Welcome to What Is Amazon Web Services (AWS).

What you will learn

At the core of the lesson

You will learn how to:

- Explain, in general, what a web service is
- Explore the main services that Amazon Web Services (AWS) offers
- Examine ways to access AWS services
- Navigate the AWS Documentation website

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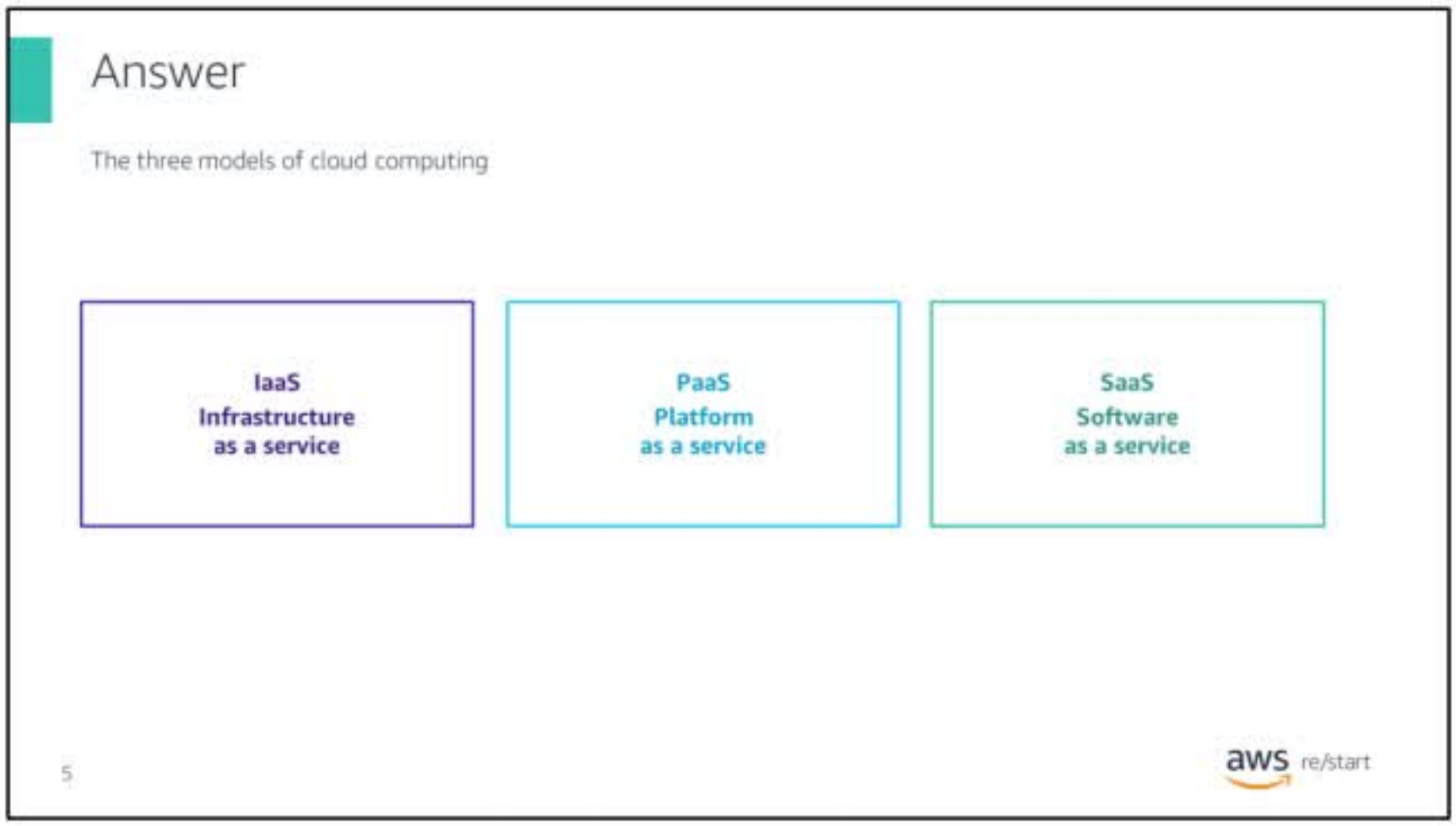
In this module, you will learn about Amazon Web Services (AWS) and the products and services that are available. You will also learn how to access AWS services and use the AWS documentation.

Web services

Question

Think about your understanding of the models of cloud computing.
What are the three models of cloud computing?

as a service	**as a service**	**as a service**



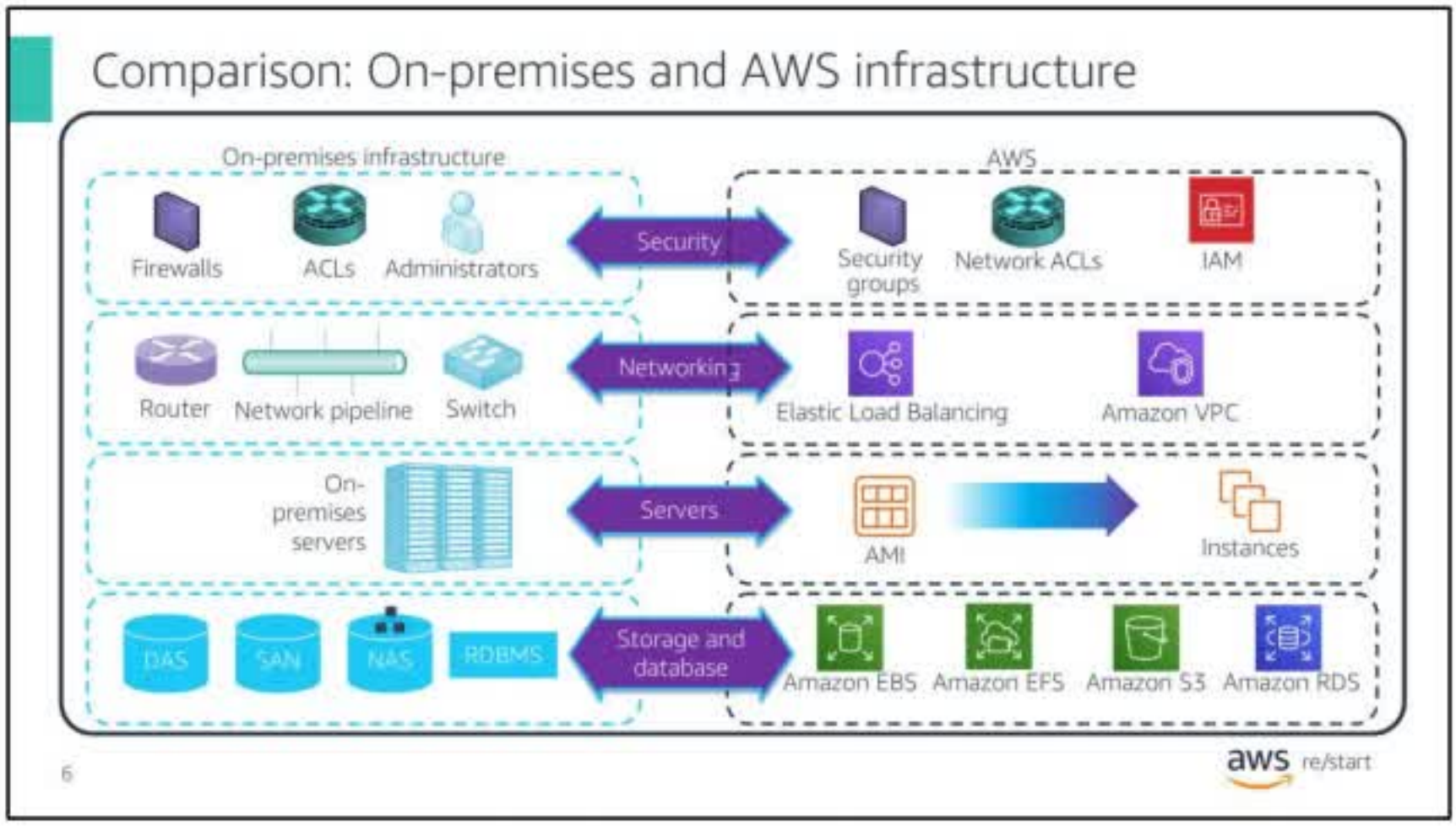
AWS offers three different models of cloud services: infrastructure as a service, platform as a service, and software as a service. All of these services are on the AWS Cloud.

With *infrastructure as a service (IaaS)*, you manage the server, which can be physical or virtual, and the operating system (Microsoft Windows or Linux). In general, the data center provider has no access to your server.

Basic building blocks for cloud IT include:
- Networking features
- Compute
- Data storage space

With *platform as a service (PaaS)*, someone else manages the underlying hardware and operating systems. Thus you can run applications without managing underlying infrastructure (patching, updates, maintenance, hardware, operating systems). PaaS also provides a framework for developers that they can build on to create customized applications.

With *software as a service (SaaS)*, you manage your files, and the service provider manages all data centers, servers, networks, storage, maintenance, and patching. Your concern is only the software and how you want to use it. You are provided with a complete product that the service provider runs and manages. Facebook and Dropbox are examples of SaaS. You manage your Facebook contacts and Dropbox files, and the service providers manage the systems.



Many AWS services have analogs in the traditional IT space and terminology. This side-by-side comparison shows how AWS products and services relate to a traditional infrastructure. Almost everything you might want to do with a traditional data center is available with AWS.

Legend:

- ACL (ACLs)
- Amazon Elastic Block Store (Amazon EBS)
- Amazon Elastic File Store (Amazon EFS)
- Amazon Machine Image (AMI)
- Amazon Relational Database Service (Amazon RDS)
- Amazon Simple Storage Service (Amazon S3)
- AWS Identity and Access Management (IAM)
- Direct-attached storage (DAS)
- Network access control lists (network ACLs)
- Network-attached storage (NAS)
- Relational database management system (RDBMS)
- Storage area network (SAN)

What are web services?

A web service is any piece of software that makes itself available over the internet.

It uses a standardized format, either Extensible Markup Language (XML) or JavaScript Object Notation (JSON), for the request and the response of an application programming interface (API) interaction.

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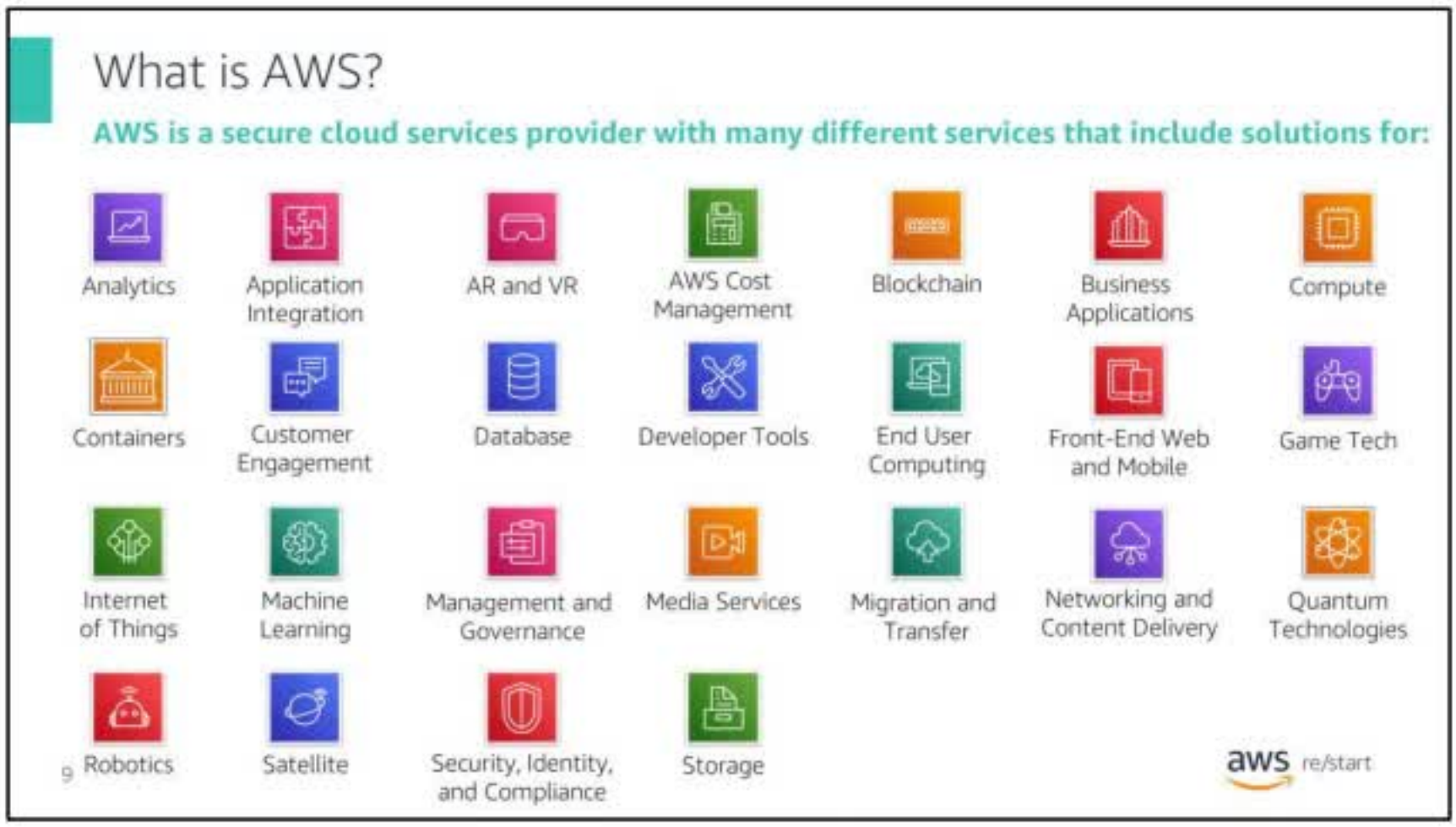
aws re/start

A web service is any piece of software that makes itself available over the internet or on private (intranet) networks. A web service uses a standardized format for the request and the response of an application programming interface (API) interaction. For example, formats such as Extensible Markup Language (XML) or JavaScript Object Notation (JSON) can be used. It's not tied to any one operating system (OS) or programming language. A web service is self-describing through an interface definition file and is discoverable.

AWS services

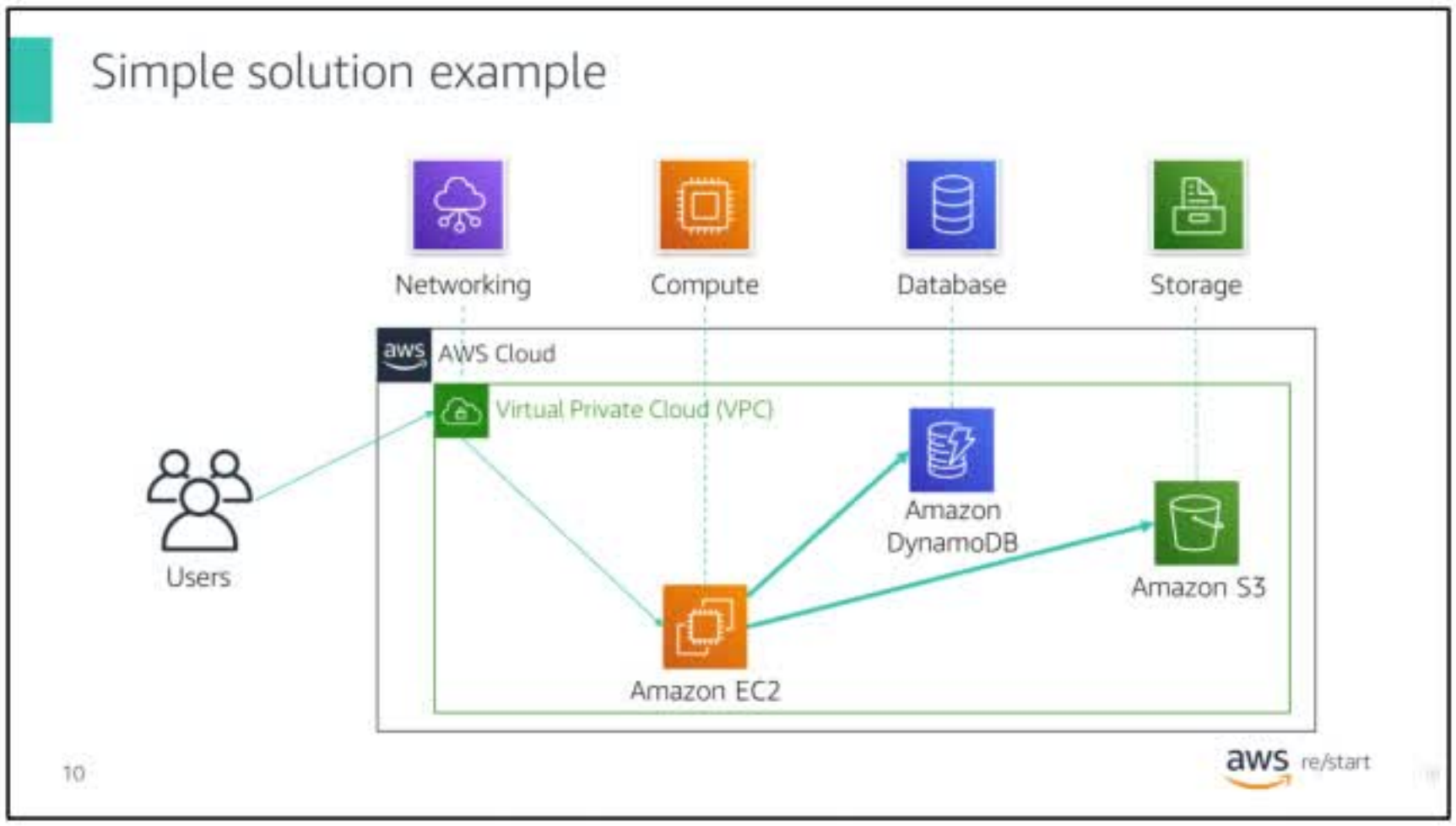


AWS is a secure cloud services provider with many services to help businesses scale and grow. These products are delivered over the internet. As a result, you have on-demand access to the compute, storage, network, database, and other IT resources that you might need for your projects. You also have the tools to manage them.

AWS services are in different categories, and each category contains one or more services. You can select the services that you want from these different categories to build your solutions.

Legend:

- Augmented reality (AR)
- Virtual reality (VR)



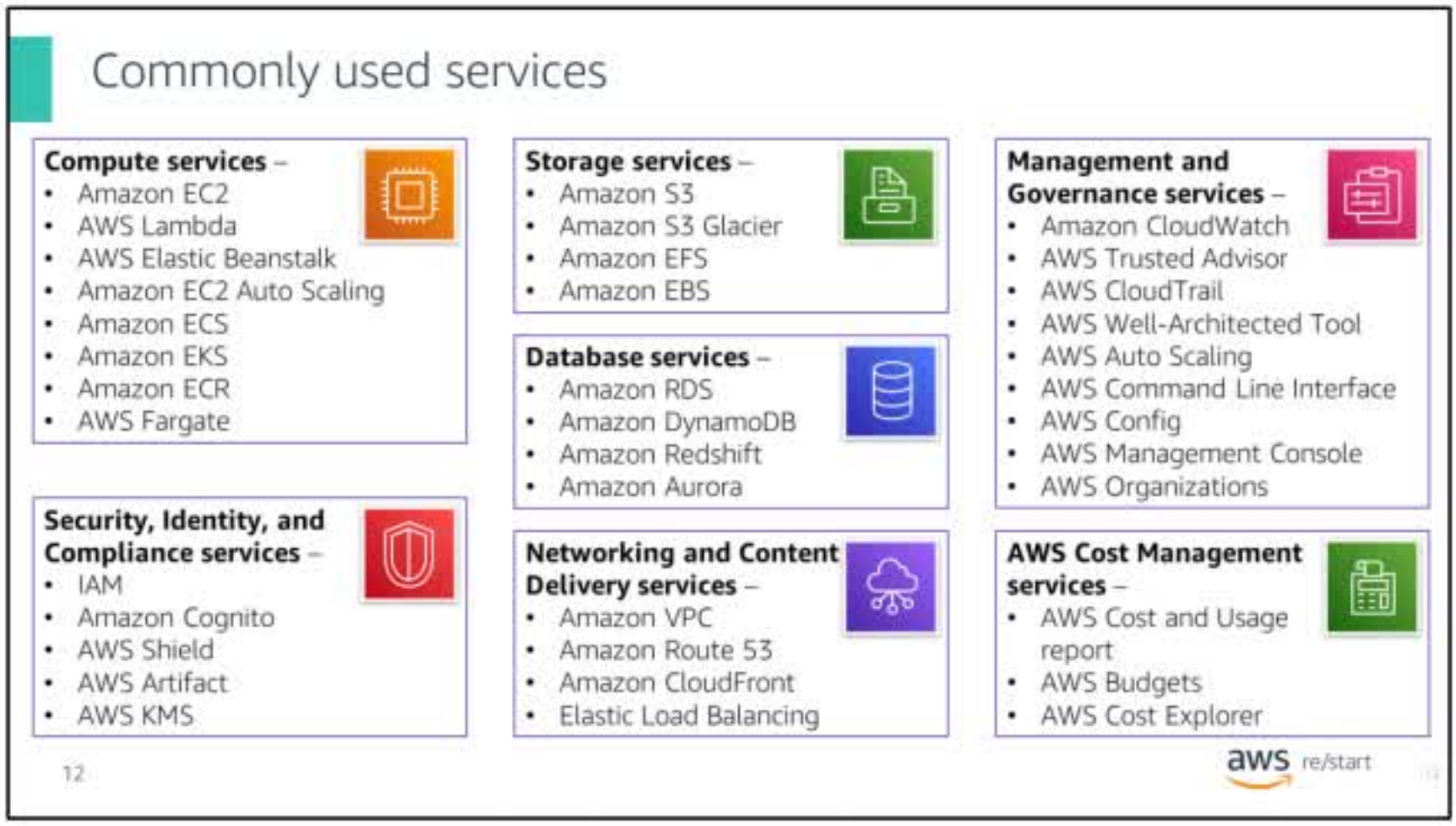
For example, suppose that you're building a database application. Your customers might send data to your Amazon Elastic Compute Cloud (Amazon EC2) instances, which is a service in the *Compute* category. These EC2 servers batch the data in 1-minute increments. They add an object per customer to Amazon Simple Storage Service (Amazon S3), the AWS storage service that you chose to use. You can then use a nonrelational database—like Amazon DynamoDB—to power your application. For example, you can use it to build an index to find all the objects, from a given customer, that were collected over a certain time period. You might decide to run these services inside Amazon Virtual Private Cloud (Amazon VPC), which is a service in the networking category.

This simple example illustrates that you can select web services from different categories and use them together to build a solution. (In this case, the solution is a database application.) However, the solutions that you build can also be quite complex.

Which service that you choose to use will depend on your business goals and technology requirements. In the previous example, the solution used Amazon EC2 as the compute service. However, Amazon EC2 is only one of many compute services that AWS offers. The following list contains some other AWS Compute offerings that you might choose to use for the example use cases:

- Amazon EC2 – You want complete control over your AWS computing resources.
- AWS Lambda – You want to run your code, and not manage or provision servers.
- AWS Elastic Beanstalk – You want a service that deploys, manages, and scales your web applications for you.
- Amazon Lightsail – You need a lightweight cloud platform for a simple web application.
- AWS Batch – You must run hundreds of thousands of batch workloads.
- AWS Outposts – You want to run AWS infrastructure in your on-premises data center.
- Amazon Elastic Container Service (Amazon ECS), Amazon Elastic Kubernetes Service (Amazon EKS), or AWS Fargate – You want to implement a containers or microservices architecture.
- VMware Cloud on AWS – You have an on-premises server virtualization platform that you want to migrate to AWS.

Similarly, you can choose from various services in the other categories, and the number of offerings continues to grow.



The array of AWS services can be intimidating as you start your journey into the cloud. This course focuses on some of the more common services in specified categories. The service categories include: Compute; Storage; Database; Networking and Content Delivery; Security, Identity, and Compliance; Management and Governance; and AWS cost management.

Legend:

- Amazon Elastic Block Store (Amazon EBS)
- Amazon Elastic Compute Cloud (Amazon EC2)
- Amazon Elastic Container Registry (Amazon ECR)
- Amazon Elastic Container Service (Amazon ECS)
- Amazon Elastic File System (Amazon EFS)
- Amazon Elastic Kubernetes Service (Amazon EKS)
- Amazon Relational Database Service (Amazon RDS)
- Amazon Simple Storage Service (Amazon S3)
- Amazon Simple Storage Service Glacier
- Amazon Virtual Private Cloud (Amazon VPC)
- AWS Identity and Access Management (IAM)
- AWS Key Management Service (AWS KMS)

You might wonder how to access the broad array of services that AWS offers. You can create and manage resources on the AWS Cloud in three ways:

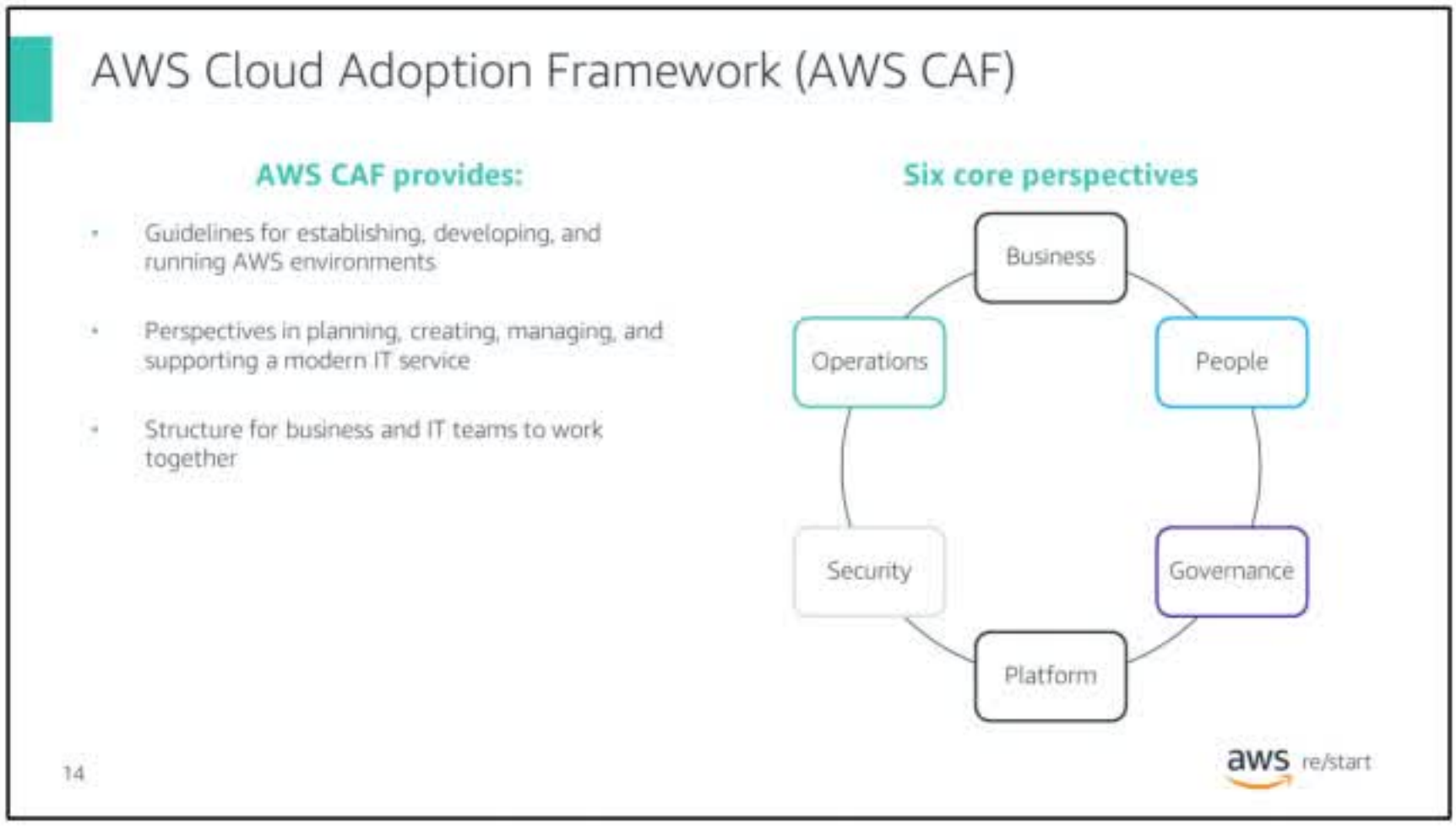
- AWS Management Console – The console provides a rich graphical interface to a majority of the features that AWS offers. (Note: Occasionally, new features might not have all of their capabilities included in the console when the feature initially launches.) For mobile access, you can use the AWS Console Mobile App to quickly view AWS resources anytime, from anywhere.
- AWS Command Line Interface (AWS CLI) – The AWS CLI provides a suite of utilities that can be launched from a command script in Linux, macOS, or Microsoft Windows.
- AWS software development kits (SDKs) – AWS provides packages that enable access to AWS in various popular programming languages. These packages make it easy to use AWS in your existing applications. They also enable you to create applications that deploy and monitor complex systems entirely through code.

To learn more, refer to:
AWS Console Mobile Application

AWS Command Line Interface

Tools to Build on AWS

Amazon API Gateway



Each organization's cloud adoption journey is unique. However, for any organization to successfully migrate its IT portfolio to the cloud, three elements—people, process, and technology—must be in alignment. The AWS Cloud Adoption Framework (AWS CAF) helps organizations develop efficient and effective plans for their cloud adoption journey.

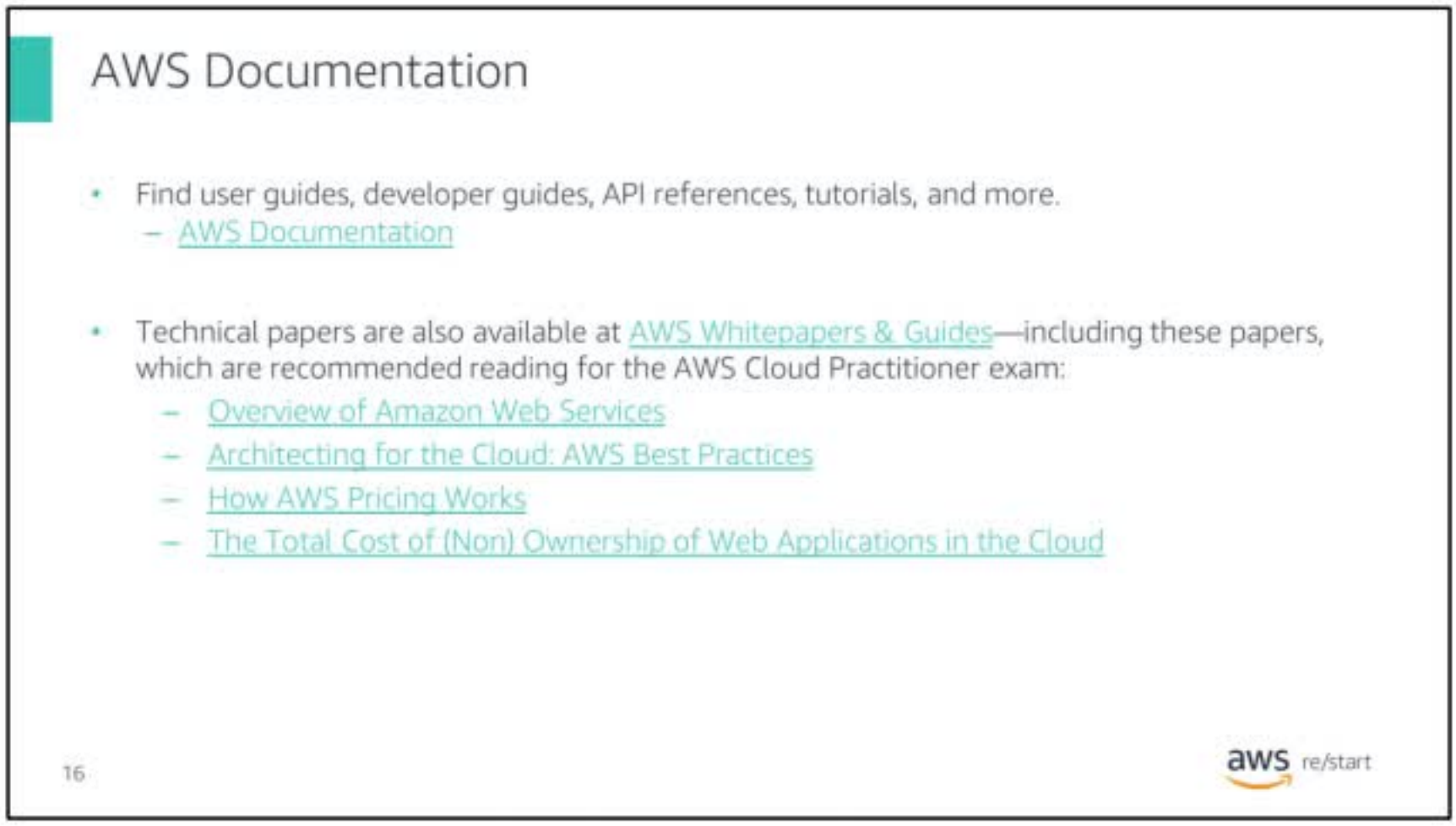
The guidance and best practices from the framework help you build a comprehensive approach to cloud computing across your organization, and throughout your IT lifecycle. These guidelines help each unit in your organization update skills, adapt existing processes, and introduce new processes. In this way, you can take maximum advantage of the services that cloud computing provides.

The AWS CAF breaks down the complex process of planning a move to the cloud into manageable pieces that are called *perspectives*. Perspectives represent essential areas of focus that span people, processes, and technology. In general, the Business, People, and Governance perspectives focus on business capabilities. The Platform, Security, and Operations perspectives focus on technical capabilities.

To learn more about the AWS CAF, refer to: An Overview of the AWS Cloud

Adoption Framework.

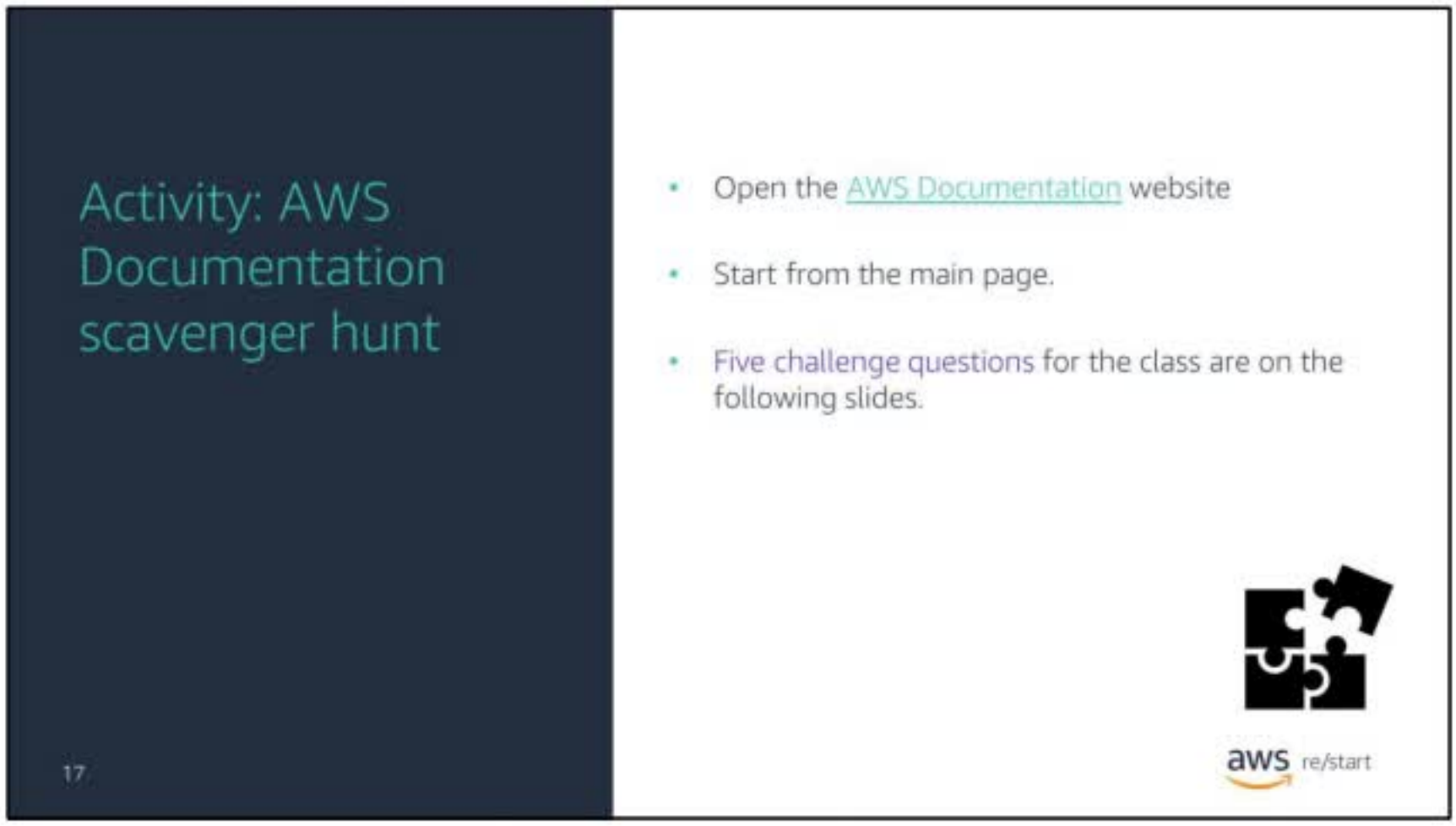
AWS Documentation



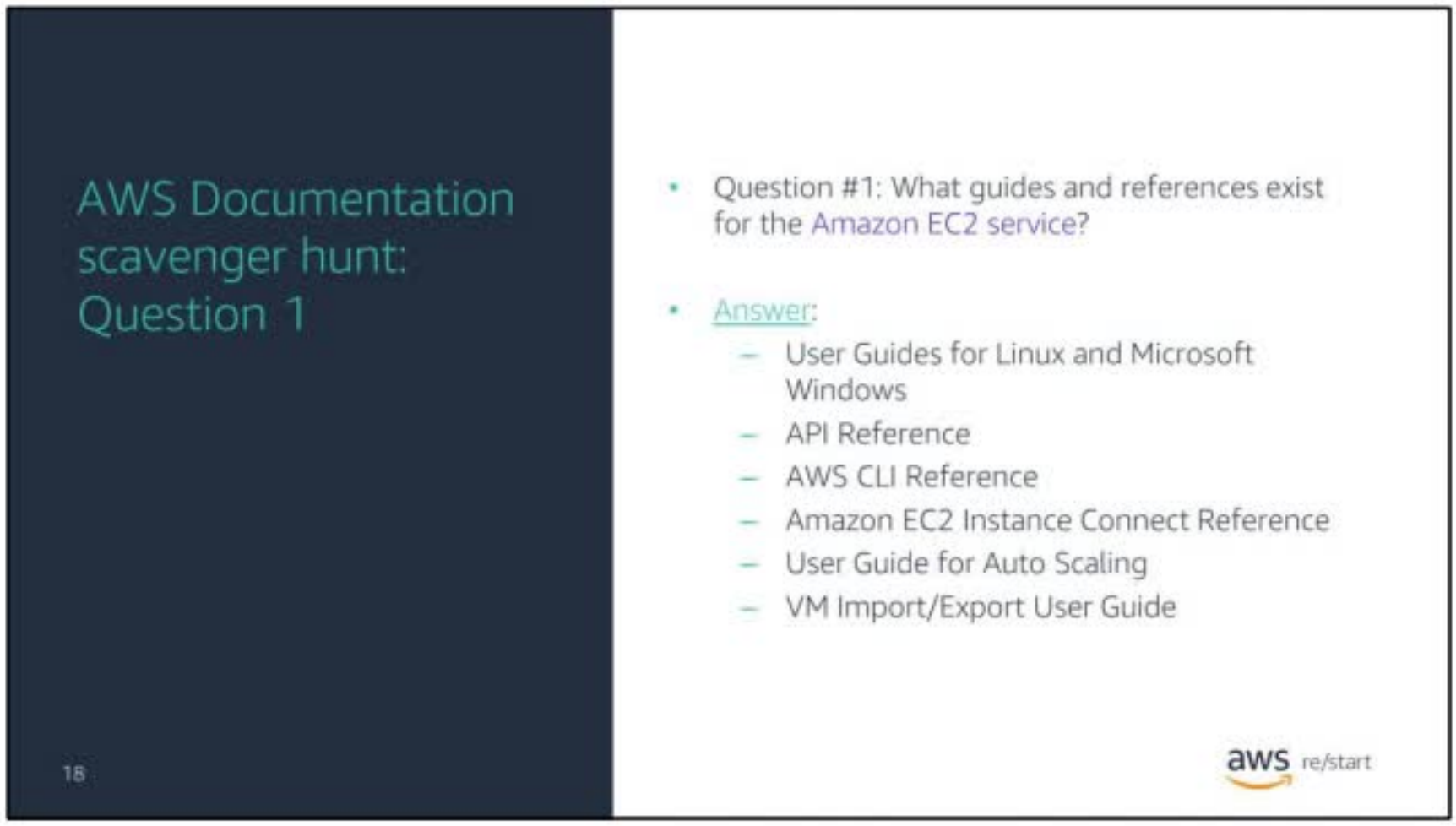
AWS provides extensive and detailed documentation for each AWS service. Guides and application programming interface (API) references are organized by service category. AWS also offers general resources and tutorials that can be accessed from the AWS Documentation pages. General resources include case studies, an A – Z glossary of AWS terms, technical papers, FAQs, information about AWS Training and Certification, and more.

Also, each SDK and toolkit has documentation: the AWS Command Line Interface (AWS CLI), the AWS SDK for Python (Boto), and many others.

AWS technical papers and guides can be filtered by product, category, or industry, so you can find the information that's most relevant to your needs.

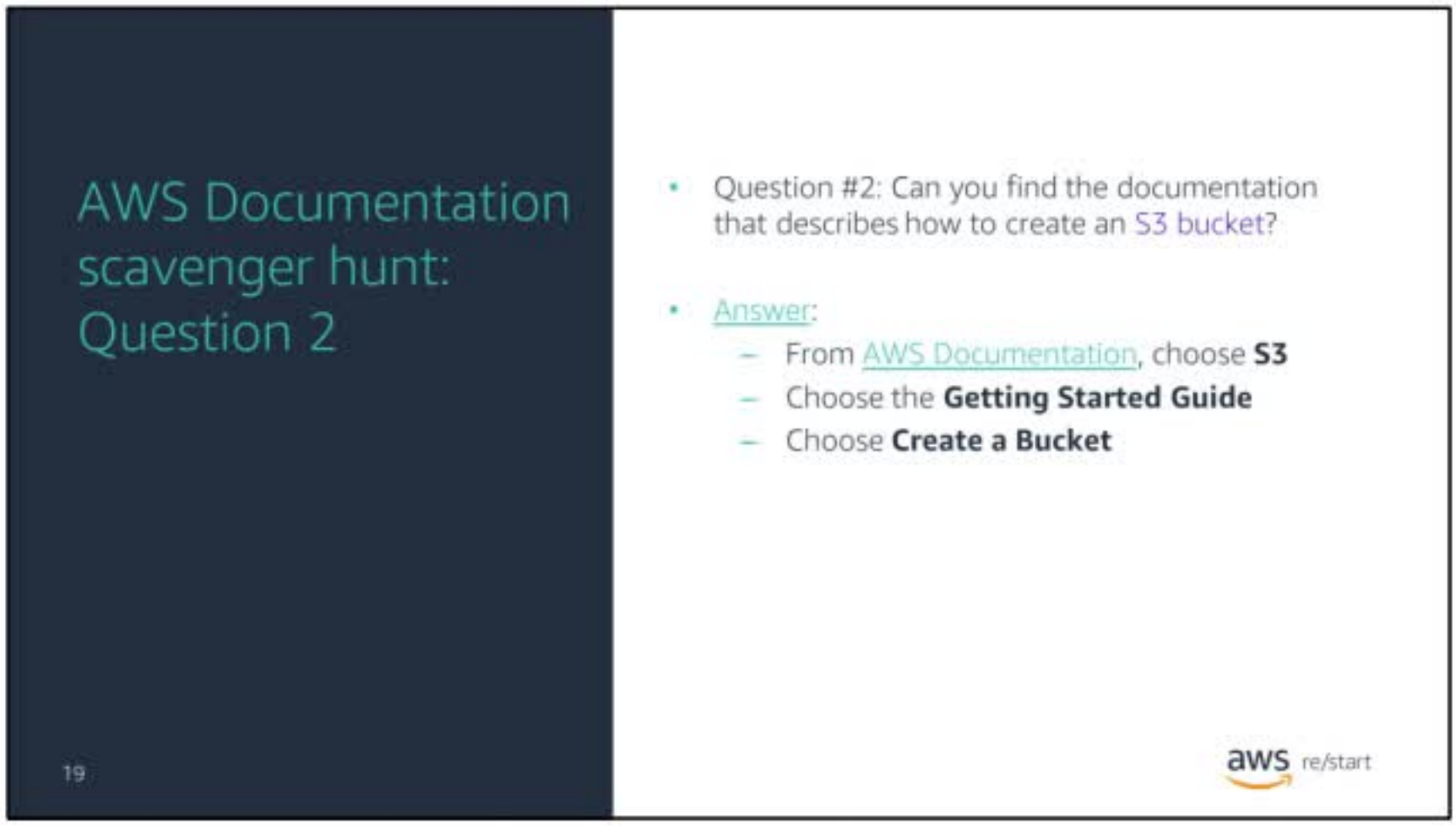


In this educator-led activity, you are challenged to access the AWS Documentation pages and practice locating specific information.



What guides and references exist for the Amazon EC2 service?

Open the AWS Documentation and see if you can identify at least six guides or references.

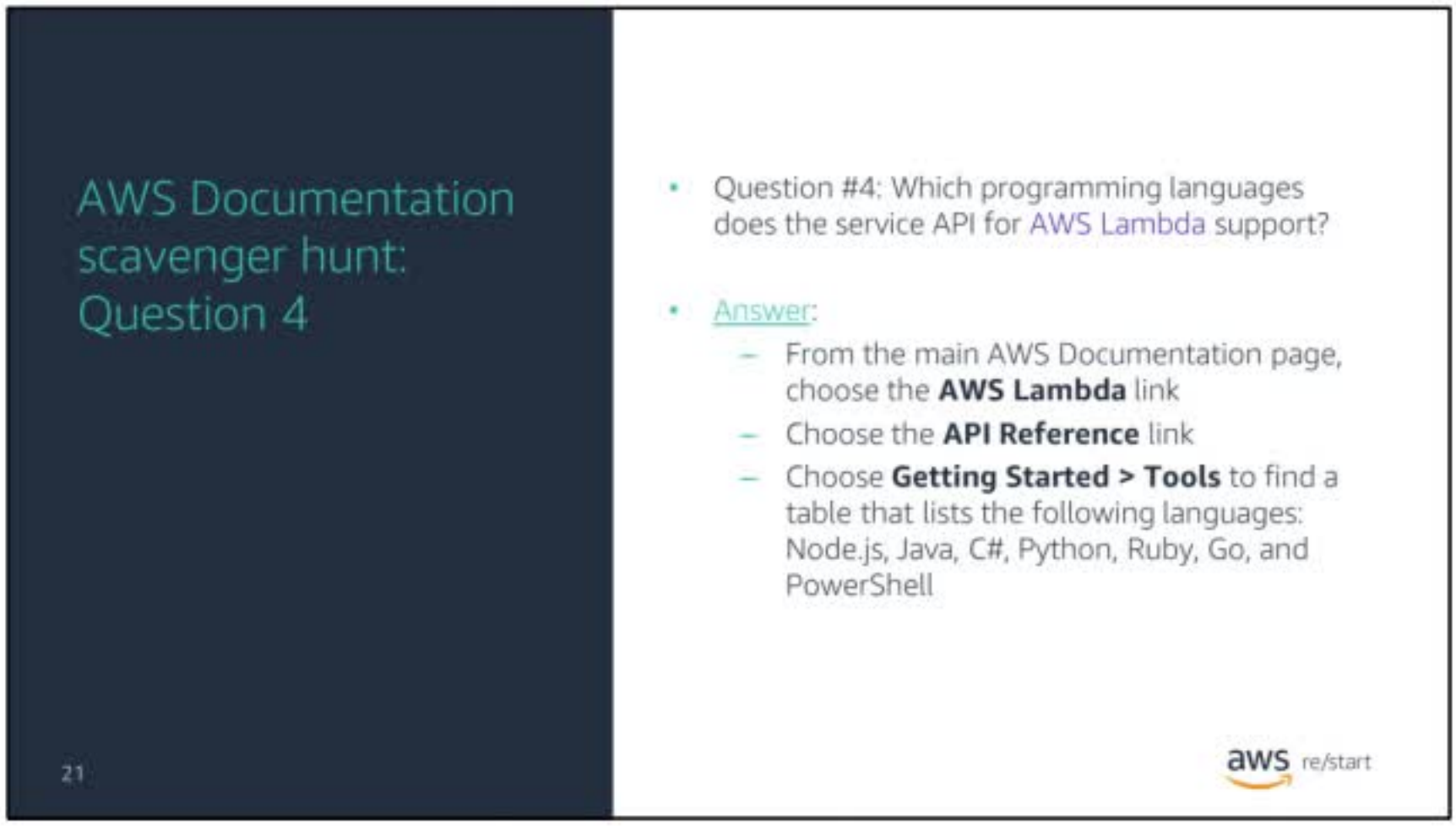


Can you find the documentation that describes how to create an S3 bucket?

Open the AWS Documentation and figure out how to navigate to documentation that provides this information. Be prepared to discuss your findings with the class.

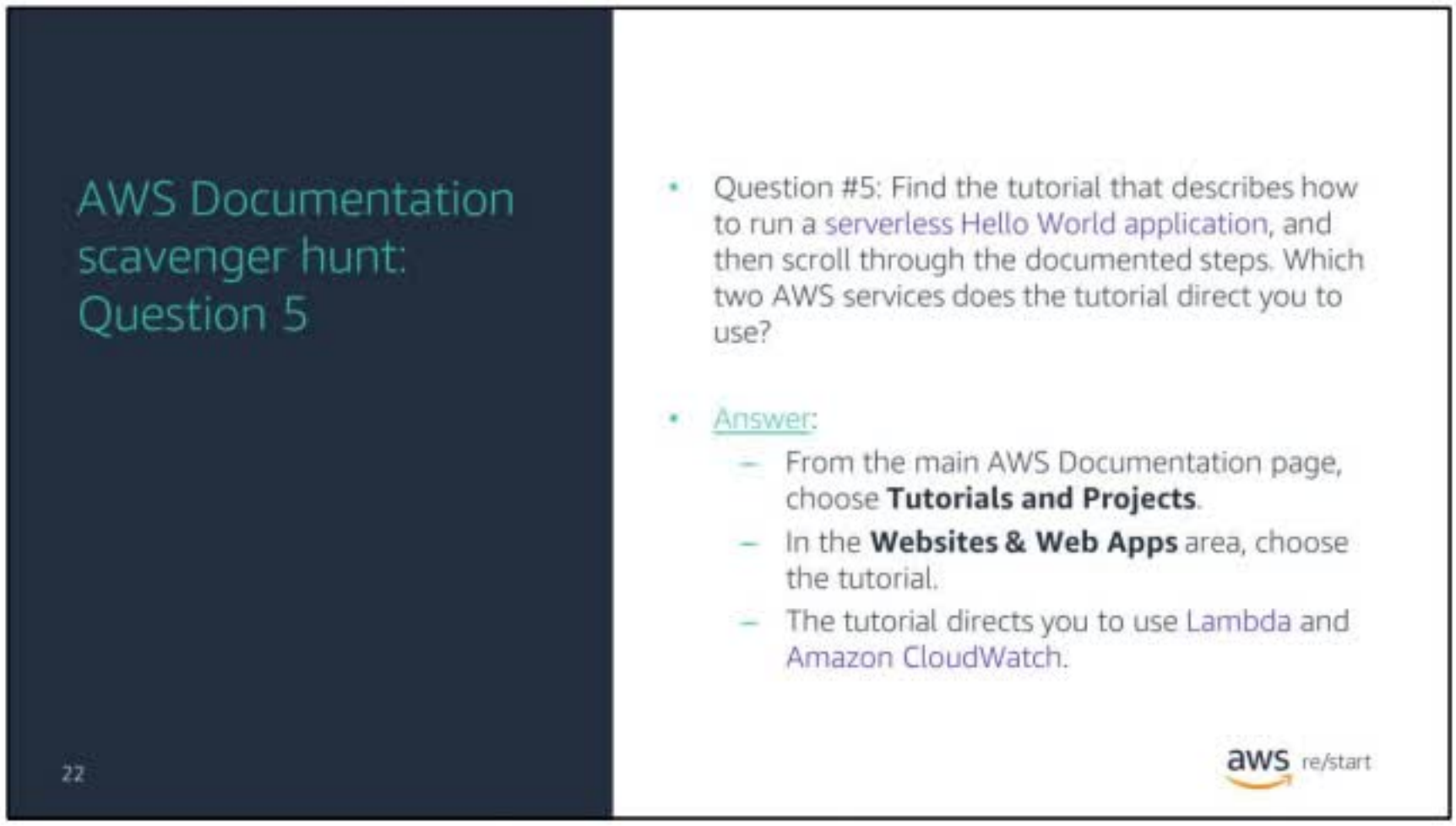
Can you find a one-sentence summary of the AWS Cloud9 service?

Starting at AWS Documentation, look for a page that provides the summary. Be prepared to share your findings.



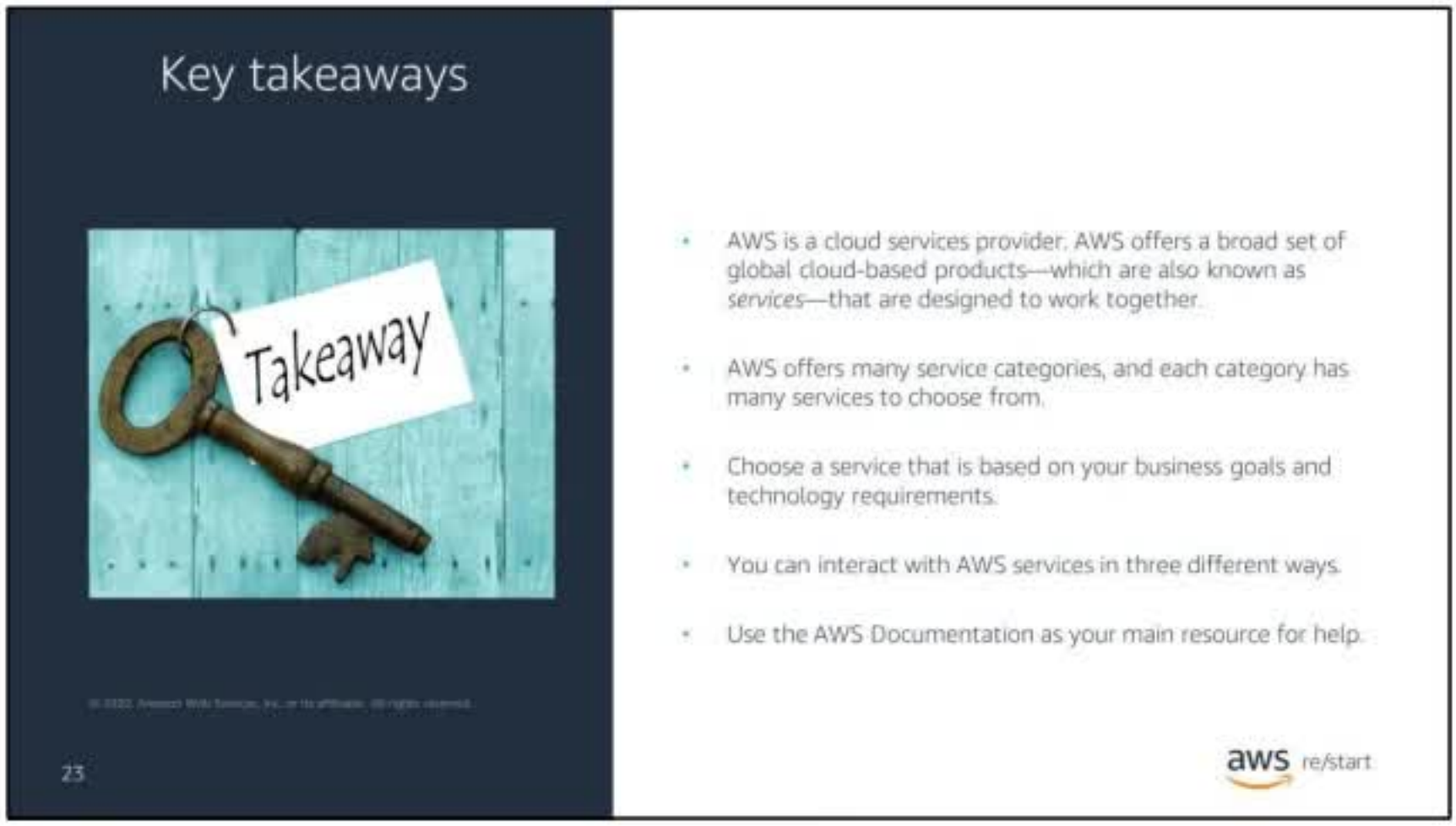
Which programming languages does the service API for AWS Lambda service?

Open the AWS Documentation and figure out how to navigate to documentation that provides this information. Be prepared to discuss your findings with the class.



Find the tutorial that describes how to run a serverless Hello World application, and then scroll through the documented steps. What two AWS services does the tutorial direct you to use?

Open the AWS Documentation and figure out how to navigate to documentation that provides this information. Be prepared to discuss your findings with the class.



Some key takeaways from this lesson include:

- AWS is a cloud services provider. AWS offers a broad set of global cloud-based products—which are called services—that are designed to work together.
- Many categories of AWS services are available, and each category has many services to choose from.
- Choose a service based on your business goals and technology requirements.
- You can interact with AWS services in three different was.
- Use the AWS Documentation as your main resource for help.