CS 4037
Introduction to Cloud Computing
Lecture 21

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Introduction to Amazon Web Services

Lecture’s Agenda

- Web Applications
- Web Applications Architectures
- Web Service
- Cloud Service & Web Services
- Amazon Web Services (AWS)
- Similarities between AWS and Traditional IT
- Ways of Interaction with AWS

Web Applications

- "Web applications are the applications which use web technologies (URL, HTTP, HTML, XML) and have web browser based interface."

- Can be modeled on the basis of three-tier model.

  - Presentation layer
  - Application layer
  - Data layer

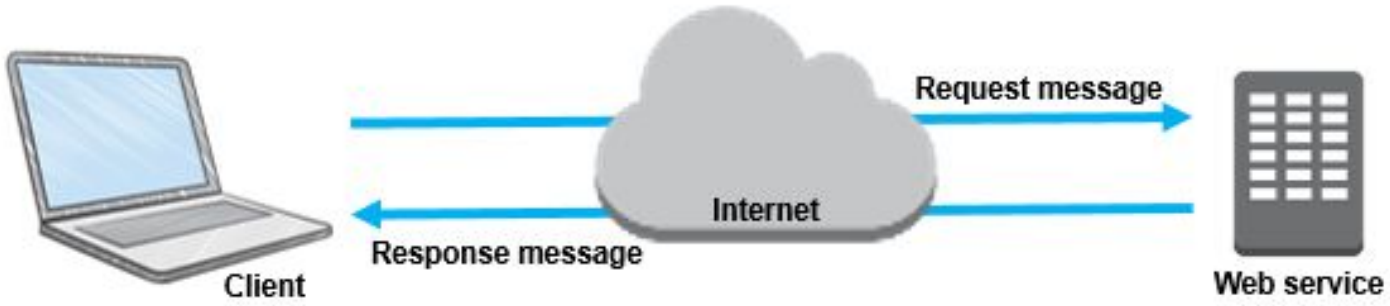
Web Applications Architectures

Layer	Implementation	
	Server side	Client side
Presentation	Web/ Application Server	Web client
Application		
Data	Data storage server	

Layer	Implementation	
	Server side	Client side
Presentation	Web server	Web client
Application	Application server	
Data	Data storage server	

Web Service

- **"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."**



Examples of Web Services

- **Return the weather conditions for a specific city**
  - **https://www.accuweather.com/**
- **Return real-time traffic conditions on a road or highway**
  - **Google Maps on a web browser**
- **Return a stock price for a particular company**
  - **https://dps.psx.com.pk/company/AKBL**

Web Service Features

- Not tied to any one operating system
- Not tied to any one programming language
- Self-describing via an interface definition file
- Discoverable over Internet via URL

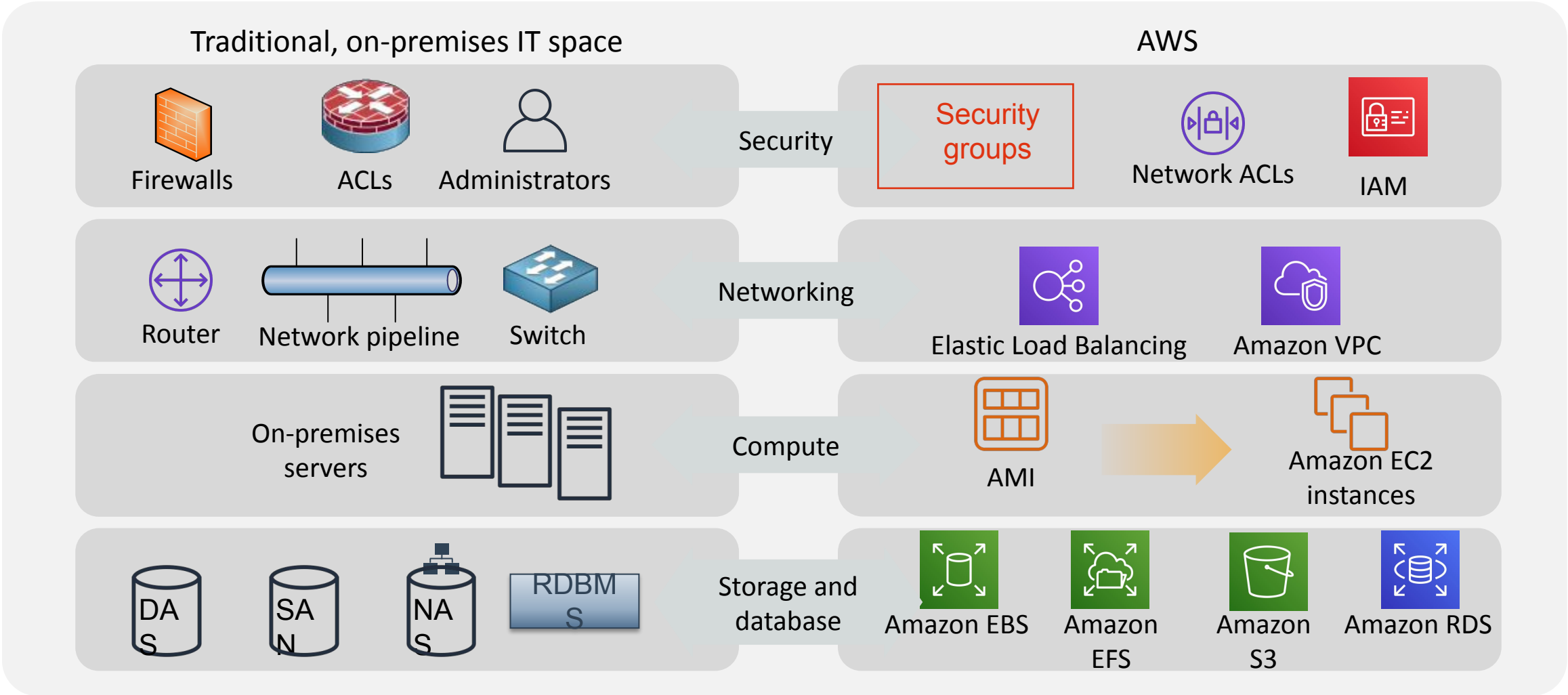
Cloud Service & Web Services

- Both are different
  - Cloud services are SaaS, PaaS & IaaS
  - Web services are API Calls.
- Web services can be the front door for the cloud services running at the backend
- Cloud services are often provided over web services
- Example: Amazon Web Service (AWS) based cloud services (e.g., data processing service deployed by a provider) can be accessed over network through API developed (by the same provider) using Amazon API Gateway

Amazon Web Services (AWS)

- "AWS is a secure cloud platform that offers a broad set (an ecosystem) of global cloud-based products."
- Provides on-demand access to compute, storage, network, database, and other IT resources and management tools
- AWS services work together like building blocks
  - EC instance, EBS Storage, vNIC are different building blocks combined to provide an integrated solution

Similarities between AWS and Traditional IT



Ways of Interaction 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)

Additional Resources

- **What is AWS? YouTube video**
  - **https://www.youtube.com/watch?v=a9__D53WsUs**
- **Cloud computing with AWS website**
  - **https://aws.amazon.com/what-is-aws/**
- **Overview of Amazon Web Services whitepaper**
  - **https://d1.awsstatic.com/whitepapers/aws-overview.pdf**

Questions?