Introduction to Cloud Computing and AWS

What's in it for you

Introduction to Cloud Computing		
S.NO.	**AGENDA**	**TIME SLOT**
1	Introduction to Cloud Computing	15 mins
2	Introduction to AWS Cloud	15 mins
3	Different Services Offered by AWS	15 mins
4	Queries & Break	15 mins

Speakers

Sanchit Jain

Lead Architect - AWS at Quantiphi
AWS APN Ambassador
2015 Batch Alumni

Jay Jain

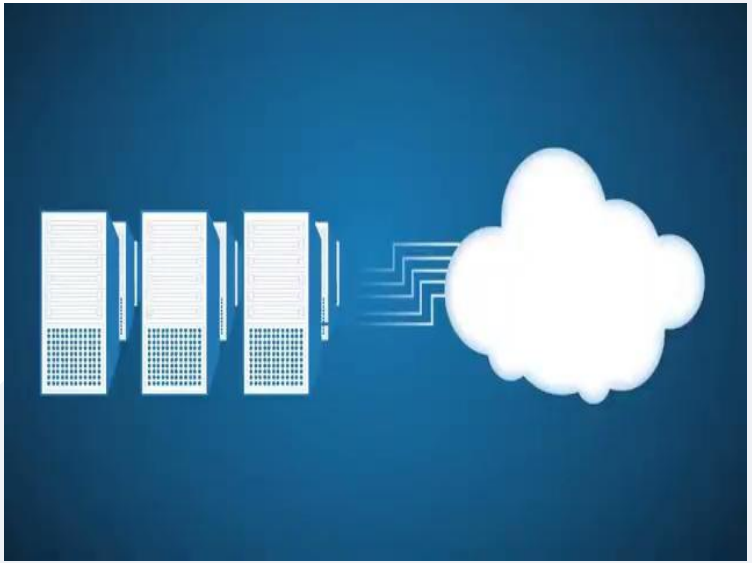
Sr. Data Engineer at Quantiphi
2018 Batch Alumni

Introduction to Cloud Computing

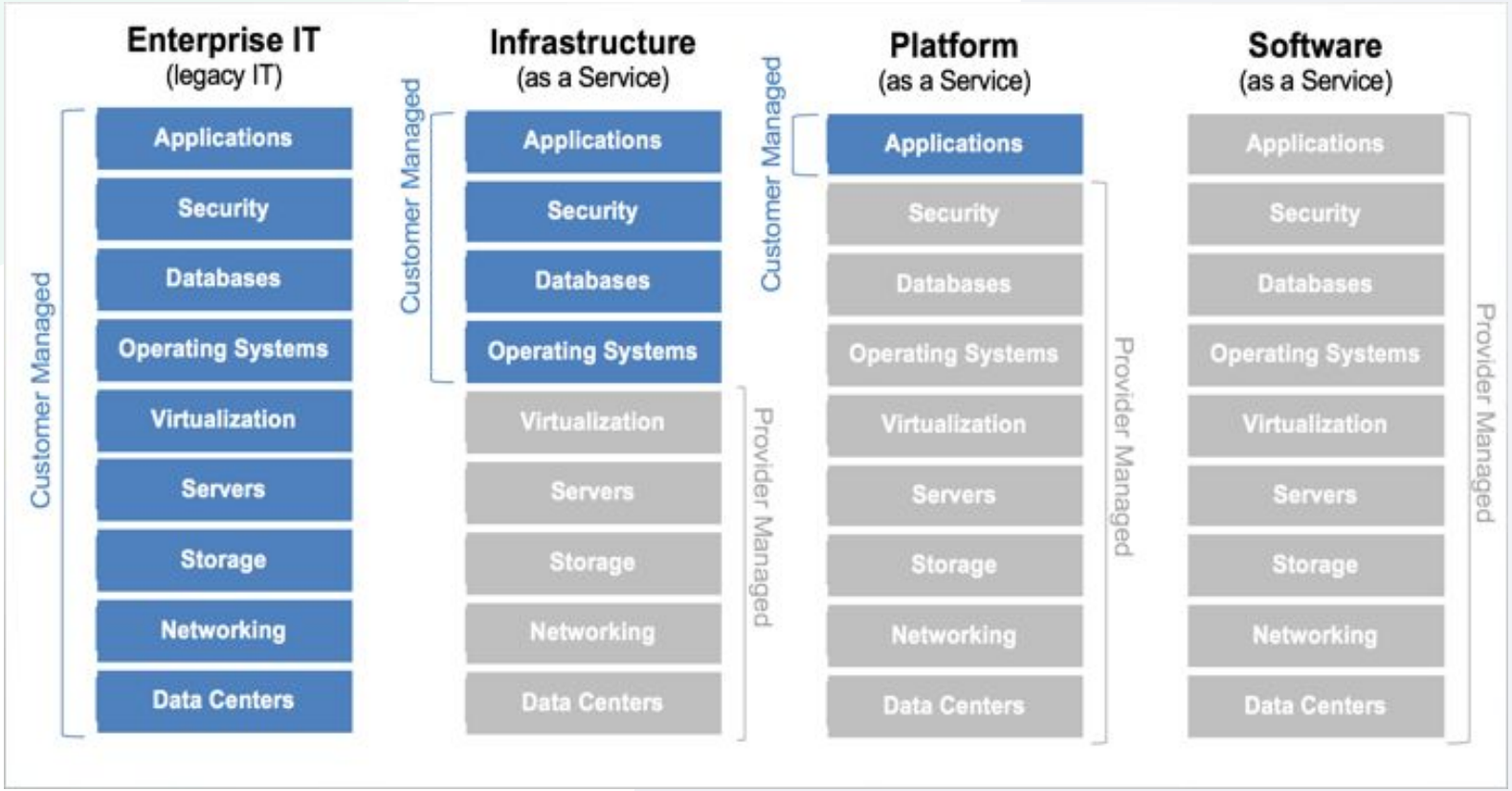
01

Introduction to Cloud Computing

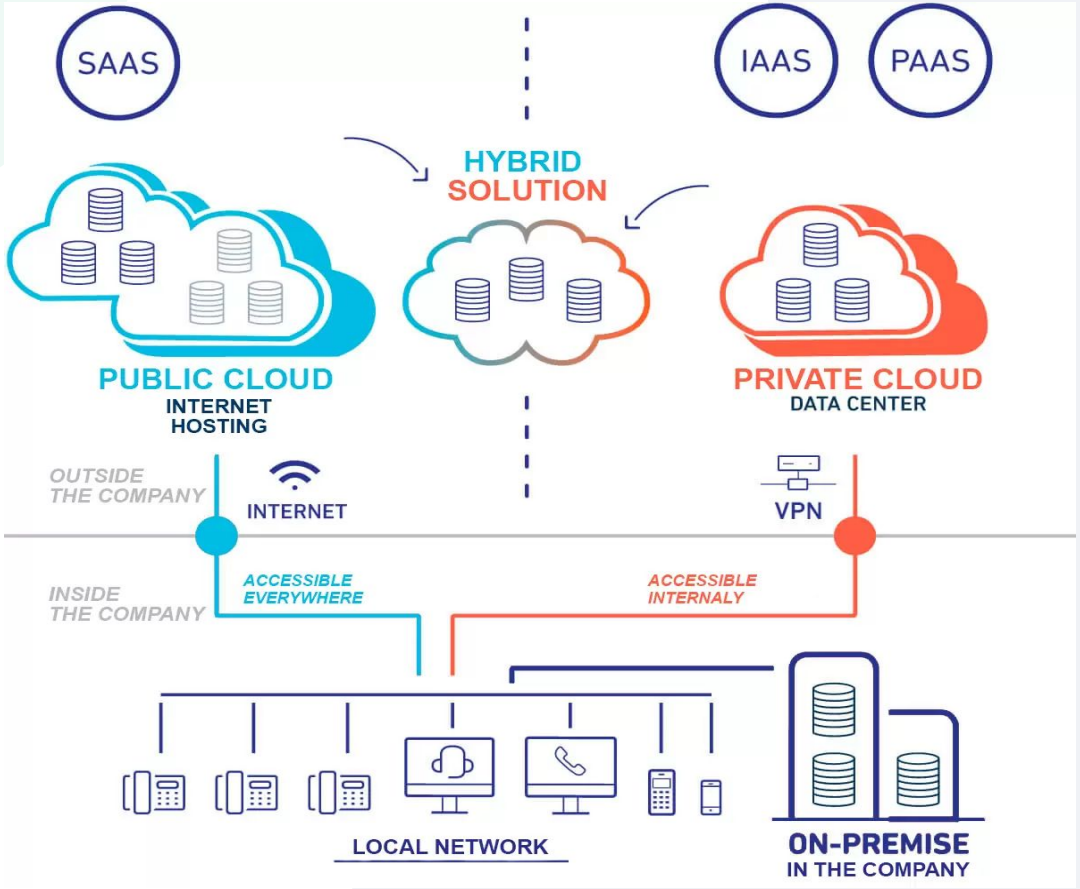
- Cloud computing is a general term for anything that involves delivering hosted services over the internet.
- Cloud computing is the on-demand delivery of compute power, database storage, applications, and other IT resources through a cloud services platform via the internet with pay-as-you-go pricing.
- Cloud computing has three main types:
  - ➔ *Infrastructure as a Service (IaaS)*
  - ➔ *Platform as a Service (PaaS)*
  - ➔ *Software as a Service (SaaS)*



Introduction to Cloud Computing

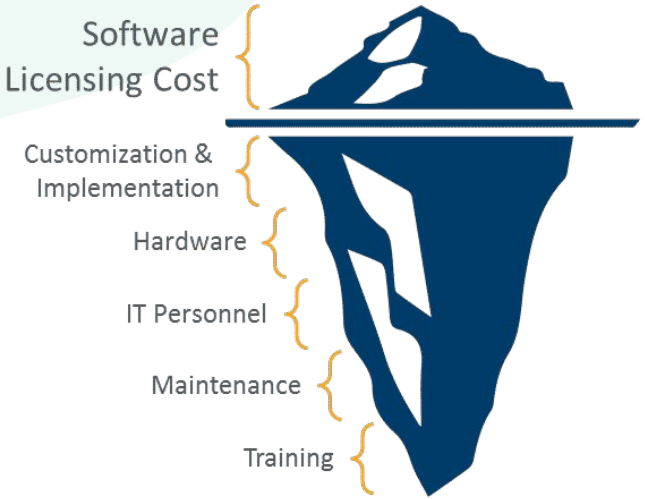


On-Premise vs Cloud Computing



On-Premise vs Cloud Computing

On-Premises



Ongoing Costs

- Apply patches, upgrades
- Downtime
- Performance tuning
- Rewrite customizations
- Rewrite integrations
- Upgrade dependent applications
- Ongoing burden on IT (hardware)
- Maintain/upgrade network
- Maintain/upgrade security
- Maintain/upgrade database

Cloud Computing

Ongoing Costs

- Subscription fees
- Training
- Configuration
- System Administration

Introduction to Cloud Computing

- A cloud can be:

  ➔ **Public** - sells services to anyone on the internet.
  ➔ **Private** - a proprietary network or a data center that supplies hosted services to a limited number of people.
  ➔ **Hybrid** - a combination of public cloud services and an on-premises private cloud, with orchestration and automation between the two.

- **Cloud computing characteristics and benefits**:

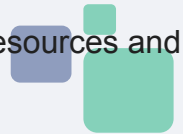
  ➔ **Self-service provisioning** - End users can spin up compute resources, for almost any type of workload, on demand eliminating the need for IT administrators.

  ➔ **Elasticity** - Companies can scale up as computing needs increase and scale down again as demands decrease. This eliminates the need for massive investments in local infrastructure, which may or may not remain active.

  ➔ **Workload resilience** - Cloud service providers often implement redundant resources to ensure resilient storage and to keep users' important workloads running (often across multiple global regions).

  ➔ **Migration flexibility** - Organizations can move workloads to/from the cloud or to different cloud platforms as desired for better cost savings or to use new services as they emerge.

  ➔ **Pay per use** - Compute resources are measured at a granular level, enabling users to pay only for the resources and workloads they use - on a per-hour or per-second basis.

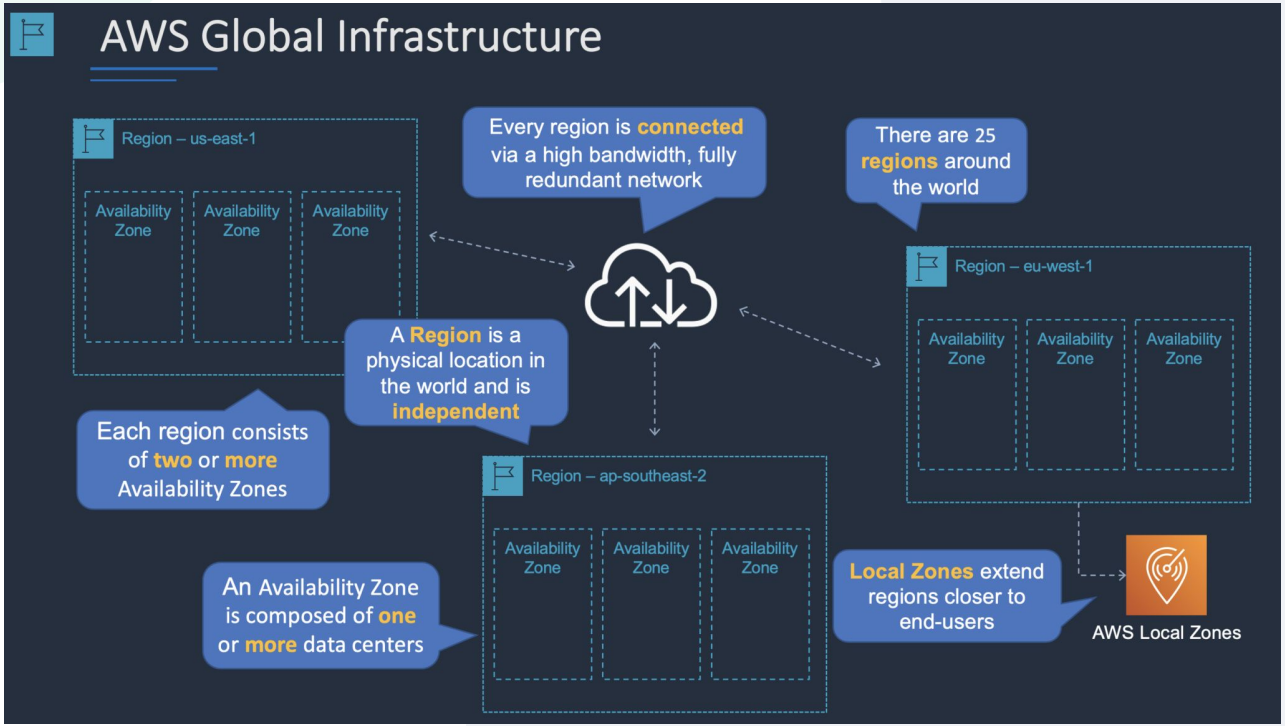


Introduction to AWS Cloud

02

Introduction to AWS

- Amazon Web Services (AWS) is a secure cloud services platform offering compute power, database storage, analytics, application and deployment services that help organizations move faster, lower IT costs, and scale applications.
- AWS provides services from dozens of data centers spread across availability zones (AZs) in regions across the world.



AWS Global Infrastructure Map

- The AWS Cloud spans 81 Availability Zones within 25 geographic regions around the world, with announced plans for 21 more Availability Zones and 7 more AWS Regions in Australia, India, Indonesia, Israel, Spain, Switzerland, and United Arab Emirates (UAE).

Introduction to AWS

- **Ways to interact with the services:**

  ➔ AWS Management Console
  ➔ Command-line Interface
  ➔ API Calls

- **Features:**

  ➔ ***Easy to use*** - AWS Management Console, CLI or APIs can be used to access AWS' application hosting platform.

  ➔ ***Flexible*** - Allows to select OS, programming language, web application platform, database, and other services.

  ➔ ***Cost-Effective*** - Pay only for the compute power, storage, and other resources you use, with no long-term contracts.

  ➔ ***Scalable & High-Performance*** - AWS tools, Auto Scaling, and Elastic Load Balancing help applications to scale up or down based on demand.

  ➔ ***Secure*** - AWS utilizes an end-to-end approach to secure and harden infrastructure, including physical, operational, and software measures.

- **Pricing:**

  ➔ ***Per Second Billing*** - Customers are charged only for the time they have actually used the resource.
  ➔ ***Discount*** - Reserved instances provide up to 75% over equivalent on demand capacity.

Services Offered by AWS

03

Different Services Offered by AWS

- **Computing Services**

  ➔ ***Amazon Elastic Cloud Compute (EC2)*** - is a web service that provides resizable computing capacity - literally, servers in Amazon's data centers - to build and host software systems.

  ➔ ***AWS Elastic Beanstalk*** - helps to quickly deploy and manage applications in the AWS Cloud without worrying about the infrastructure that runs those applications. Handles the details of capacity provisioning, load balancing, scaling, and application health monitoring.

  ➔ ***AWS Lambda*** - is an event-driven, serverless computing service that runs code in response to events and automatically manages the computing resources required by that code.

- **Storage Services**

  ➔ ***Amazon Simple Storage Service (S3)*** - is storage for the internet to store and retrieve any amount of data at any time, from anywhere on the web.

  ➔ ***Amazon Elastic Block Store (EBS)*** - provides persistent block storage volumes for use with Amazon EC2. Each Amazon EBS volume is automatically replicated within its Availability Zone to protect from component failure, offering high availability and durability.

  ➔ ***Amazon S3 Glacier*** - is a secure, durable, and extremely low-cost cloud storage service for data archiving and long-term backup. Provides query-in-place functionality to run powerful analytics directly on the archive data at rest.

Different Services Offered by AWS

- **Database Services**

  - ***Amazon Relational Database Service (RDS)*** - is a web service to set up, operate, and scale a relational database. Provides cost-efficient, resizable capacity for an industry-standard relational database and manages common database administration tasks.

  - ***Amazon Redshift*** - is a fast, fully managed, petabyte-scale data warehouse service that makes it simple and cost-effective to efficiently analyze all the data using existing business intelligence tools.

  - ***Amazon DynamoDB*** - Amazon DynamoDB is a key-value and document database that delivers single-digit millisecond performance at any scale.

- **Analytics Services**

  - ***Amazon Athena*** - is an interactive query service to analyze data in Amazon S3 using standard SQL. Athena is serverless, so there is no infrastructure to setup or manage, cost is incurred only for the queries that are run.

  - ***Amazon Elastic MapReduce (EMR)*** - provides a managed Hadoop framework that makes it easy, fast, and cost-effective to process vast amounts of data across dynamically scalable Amazon EC2 instances.

  - ***Amazon Glue*** - is a fully managed ETL service that makes it simple and cost-effective to categorize data, clean it, enrich it, and move it reliably between various data stores.

  - ***Amazon QuickSight*** - is a fast business analytics service to build visualizations, perform ad hoc analysis, and quickly get business insights from the data.

Different Services Offered by AWS

- **Management and Governance Services**

  ➔ ***Amazon CloudWatch*** - provides actionable insights to monitor applications, understand and respond to system-wide performance changes, optimize resource utilization and collects monitoring and operational data in the form of logs, metrics, and events.

  ➔ ***Amazon CloudTrail*** - is a service that enables governance, compliance, operational auditing, and risk auditing of the AWS account. Provides event history of the AWS account activity, including actions taken through the AWS Console, AWS SDKs, command line tools, and other AWS services.

- **Migration and Transfer Services**

  ➔ ***AWS Database Migration Service*** - is a web service to migrate data from an on-premise database, an Amazon RDS DB instance or a database on an Amazon EC2 instance to a database on an AWS service. You can also migrate a database from an AWS service to an on-premises database.

  ➔ ***AWS Snowball*** - is a petabyte-scale data transport solution that uses devices designed to be secure to transfer large amounts of data into and out of the AWS Cloud. No coding is required to transfer data. Simply a job needs to be created in the AWS Console and a Snowball device will be automatically shipped.

Different Services Offered by AWS

- **Machine Learning Services**

  ➔ ***Amazon SageMaker*** - is a fully managed machine learning service which helps data scientists and developers to quickly and easily build and train machine learning models, and then directly deploy into a production-ready hosted environment. Provides common machine learning algorithms that are optimized to run efficiently against extremely large data in a distributed environment.

  ➔ ***Amazon Rekognition*** - makes it easy to add image and video analysis to the applications. It can identify the objects, people, text, scenes, and activities, as well as detect any inappropriate content. Provides highly accurate facial analysis and facial recognition on images and videos.

  ➔ ***Amazon Translate*** - is a neural machine translation service for translating text to and from English across a breadth of supported languages.

- **Developer Tools**

  ➔ ***AWS CodeCommit*** - is a fully-managed source control service that hosts secure Git-based repositories. Makes it easy for teams to collaborate on code in a secure and highly scalable ecosystem.

  ➔ ***AWS CodeBuild*** - is a fully managed continuous integration service that compiles source code, runs tests, and produces software packages that are ready to deploy.

  ➔ ***AWS CodeDeploy*** - is a deployment service that enables developers to automate the deployment of applications to instances and to update the applications as required.

Queries ?

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THANK YOU