

# Module 1: Cloud Concepts Overview

## Topics

- Introduction to cloud computing
- Advantages of cloud computing
- Introduction to Amazon Web Services (AWS)
- AWS Cloud Adoption Framework (AWS CAF)



**Knowledge  
check**

After completing this module, you should be able to:

- Define different types of cloud computing models
- Describe advantages of cloud computing
- Recognize the main AWS service categories and core services
- Review the AWS Cloud Adoption Framework (AWS CAF)

Module 1: Cloud Concepts Overview

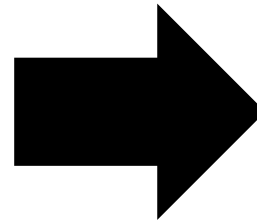
# Section 1: Introduction to cloud computing

# What is cloud computing?

**Cloud computing** is the **on-demand** delivery of compute power, database, storage, applications, and other IT resources **via the internet** with **pay-as-you-go** pricing.



Cloud computing enables you to **stop thinking of your infrastructure as hardware**, and instead **think of (and use) it as software**.

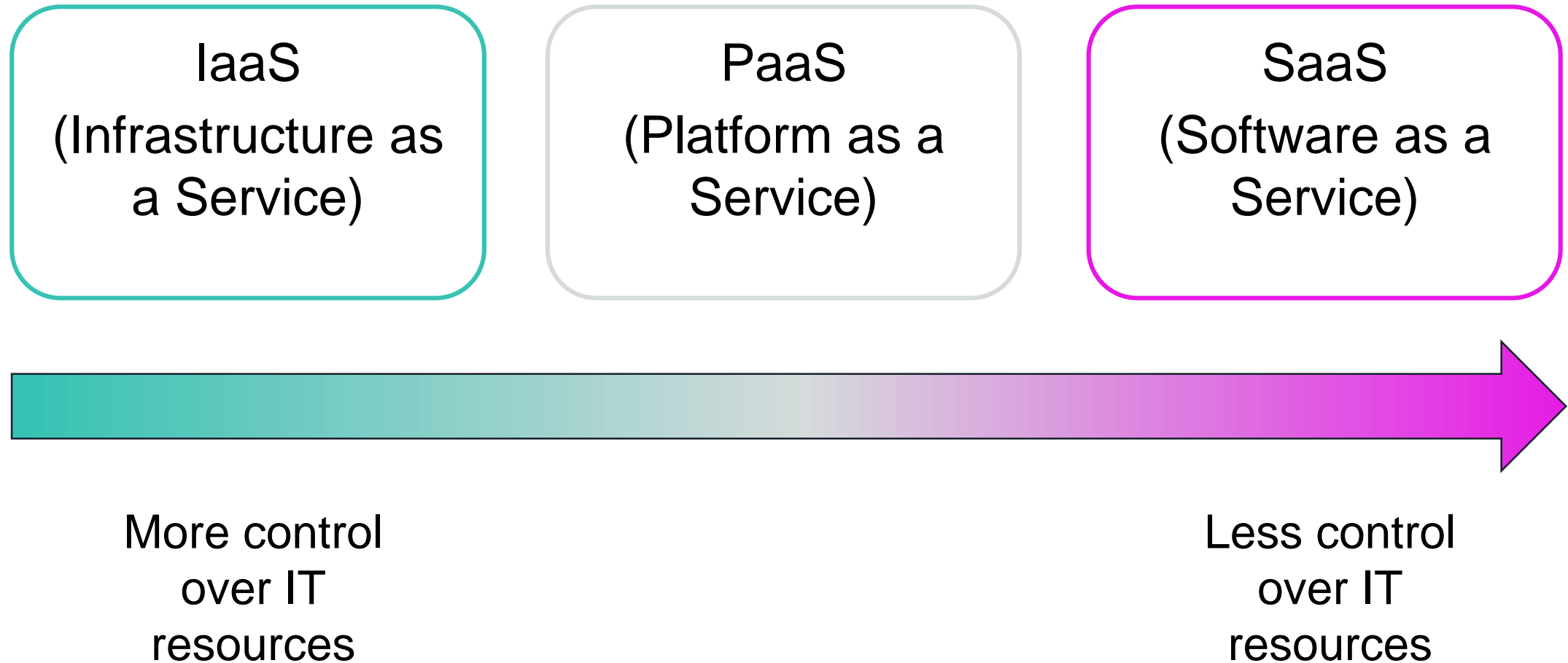


# Traditional computing model

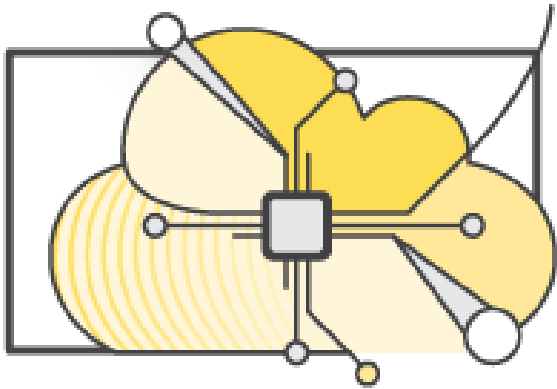


- Infrastructure as hardware
- Hardware solutions:
  - Require space, staff, physical security, planning, capital expenditure
  - Have a long hardware procurement cycle

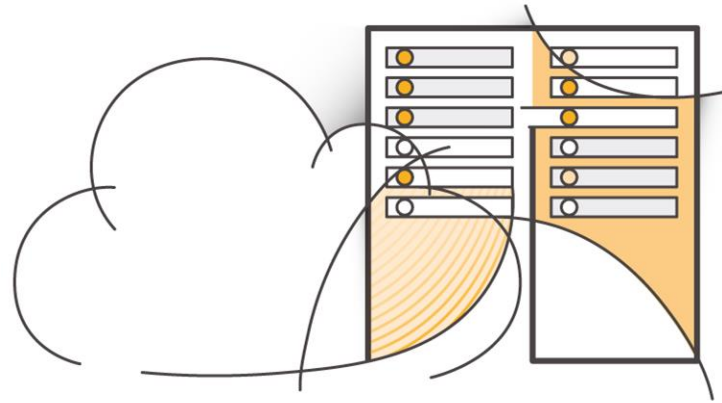
# Cloud computing model



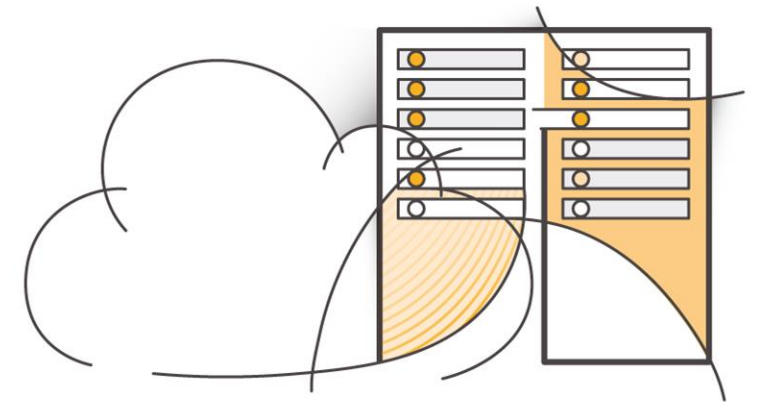
# Cloud computing deployment models



**Cloud**

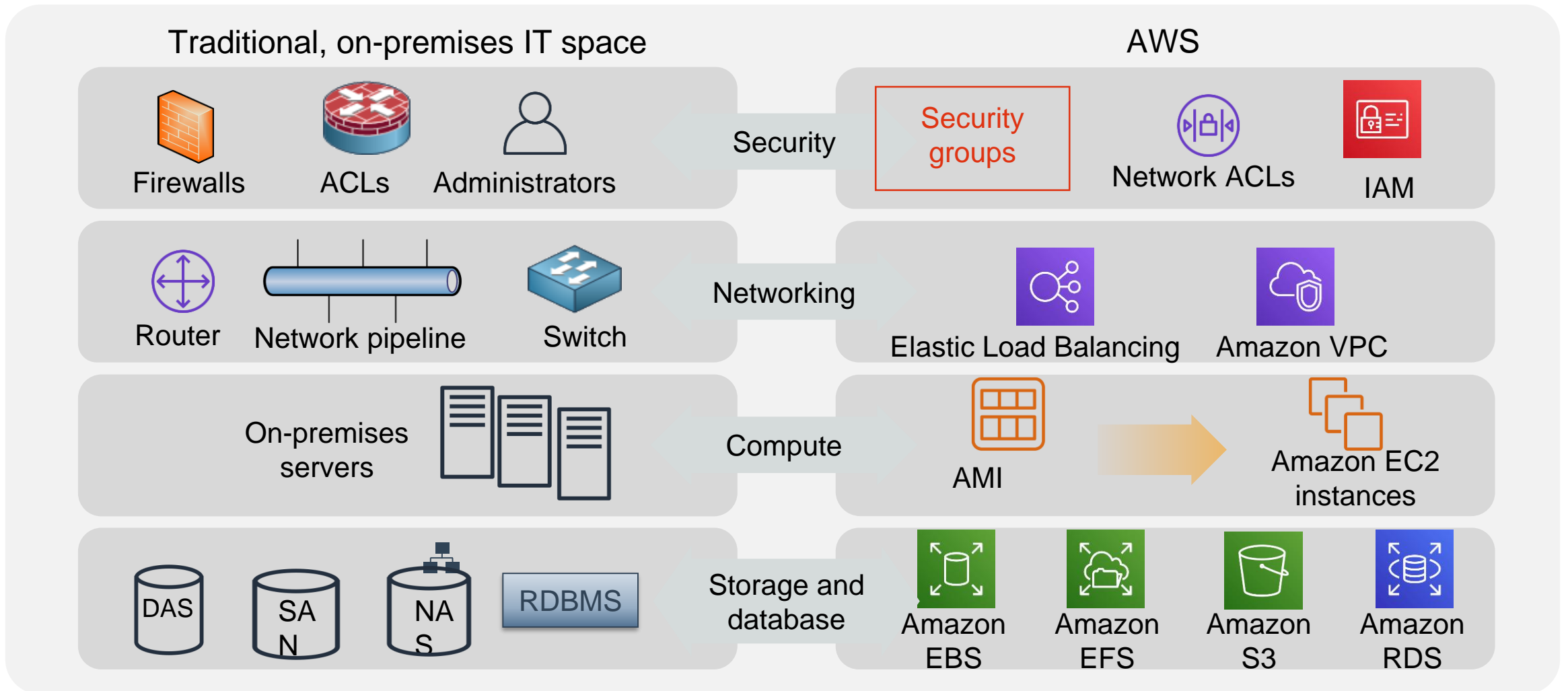


**Hybrid**



**On-premises  
(private  
cloud)**

# Similarities between AWS and Traditional IT



# Section 1 key takeaways



- Cloud computing is the on-demand delivery of IT resources via the internet with pay-as-you-go pricing.
- Cloud computing enables you to think of (and use) your infrastructure as software.
- There are three cloud service models: IaaS, PaaS, and SaaS.
- There are three cloud deployment models: cloud, hybrid, and on-premises or private cloud.
- Almost anything you can implement with traditional IT can also be implemented as an AWS cloud computing service.

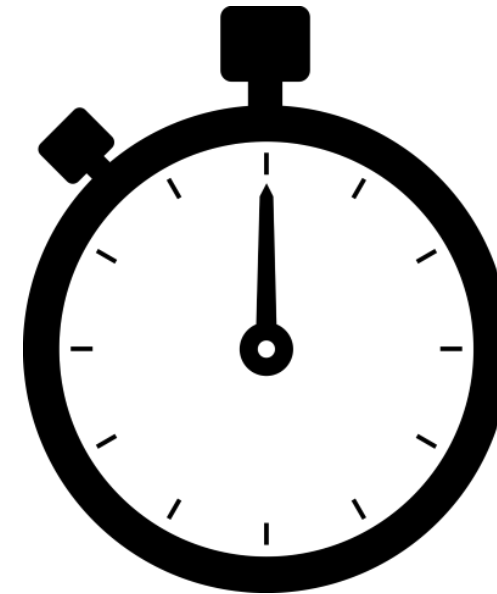
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# Section 2: Advantages of cloud computing

# Trade capital expense for variable expense



Data center investment  
based on forecast

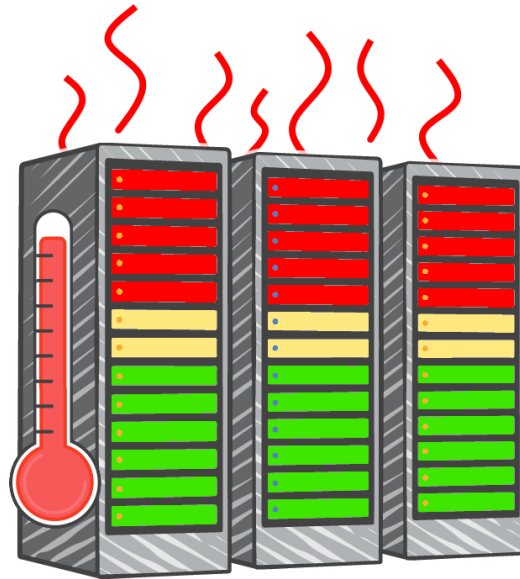


Pay only for the amount  
you consume

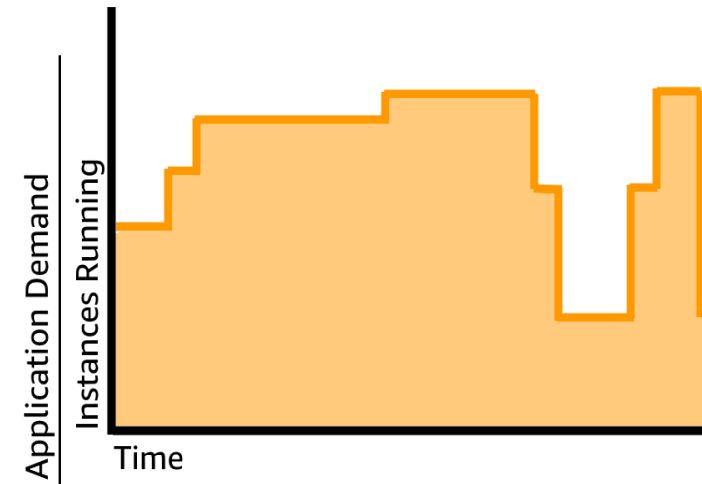
# Stop guessing capacity



Overestimated server capacity

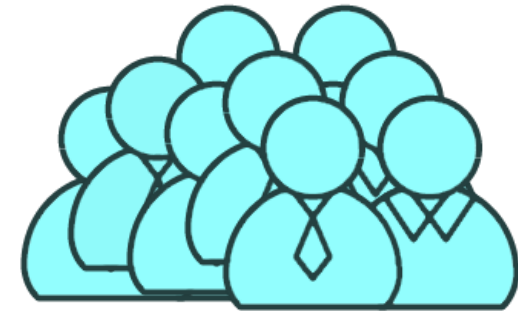
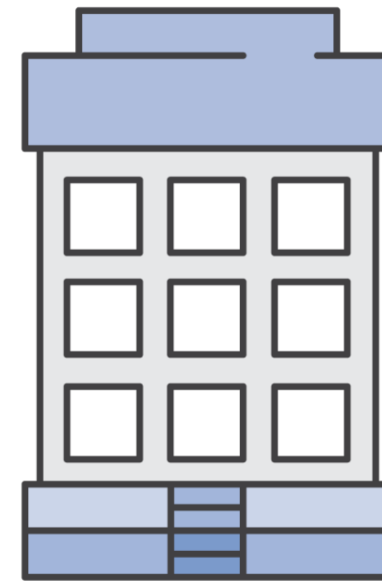
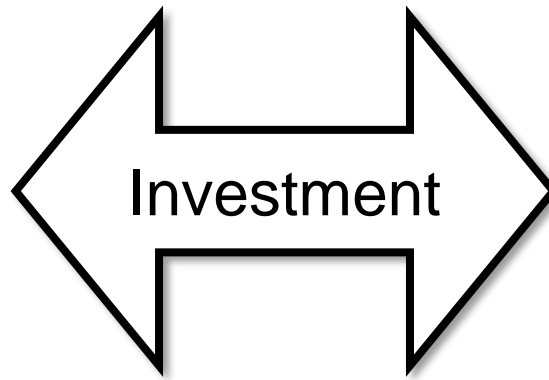
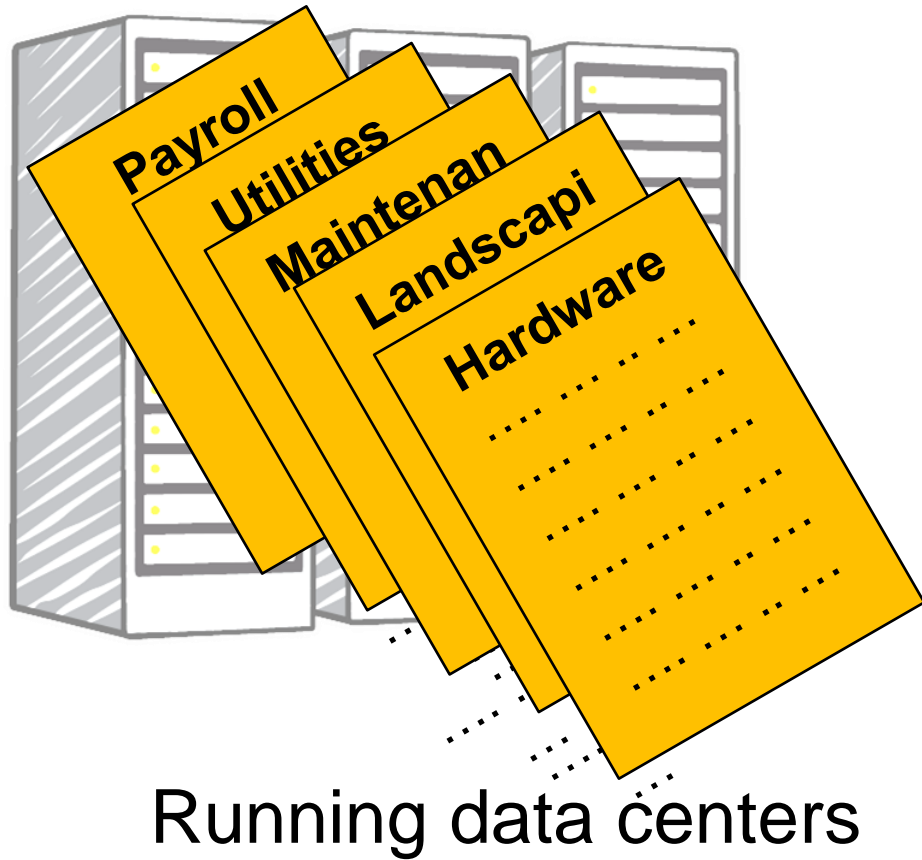


Underestimated server capacity



Scaling on demand

# Stop spending money on running and maintaining data centers



Business and customers

# Go global in minutes

The image shows a screenshot of the AWS console interface overlaid on a world map. The console displays the 'AWS services' page with a search bar and a list of 'Recently visited services' including EC2, Elastic Transcoder, AWS Budgets, and S3. Below this, there is a 'Build a solution' section with four quick-start options: 'Launch a virtual machine' (With EC2, ~2-3 minutes), 'Build a web app' (With Elastic Beanstalk, ~6 minutes), 'Connect an IoT device' (With AWS IoT, ~5 minutes), and 'Start a development project' (With CodeStar, ~5 minutes). A dropdown menu on the right side of the console lists various AWS regions, with 'US West (Oregon)' highlighted in orange. Other regions listed include US East (N. Virginia), US East (Ohio), US West (N. California), Asia Pacific (Mumbai), Asia Pacific (Osaka-Local), Asia Pacific (Seoul), Asia Pacific (Singapore), Asia Pacific (Sydney), Asia Pacific (Tokyo), Canada (Central), EU (Frankfurt), EU (Ireland), EU (London), EU (Paris), and South America (São Paulo). Three callout boxes with icons of a folder, a document, and a play button are positioned around the console, with arrows pointing to the search bar, the 'Build a solution' section, and the region dropdown menu respectively.

# Section 2 key takeaways



- Trade capital expense for variable expense
- Benefit from massive economies of scale
- Stop guessing capacity
- Increase speed and agility
- Stop spending money on running and maintaining data centers
- Go global in minutes

Module 1: Cloud Concepts Overview

# Section 3: Introduction to Amazon Web Services (AWS)

# What is AWS?

- AWS is a **secure cloud platform** that offers a **broad set of global cloud-based products**.
- AWS provides you with **on-demand access** to compute, storage, network, database, and other IT resources and management tools.
- AWS offers **flexibility**.
- You **pay only for the individual services you need**, for **as long as you use them**.
- AWS services **work together** like building blocks.

# Categories of AWS services



Analytics



Application  
Integration



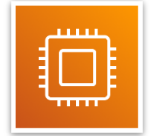
AR and VR



Blockchain



Business  
Applications



Compute



Cost  
Management



Customer  
Engagement



Database



Developer  
Tools



End User  
Computing



Game  
Tech



Internet  
of Things



Machine  
Learning



Management and  
Governance



Media  
Services



Migration and  
Transfer



Mobile



Networking and  
Content Delivery



Robotics



Satellite

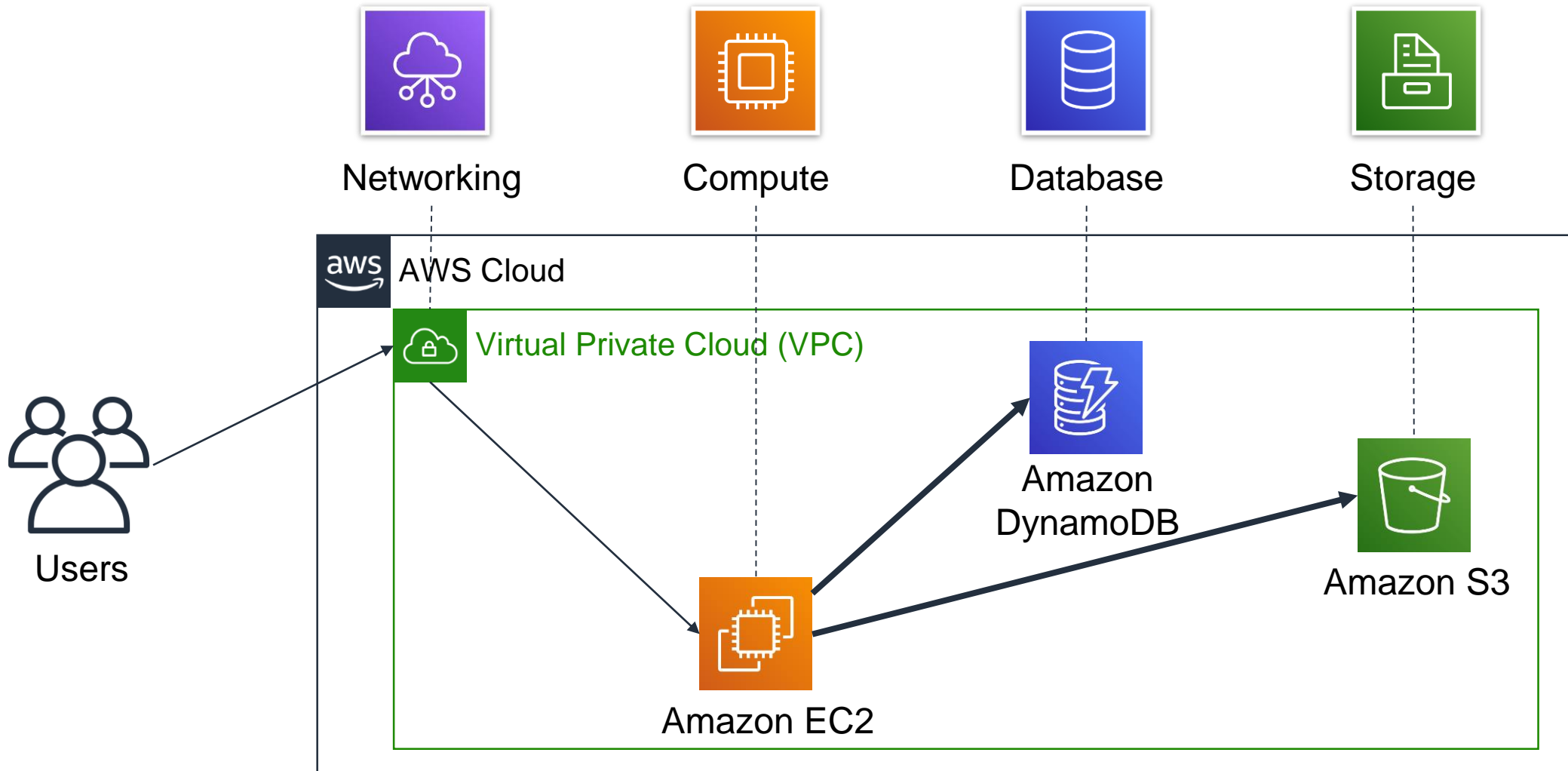


Security, Identity, and  
Compliance



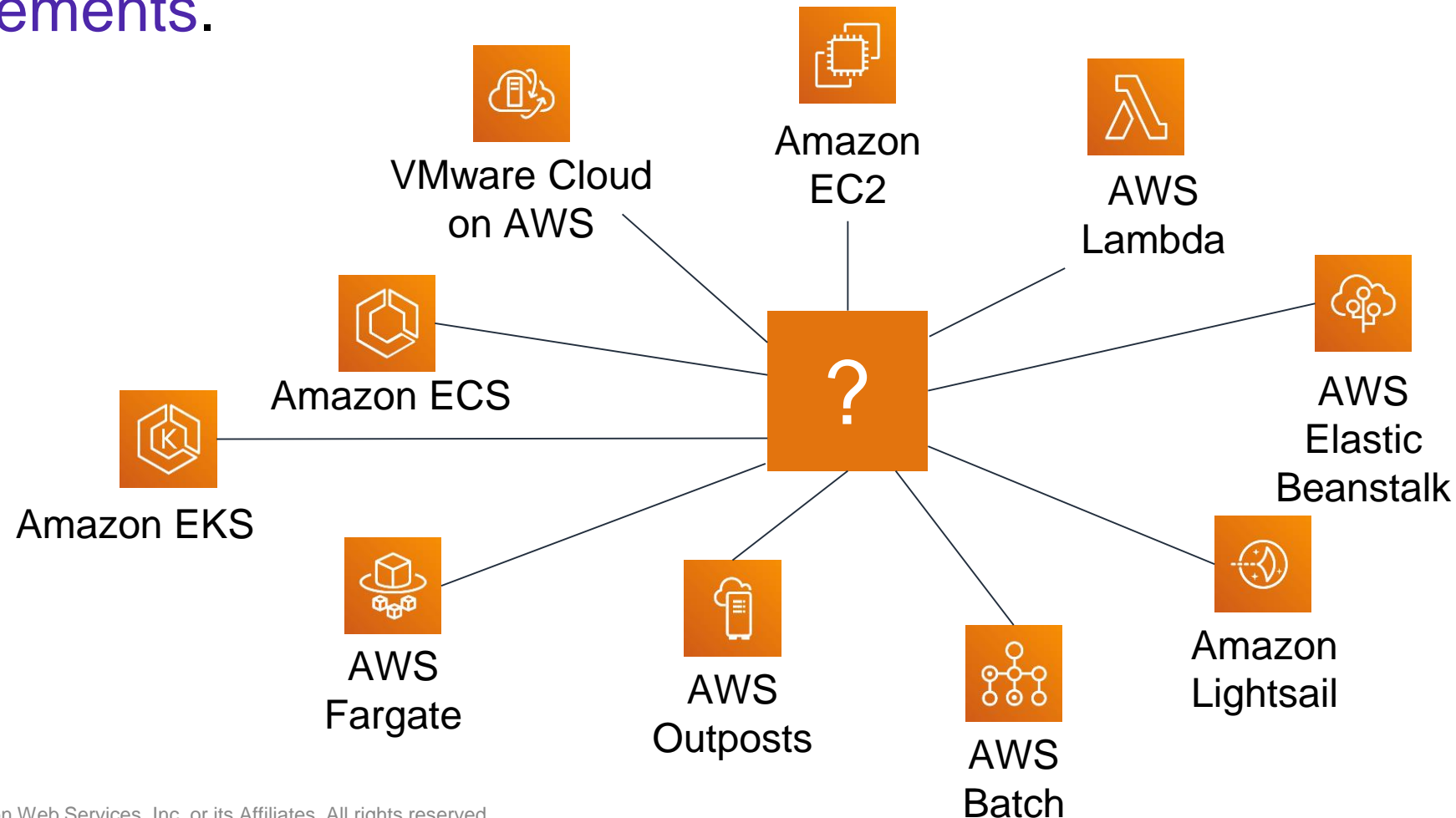
Storage

# Simple solution example



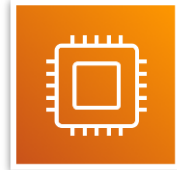
# Choosing a service

The service you select depends on your business goals and technology requirements.



# AWS Services covered in this course

## Compute services –



- Amazon EC2
- AWS Lambda
- AWS Elastic Beanstalk
- Amazon EC2 Auto Scaling
- Amazon ECS
- Amazon EKS
- Amazon ECR
- AWS Fargate

## Storage services –



- Amazon S3
- Amazon S3 Glacier
- Amazon EFS
- Amazon EBS

## Database services –



- Amazon RDS
- Amazon DynamoDB
- Amazon Redshift
- Amazon Aurora

## Management and Governance services –



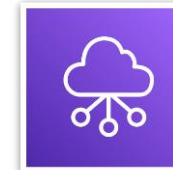
- AWS Trusted Advisor
- AWS CloudWatch
- AWS CloudTrail
- AWS Well-Architected Tool
- AWS Auto Scaling
- AWS Command Line Interface
- AWS Config
- AWS Management Console
- AWS Organizations

## Security, Identity, and Compliance services –



- AWS IAM
- Amazon Cognito
- AWS Shield
- AWS Artifact
- AWS KMS

## Networking and Content Delivery services –



- Amazon VPC
- Amazon Route 53
- Amazon CloudFront
- Elastic Load Balancing

## AWS Cost Management services –



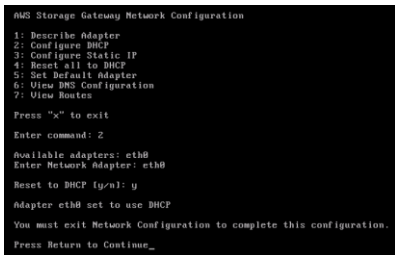
- AWS Cost & Usage Report
- AWS Budgets
- AWS Cost Explorer

# Three ways to interact with AWS



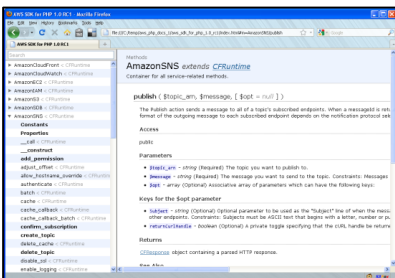
## AWS Management Console

Easy-to-use graphical interface



## Command Line Interface (AWS CLI)

Access to services by discrete commands or scripts



## Software Development Kits (SDKs)

Access services directly from your code (such as Java, Python, and others)







# Section 3 key takeaways



- AWS is a secure cloud platform that offers a broad set of global cloud-based products called services that are designed to work together.
- There are many categories of AWS services, and each *category has many services to choose from*.
- Choose a service based on your business goals and technology requirements.
- There are three ways to interact with AWS services.

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# Section 4: Moving to the AWS Cloud – The AWS Cloud Adoption Framework (AWS CAF)

 BUSINESS	 PLATFORM
 PEOPLE	 SECURITY
 GOVERNANCE	 OPERATIONS

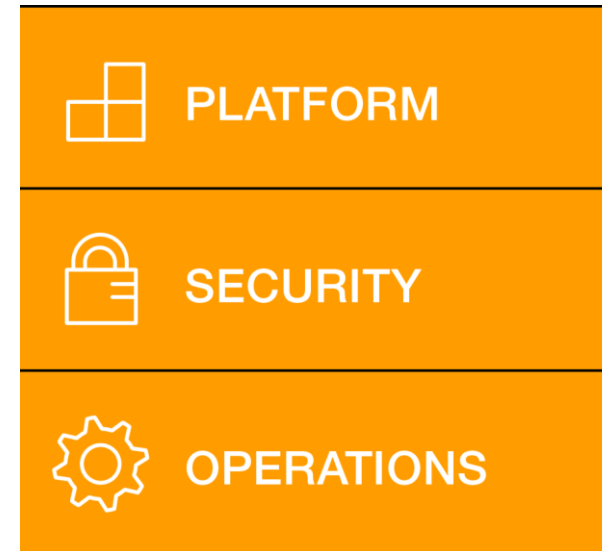
AWS CAF perspectives

- **AWS CAF provides guidance and best practices to help organizations build a comprehensive approach to cloud computing across the organization and throughout the IT lifecycle to accelerate successful cloud adoption.**
- AWS CAF is organized into **six perspectives**.
- Perspectives consist of sets of **capabilities**.



# Six core perspectives



Focus on  
**business**  
capabilities



Focus on  
**technical**  
capabilities






BUSINESS	
IT finance	
IT strategy	
Benefits realization	
Business risk management	

## Business perspective capabilities

We must ensure that **IT is associated with business needs**, and that IT investments can be traced to demonstrable business results.



Business managers,  
finance  
managers, budget owners,  
and strategy stakeholders

PEOPLE	
Resource management	
Incentive management	
Career management	
Training management	
Organizational change management	

We must prioritize **training, staffing, and organizational changes** to build an agile organization.



Human resources, staffing,  
and people managers

## People perspective capabilities

GOVERNANCE	
Portfolio management	
Program and project management	
Business performance measurement	
License management	

## Governance perspective capabilities

We must ensure that **skills and processes align IT strategy and goals with business strategy and goals** so the organization can maximize the business value of its IT investment and minimize business risks.



CIO, program managers,  
enterprise  
architects, business analysts, and  
portfolio managers

# Platform perspective






PLATFORM	
Compute provisioning	☐
Network provisioning	☐
Storage provisioning	☐
Database provisioning	☐
Systems and solution architecture	☐
Application development	☐

## Platform perspective capabilities

We must **understand and communicate the nature of IT systems and their relationships**. We must be able to **describe the architecture of the target state environment** in detail.



CTO, IT managers,  
and  
solutions architects

 SECURITY	
Identity and access management	
Detective control	
Infrastructure security	
Data protection	
Incident response	

## Security perspective capabilities

We must ensure that the organization **meets its security objectives.**



CISO, IT security managers,  
and IT security analysts

# Operations Perspective

OPERATIONS	
Service monitoring	
Application performance monitoring	
Resource inventory management	
Release management/ change management	
Reporting and analytics	
Business continuity/ Disaster recovery	
IT service catalog	

We align with and support the operations of the business, and **define how day-to-day, quarter-to-quarter, and year-to-year business will be conducted.**



IT operations managers and  
IT support managers

# Section 4 key takeaways



- The AWS CAF was created to help organizations develop efficient and effective plans for their cloud adoption journey.
- The AWS CAF organizes guidance into six areas of focus, called perspectives.
- Perspectives consist of sets of business or technology capabilities that are the responsibility of key stakeholders.

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# Module wrap-up

In summary, in this module you learned how to:

- Define different types of cloud computing models
- Describe advantages of cloud computing
- Recognize the main AWS service categories and core services
- Review the AWS Cloud Adoption Framework

# Complete the knowledge check



- [What is AWS?](#) YouTube video
- [Cloud computing with AWS](#) website
- [Overview of Amazon Web Services](#) whitepaper
- [An Overview of the AWS Cloud Adoption Framework](#) whitepaper
- [6 Strategies for Migrating Applications to the Cloud](#) AWS Cloud Enterprise Strategy blog post

# Thank You

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