



ITN 257, Introduction to Amazon Web Services

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Introduction to AWS Overview

- Benefits to Cloud Computing
- Barriers to Employing Cloud Computing
- AWS Global Infrastructure
- AWS Services
- AWS Support Plans
- AWS Compliance
- AWS Shared Security Model

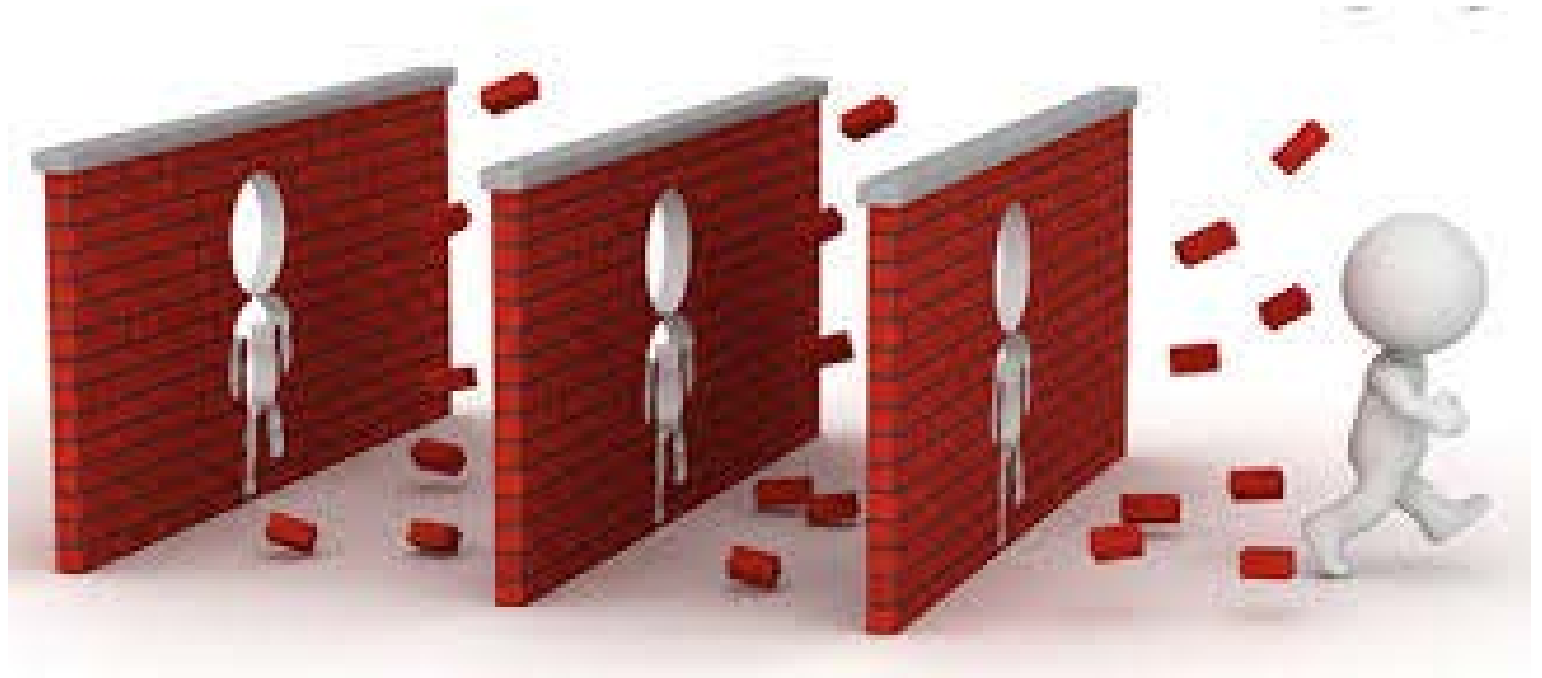


Benefits of Cloud Computing

- Economies of Scale
- Increased flexibility
- Focus on core business
- Global scope
- Enhanced monitoring
- Variable expense vs. capital expense
- Compliance and data resiliency

Barriers to Employing Cloud Computing

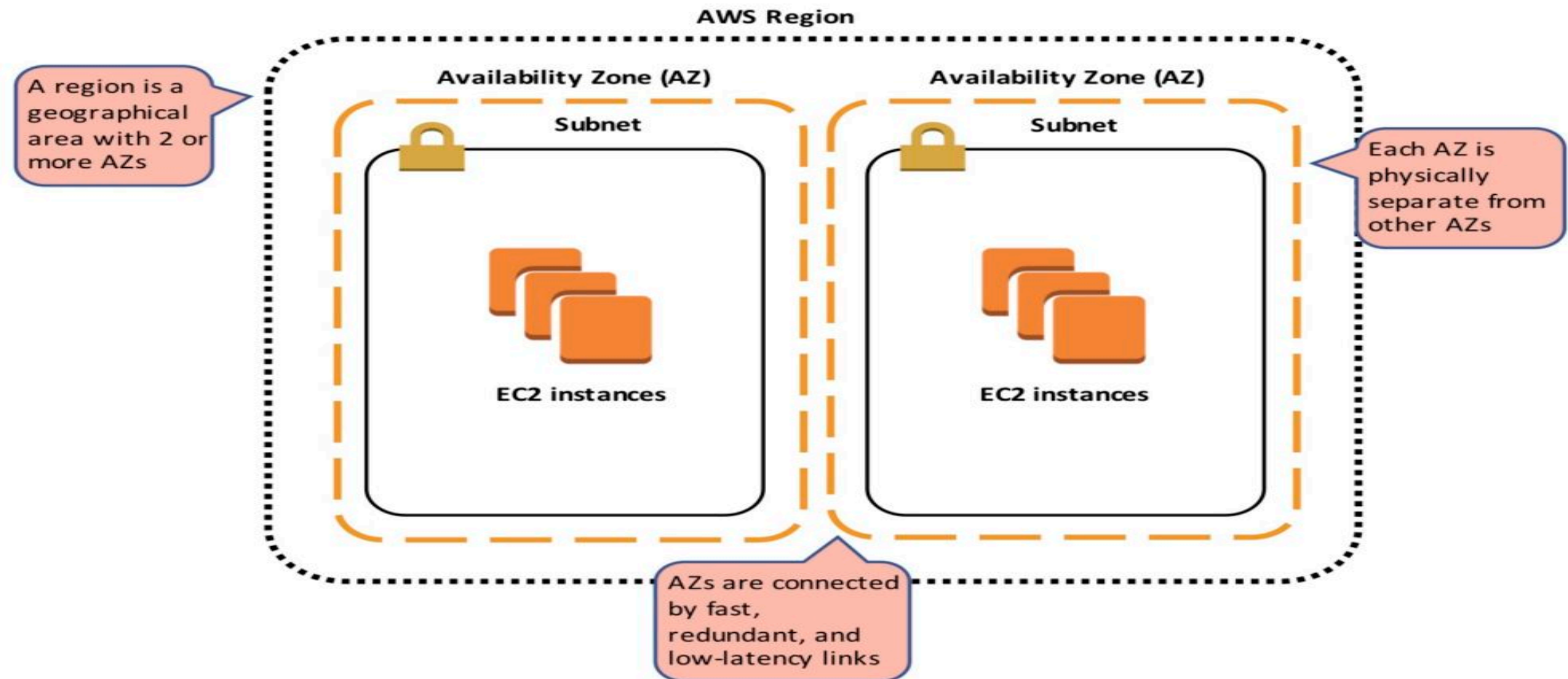
- Protecting the Data
- Current Investment in IT Infrastructure
- Knowledge and Skills



AWS Global Infrastructure

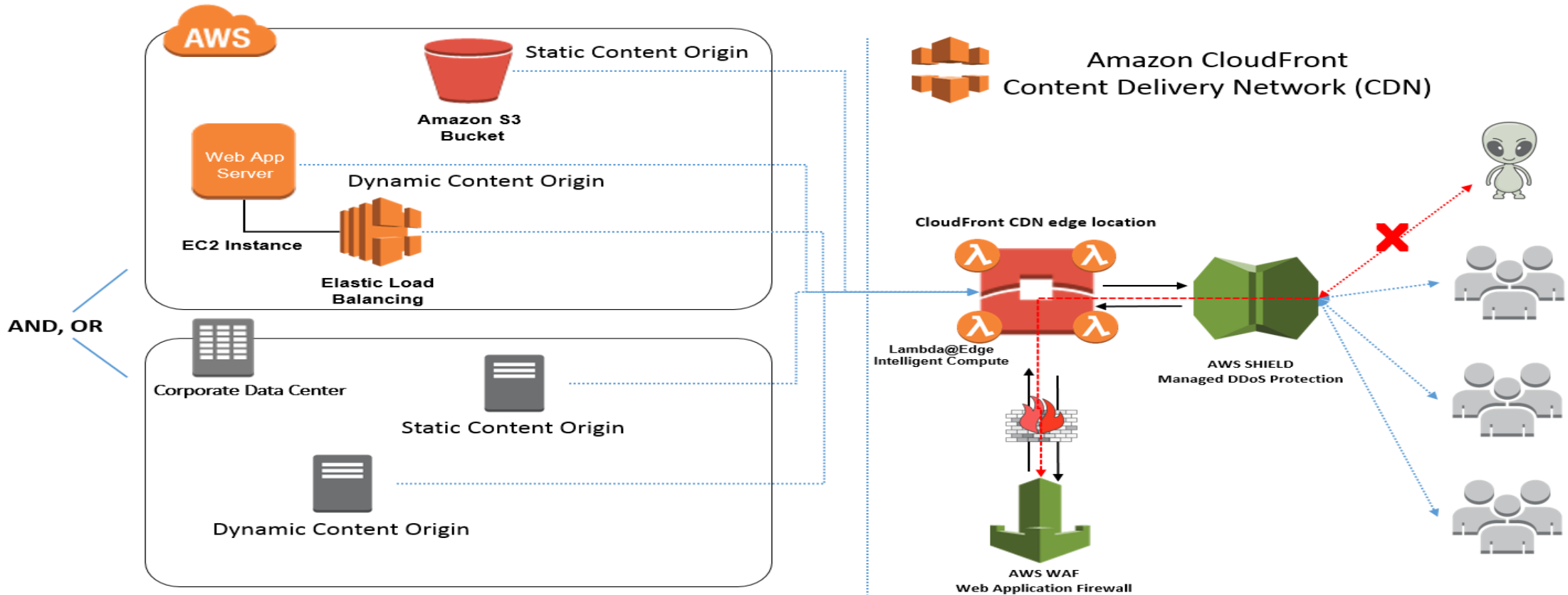
- **Region** -- consists of multiple, isolated, and physically separate AZ's within a geographic area.
 - **Factors in choosing a Region**
 - AWS Services
 - Latency
 - Data residency requirements
- **Availability Zones (AZ)** -- one or more discrete data centers with redundant power, networking, and connectivity in an AWS Region.

AWS Regions and Availability Zones



Amazon Global Infrastructure

CloudFront -- Global Edge Network



AWS Network and Content Delivery



Amazon Virtual Private Cloud (Amazon VPC) lets you provision a logically isolated section of the AWS Cloud where you can launch AWS resources in a virtual network that you define.

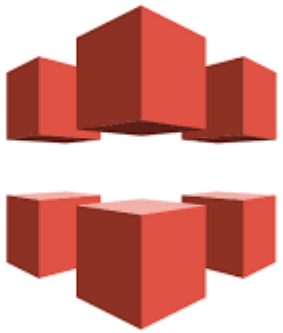


Amazon Route 53 is a highly available and scalable cloud [Domain Name System \(DNS\)](#) web service.

AWS Network and Content Delivery



Amazon CloudFront is a fast content delivery network (CDN) service that securely delivers data, videos, applications, and APIs to customers globally with low latency, high transfer speeds



AWS Direct Connect is a cloud service solution that makes it easy to establish a dedicated network connection from your premises to AWS.

AWS Compute



Amazon Elastic Compute Cloud (Amazon EC2) is a web service that provides secure, resizable compute capacity in the cloud.



AWS Elastic Beanstalk is an easy-to-use service for deploying and scaling web applications and services.

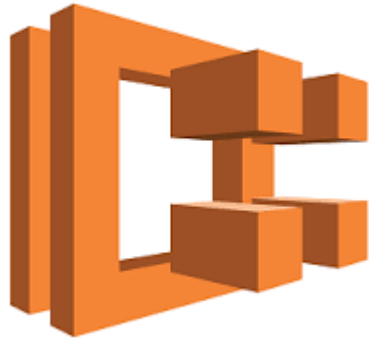


AWS Lambda lets you run code without provisioning or managing servers.

AWS Compute



Lightsail is an easy-to-use cloud platform that offers everything needed to build an application or website, on a cost-effective, monthly plan.



Amazon EC2 Container Service is a highly scalable, high performance container management service that supports Docker containers and allows you to easily run distributed applications on a managed cluster of Amazon EC2 instances.

AWS Storage



Amazon Simple Storage Service (Amazon S3) is an object storage service that offers industry-leading scalability, data availability, security, and performance.



Amazon S3 Glacier and **S3 Glacier Deep Archive** are a secure, durable, and extremely low-cost Amazon S3 cloud storage classes for data archiving and long-term backup.

AWS Storage



Elastic File System (EFS) provides a simple, scalable, fully managed elastic NFS file system for use with AWS Cloud services and on-premises resources.



AWS Storage Gateway is a hybrid cloud storage service that gives you on-premises access to virtually unlimited cloud storage.

AWS Databases



Amazon Relational Database Service (RDS) makes it easy to set up, operate, and scale a relational database in the cloud.



Amazon DynamoDB is a key-value and document database that delivers single-digit millisecond performance at any scale. It's a fully managed, multiregion, multimaster, durable database with built-in security, backup and restore, and in-memory caching for internet-scale applications.

AWS Databases



Amazon Redshift is a fully managed, petabyte-scale data warehouse service in the cloud.



Amazon ElastiCache allows you to seamlessly set up, run, and scale popular open-Source compatible in-memory data stores in the cloud.

AWS Migration



AWS Snowball is a data transport solution that accelerates moving terabytes to petabytes of data into and out of **AWS** using storage appliances designed to be secure for physical transport.



AWS Server Migration Service (SMS) is an agentless service which makes it easier and faster for you to migrate thousands of on-premises workloads to AWS.



AWS Database Migration Service helps you migrate databases to AWS quickly and securely.

AWS Security and Identity



AWS Identity and Access Management (IAM) enables you to manage access to AWS services and resources securely.



AWS Certificate Manager is a service that lets you easily provision, manage, and deploy public and private Secure Sockets Layer/Transport Layer Security (SSL/TLS) certificates.



AWS WAF is a web application firewall that helps protect your web applications or APIs against common web exploits that may affect availability, compromise security, or consume excessive resources.

AWS Security and Identity



Amazon Inspector is an automated security assessment service that helps improve the security and compliance of applications deployed on AWS.



AWS Directory Service for Microsoft Active Directory, also known as AWS Managed Microsoft AD, enables your directory-aware workloads and AWS resources to use managed Active Directory in the AWS Cloud.



AWS Artifact is your go-to, central resource for compliance-related information that matters to you.

AWS Management Tools



Amazon CloudWatch provides you with data and actionable insights to monitor your applications, respond to system-wide performance changes, optimize resource utilization, and get a unified view of operational health.



AWS CloudFormation provides a common language for you to model and provision AWS and third party application resources in your cloud environment.



AWS CloudTrail is a service that enables governance, compliance, operational auditing, and risk auditing of your AWS account.

AWS Management Tools



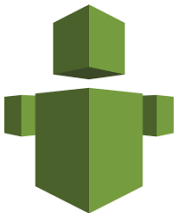
AWS OpsWorks is a configuration management service that provides managed instances of Chef and Puppet. Chef and Puppet are automation platforms that allow you to use code to automate the configurations of your servers.



AWS Config is a service that enables you to assess, audit, and evaluate the configurations of your AWS resources.



AWS Service Catalog allows organizations to create and manage catalogs of IT services that are approved for use on AWS.



AWS Trusted Advisor is an online tool that provides you real time guidance to help you provision your resources following AWS best practices.

AWS Desktop and App Streaming

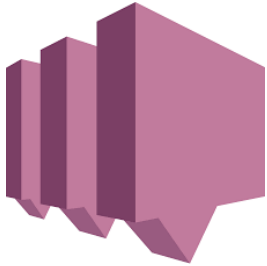


Amazon WorkSpaces is a managed, secure [Desktop-as-a-Service \(DaaS\)](#) solution.



Amazon AppStream 2.0 is a fully managed application streaming service. You centrally manage your desktop applications on AppStream 2.0 and securely deliver them to any computer.

AWS Messaging



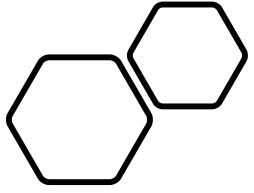
Amazon Simple Notification Service (SNS) is a highly available, durable, secure, fully managed pub/sub messaging service that enables you to decouple microservices, distributed systems, and serverless applications.



Amazon Simple Queue Service (Amazon SQS) offers a secure, durable, and available hosted queue that lets you integrate and decouple distributed software systems and components.



Amazon Simple Email Service (Amazon SES) is a cloud-based email sending service designed to help digital marketers and application developers send marketing, notification, and transactional emails.



AWS Services Continued



DEVELOPER
TOOLS



ANALYTICS



APPLICATION
SERVICES



MOBILE
SERVICES



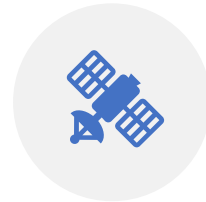
BUSINESS
PRODUCTIVITY



IOT



ARTIFICIAL
INTELLIGENCE



SATELLITE

AWS Support Plans

- Basic
- Developer
- Business
- Enterprise



AWS Compliance

- Compliance Certifications
 - FIPS
 - FedRAMP
- Laws, Regulations, Privacy
 - FERPA
 - HIPAA
- Compliance Alignments/Frameworks
 - NIST
 - CIS

Key AWS Certifications and Assurance Programs



AWS Terminology

AWS	Information Technology Field
EC 2 Instances	Virtual Machines Servers
Amazon Machine Image (AMI)	Template (OVA, OVF)
Elastic Block Storage (EBS)	Volume/Hard Disk/Virtual Disk
Ephemeral Storage	Temporary Storage
Simple Storage Services (S3)	Object based Storage
EC2 Compute Unit (ECU)	Measure of EC2 Processor
vCPU	Virtual CPU
Identity and Access Management (IAM)	Delegated Administration
Elastic Load Balancer (ELB)	Load Balancer
Route 53	Domain Name Service (DNS)



Shared Security Model

AWS Responsibility	Our Responsibility
Virtual Host Security	AWS Account Security
Storage Security	Operating System
Network Security	Database
Data Center Security	Applications
Database Security	Data encryption
	Authentication
	Network Integrity



Questions?

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