

Application Architecture

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-> In every application/project we can see below tiers

- 1) Presentation : It contains user interface
- 2) Application Tier : It contains core business logic
- 3) Data Tier : Database is used to store our application data permanently

Note: Every application should be deployed into a webserver so that users can access our application through internet

Load Balancing

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-> If we run our application in one server then burden will increase on that server

-> To reduce burden on the server, we will run our application in multiple servers to handle the load

Infrastructure Setup

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- 1) We have to purchase computers
- 2) We have to purchase Web servers
- 3) We have to purchase Database Servers
- 4) We have to purchase Network
- 5) We have to purchase Storage
- 6) We have to purchase Power & Power Backup
- 7) We need to setup Server room
- 8) We need to setup Air Conditioner (AC)
- 9) We need to hire Network Admin to setup network
- 10) We need to hire Server admin to setup servers
- 11) We need to hire DB admin to setup Database
- 12) We need to take a room for rent
- 13) We need a security guard to monitor our server room
- 14) We need to keep high security for our server room

=> To run our application we need do all the above activities i.e Infrastructure setup

=> Infrastructure setup is costly & time taking process.

=> To overcome all the above challenges we can go for Cloud Computing

What is Cloud Computing?

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=> It is the process of delivering IT resources on demand basis

Ex: Computing, Storage, Network, Database, Security etc...

=> There are several cloud providers available in the market

Ex: AWS, Azure, GCP, Salesforce, Alibaba, Oracle Cloud, IBM Cloud etc....

=> Cloud Providers will provide Infrastructure based on 'Pay As You Go' model

Note: Pay As you Go means Pay for use

Cloud Advantages

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- 1) Cost Effective
- 2) Security
- 3) Scalability
- 4) Availability
- 5) Reliability
- 6) Backup
- 7) Easy to use
- 8) Unlimited Storage

Cloud Services

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-> Cloud Services are divided into 3 types

- 1) IaaS : infrastructure as a service
- 2) PaaS : Platform as a service
- 3) SaaS : Software as a service

-> In IaaS model cloud provider will give infrastructure then we will setup environment to run our application

-> In PaaS model cloud provider will give platform to run our application

-> In SaaS model cloud provider will give their application to use

AWS Introduction

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-> AWS stands for Amazon Webservices

-> AWS cloud managing by Amazon company

-> AWS is one of the leading Cloud Provider in the market

-> AWS started providing IT resources over internet from 2006 onwards

-> 190+ countries using AWS Cloud

-> AWS providing 200+ Services

-> AWS providing Cloud Services based on 'Pay As You Go' model

AWS Services Names

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EC2 : Elastic Compute Cloud : To create virtual machines

EBS : Elastic Block Store (External HD)

S3 : Simple Storage Service : Unlimited Storage

RDS : Relational Database System : To create SQL Databases (Oracle, MySQL, Postgres, MS SQL etc..)

VPC : Virtual Private Cloud : Isolated Network

Route 53 : Domain Name Mapping (URL Mapping)

BeanStalk : For Paas Model

IAM : Identity & Access Management (who can access which service in AWS)

ECS : Elastic Container service (To run containers)

ELB : Elastic Load Balancer (Load Balancing)

Lambda : Serverless Computing (run the code without thinking about servers)

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-> To use AWS provided cloud services we need to create one account in AWS

Note: It will ask debit / credit card for account creation

-> AWS will charge 2 rs for account creation and they will send 2 rs back to our account after account verified

-> In AWS few services are free and few services are paid

-> As part of our training we will use both free and paid services

Note: When we use paid services, after practise completion we need to delete those service to avoid billing

-> If bill got generated we can request AWS Support team to waveoff our bill because we are AWS learners and we are exploring AWS Cloud services.

-> AWS will not deduct bill amount from our card directley. We need to pay that bill manually.

-> If we don't pay AWS bill amount then our AWS account will be terminated.

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