AWS Academy Cloud Architecting
Module 01 Student Guide
Version 2.0.5

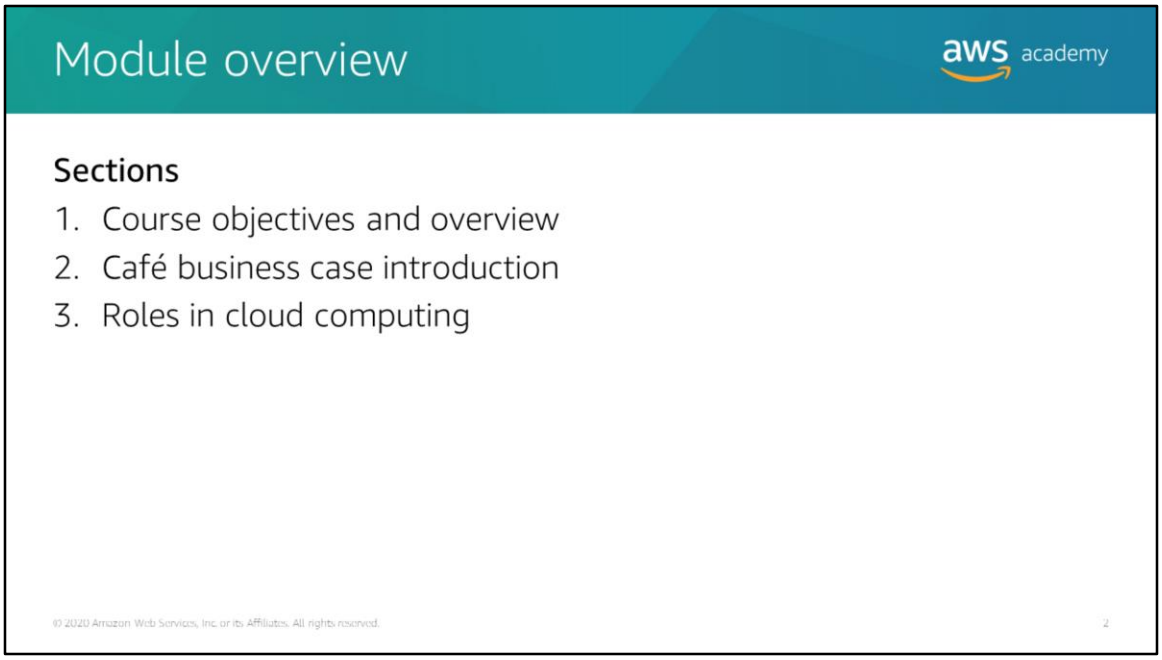
200-ACACAD-20-EN-SG

AWS Academy Cloud Architecting

Contents

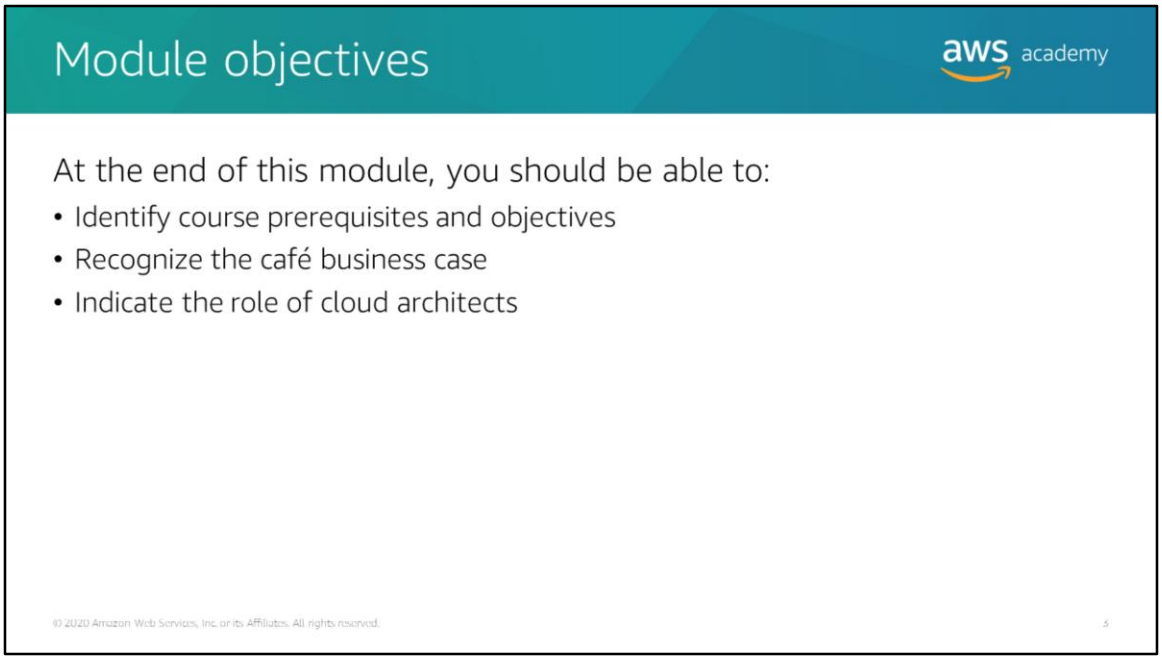
Module 1: Welcome to AWS Academy Cloud Architecting 4

Module 1: Welcome to AWS Academy Cloud Architecting.



This module includes the following sections:

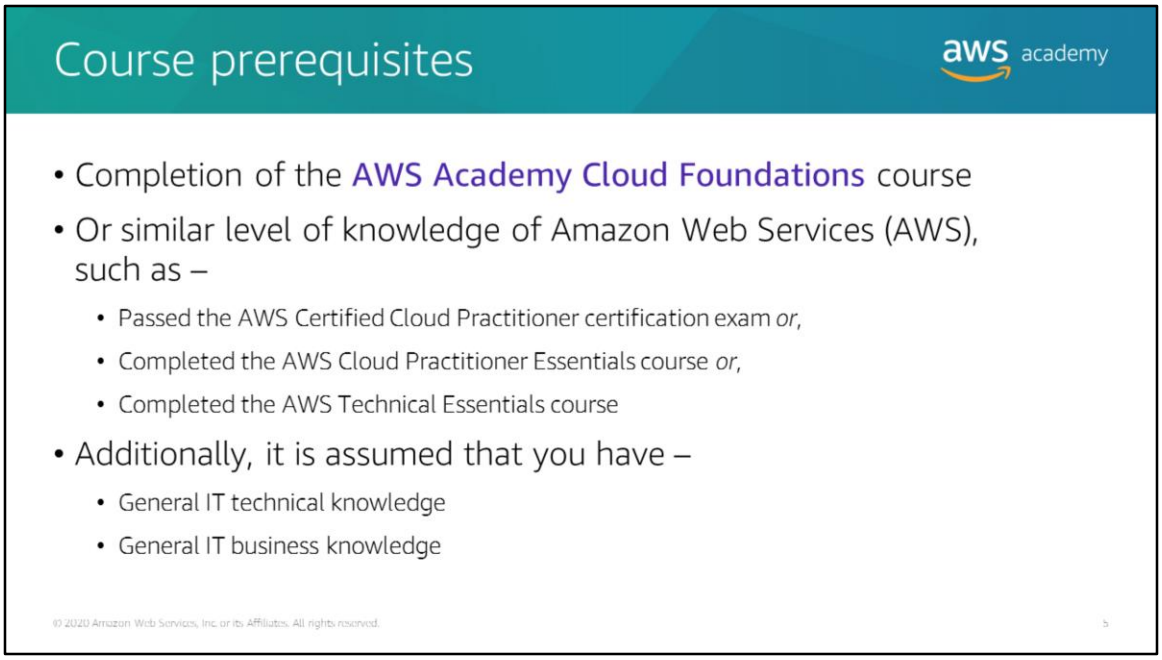
1. Course objectives and overview
2. Café business case introduction
3. Roles in cloud computing



At the end of this module, you should be able to:

- Identify course prerequisites and objectives
- Recognize the café business case
- Indicate the role of cloud architects

Introducing Section 1: Course objectives and overview.

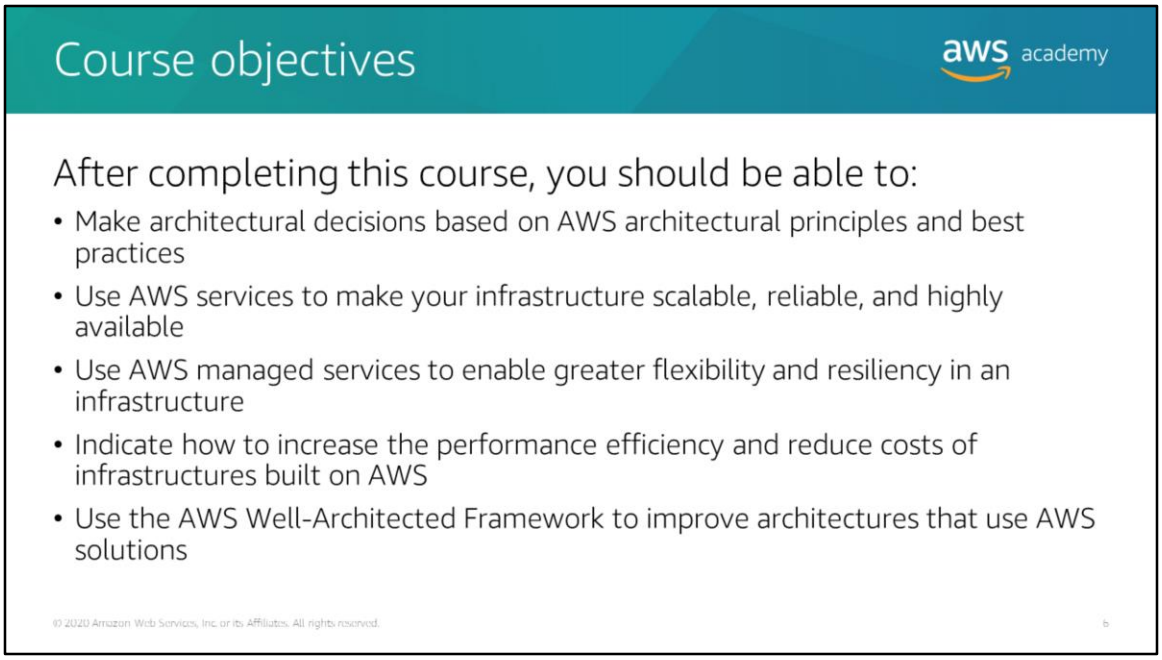


To begin, it is important to have an understanding of the prerequisites for this course.

The curriculum in this course assumes that you previously attended the *AWS Academy Cloud Foundations* course. Alternatively, you might have a level of familiarity with the AWS Cloud that is similar to what the AWS Academy Cloud Foundations course provides.

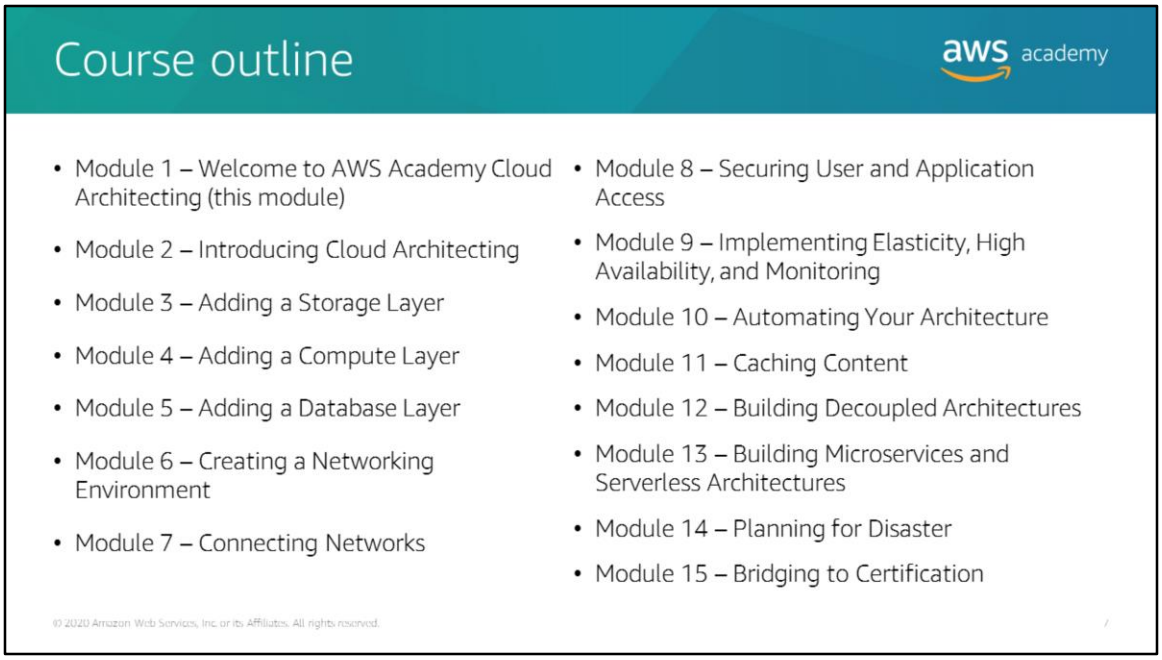
It is also assumed that you have general *IT technical knowledge*. You must have some foundational computer literacy skills to be successful in this course. These skills include a knowledge of basic computer concepts, file management, and a good understanding of the internet.

You should also have general *IT business knowledge*, which includes insight into how businesses and other organizations use information technology.

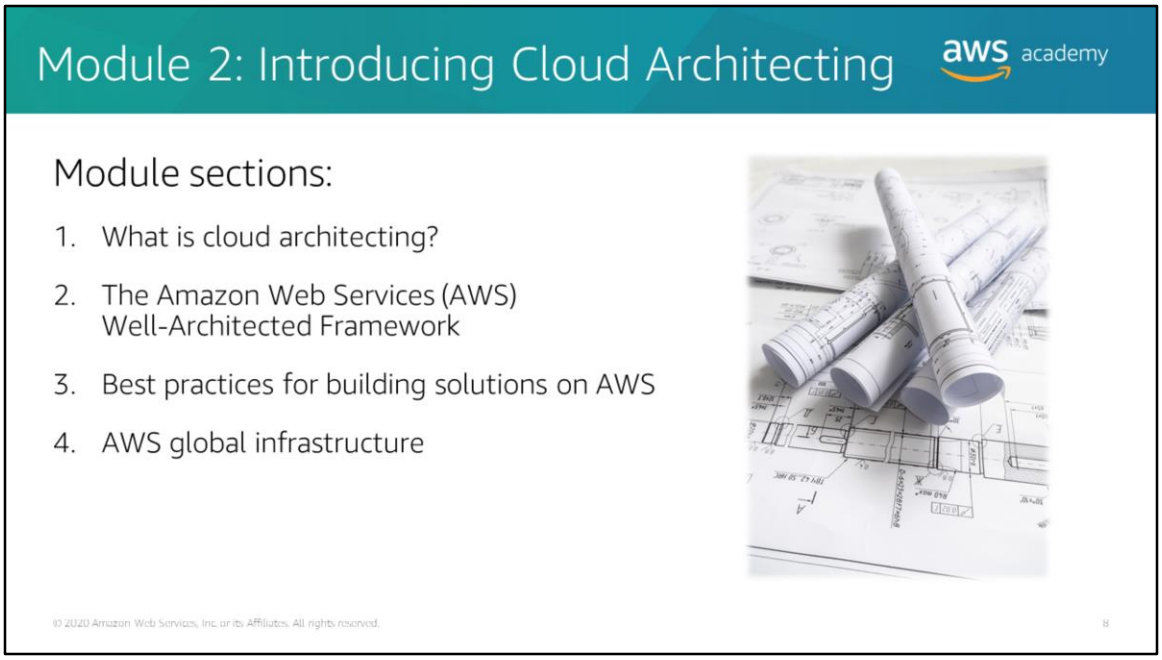


After completing this course, you should be able to:

- Make architectural decisions based on AWS architectural principles and best practices
- Use AWS services to make your infrastructure scalable, reliable, and highly available
- Use AWS managed services to enable greater flexibility and resiliency in an infrastructure
- Indicate how to increase the performance efficiency and reduce costs of infrastructures built on AWS
- Use the AWS Well-Architected Framework to improve architectures that use AWS solutions

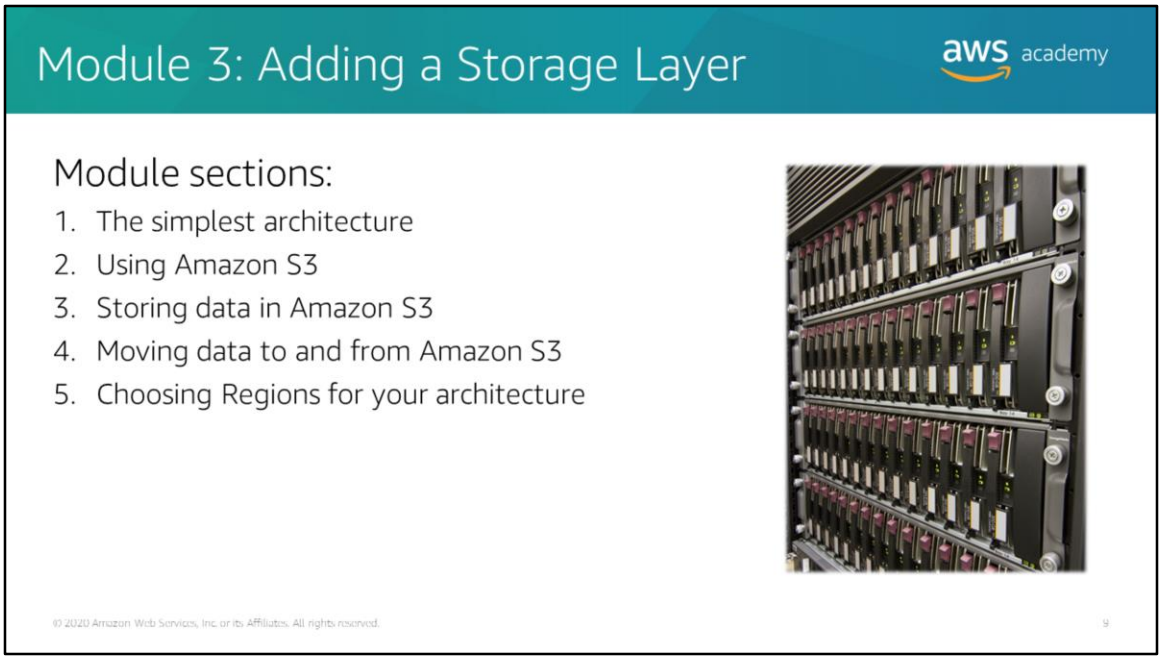


To achieve the course objectives, the course consists of the 15 modules that are shown. The next slides provide more detail on what subtopics are covered in each module.



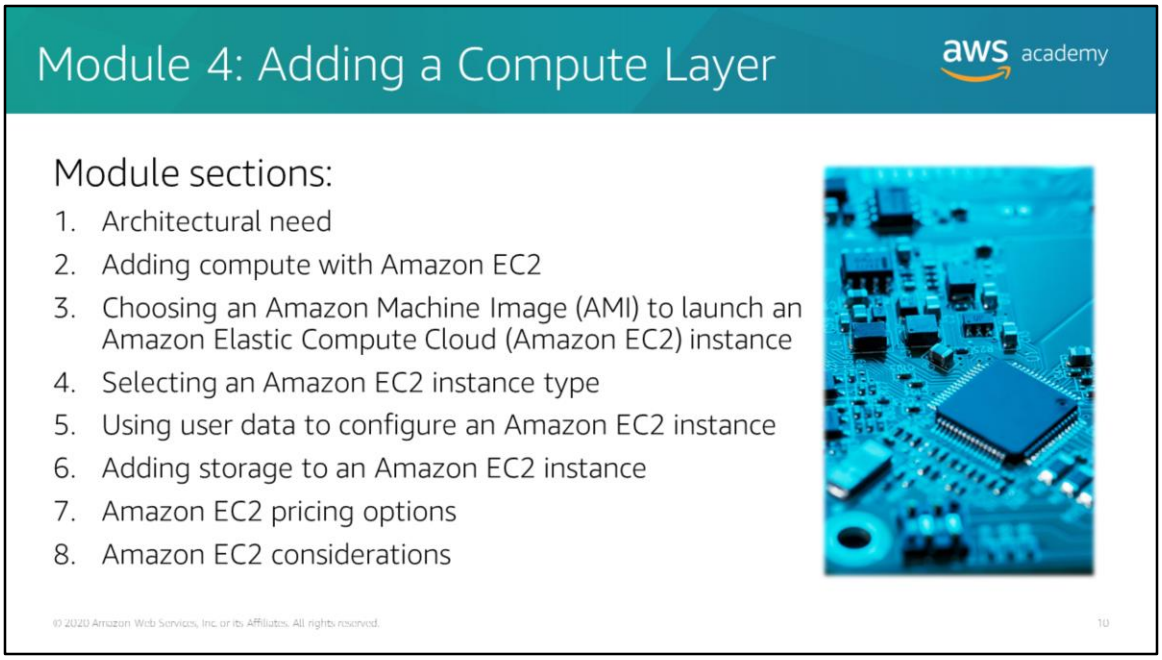
Module 2 introduces cloud architecting concepts. The sections in Module 2 include:

- What is cloud architecting?
- The Amazon Web Services (AWS) Well-Architected Framework
- Best practices for building solutions on AWS
- AWS global infrastructure



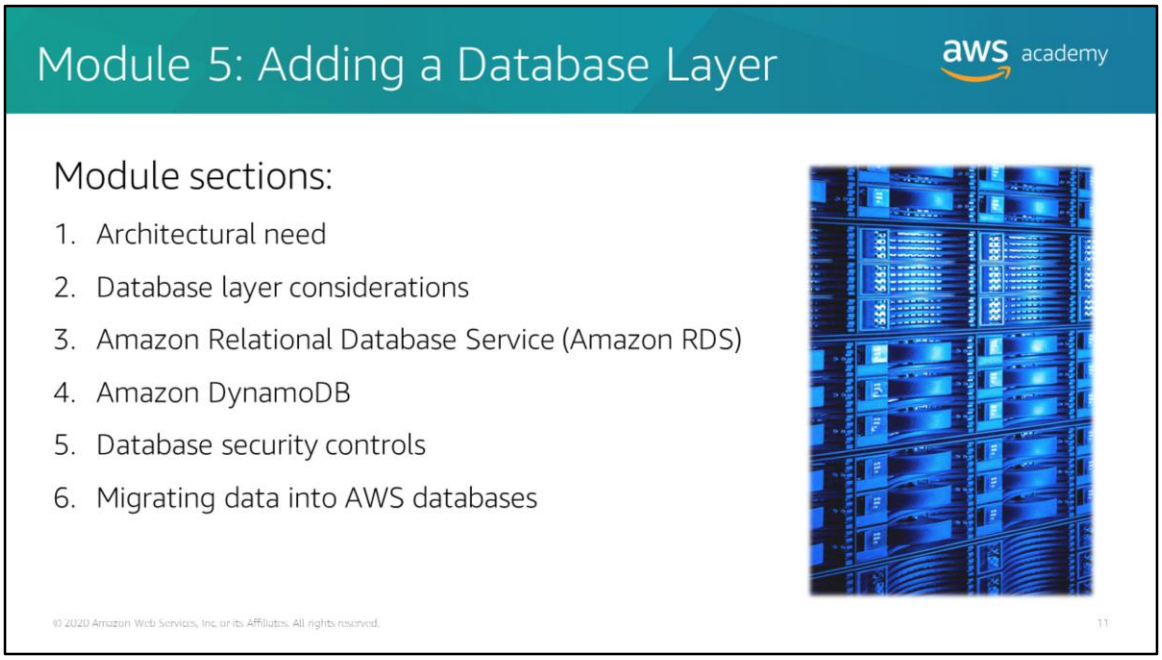
Module 3 focuses on storage and Amazon S3 in particular. The sections in Module 3 include:

- The simplest architecture
- Using Amazon S3
- Storing data in Amazon S3
- Moving data to and from Amazon S3
- Choosing Regions for your architecture



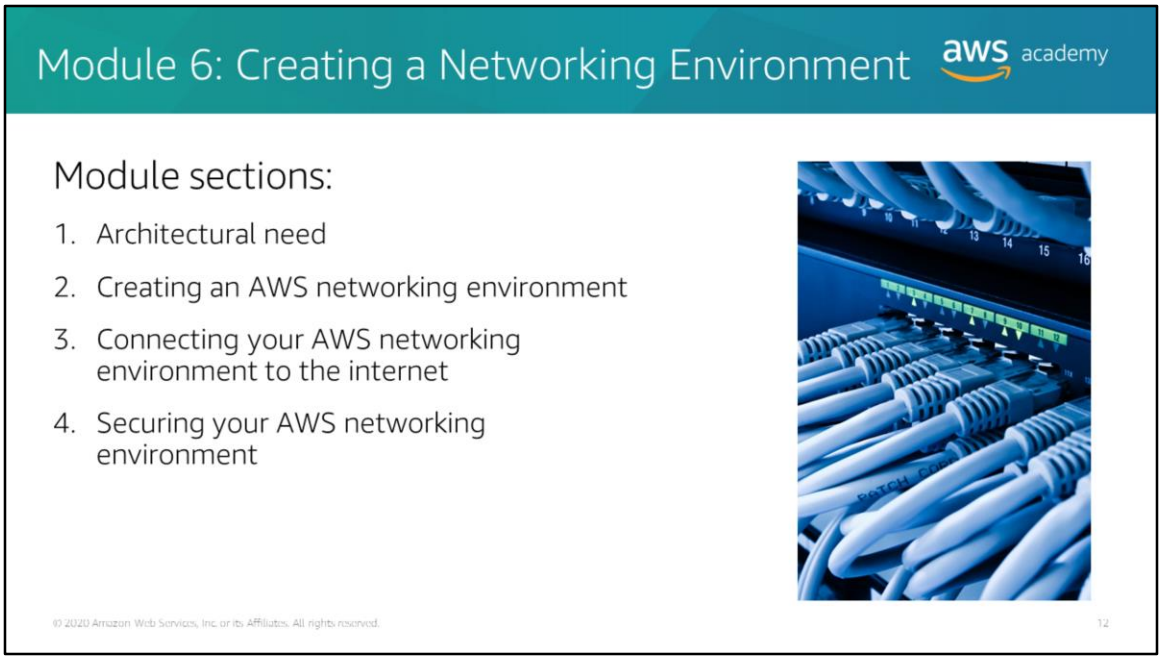
Module 4 focuses on the compute layer. The sections in Module 4 include:

- Architectural need
- Adding compute with Amazon Elastic Compute Cloud (Amazon EC2)
- Choosing an Amazon Machine Image (AMI) to launch an Amazon EC2 instance
- Selecting an Amazon EC2 instance type
- Using user data to configure an Amazon EC2 instance
- Adding storage to an Amazon EC2 instance
- Amazon EC2 pricing options
- Amazon EC2 considerations



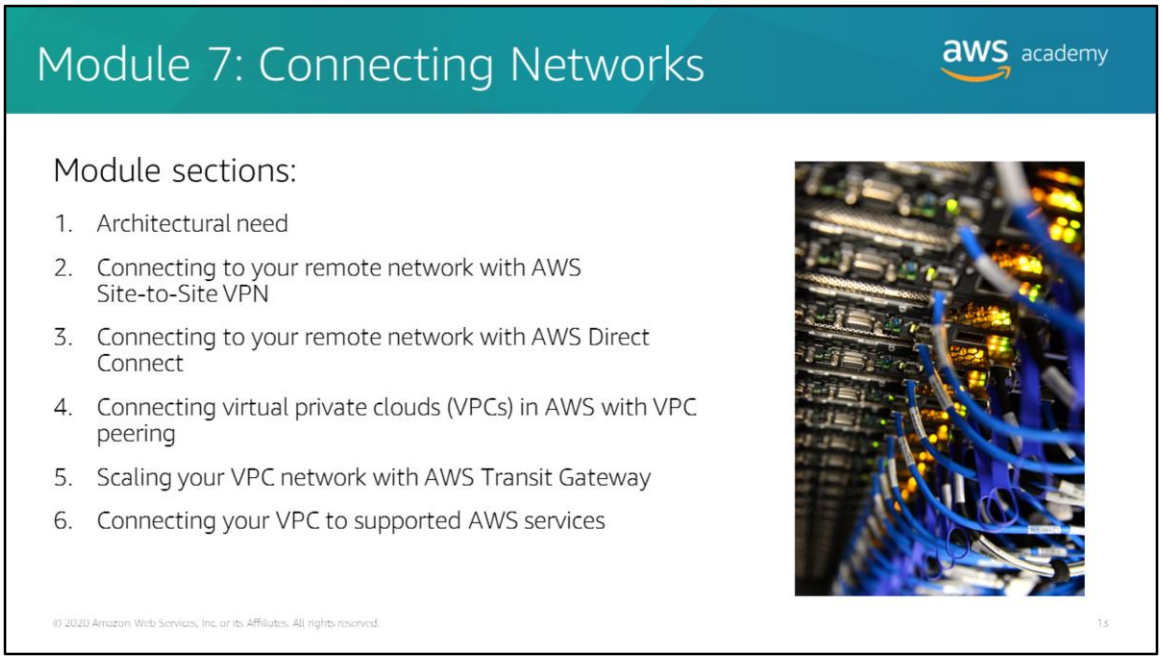
Module 5 focuses on the database layer. The sections in Module 5 include:

- Architectural need
- Database layer considerations
- Amazon Relational Database Service (Amazon RDS)
- Amazon DynamoDB
- Database security controls
- Migrating data into AWS databases



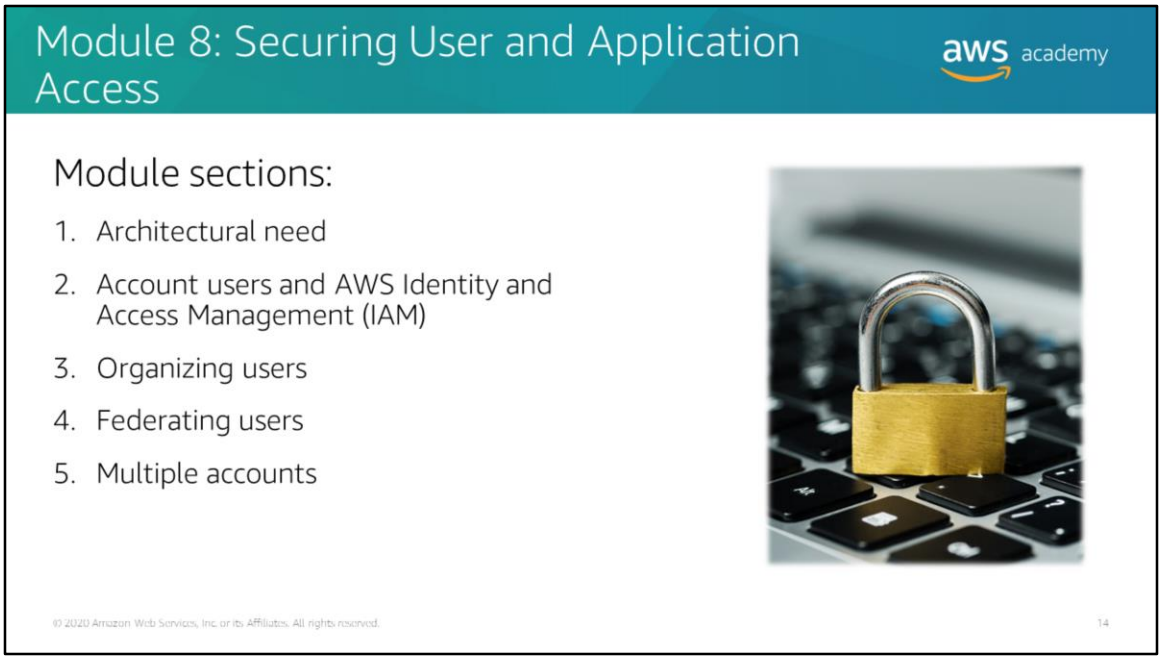
Module 6 focuses on the network layer. The sections in Module 6 include:

- Architectural need
- Creating an AWS networking environment
- Connecting your AWS networking environment to the internet
- Securing your AWS networking environment



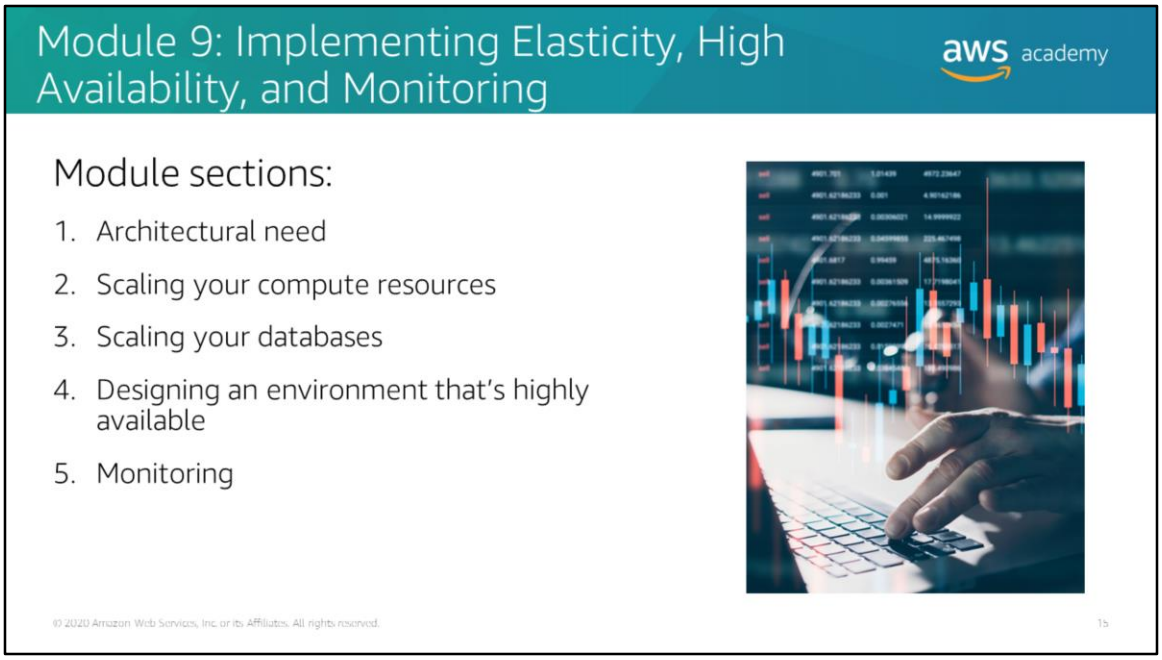
Module 7 focuses on connecting networks. The sections in Module 7 include:

- Architectural need
- Connecting to your remote network with AWS Site-to-Site VPN
- Connecting to your remote network with AWS Direct Connect
- Connecting virtual private clouds (VPCs) in AWS with VPC peering
- Scaling your VPC network with AWS Transit Gateway
- Connecting your VPC to supported AWS services



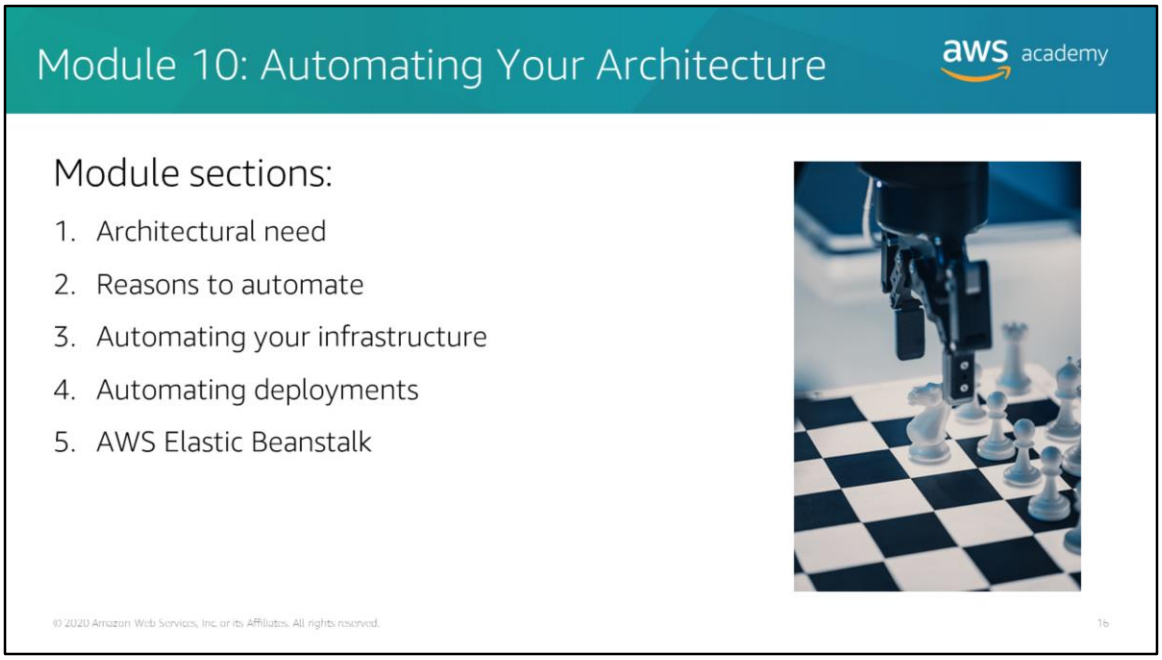
Module 8 focuses on securing user and application access. The sections in Module 8 include:

- Architectural need
- Account users and AWS Identity and Access Management (IAM)
- Organizing users
- Federating users
- Multiple accounts



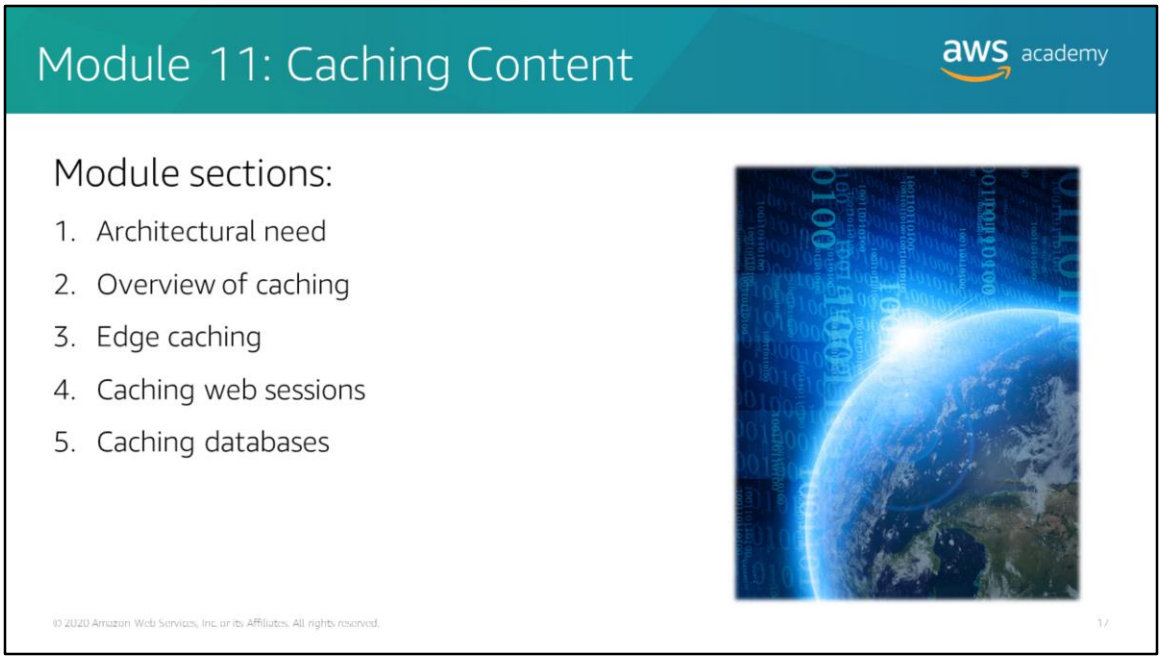
Module 9 focuses on implementing elasticity, high availability, and monitoring. The sections in Module 9 include:

- Architectural need
- Scaling your compute resources
- Scaling your databases
- Designing an environment that's highly available
- Monitoring



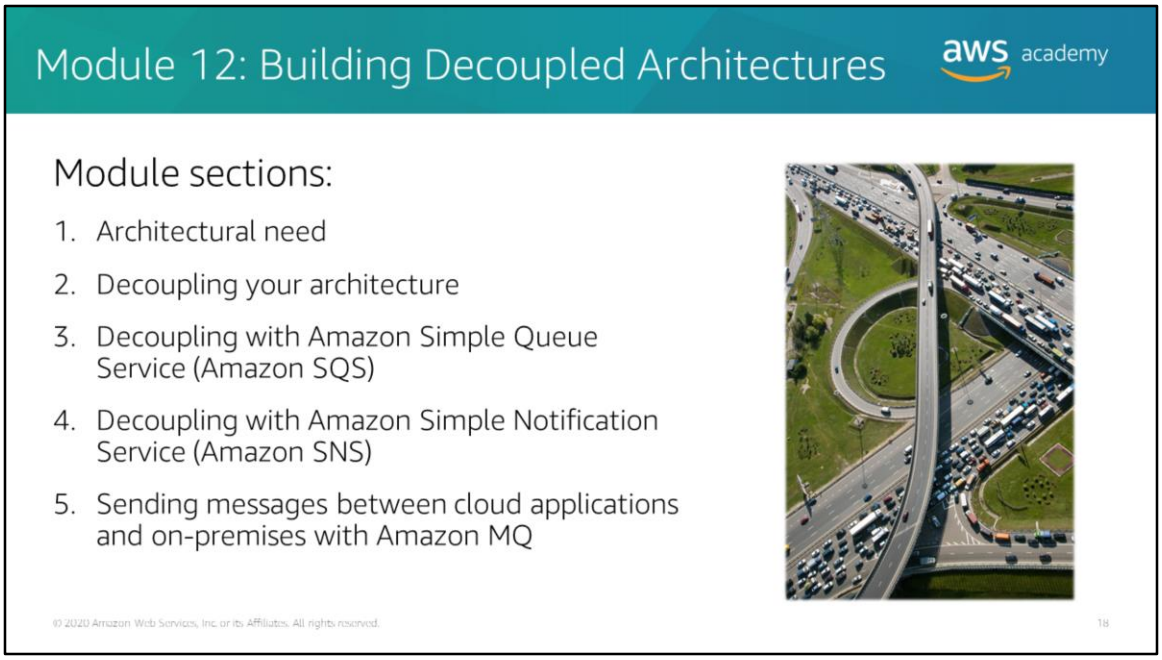
Module 10 focuses on automating your architecture. The sections in Module 10 include:

- Architectural need
- Reasons to automate
- Automating your infrastructure
- Automating deployments
- AWS Elastic Beanstalk



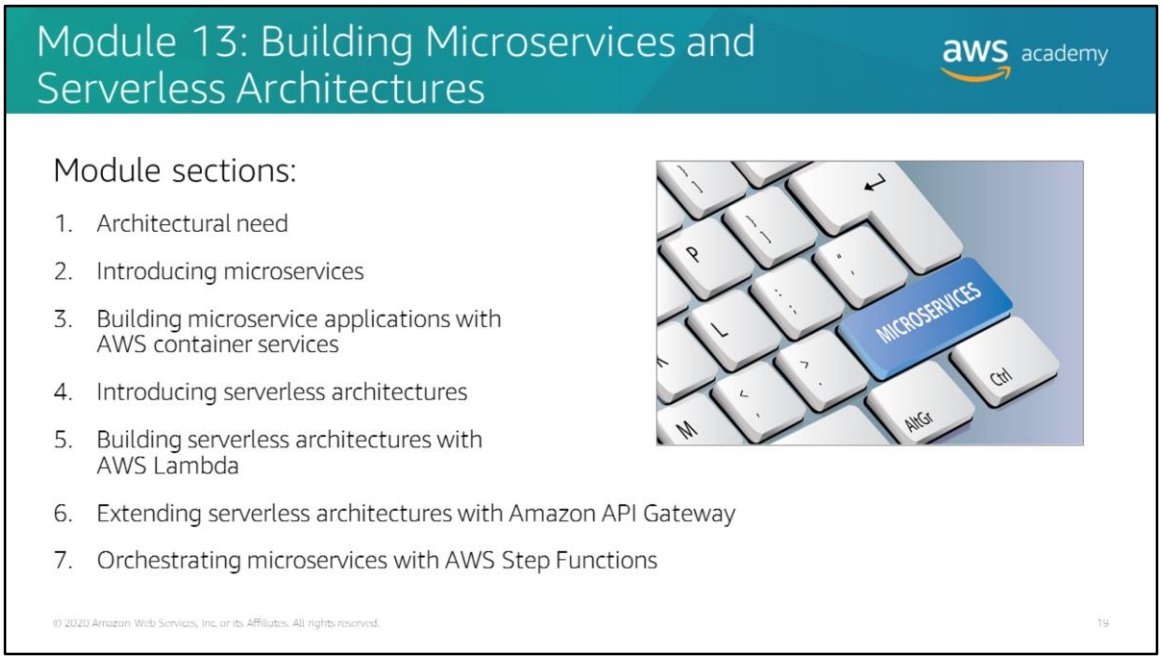
Module 11 focuses on caching content. The sections in Module 11 include:

- Architectural need
- Overview of caching
- Edge caching
- Caching web sessions
- Caching databases



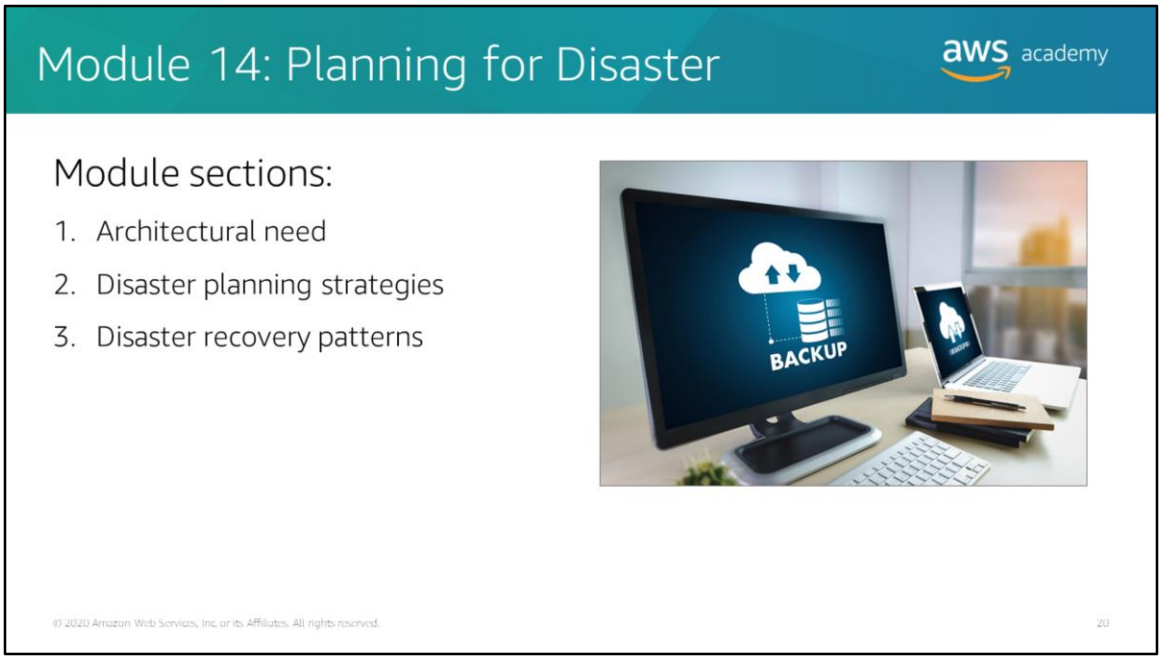
Module 12 focuses on building decoupled architectures. The sections in Module 12 include:

- Architectural need
- Decoupling your architecture
- Decoupling with Amazon Simple Queue Service (Amazon SQS)
- Decoupling with Amazon Simple Notification Service (Amazon SNS)
- Sending messages between cloud applications and on-premises with Amazon MQ



Module 13 focuses on building microservices and serverless architectures. The sections in Module 13 include:

- Architectural need
- Introducing microservices
- Building microservice applications with AWS container services
- Introducing serverless architectures
- Building serverless architectures with AWS Lambda
- Extending serverless architectures with Amazon API Gateway
- Orchestrating microservices with AWS Step Functions



Module 14 focuses on disaster planning. The sections in Module 14 include:

- Architectural need
- Disaster planning strategies
- Disaster recovery patterns

Module 15 focuses on bridging your learning in this course to attaining an AWS certification. The sections in Module 15 include:

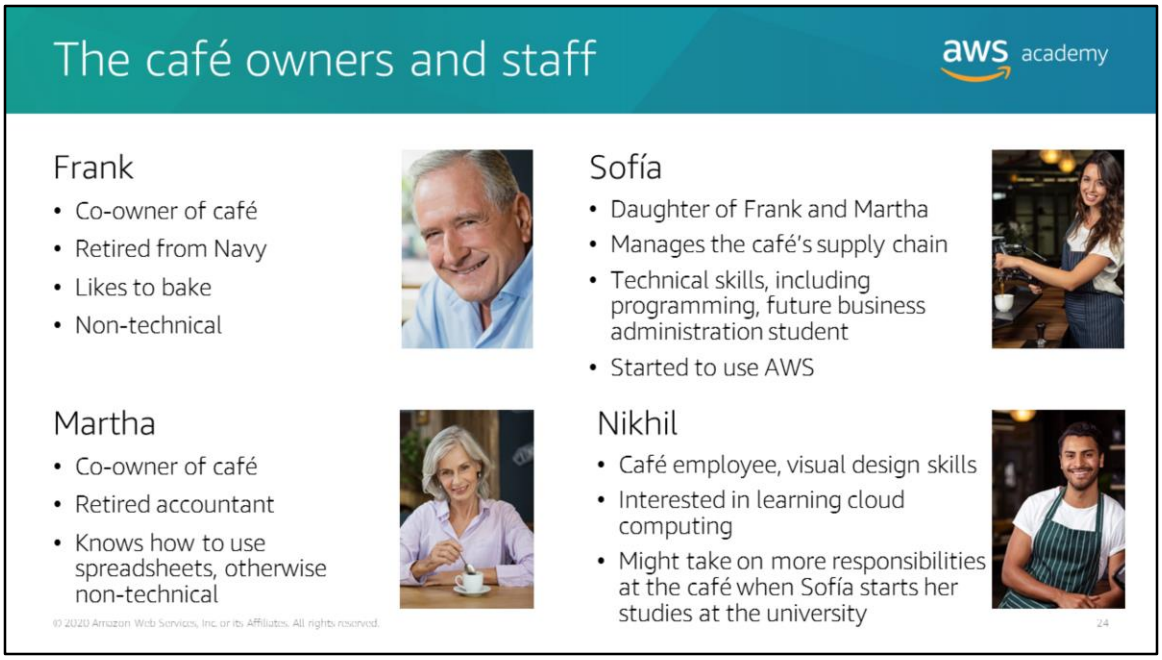
- Certification exam resources
- Additional resources

Introducing Section 2: Café business case introduction.

The challenge labs in this course are built around a fictional business case. The business case provides a way to explore cloud-computing topics in the context of relatable business needs. This scenario is intended to provide an example of the real-world applicability of technical concepts that you will learn.

Frank and Martha opened a café and bakery that had its start from a retirement dream. Frank and Martha were not yet ready to live out their retirement around the house. Instead, they wanted to do something that included their love of baking and supplemented their income. They enjoy interacting with the people in their neighborhood. They also like to support community events across town with their baked goods and coffees.

To make their dreams a reality, Frank and Martha recently decided to open their café and bakery at the base of their flat. Their daughter, Sofía, and a local school student, Nikhil, help out and work at the café. Since they opened the café, they have experienced an increase in local business. They also sometimes receive inquiries from people who travel through the area either for business or as tourists.



Sofía is the daughter of Frank and Martha. She runs the café, which includes managing the supply chain for sourcing ingredients and tracking inventory. She took some programming classes in secondary school and plans to start working toward a university degree in business administration later this year.

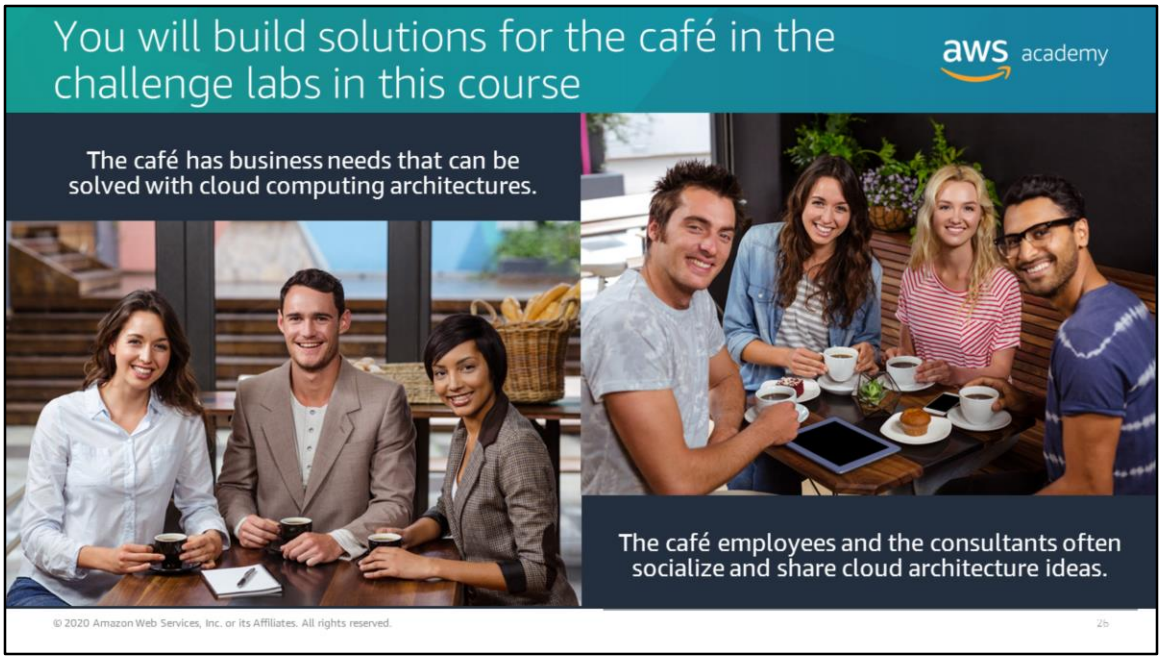
Sofía just learned about Amazon Web Services. She has talked to her parents about how they could use AWS services to automate some aspects of the café business, reduce manual administrative work, and improve the customer experience.

Nikhil works at the café part time. He is going to finish secondary school in the spring. He works behind the counter, serving customers and doing other tasks under Sofía's supervision. He has some experience with visual design, and wants to learn more about web development and cloud computing. He plans to get a university degree that will build his existing design skills, and also enable him to learn cloud computing skills.

Olivia is an AWS solutions architect (SA) who recently moved to the downtown area. She frequently visits the café and enjoys talking with Sofía. Through their conversations, Sofía has learned that Olivia is an expert in AWS and cloud technologies. Olivia used to be a network engineer, and she also has a strong background in database technologies.

Faythe is an AWS developer who recently completed an AWS internship program. She likes to use her programming skills to apply the appropriate technology to a business problem. She recently achieved the AWS Certified Security – Specialty and is interested in developing big data solutions. Faythe is friends with Olivia and Mateo, and she also frequently visits the café.

Mateo is an experienced AWS SysOps engineer. He is skilled at bringing automation and fault tolerance to the solutions that he builds. He also likes to design for backup and disaster recovery. Mateo previously worked as a developer, and has been mentoring Faythe since she started as an intern with AWS. Mateo is happy to help Faythe and anyone who is interested in learning. Mateo is friends with Nikhil, Sofía, Olivia, and Faythe, and he frequently grabs a coffee at the café on his way to work.



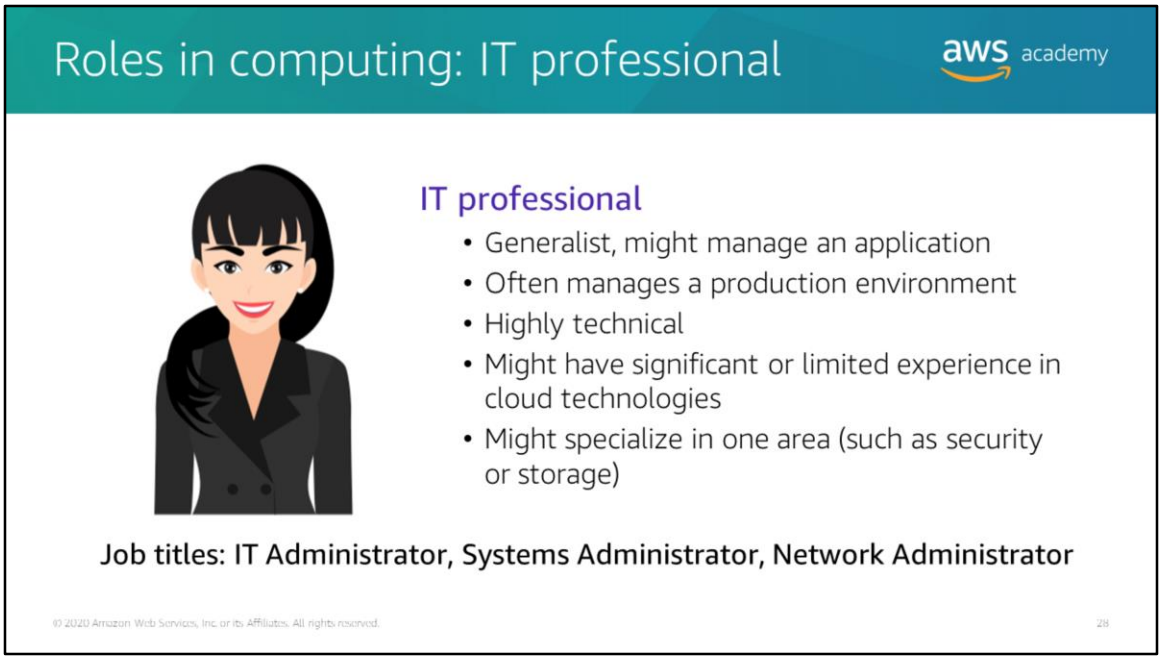
In the hands-on labs in this course, you gain hands-on practice building on AWS. Two types of labs are available: guided labs and challenge labs.

Guided labs provide you with step-by-step instructions, to help you gain experience in creating and configuring AWS resources in the different AWS service areas. The guided labs do not mention the café business; however, the skills that you gain in these guided labs prepare you for the challenge labs.

The *challenge labs* present new business requirements that are based on the evolving needs of the café. These labs contain sections where the instructions do not provide full click-level guidance or detailed step-by-step instructions. Rather, you will be challenged to apply the skills that you gained from the guided labs and the concepts that are presented in the lectures.

In the challenge labs, you take on the role of Sofía or Nikhil. With the assistance of the AWS consultants who occasionally pass through the café offering advice, you will architect cloud solutions that help fulfill the business needs of the café.

Introducing Section 3: Roles in cloud computing.



In this section, you will learn about five common roles in cloud computing.

You might want to start your career in cloud computing, or to transition your career to a cloud computing role. Maybe you would like to work in an organization where some employees have cloud computing responsibilities. For any of these reasons, it is helpful to understand the common job titles or roles that individuals, teams, or departments perform.

IT professionals are generalists. They typically have a broad range of skills. For example, they might manage the infrastructure for an entire application and have a strong understanding of the components that make up the solution. However, they might not always have detailed knowledge of any one service that is part of the application. IT professionals are typically highly technical.

Common job titles include IT Administrator, Systems Administrator, or Network Administrator.

IT leaders are managers. They typically lead a team of IT professionals, and decide on the type of technology that will be used for a project. They might be significantly involved in the implementation details early on in the project lifecycle. Then, they delegate the team to handle the details as the project gets closer to completion.

Typical job titles include IT Manager, IT Director, and IT Supervisor.

Roles in computing: Developer

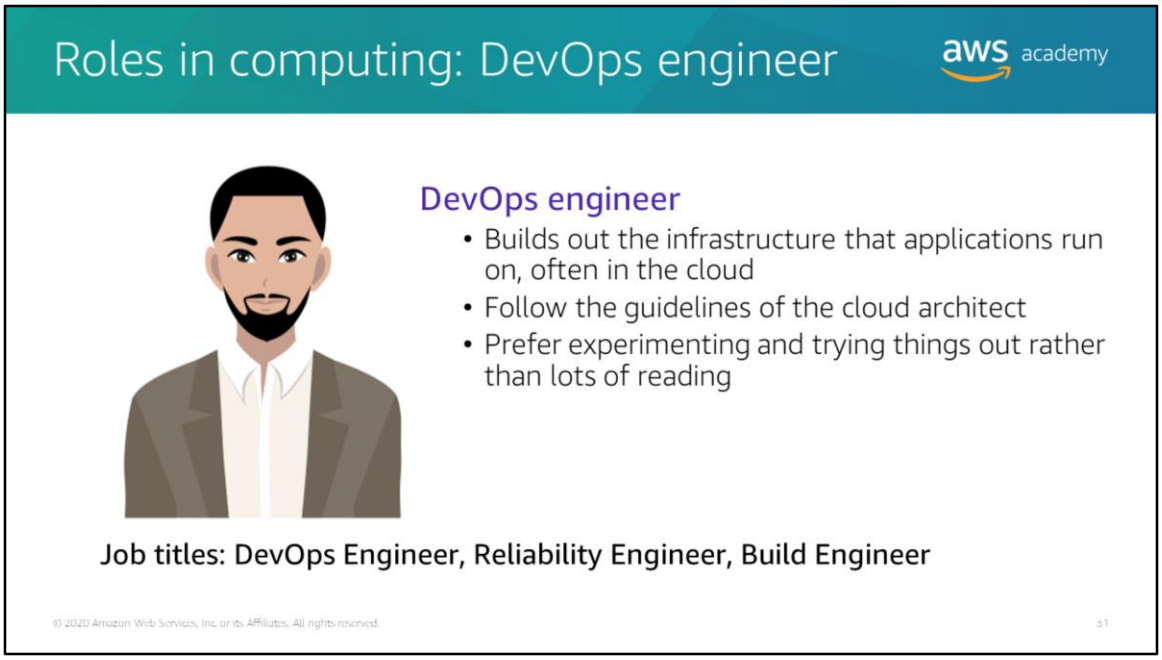
Developer

- Writes, tests, and fixes code
- Thinks about projects at the application level
- Likes sample code
- Works with APIs, SDKs

Job titles: Software Developer, System Architect, Software Development Manager

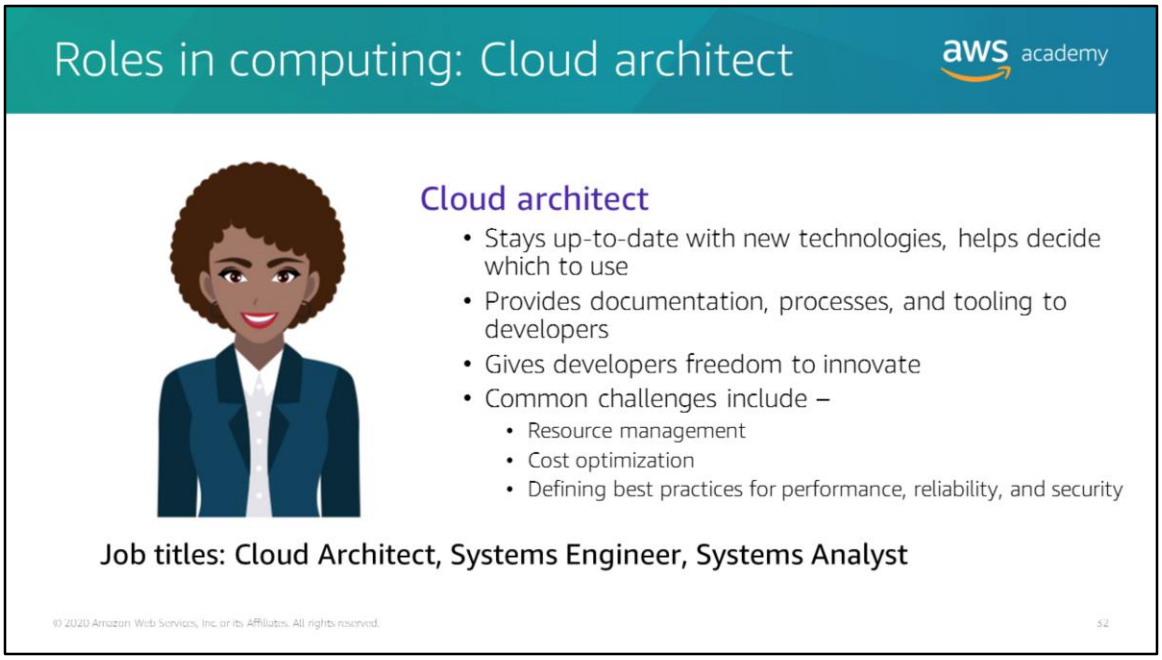
Another common role in cloud computing is the developer role. *Developers* like to code. They work with the details—writing, testing, and fixing the code that makes an application work. Developers are likely to borrow ideas from sample code. They work with application programming interfaces (APIs) and software development kits (SDKs).

Common job titles include Software Developer, Systems Architect, or Software Development Manager.



DevOps engineers spend their time building out the infrastructure that applications run on. They often create or improve on the code that installs and configures servers and application deployments. DevOps staff prefer to experiment and learn by doing. They create repeatable deployment solutions, and they work to apply engineering skills to the business needs of operations teams.

Common job titles include DevOps Engineer, Build Engineer, or Reliability Engineer.

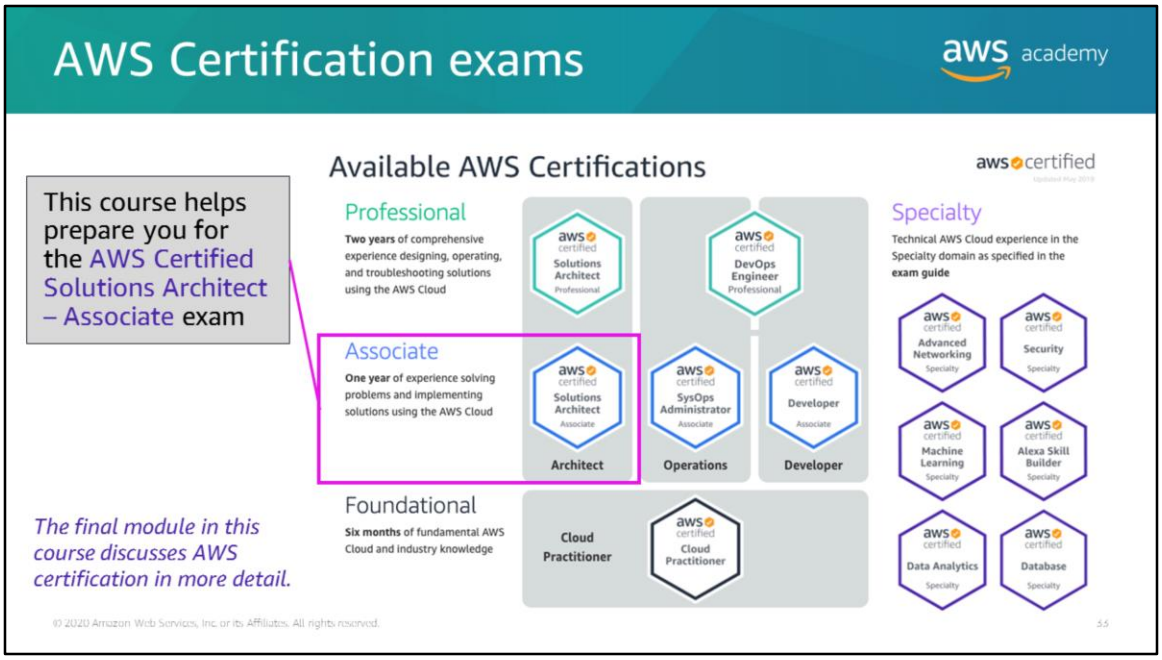


The final cloud computing role that you will learn about in this section is the cloud architect role.

Cloud architects spend their time reading and staying up-to-date with the latest developments and trends in cloud computing. They are responsible for the design architecture of applications and selecting which technologies should be used to meet the needs of a technical business objective. They should be aware of the capabilities of the many cloud service options that are available. Thus, they can decide which ones should be adopted, given a specific set of business requirements. Cloud architects provide guidance to developers through architectural diagrams and documentation. They also provide tooling, but they give the development team room to innovate if they meet the success criteria.

Common challenges for the cloud architect role include resource management, cost optimization, and defining best practices for performance, reliability, and security.

The responsibilities of cloud architects closely align with the pillars of the AWS Well-Architected Framework, which is discussed in detail in this course.



AWS Certification helps learners build credibility and confidence by validating their cloud expertise with an industry-recognized credential. It helps organizations identify skilled professionals who can lead cloud initiatives by using AWS.

You must earn a passing score on a proctored exam to earn an AWS Certification.

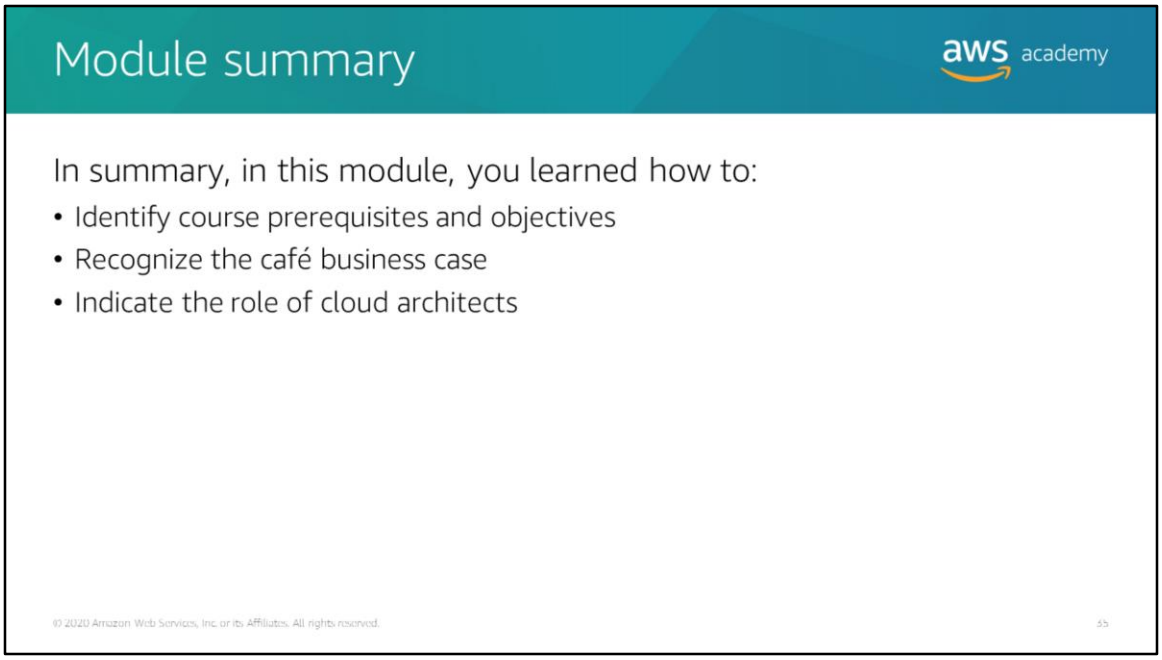
AWS Certification does not publish a list of all services or features that are covered in a certification exam. However, the exam guide for each exam lists the current topic areas and objectives that are covered in the exam. Exam guides can be found on the Prepare for Your AWS Certification Exam webpage.

You are required to update your certification (or recertify) every 3 years. View the AWS Certification Recertification page for more details.

The information on this slide is current as of June 2020. However, exams are frequently updated, and the details regarding which exams are available—and what is tested by each exam—are subject to change. For the latest AWS certification exam information, view the details on the AWS Certification webpage.

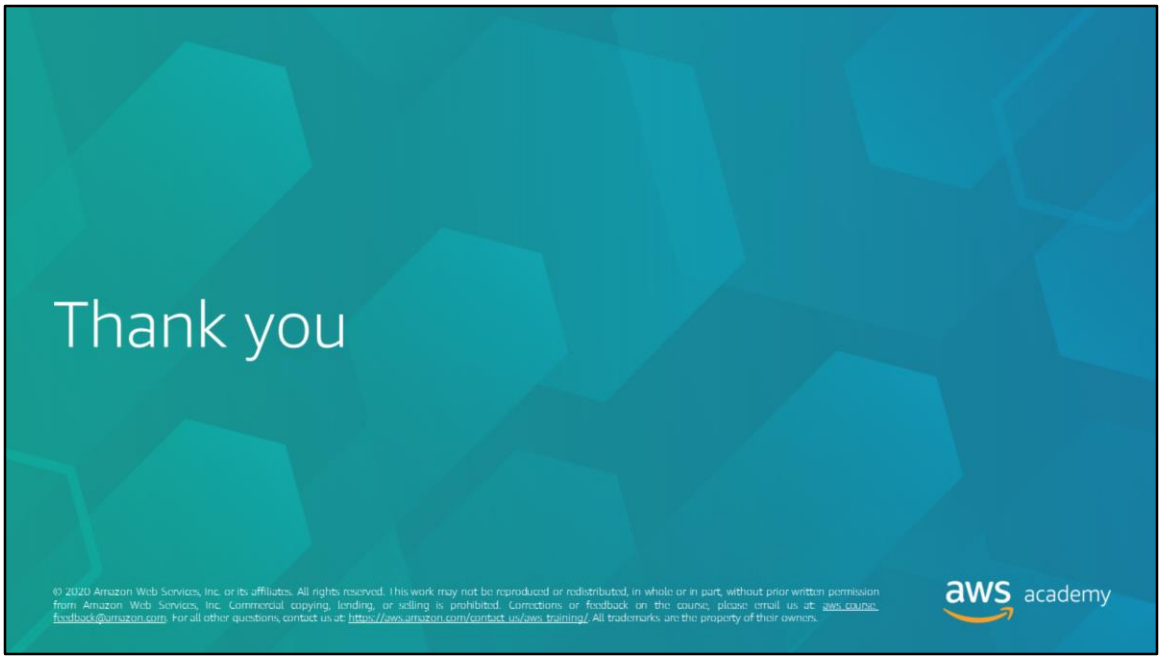
The final module in this course provides more information to supplement what you learn in this course. It will also guide you in how to apply this knowledge toward achieving the AWS Solutions Architect – Associate certification.

It’s now time to review the module.



In summary, in this module, you learned how to:

- Identify course prerequisites and objectives
- Recognize the café business case
- Indicate the role of cloud architects



Thank you for completing this module.

