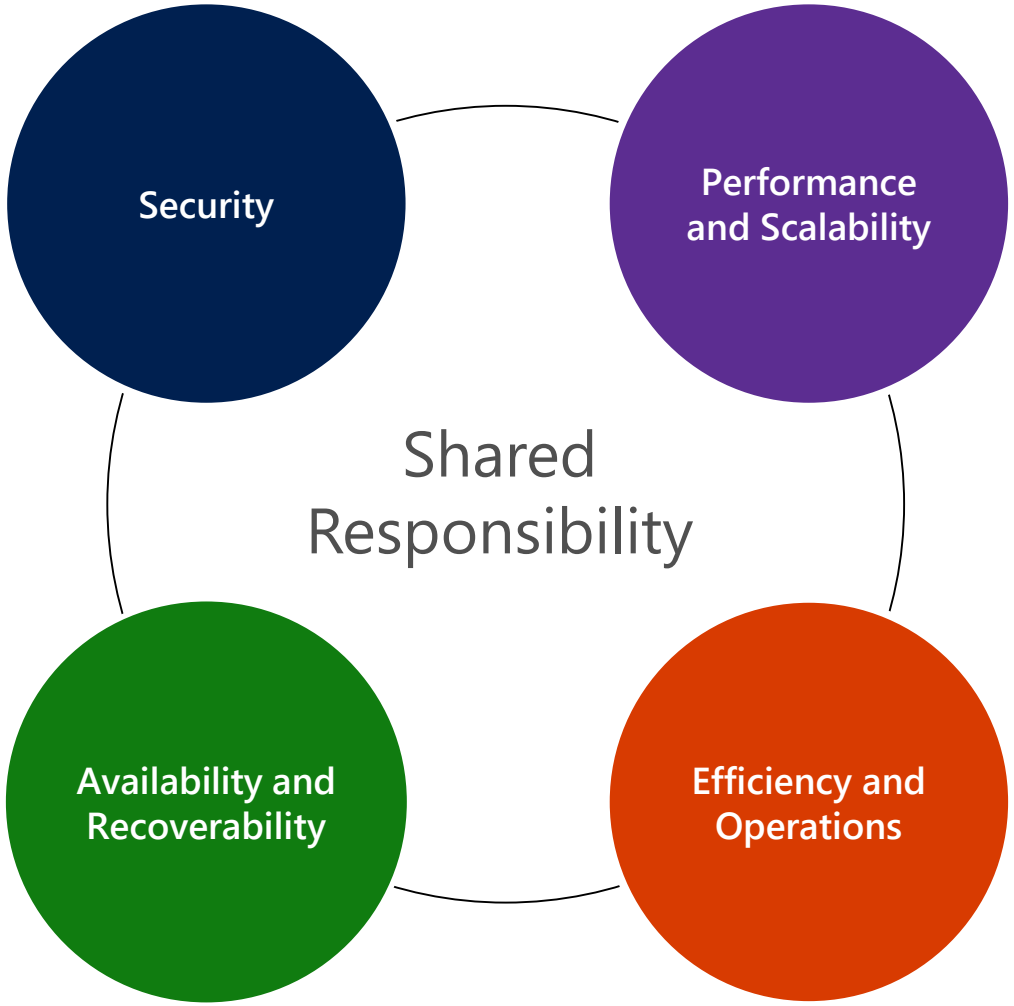
Microsoft

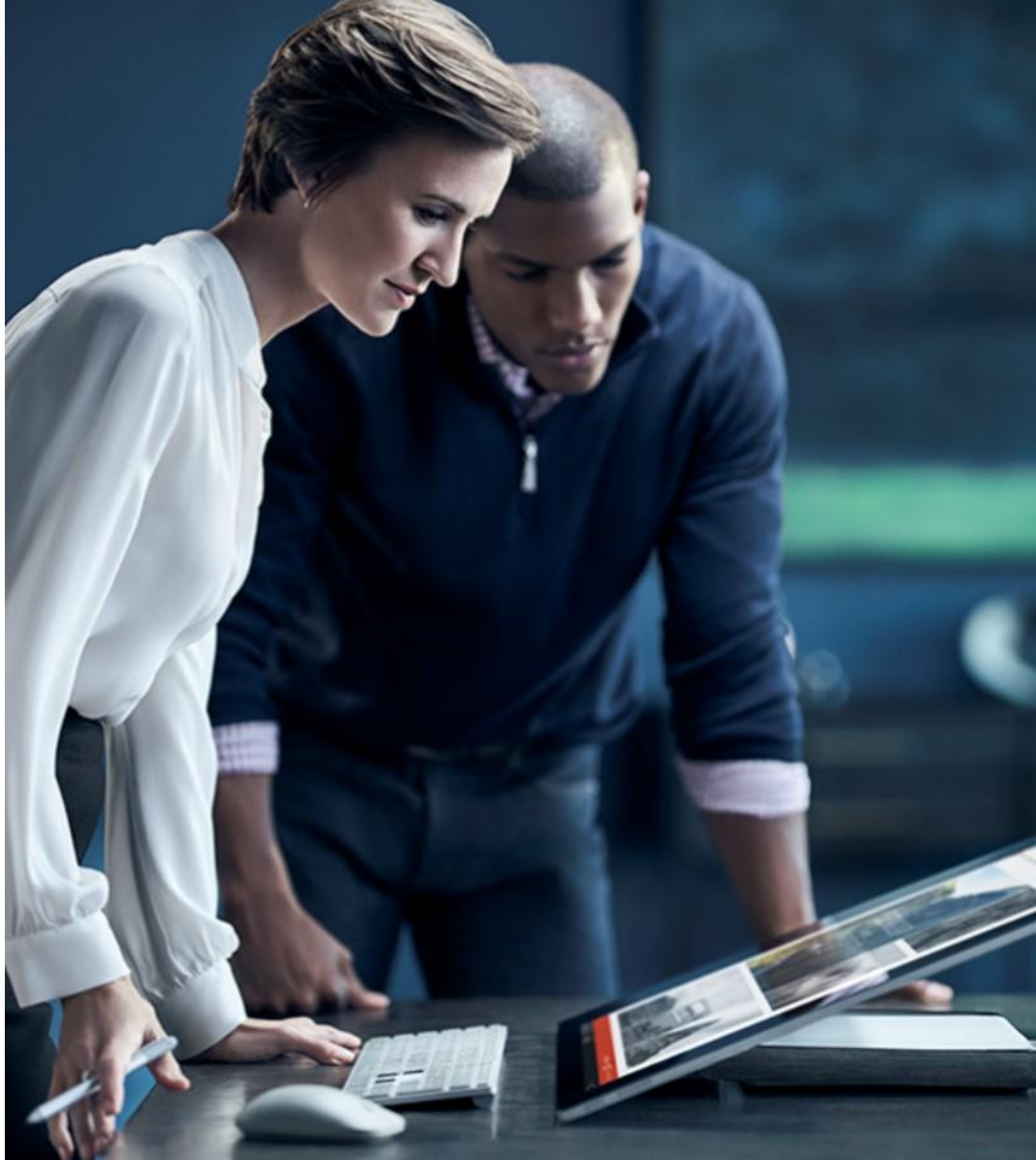
DP-201T01: Azure Architecture Considerations

Lesson Objectives

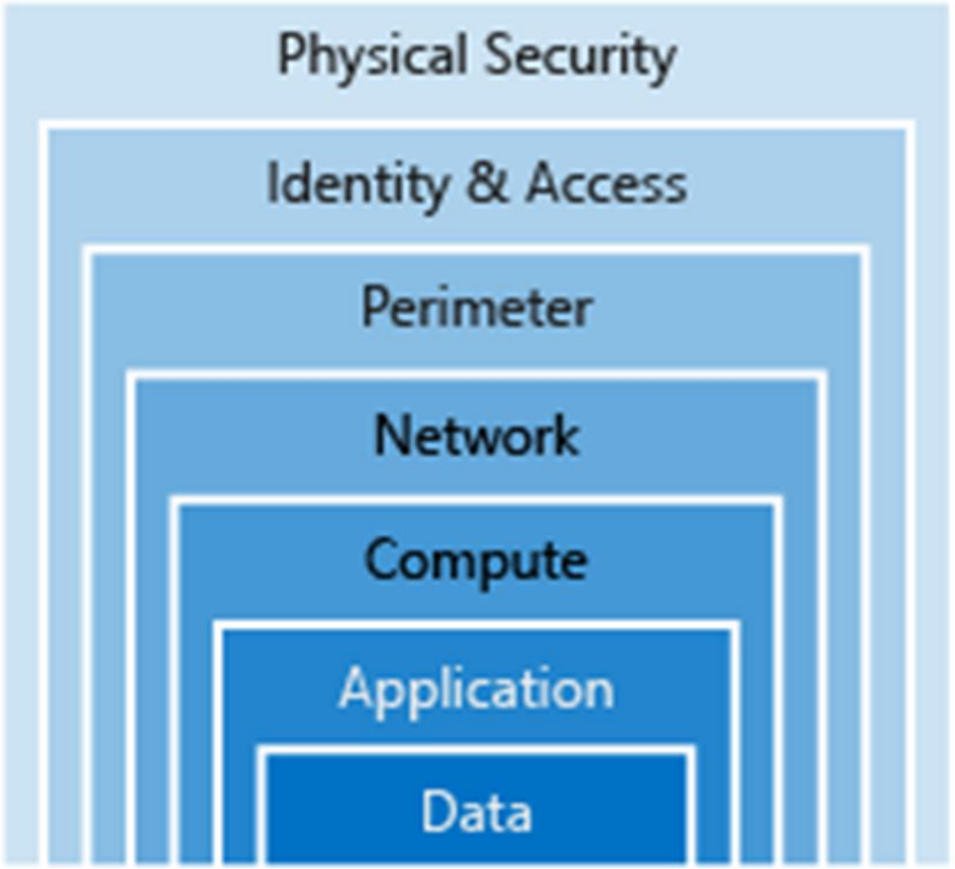
- Describe the Pillars of a Great Azure Architecture
- Design with Security in mind
- Consider performance and scalability
- Design for availability and recoverability
- Design for efficiency and operations
- Understand the course Case Study

Pillars of a Great Azure Architecture





Design for Security.



Design for Performance and Scalability

Scaling

Compute resources can be scaled in two different directions:
* Scaling **UP** is the action of adding more resources to a single instance.
* Scaling **out** is the addition of instances.

Performance

When optimizing for performance, you'll look at network and storage to ensure performance is acceptable. Both can impact the response time of your application and databases.

Patterns and Practices

Partitioning

In many large-scale solutions, data is divided into separate partitions that can be managed and accessed separately
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Scaling

Is the process of allocating scale units to match performance requirements. This can be done either automatically or manually

Caching

Caching is a mechanism to store frequently used data or assets (web pages, images) for faster retrieval

Design for Availability and Recoverability

Design for Availability

Designing for *availability* focuses on maintaining uptime through small-scale incidents and temporary conditions like partial network outages.

Design for Recoverability

Designing for *recoverability* focuses on recovery from data loss and from larger scale disasters.

Recovery Point Objective: The maximum duration of acceptable data loss.
Recovery Time Objective: The maximum duration of acceptable downtime

Design for Efficiency and Operations

Importance of efficiency and operations	Efficiency is focused on identifying and eliminating waste within your environment. The cloud is a pay-as-you-go service and waste typically comes from provisioning more capacity than demand requires. There are operational costs that go along with this as well. These operational costs show up as wasted time and increased error.
Efficiency best practices	Look at cost optimization steps like sizing data services or virtual machines properly and deallocating compute that aren't in use. Now that you are paying for what you use, you want to be sure that you aren't wasting any of these resources.
Operational best practices	Automate as much as possible. The human element is costly, injecting time and error into operational activities. You can use automation to build, deploy, and administer resources. By automating common activities, you can eliminate the delay in waiting for a human to intervene.

Course Case Study AdventureWorks Cycles

Read the case study

In this section of the course, the instructor will either:

- Allocate you 10 minutes to read through the case study.

  Or

- Spend 10 minutes walking through the case study with you as a group

Note:
This case study will be used in labs across the entire course. Each lab will drill down more into the detail of what is required as you perform each lab.

Lab: Architecture Considerations

Lab overview

The students will use the information gained in this module and apply it to a scenario that is defined in a case study about AdventureWorks. They will describe and provide examples of how the core principles for creating architectures will be applied to AdventureWorks. This will include designing with security in mind. They will also provide specific examples of how to design performance and scalability within a solution. The students will also describe the availability and recoverability options that are needed by the organization. Finally, the student will identify the efficiency and operations opportunities that can be gained by the options

Lab objectives

After completing this lab, you will be able to:

1. Design with Security in mind
2. Design for Performance and Scalability
3. Design for Availability and Recoverability
4. Design for Efficiency and Operations

Lab scenario

You have been You have recently been hired as a senior data engineer at AdventureWorks and are working with a consultant and architects to design a cloud data platform solution that meets the organizations technical and business requirements.

Working in a group, you will be performing a discovery exercise – via a case study - with the consultant and architects. Firstly, to understand AdventureWorks organizational goals. Secondly to articulate and provide examples of the architectural aspects that the team must be aware of as they construct the solution architectures. The architectural aspects include security, performance, scalability, availability, recoverability, efficiency and operations.

At the end of this lab, you will have:

1. Design with Security in Mind
2. Design for Performance and Scalability
3. Design for Availability and Recoverability
4. Design for Efficiency and Operations

Lab review

- The Instructor will review the answers with the group.
- The group will explore any gaps in requirements between the groups
- Are there any requirements that couldn’t be categorized?
- Are there any requirements that would require input from other roles in the organization?

Module Summary

In this module, you have learned about:

- Describe the Pillars of a Great Azure Architecture
- Design with Security in mind
- Consider performance and scalability
- Design for availability and recoverability
- Design for efficiency and operations
- Understand the course Case Study

Next steps

After the course, consider visiting [the Microsoft Customer Case Study site. Use the search bar to search by an industry such as healthcare or retail, or by a technology such as Azure Cosmos DB or Stream Analytics. Read through some of the customers stories.