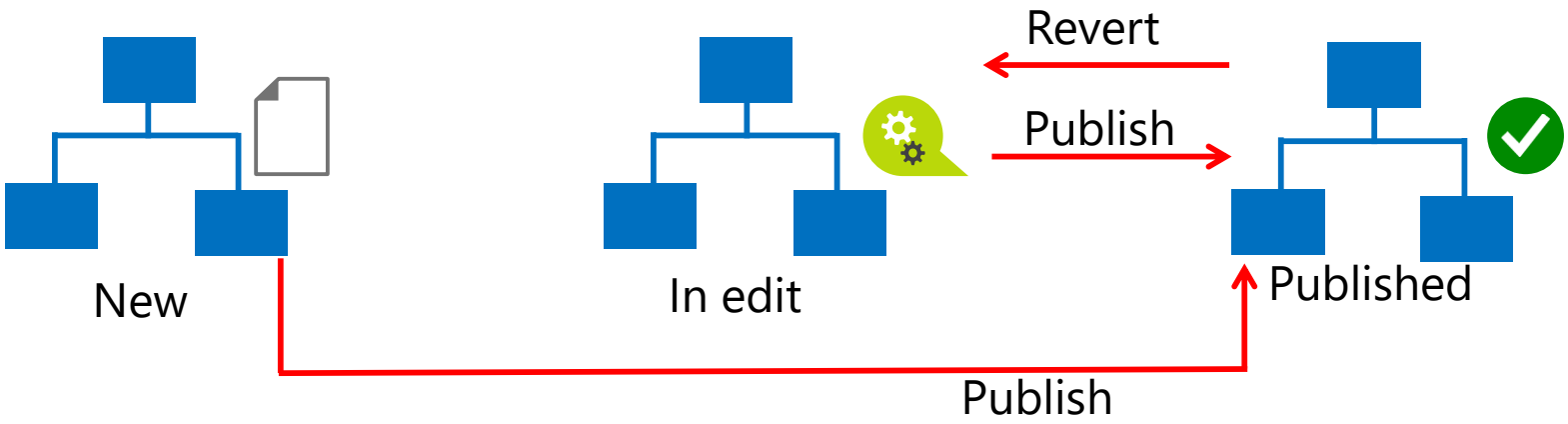
In this demonstration, you will see how to:

- Create a graphical Automation runbook
- Configure authentication in a graphical Automation runbook
- Add an activity to start a VM

Lesson 4: Implementing Automation–based management

- Automation runbook lifecycle
- Testing, publishing, and executing Automation runbooks
- Monitoring and troubleshooting Automation jobs
- Protecting the Automation environment
- Demonstration: Testing, publishing, executing, and monitoring execution of an Automation runbook

Automation runbook lifecycle



Possible actions in the New status:

- Test
- Publish

Possible actions in the In edit status:

- Test
- Publish (overwrite published runbook)

Possible actions in the Published status:

- Start via Webhook
- Start on schedule

Testing, publishing, and executing Automation runbooks

- Testing validates a new or newly modified runbook operation before publishing:
  - Not equivalent to the PowerShell **WhatIf** switch
  - Consider running in a dedicated test environment
- Publishing designates runbook as production-ready
- Published runbooks:
  - Can be scheduled
  - Can be called via a webhook

Monitoring and troubleshooting Automation jobs

Possible job states:

- Completed
- Failed
- Failed, waiting for resources
- Queued
- Starting
- Running
- Running, waiting for resources
- Stopped
- Stopping
- Suspended
- Suspending
- Resuming

Protecting the Automation environment

- Built-in geo-replication of Automation accounts
- 90-day log retention period
- Custom backup options for:
  - Runbooks
  - Assets
  - DSC configurations

Demonstration: Testing, publishing, executing, and monitoring execution of an Automation runbook

In this demonstration, you will see how to:

- Test a runbook
- Publish a runbook
- Execute a runbook and monitor the corresponding job

Lab: Implementing Automation

- Exercise 1: Configuring Automation accounts
- Exercise 2: Creating runbooks

Logon Information

Virtual machine: **20533E-MIA-CL1**
User name: **Student**
Password: **Pa55w.rd**

Estimated Time: 40 minutes

Lab Scenario

Adatum Corporation wishes to minimize administrative overhead as much as possible, especially for tasks that involve management of VMs. For this reason, as part of Adatum's evaluation of Microsoft Azure, you have been asked to configure an Automation account and use its features to automate the most common VM management tasks.

Lab Review

- What should you consider when testing the execution of an Automation runbook?
- Why did you have to create an Automation Run As account in the lab?

Module Review and Takeaways

- Review Question

Course Evaluation

- Your evaluation of this course will help Microsoft understand the quality of your learning experience.
- Please work with your training provider to access the course evaluation form.
- Microsoft will keep your answers to this survey private and confidential and will use your responses to improve your future learning experience. Your open and honest feedback is valuable and appreciated.