ENGENHARIA DE SOFTWARE

41492-ES

Nuno Sá Couto / Rafael Direito

(nuno.sacouto@ua.pt / rafael.neves.direito@ua.pt)

Department of Electronics, Telecommunications and Informatics (DETI)

UNIVERSITY OF AVEIRO (UA), PORTUGAL

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OFF TOPIC

AI IN THE WILD - FACIAL RECOGNITION SOFTWARE

IF YOU ARE

NOT BUILDING SW

YOU ARE

NOT LEARNING!

Module 1: Cloud Concepts Overview

SECTION 1: INTRODUCTION TO CLOUD COMPUTING

What is cloud computing?

Cloud computing defined

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.

Infrastructure as software

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

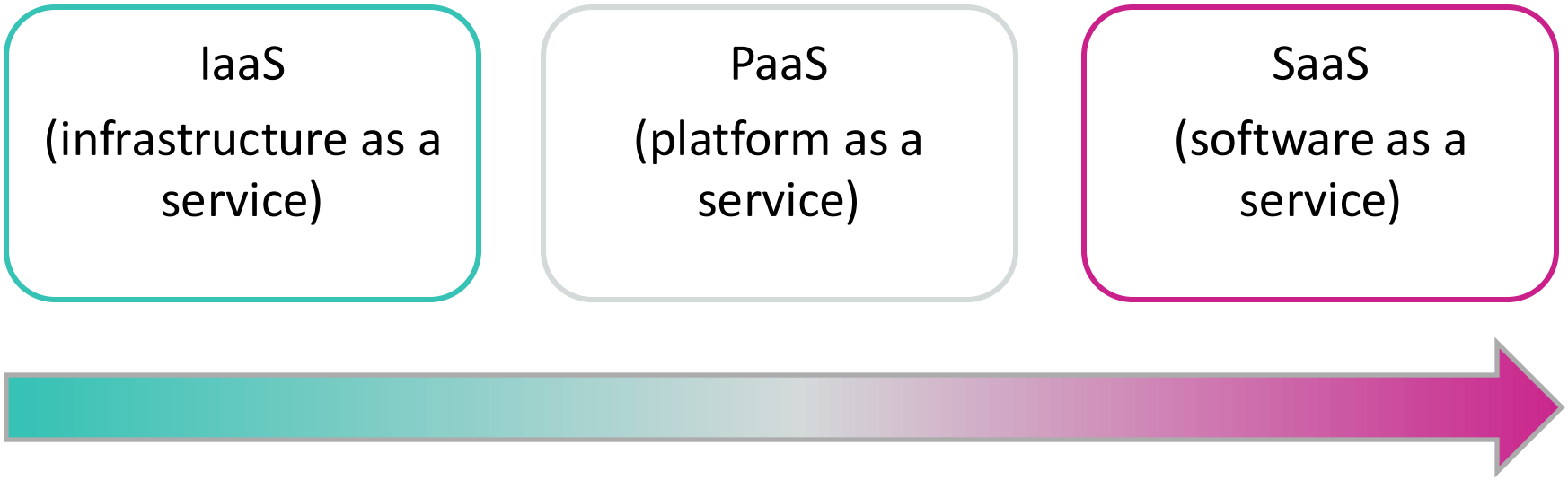
Traditional computing model

- Infrastructure as hardware
- Hardware solutions:
  - Require space, staff, physical security, planning, capital expenditure
  - Have a long hardware procurement cycle
  - Require you to provision capacity by guessing theoretical maximum peaks

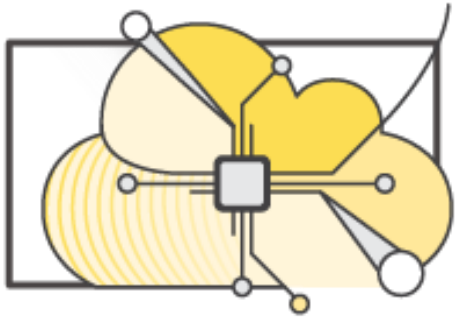
Cloud computing model

- Infrastructure as software
- Software solutions:
  - Are flexible
  - Can change more quickly, easily, and cost-effectively than hardware solutions
  - Eliminate the undifferentiated heavy-lifting tasks

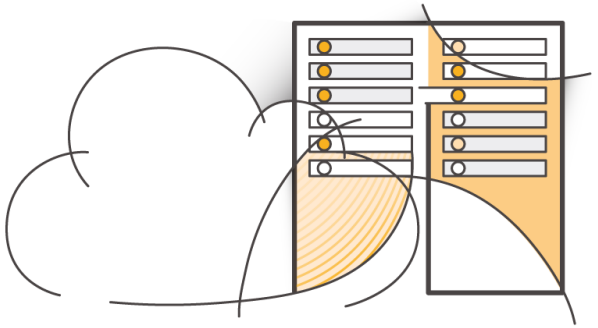
Cloud service models



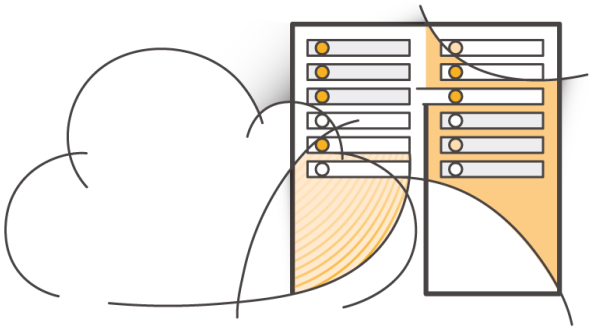
Cloud computing deployment models



Cloud

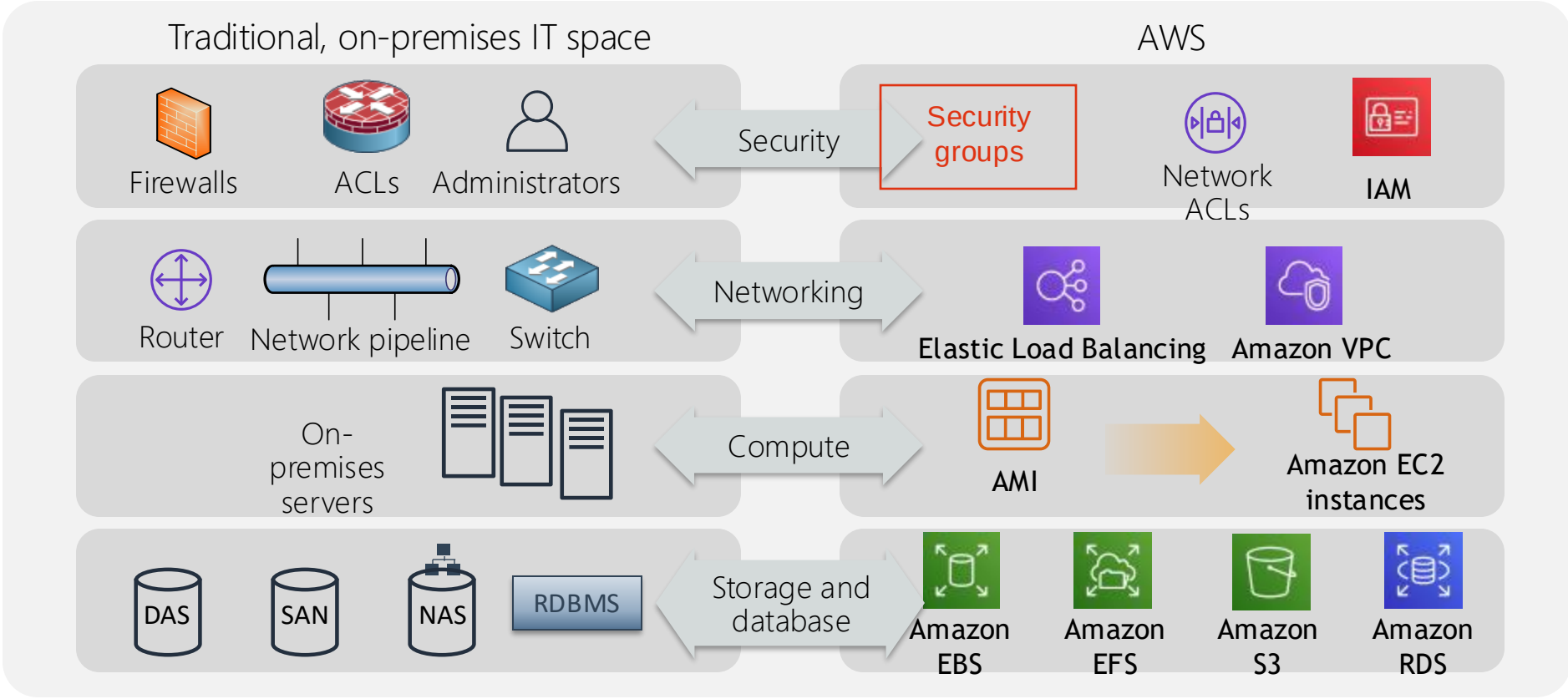


Hybrid



On-premises
(private cloud)

Similarities between AWS and traditional IT



Section 1 key takeaways

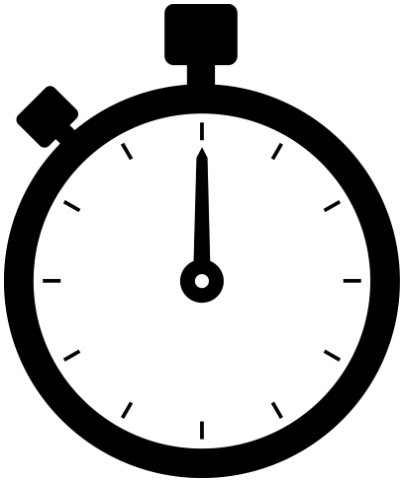
- Cloud computing is the on-demand delivery of IT resources via the internet with pay-as-you-go pricing.
- Cloud computing enables you to think of (and use) your infrastructure as software.
- There are three cloud service models: IaaS, PaaS, and SaaS.
- There are three cloud deployment models: cloud, 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.

Module 1: Cloud Concepts Overview

SECTION 2: ADVANTAGES OF CLOUD COMPUTING

Trade capital expense for variable expense

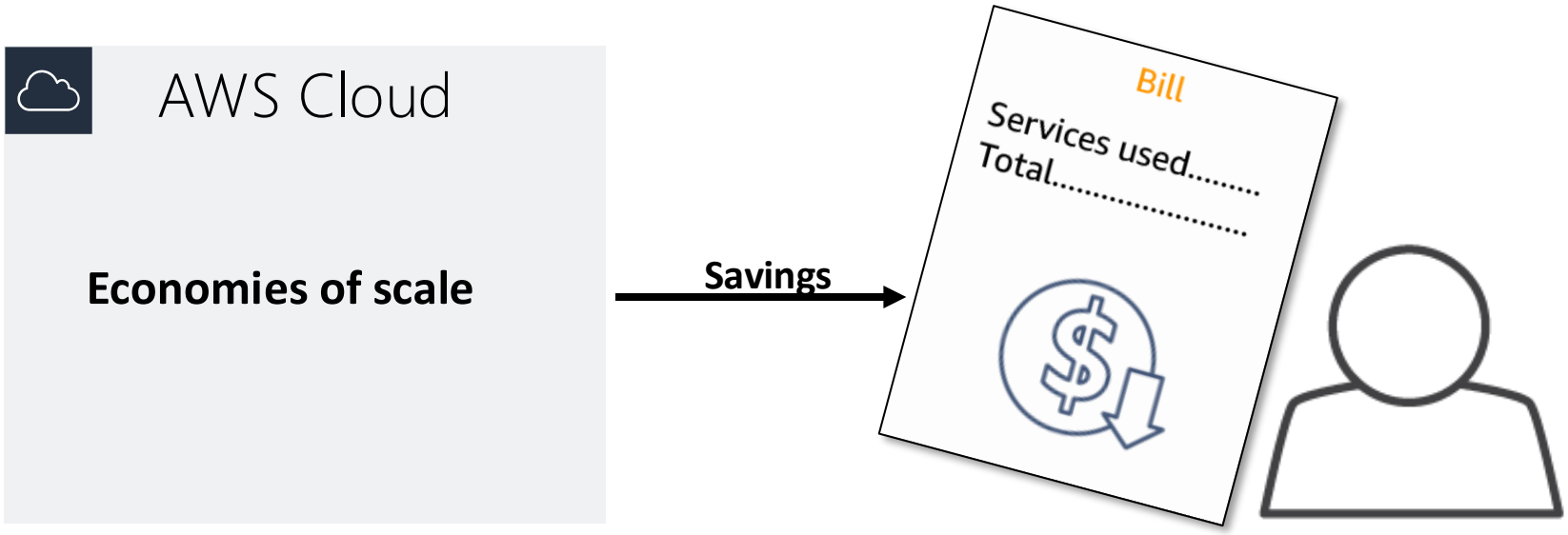
Data center investment based on forecast



Pay only for the amount you consume

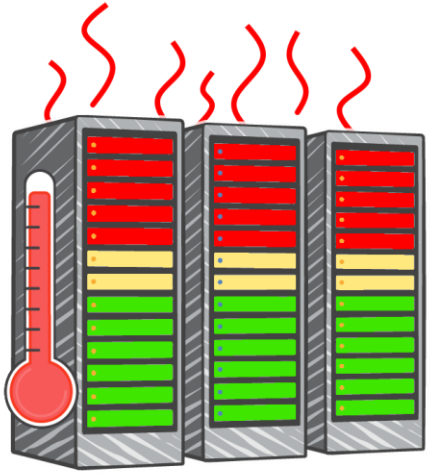
Massive economies of scale

Because of aggregate usage from all customers, AWS can achieve higher economies of scale and pass savings on to customers.

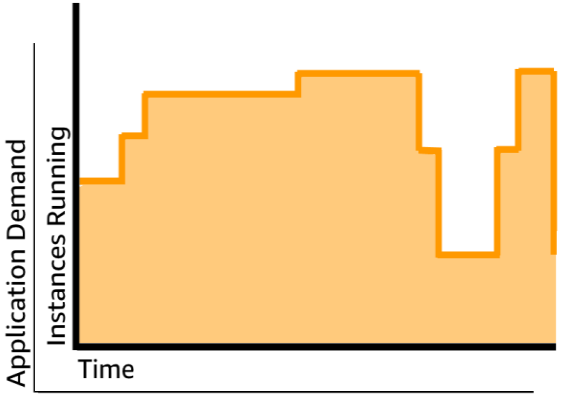


Stop guessing capacity

Overestimated server capacity



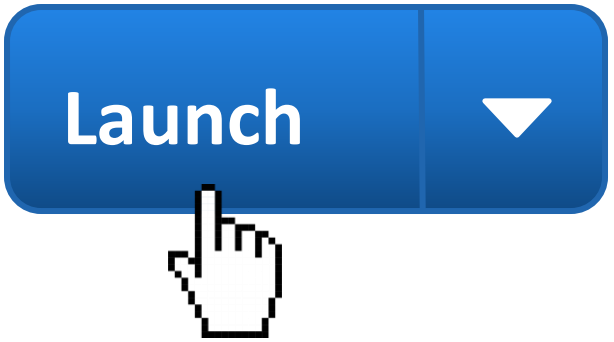
Underestimated server capacity



Scaling on demand

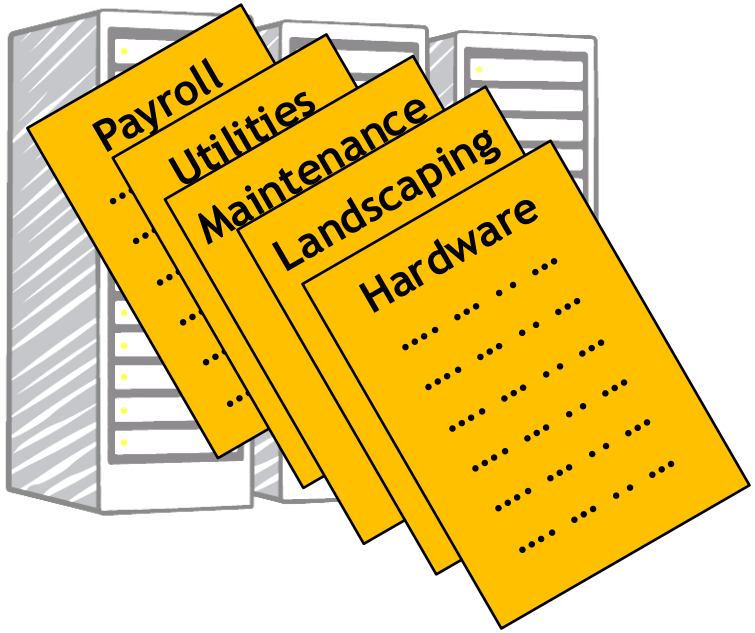
Increase speed and agility

Weeks between wanting resources and having resources

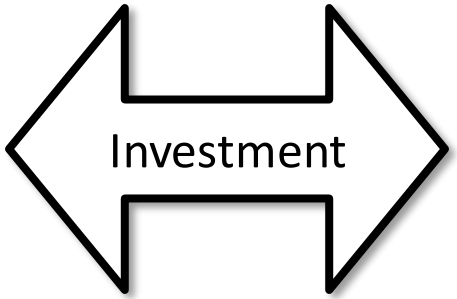


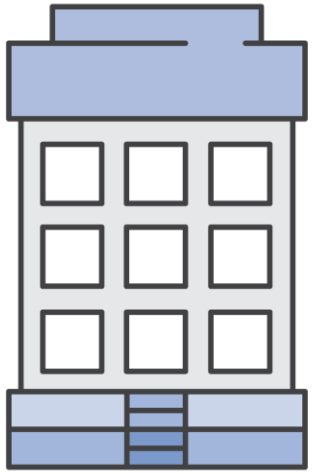
Minutes between wanting resources and having resources

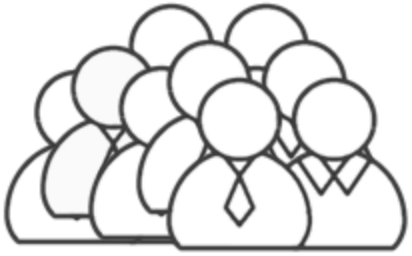
Stop spending money on running and maintaining data centers



Running data centers

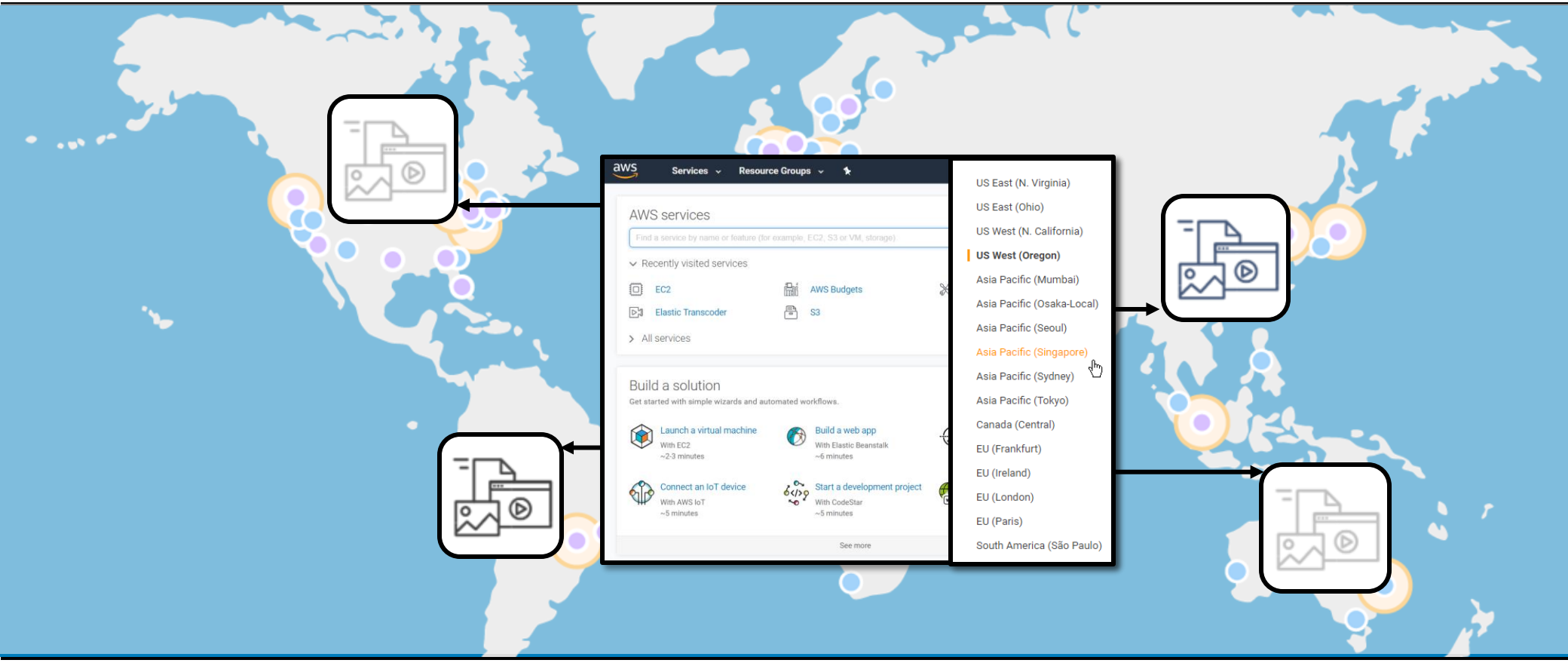






Business and customers

Go global in minutes



Section 2 key takeaways

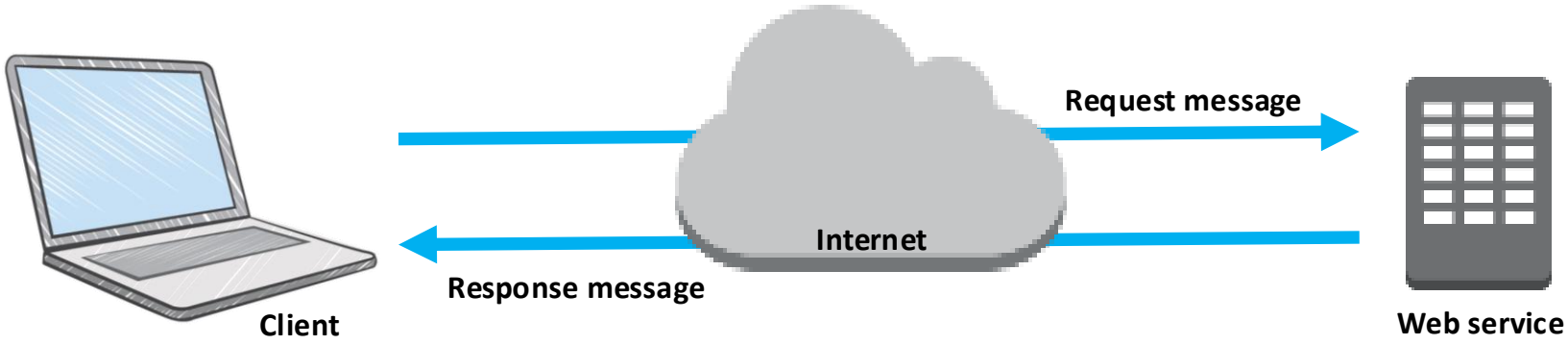
- Trade capital expense for variable expense
- Benefit from massive economies of scale
- Stop guessing capacity
- Increase speed and agility
- Stop spending money on running and maintaining data centers
- Go global in minutes

Module 1: Cloud Concepts Overview

SECTION 3: INTRODUCTION TO AMAZON WEB SERVICES (AWS)

What are web services?

A **web service** is any piece of software that makes itself available over the internet and uses a **standardized format**—such as Extensible Markup Language (XML) or JavaScript Object Notation (JSON)—for the request and the response of an **application programming interface (API) interaction**.



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

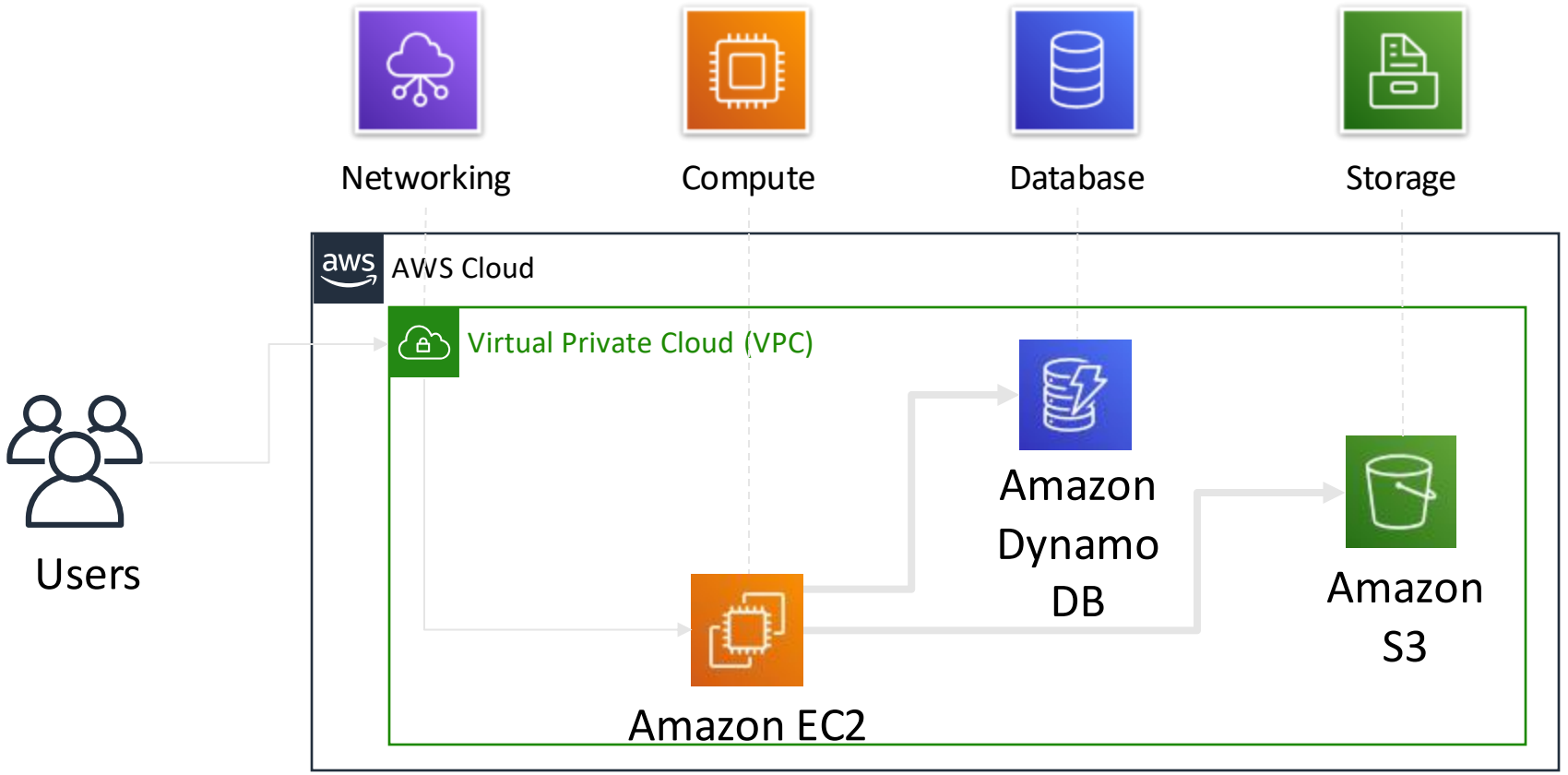

Robotics


Satellite


Security, Identity, and Compliance

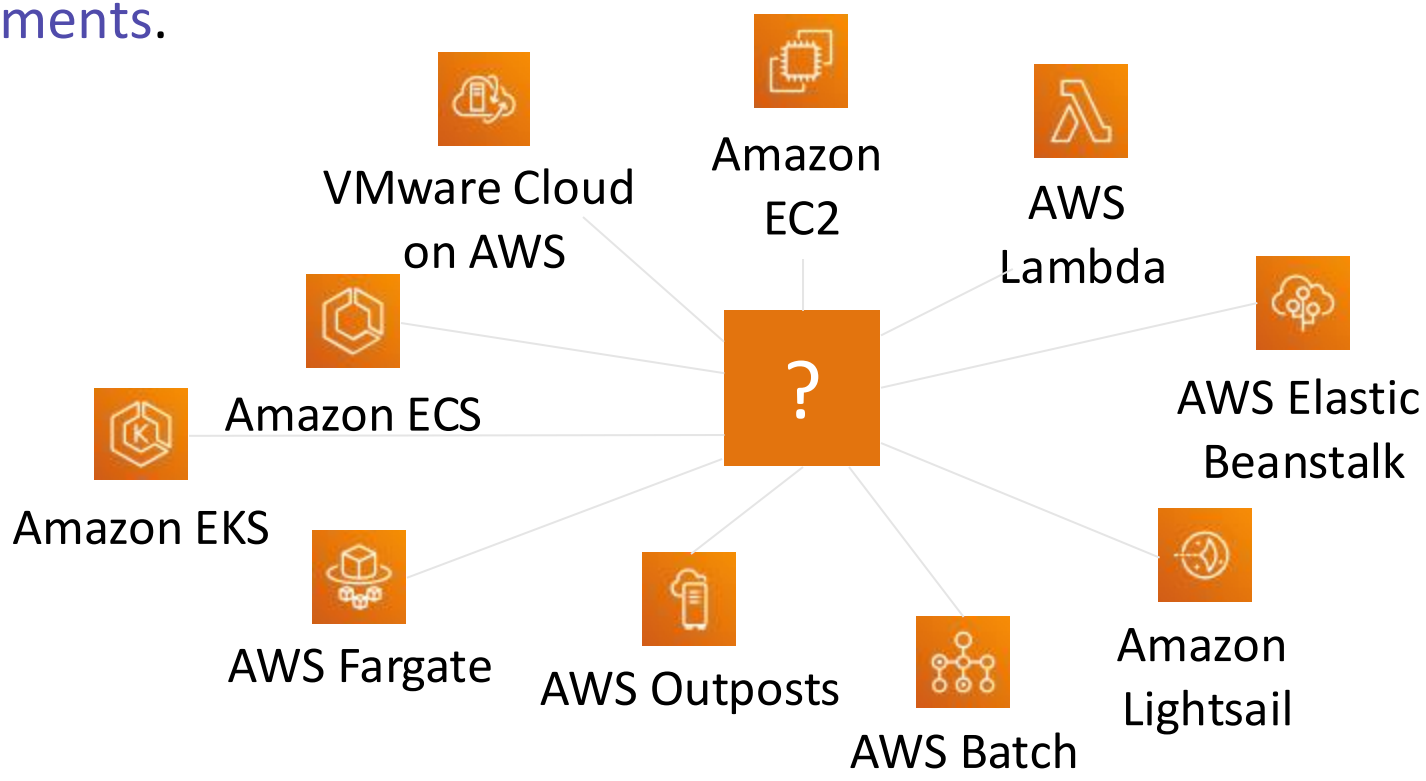

Storage

Simple solution example



Choosing a service

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



Services covered in this course

Compute services –
- Amazon EC2
- AWS Lambda
- AWS Elastic Beanstalk
- Amazon EC2 Auto Scaling
- Amazon ECS
- Amazon EKS

Security, Identity, ar Compliance service
- AWS IAM
- Amazon Cognito
- AWS Shield
- AWS Artifact
- AWS KMS

Storage services –
- Amazon S3
- Amazon S3 Glacier
- Amazon EFS

Database services –
- Amazon RDS
- Amazon DynamoDB
- Amazon Redshift

Networking and Co Delivery services –
- Amazon VPC
- Amazon Route 53
- Amazon CloudFront
- Elastic Load Balancing

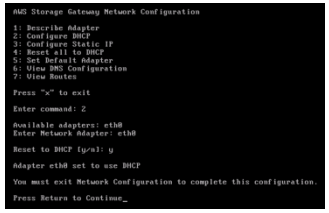
Management and Governance service
- AWS Trusted Advisor
- AWS CloudWatch
- AWS CloudTrail
- AWS Well-Architected Tool
- AWS Auto Scaling
- AWS Command Line

AWS Cost Manager 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)

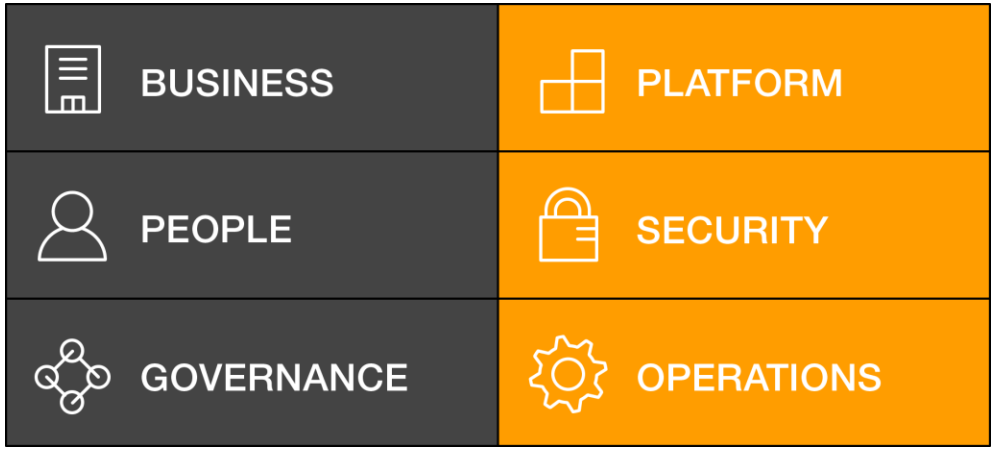
Section 3 key takeaways

- 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.

Module 1: Cloud Concepts Overview

SECTION 4: MOVING TO THE AWS CLOUD – THE AWS CLOUD ADOPTION FRAMEWORK (AWS CAF)

AWS Cloud Adoption Framework (AWS CAF)



AWS CAF perspectives

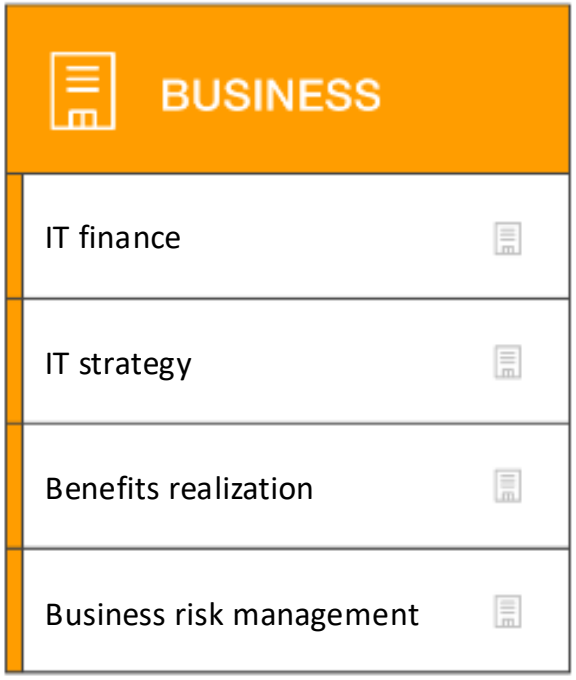
- AWS CAF provides guidance and best practices to help organizations build a comprehensive approach to cloud computing across the organization and throughout the IT lifecycle to accelerate successful cloud adoption.
- AWS CAF is organized into six *perspectives*.
- Perspectives consist of sets of *capabilities*.

Six core perspectives

Focus on **business** capabilities

Focus on **technical** capabilities

Business perspective

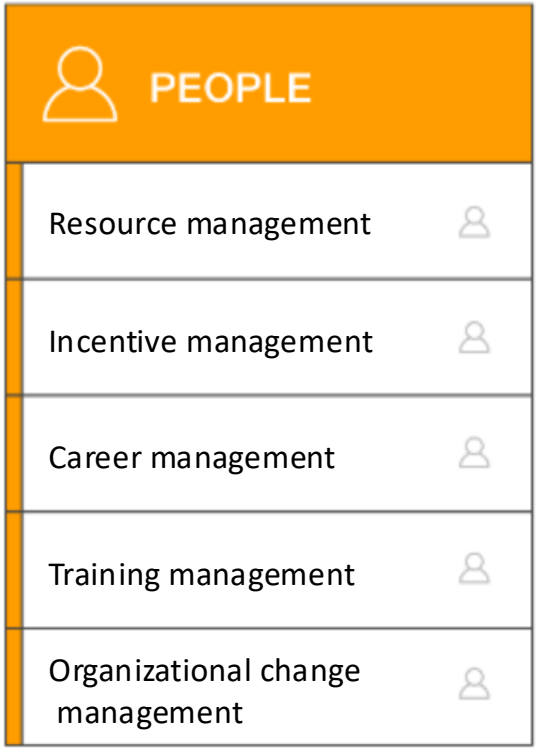


Business perspective capabilities

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

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

People perspective



People perspective capabilities

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

Human resources, staffing, and people managers

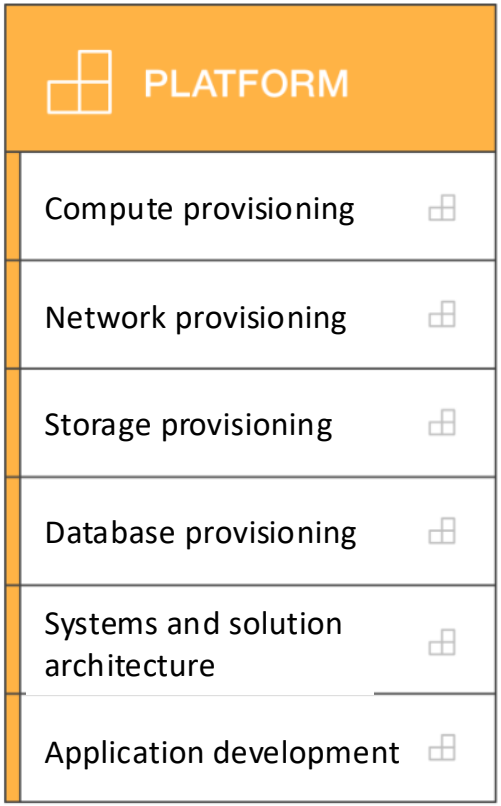
Governance perspective

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

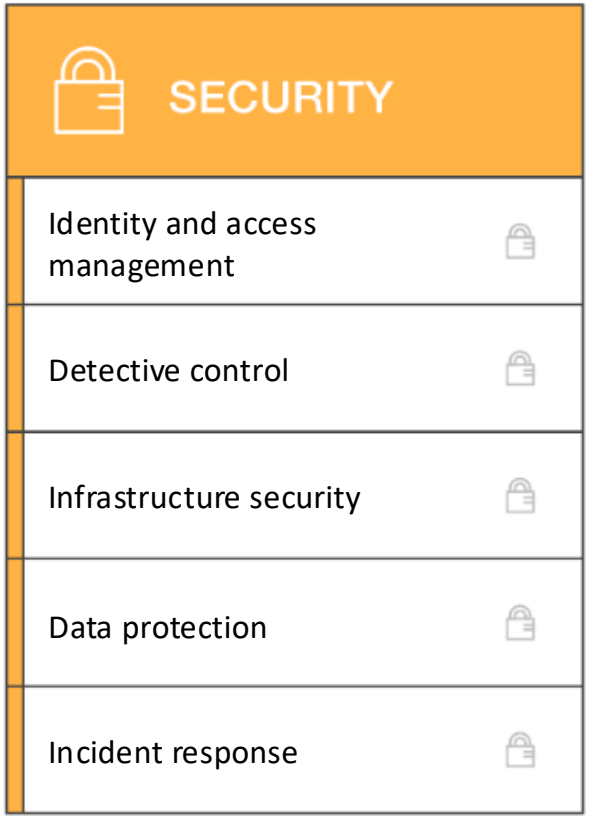


Platform perspective capabilities

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 perspective



Security perspective capabilities

We must ensure that the organization meets its security objectives.

CISO, IT security managers, and IT security analysts

Operations perspective

Operations perspective capabilities

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

- Cloud adoption is not instantaneous for most organizations and requires a thoughtful, deliberate strategy and alignment across the whole organization.
- 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.