

AWS Certified Solutions Architect — Associate (SAA-C02)



Introduction



Faizal Khan

Founder & CEO
Ecomm India Cloud IT

- ❏ Digital Transformation to the AWS cloud
- ❏ Cloud Architecting, Implementation & Monitoring
- ❏ 16 Years of IT Infrastructure Management Experience
- ❏ JP Morgan Chase, Bank of America, Dell, ITC

Agenda

 About the Course

 Course Duration

 Training Do's & Don'ts

 Topics

 Pre-requisites

About the Course

- 📦 Focuses on cloud Architecture and administering services within AWS.
- 📦 Needs a good understanding of IT Infrastructure.
- 📦 Covers AWS sysops & developer tools from an architect perspective.
- 📦 Focused on knowledge & hands-on than remembering answers.
- 📦 Intended to make you a thorough cloud professional.
- 📦 Opens up other specializations on the cloud.

Course Duration

- 📦 4 Week Course.
- 📦 5 days a week Monday thru Friday.
- 📦 Up to 2.5hrs per day in a single session.
- 📦 Session time includes both theory & hands-on labs.

Dos & Don'ts

- ❏ Join the session on time or few mins before it starts. Topics you missed will not be repeated making it difficult to grasp the entire concept.
- ❏ Keep the mic muted when not speaking and after asking a question.
- ❏ Be courteous and respectful to everyone in the batch.
- ❏ Do not argue or constantly interrupt. If you disagree on a point, save the conversation for after the session.
- ❏ Wait for a topic to be explained in full before raising questions.
- ❏ Do not answer questions asked by others unless you've been called upon.
- ❏ Do not hoard the mic and time and use up all the question time. Allow others to ask their questions as well.
- ❏ Delete all resources created during the labs after each session is over.

Course Core Topics

- 1 Intro to Cloud Computing & AWS
- 2 EC2 Instances
- 3 EBS Volumes
- 4 Elastic Load balancers (ELB)
- 5 S3 Storage & Glacier
- 6 EFS, FSx, Storage GW & Snow
- 7 Virtual Private Cloud (VPC)
- 8 Route53 DNS
- 9 Security - IAM & Encryption (KMS)
- 10 Databases 1 — RDS & Aurora
- 11 Databases 2 — DynamoDB & ElastiCache
- 12 CI/CD through Elastic Beanstalk
- 13 CloudFront & Global Accelerator
- 14 CloudWatch & Autoscaling
- 15 CloudFormation & CLI
- 16 ECS, EKS, Lambda & API GW
- 17 SQS, Kinesis, SNS, SES & MQ
- 18 Other AWS Services
- 19 Project
- 20 Organization Billing & Exam Review

Pre-requisites

- 📦 Create a free AWS Account.
- 📦 Personal Computer or work system without security limitations.
i.e. ability to install applications like Putty, HeidiSQL etc.
- 📦 Domain Name for Route 53 (Free for attendees)

Agenda

- 📦 Introduction to Cloud Computing
- 📦 Cloud Service Models & Deployment Models
- 📦 Introduction to AWS
- 📦 AWS Global Infrastructure (Regions & AZs)
- 📦 AWS Shared Security Model
- 📦 Q & A

Module 1

Introduction to Cloud Computing

Cloud Computing Fundamentals

📦 What is the “Cloud”?



What is the "Cloud"?



What is the "Cloud"?



What is the "Cloud"?



Cloud Computing Fundamentals

What is the "Cloud"?



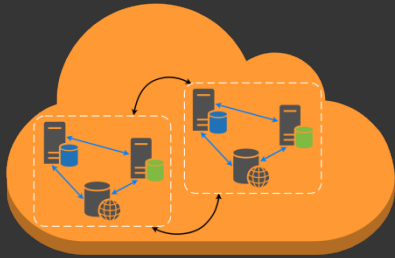
What is the "Cloud"?



Multiple Systems working together to act like a single system



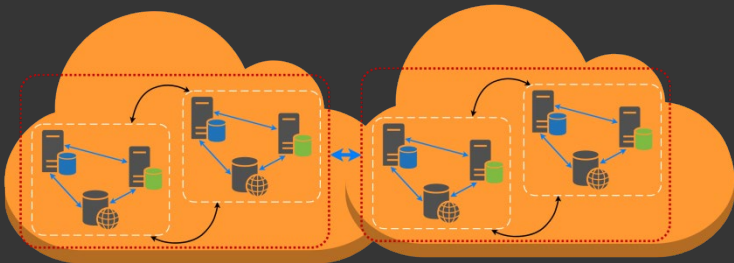
Cloud



Multiple groups of cloud systems supporting the same functions



Load Balanced Cloud



Multiple data centers that have multiple groups of cloud systems performing the same functions



Multi-Region / High Availability Cloud

Cloud Computing Fundamentals

What is the “Cloud”?

The NIST definition lists five essential characteristics of cloud computing:

1. On-demand self-service
2. Broad network access
3. Resource pooling
4. Rapid elasticity or expansion
5. Measured service

Cloud Computing Models

3 Types of “**Service Models**”

(Software, Platform and Infrastructure)

3 Types of “**Deployment models**”

(Private, Public and Hybrid)

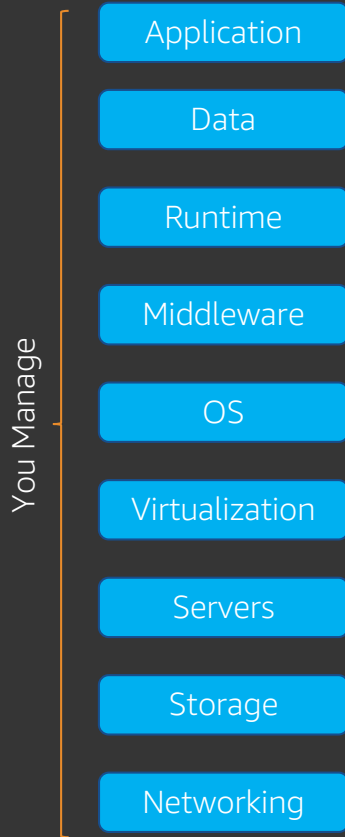
Cloud Servicing Models

SaaS (Software as a Service)

PaaS (Platform as a Service)

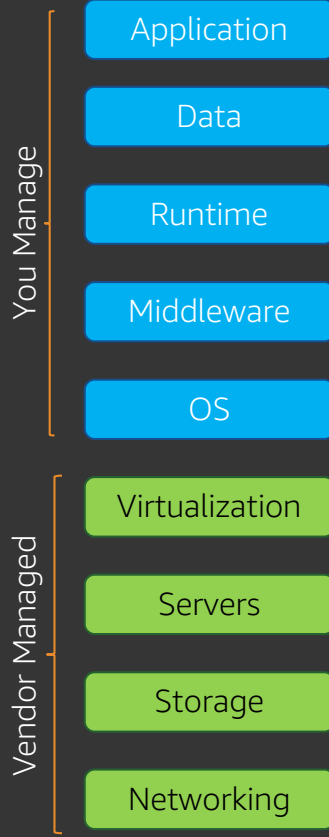
IaaS (Infrastructure as a Service)

Private



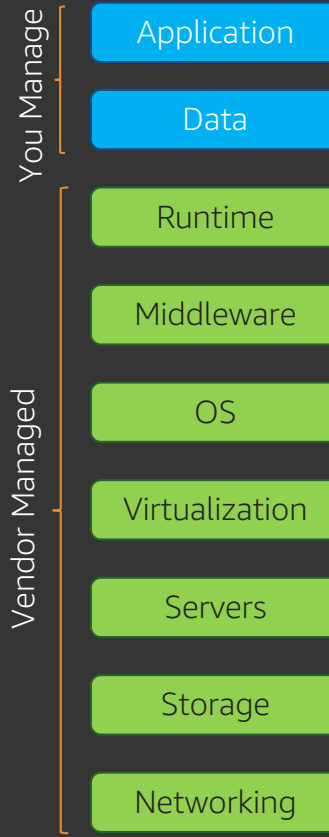
IAAS

Infrastructure as a service



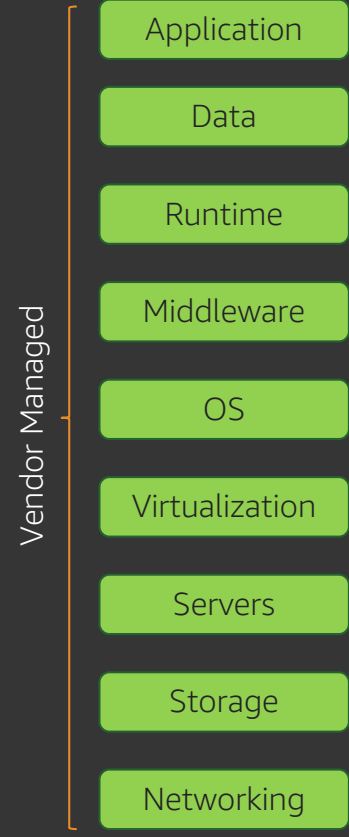
PAAS

Platform as a service



SAAS

Software as a service



Cloud Deployment Models

Private

Privately Built Cloud e.g. Openstack

Public

AWS, Azure, Google Cloud

Hybrid

Combination of Private & Public

Leading Cloud Providers





History & Introduction to AWS

Introduction to AWS

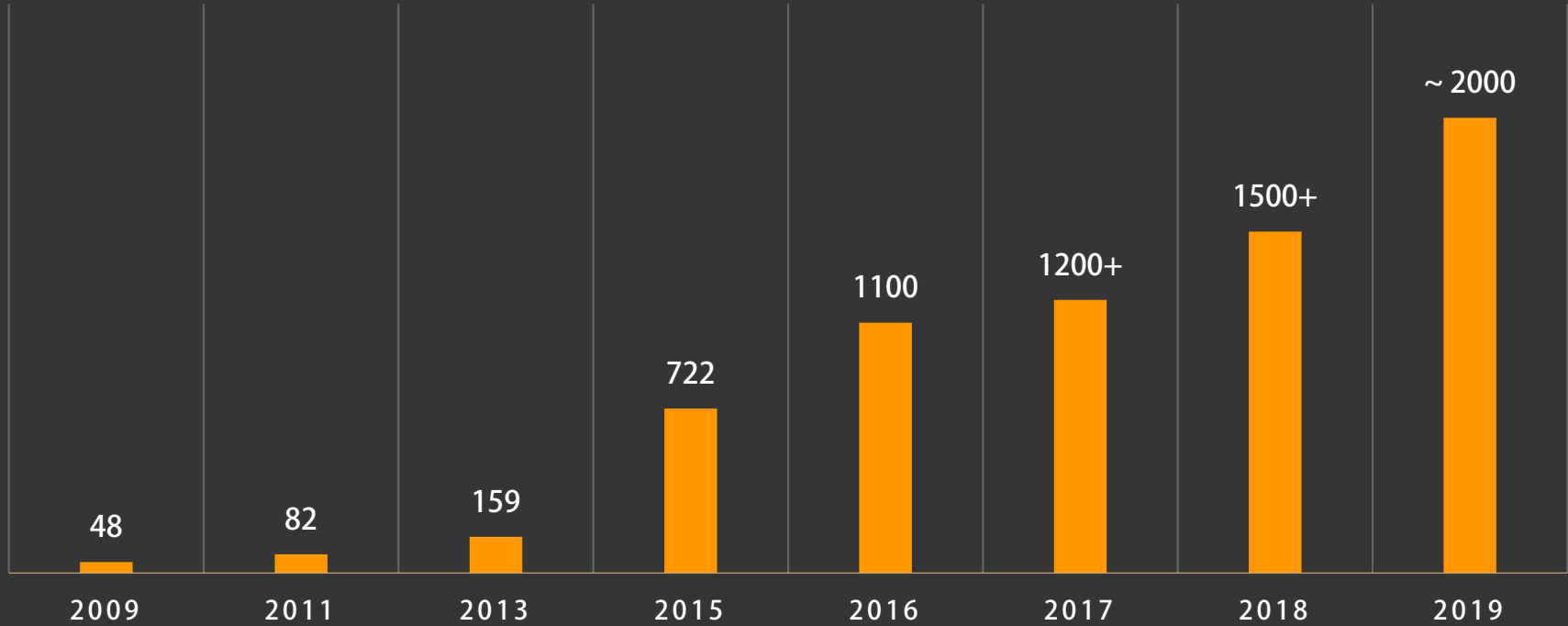
- 📦 Officially Launched in 2006.
- 📦 First service – SQS (Simple Queuing Service)
- 📦 Designed from extensive knowledge building Amazon.com.
- 📦 Innovation and Customer Focused with millions of active users worldwide.
- 📦 Adds capacity equal to 1 Fortune 500 every single day.

What is AWS?

AWS is a Cloud Infrastructure & Services Platform that helps users build highly scalable cloud backends to deliver applications and services in a highly available & on-demand manner.

AWS RAPID PACE OF INNOVATION

■ Newly Launched Services & Features



4,000+

Services and Features

AWS Shield **AWS Lambda** **AWS Step Functions** **AWS Glue** **Amazon Athena** **Amazon Polly** **Amazon Lex** **Amazon Lightsail** **Amazon QuickSight** **AWS Greengrass** **Amazon Rekognition** **AWS X-Ray** **Amazon Machine Learning** **Amazon API Gateway** **AWS IoT**

AWS Import/Export Snowball AWS Storage Gateway Amazon Cognito
AWS OpsWorks AWS CodeCommit Amazon EC2 AWS CodeDeploy Amazon Config Amazon CloudTrail
AWS Elastic Transcoder Container Service Amazon Kinesis Amazon S3 Amazon Elasticsearch Service AWS Elastic Beanstalk
Amazon WorkMail Amazon EC2 Container Registry
Trusted Advisor Amazon EFS Amazon Redshift Amazon WorkDocs
Amazon AppStream Amazon Dynamo DB AWS CloudFormation
Amazon RDS for Aurora
AWS Device Farm
AWS Directory Service
AWS Mobile Hub
Amazon CloudSearch Amazon CloudWatch Logs Amazon Mobile Analytics
Amazon Inspector AWS Service Catalog
AWS Direct Connect

AWS positioned as a leader in the Gartner Magic Quadrant for Cloud Infrastructure as a Service (IAAS)

AWS is positioned highest in execution and furthest in vision within the Leaders Quadrant

Figure 1. Magic Quadrant for Cloud Infrastructure as a Service, Worldwide



*Gartner, Magic Quadrant for Cloud Infrastructure as a Service, Worldwide, Smith, Dennis, Leong, Lydia, Bala, Raj, May 2018, G00336148

This graphic was published by Gartner, Inc. as part of a larger research document and should be evaluated in the context of the entire document. The Gartner document is available upon request from AWS - <https://www.gartner.com/doc/reprints?id=1-26205FC&t=150519&st=sp>

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TECHNICAL & BUSINESS SUPPORT

- Support
- Professional Services
- Optimization Guidance
- Partner Ecosystem
- Training & Certification
- Solutions Management
- Account Management
- Security & Billing Reports
- Personalized Dashboard

MARKETPLACE

- Business Apps
- Business Intelligence
- DevOps Tools
- Security
- Networking
- Databases
- Storage

ANALYTICS

- Data Warehousing
- Business Intelligence
- Hadoop/Spark
- Streaming Data Analysis
- Streaming Data Collection

- Elasticsearch
- Data Pipelines
- Interactive SQL Queries
- ETL

APP SERVICES

- Queueing & Notifications
- Email
- Workflow
- Transcoding
- Search

DEV/OPS

- One-Click App Deployment
- Resource Templates
- Build and Test
- Application Lifecycle Management
- DevOps Resource Management
- Triggers
- Containers
- Analyze and Debug

MOBILE SERVICES

- API Gateway
- Single Integrated Console
- Identity
- Sync
- Mobile Analytics
- Mobile App Testing
- Targeted Push Notifications

IoT

- Rules Engine
- Device Shadows
- Device SDKs
- Device Gateway
- Registry
- Local Compute

AI

- Machine Learning
- Image Recognition
- Text to Speech
- Conversational Interface
- Deep Learning Frameworks

ENTERPRISE APPS

- Virtual Desktops
- Sharing & Collaboration
- Corporate Email
- App Streaming
- Communications

HYBRID ARCHITECTURE

- Data Integration
- Integrated Networking
- Integrated Identity & Access
- Integrated Resource & Deployment Management
- Integrated Devices & Edge Systems

MIGRATION

- Schema Conversion
- Exabyte-Scale Data Migration
- Application Migration
- Database Migration
- Server Migration

INFRASTRUCTURE

- Regions
- Availability Zones
- Points of Presence

CORE SERVICES

- Compute: VMs, Auto Scaling, Load Balancing, Containers, Virtual Private Servers, Batch Computing, Cloud Functions, Elastic GPUs, Edge Computing
- Storage: Object, Blocks, File, Archivals, Import/Export, Exabyte-Scale Data Transfer
- Databases: Relational, NoSQL, Caching, Migration, PostgreSQL compatible
- Networking: VPC, DX, DNS
- CDN

SECURITY & COMPLIANCE

- Identity Management
- Access Control
- Monitoring & Logs
- Assessment & Reporting
- Web Application Firewall
- Configuration Compliance
- Key Management & Storage
- Account Grouping
- Resource & Usage Auditing
- DDOS Protection

MANAGEMENT TOOLS

- Manage Resources
- Service Catalog
- Configuration Tracking
- Monitoring
- Server Management
- Resource Templates

Module 3

Regions

Availability Zones

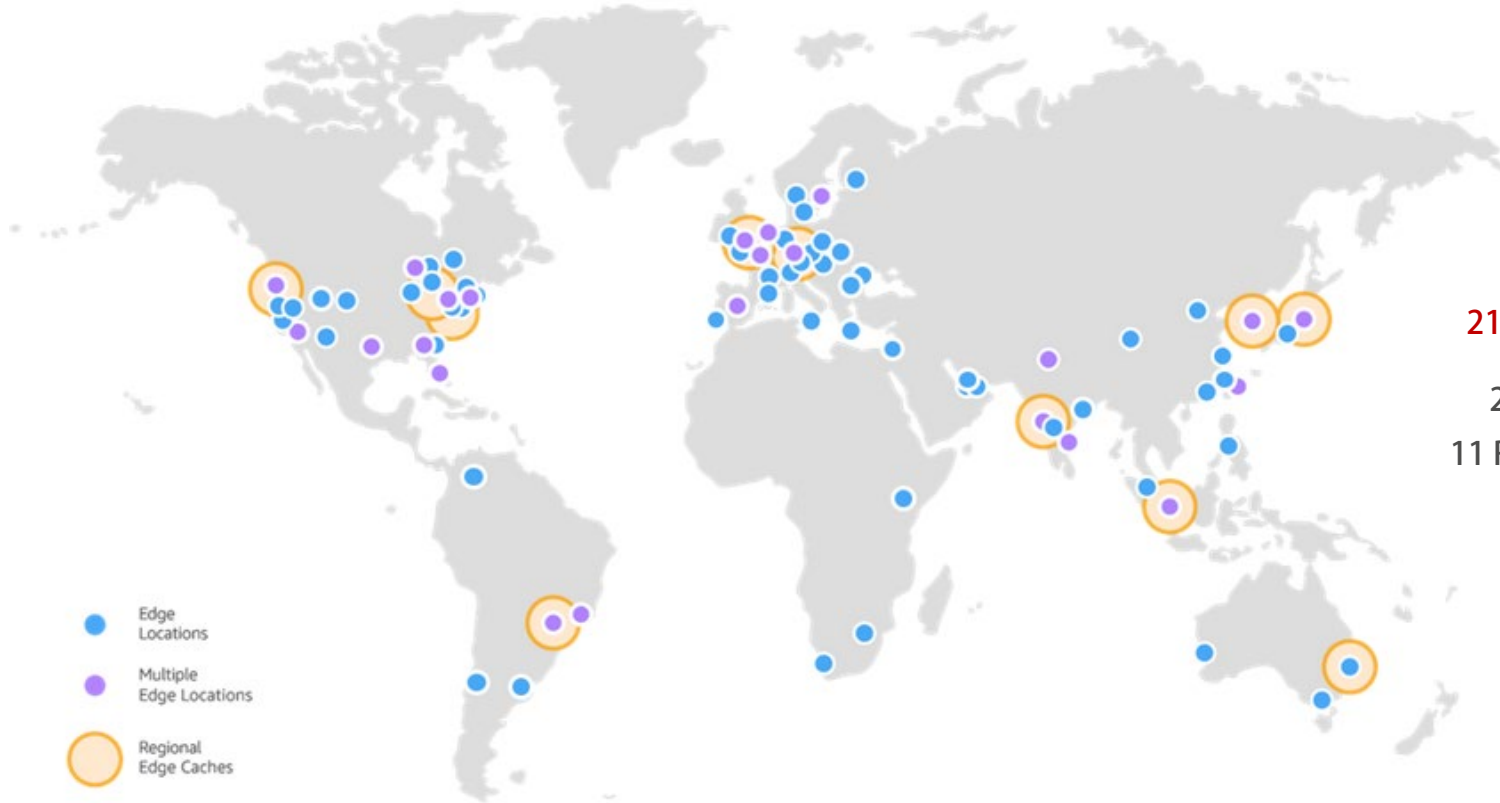
Points of Presence

CORE GLOBAL INFRASTRUCTURE

AWS Regions



AWS Edge Locations



216 Points of Presence

205 Edge Locations

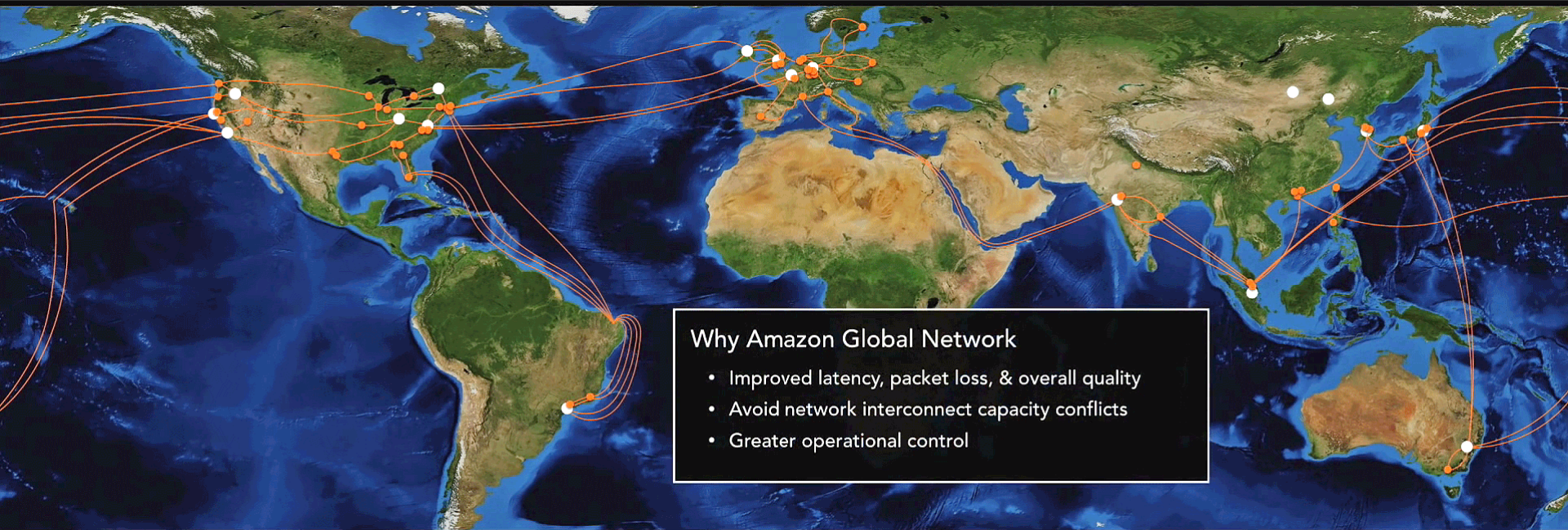
11 Regional Edge Caches

84 cities

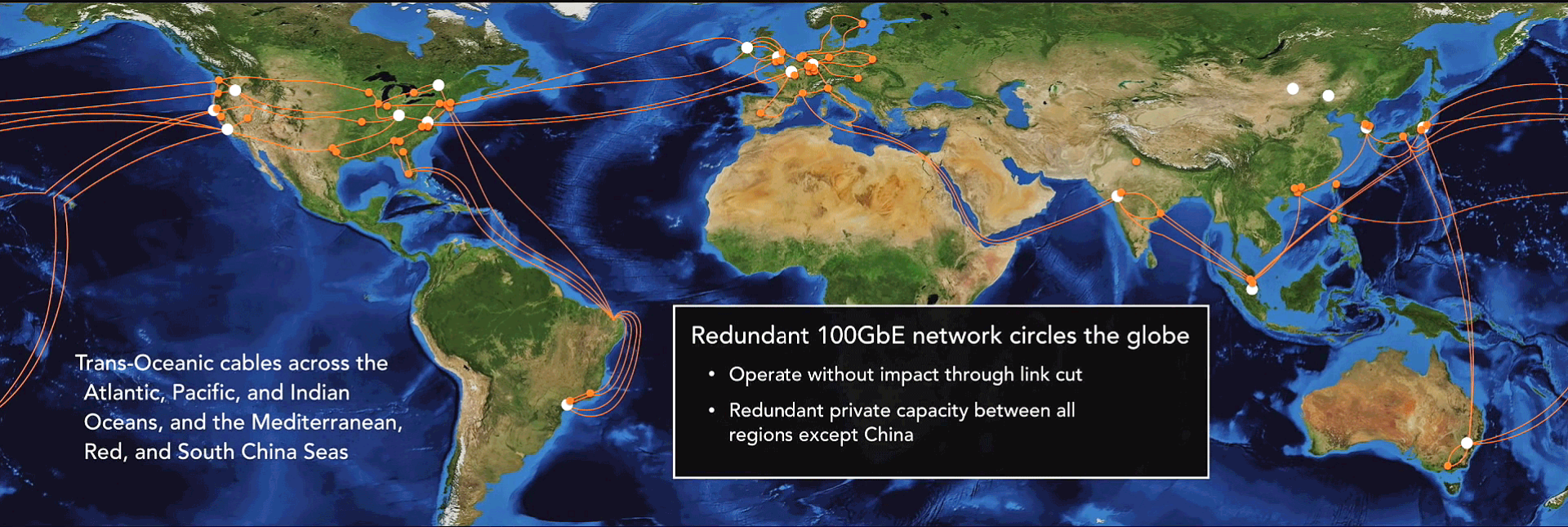
42 countries

- Edge Locations
- Multiple Edge Locations
- Regional Edge Caches

AWS Global Network



AWS Global Network



Visualization >>

Regions & Availability Zones

Regions

- 📦 Geographic locations
- 📦 Consists of at least two Availability Zones(AZs)




Availability Zones

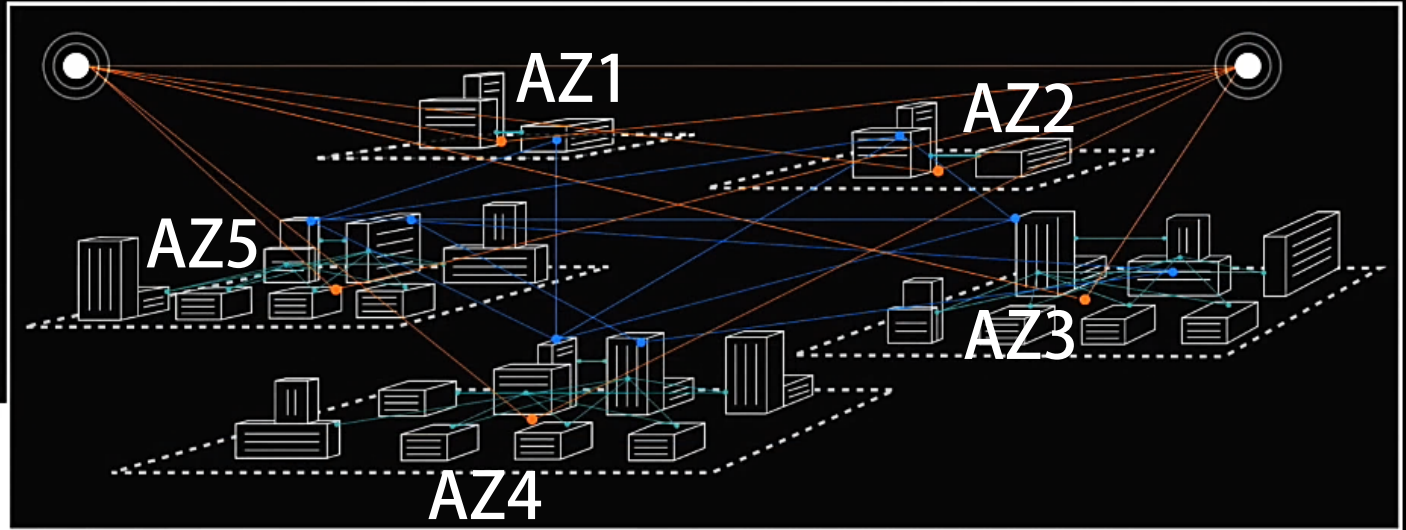
- 📦 Clusters of data centers
- 📦 Isolated from failures in other Availability Zones

Multi-AZ Connectivity

METRO FIBER

- 126 unique spans
- 242,472 total fiber strands
- AWS is the first company to deploy 3,456 fiber count cable

-  Transit Center connections
-  Inter-AZ connections
-  Intra-AZ connections



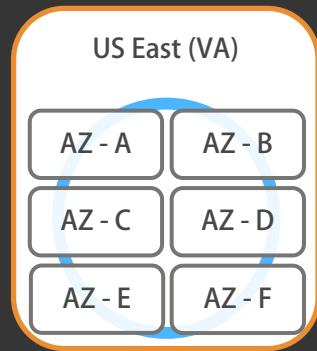
Availability Zones

At least 2 AZs per region.

Examples:

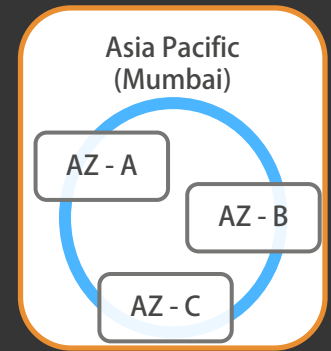
➤ US East (N. Virginia)

- us-east-1a
- us-east-1b
- us-east-1c
- us-east-1d
- us-east-1e
- us-east-1f



➤ Asia Pacific (Mumbai)

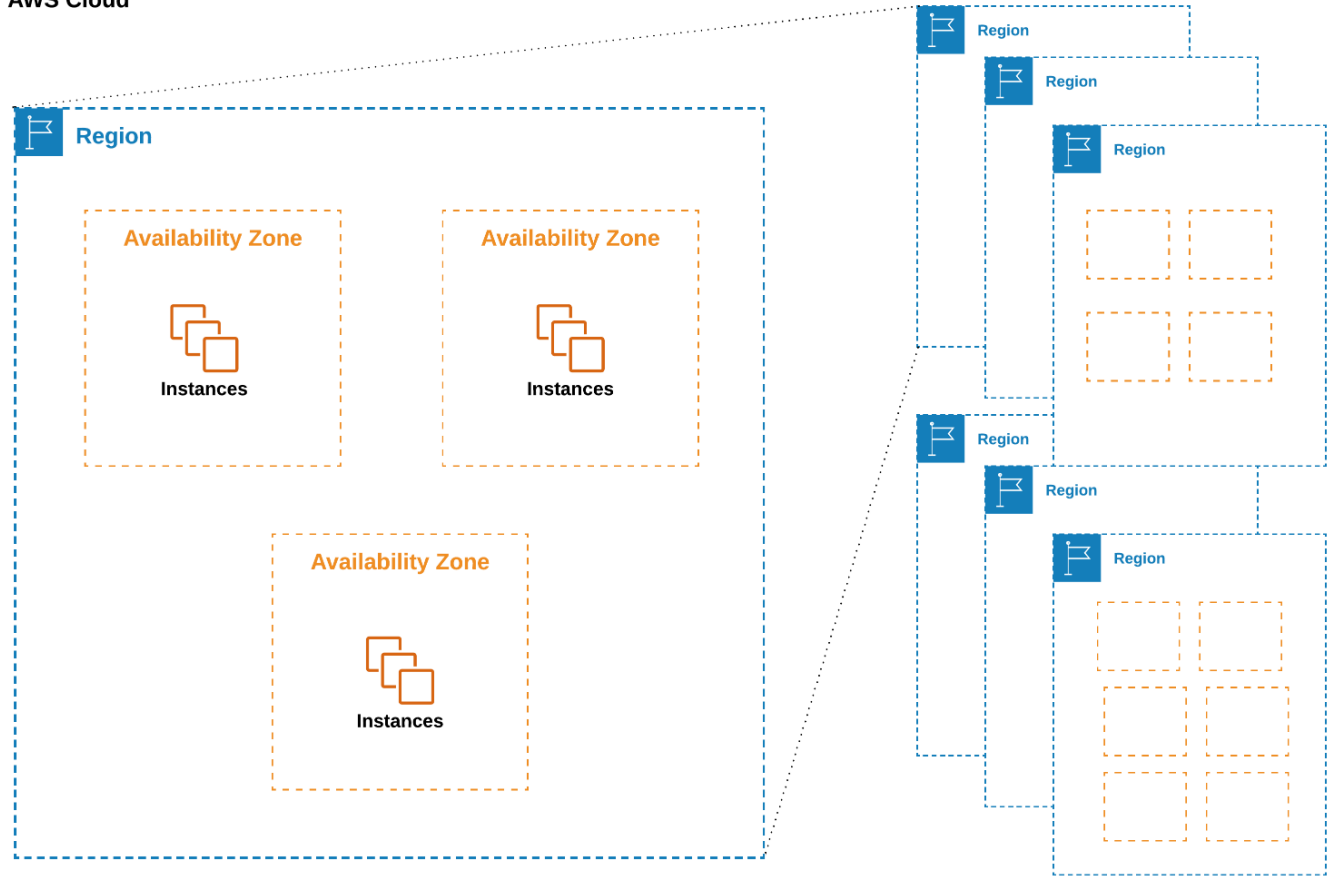
- ap-south-1a
- ap-south-1b
- ap-south-1c



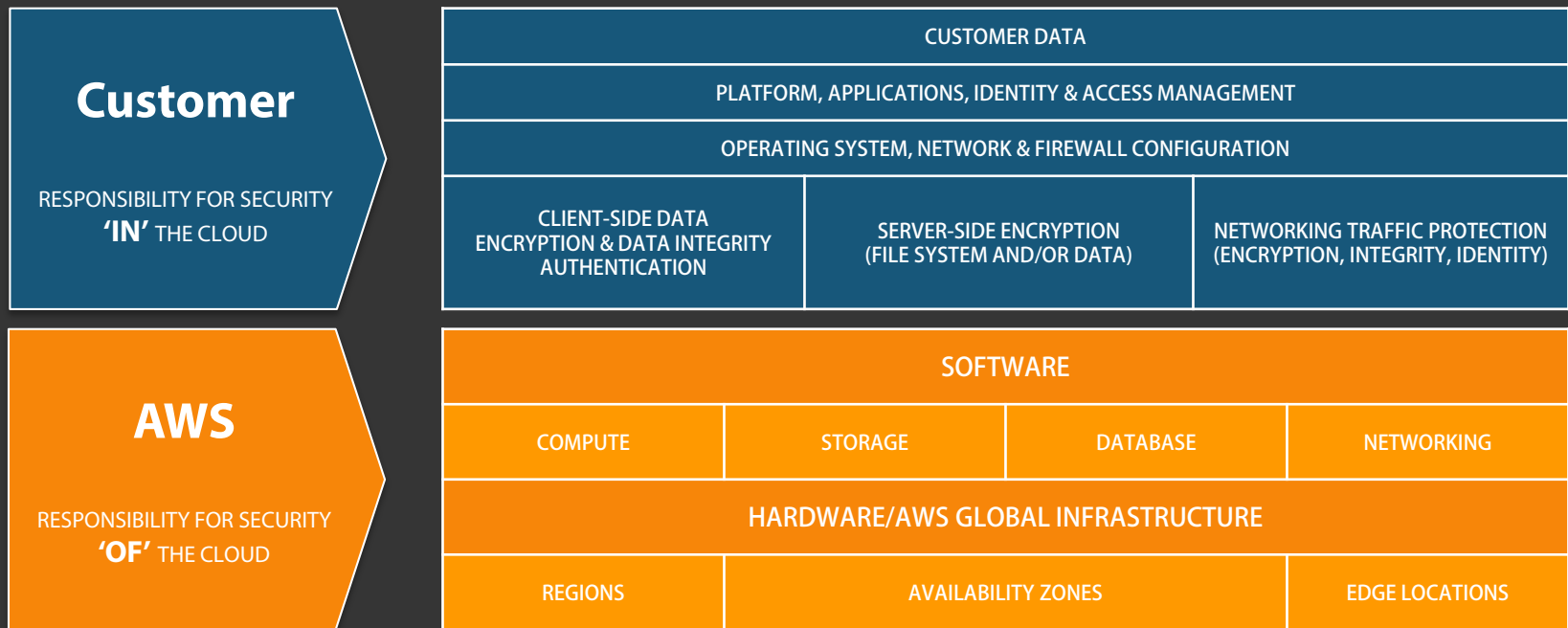
Note: Conceptual drawing only. The number of Availability Zones (AZ) may vary.



High Availability with Multi-AZ



AWS Shared Responsibility Model



Thank You!

Q & A

TO DO Tasks:

- Register for Free AWS Account
- Verify Training Portal Access