Dev-Ops

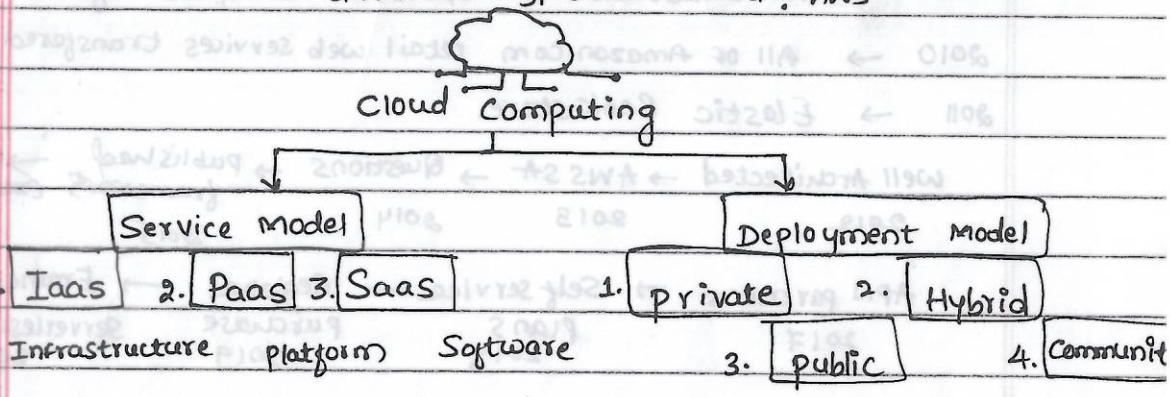
AWS Assignment

Apr-27

01) What is cloud? in AWS

"The cloud refers to the servers that are accessed over the internet, and the software and database that run on those servers

02) What are the different types of cloud? AWS



03) What is Scaling? AWS.

AWS Auto scaling monitors your applications and automatically adjus capacity to maintain steady, predictable performance at the low cos

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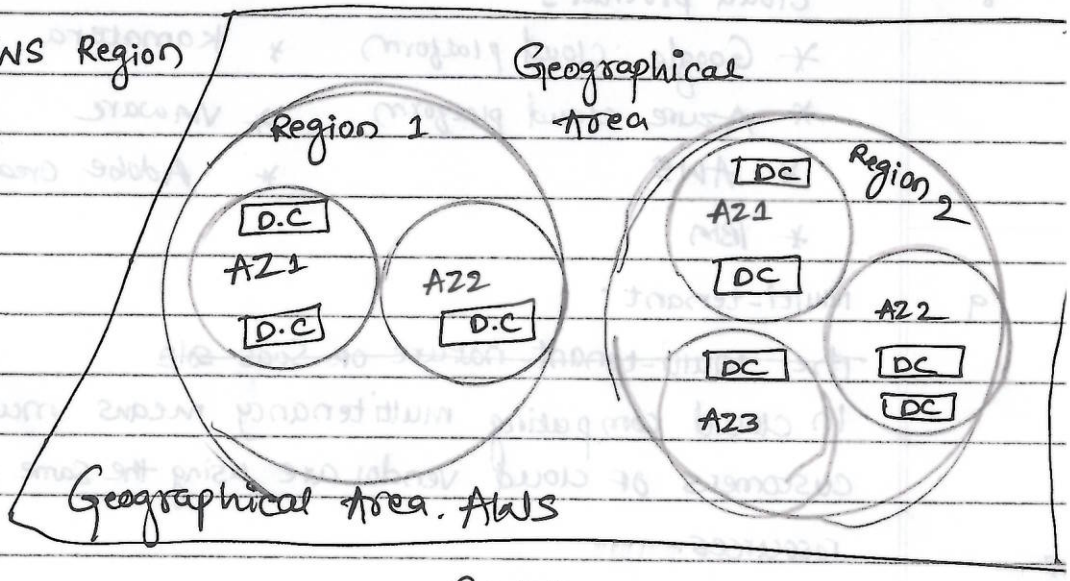
04) Horizontal Scaling → Increase/decrease Servers (scale in ↑ scale out ↓)

Vertical Scaling → Increase/Decrease capacity, Discs

05) AWS Region



Region

AZ - Availability Zone

DC - Data Centre

6. History OF AWS?

2003 → Benjamin Black & chris pinkman presented Amazon retail C.

2004 → Simple Queue service. (SQS)

2006 → Amazon was officially launched

2007 → Amazon stated that 1,80,000 developers signed AWS

2010 → All of Amazon.com retail web services transfered to AWS

2011 → Elastic Bookstore.

Well Architected (2012) → AWS SA (2013) → Questions (2014) → published framework (2015) → Operational Excellence (2016)

APN partners (2017) → Self service plans (2018) → Regional purchase (2019) → Framework Serverless Lens (2020)

7 AMI

Amazon Machine Image this is kind of Aws file

Ex: windows has .iso file

AWS has .AMI file

AMI is a supported and maintained image provided by AWS that provides the information required to launch an instance.

8. Cloud providers

* Google cloud platform
* Azure cloud platform
* AWS
* IBM
* kamatera
* VMware
* Adobe creative cloud

9 Multi-tenant:

~~The Multi-tenant nature of Saas solu~~

In cloud computing multitenancy means multiple customers of cloud vendor are using the same computing resources.

10. pay-as-you-go:

pay-as-you-go approaches pricing for over 200 cloudservices with AWS you pay only for the individual services you need for as long as you pay.

11 What is meant by cloud provider?

→ A 3rd party company offering a cloud based platform infrastructure application, or storage services.

12 What is cloud services?

→ file storage and backup, web-based email, and project-management tools.

DATE 28th-Apr

01) What is Edge location in AWS?

→ An edge location is where end users access services located at AWS.

02) Characteristics of cloud computing?

→ * Resource pooling
* On-Demand self Service
* Easy Maintainance
* Scalability and Rapid Elasticity
* Measured and Reporting services
* Economical
* Security
* Automation

03) Legacy IT in AWS?

→ code, data and dependencies are automatically converted to modern language, data store, and frame works

** Low letency → Time delay

** High throwput → Packets/Segments fast send

DATE 29th-Apr

01) How many individual user accounts can be created in AWS? 5000 servs

→ you can add upto 10 users at one time. the number and size of IAM resources are in an AWS a/c are limited

02) IAM: Identified Access Management

03) Selection of Region on AWS: 1) compliance 2) Latency 3) privacy 4) Service Availability

4) Billing and pricing components in AWS?

1) Compute → CPU, RAM (How much CPU, RAM required/consumed)

2) Storage → S3 (How much storage consumed)

3) Outbond Data transfer

5) AWS services ways to access (200 services)

1) API (Application programm Interface) → for Access AWS services

2) CLI (Command Line Interface)

3) Management Console

6) IAM → Identity Access Management

Authentication → Username / password

Authorization → Allow / Deny : permission

7) MFA : Multi Factor Authentication

* Bio-Metric * password * OTP * Captcha * hint Question

DATE 30th Apr

01 Write the steps to create a user and attach an existing policy?

→ * Open AWS console management

* Login as a Root User

* search IAM

* Click on Users → Add Users

* User name → select AWS credential type →

password - AWS management console → Console password →

Autogenerate → Required password reset → Next →

Set permission

* Add user to group * Copy existing user * Attach existing policy

Next Tags

* Add tags

* Next Review * download .csv → Close

~~Generate policy~~

Attach existing policy for User

2) Creat a group and assign users

→ AWS Management Console → IAM → Users group → Creat grou

→ User group name → Add Users → Attach permission pol
on the group

→ Creat group

3) IAM best practices?

→ * LOCK away your AWS account root user acess keys

* Use roles to delegate permissions

* Grant least privilege

* validate your policies

* Use customer managed policies instead of inline policies

4) Different authentication methods?

→ * password authentication, * Biometric authentication

* Token authentication * Trasaction authentication

* CAPTCHAS

5

02nd - May - 2022

*) Basic components of a computer.

* A motherboard * Storage Unit

* CPU * RAM * Input/Output Devices.

* GPU * SSD / HDD

*) EC2 Instances?

EC2 → Elastic compute cloud

EC2 ~~is a~~ instance is a virtual server in Amazon's Elastic Compute cloud for running applications on the AWS infrastructure

Benefits

* Reliable * Secure * Inexpensive * Easy to start

* Flexible cloud Hosting services * Completely controlled

*) Customized AMI.

An Amazon Machine Image defines the programs and settings that will be applied when you launch an EC2 instance.

Types * Region * OS * Architecture * Storage for the root devices

Page No.
Date

*) An Elastic IP address, is a reserved public IP address that you can assign to any EC2 instance in a particular region, until you choose to release it.

CLOUD computing refers to data & applications being stored and run on the cloud rather than local computer this data can be accesed through internet.

What is CLOUD

The CLOUD is just a big building filled with computers (servers) this big building will be large in size called Data centre contains "servers" "running applications" "web hosting"

Purpose OF CLOUD

Back in old day's, own physical servers, own os. difficult to maintain cost Repair

On premises

* scalability
  - $ money ↑ more
  - lesser option's
  - heavy loss infrastructure (storage CPU RAM ROM)
* server storage
  - more space
* Data security
  - less security
  - Data may loose
  - no Recovery
  - physical / IT security
* maintainance
  - additional team to maintain
  - More money
  - storage
* COST
* ELECTRICITY

cloud

* scalability
  - pay-as-you-go $
  - (Rent computers servers)
  - scale up
  - scale down
* server storage
  - Cloud provider.
  - manage maintain
  - space less money
  - more storage
* Data security
  - more security with Data Backup Recovery
* maintainance
  - Cloud provider will maintain
  - * less pay * high features
* COST
* ELECTRICITY
* RECOVERY

CLOUD COMPUTING → cloud manage/ saving data in personal dist → same as internet service

CLOUD providers examples: Amazon provides on demand services over the internet

cloud computing

- Deployement model
  - public (BUS)
  - private (OWN CAR)
  - Hybrid (TAXI (public + private))
- Service model
  - Iaas (Basic OS, storage, VM)
  - Paas (develop, testing, deploy)
  - Saas (hosting/manage access and Run google.do)

IAM

→ search IAM

→ Users → Add Users → User name XYZ → Password - Aws → → Autogenerated password

→ Next → set permission → Next Tags → key Department → Review → Create User

Existing User → Add group
Add policy

EC2

→ search EC2

→ Instance → Launch Instances → name xxxy → Quickstart Amazon Linux →

free tier eligible → Instance type → key pair

→ Allow SSH → configure Storage → Server → Launch Instance

Running → check passed

IPV-4
IPV-6

Public IPV-4 → 35.175.186.59

private IPV-4 → 172.31.22.39

Elastic IP address → — — —
permanent

To launch the EC2 instance and mount an EFS file system

1. Open the Amazon EC2 console at https://console.aws.amazon.com/ec2/.
2. Choose **Launch Instance**.
3. In **Step 1: Choose an Amazon Machine Image (AMI)**, find an Amazon Linux 2 AMI at the top of the list and choose **Select**.
4. In **Step 2: Choose an Instance Type**, choose **Next: Configure Instance Details**.
5. In **Step 3: Configure Instance Details**, provide the following information:

- Leave **Number of instances** at one.
- Leave **Purchasing option** at the default setting.
- For **Network**, choose the entry for the same VPC that you noted when you created your EFS file system in Step 1: Create your Amazon EFS file system.
- For **Subnet**, choose a default subnet in any Availability Zone.
- For **File systems**, make sure that the EFS file system that you created in Step 1: Create your Amazon EFS file system is selected. The path shown next to the file system ID is the mount point that the EC2 instance will use, which you can change.
- The **User data** automatically includes the commands for mounting your Amazon EFS file system.

6. Choose **Next: Add Storage**.
7. Choose **Next: Add Tags**.
8. Name your instance and choose **Next: Configure Security Group**.
9. In **Step 6: Configure Security Group**, set **Assign a security group** to **Select an existing security group**. Choose the default security group to make sure that it can access your EFS file system.
10. Choose **Review and Launch**.
11. Choose **Launch**.
12. Select the check box for the key pair that you created, and then choose **Launch Instances**.

Once the EC2 instance is created and becomes available, it will be mounted to your EFS file system. At this point, you will be able to transfer files to your EFS file system

summer 05/May/22

Legacy v/s cloud

Models of cc

Service model → Iaas Paas Saas

Deployment → private public Hybrid Community
↑ organization ↑ more organiz ↑ specific community Pharma

Advantage of cc
+ Back up and restore data
+ Low maintainance cost
+ Data security
+ Unlimited storage

Characteristics of cc
+ Resource pooling
+ On demand self service
+ Easy maintainance
+ work from any location

History of AWS

SQS
Simple Que service
RDS
Relational database

Scaling

Vertical Storage
Horizontal RAM

v/s cloud → Cloud refers to servers that are accessed over the internet

Facebook login all credential videos photos store in facebook servers. data centre.

By using cloud computing, users and companies do not have to manage physical servers themselves

1) facebook cloud
2) Instagram cloud
3) virtual machines
4) IAAS (gmail storage & space) PaaS (developer) Saas (user)

IAM → school < Lab / class

Pay-as-you go : AWS offers you a pay-as-you go approach for pricing for over 200 cloud services. with AWS "you pay only for the individual services you need for as long as you use them, and without requiring long term contracts or complex licensing. AWS pricing is similar to how you pay for utilities like water and electricity bills.

Scalability

AWS auto scaling monitors your applications and automatically adjusts capacity to maintain steady, predictable performance at the lowest possible cost.

Scaling up : Scaling up in contrast, is making a component larger or faster to handle a greater load. ++CPU/storage ↑

Scaling down: For completeness scaling down refers to decreasing your system resources, regardless of whether you were using the up or out approach.

-- CPU / storage ↓

Latency : Latency has an impact on the performance of system

it is a measurement of a round-trip between two systems such as how long it takes data to make its way between two.

time taken for data transfer.

Through put : Throughput is the measure of the amount of data transfered from/to storage device, in a second.

KB / MB / GBs (

if a storage device can write 1000 blocks of 128k each,

through put 1000 * 128 k/s = 128mB/s,

Multitenant : The Multi-tenant nature of SaaS solu requires a heightened focus on ensuring that every effort is made to isolate tenant resources in a cloud-computing architecture that allows customers to share computing resources in public/private cloud.

EC2 Elastic IP : An Elastic IP is a static public IPV4 address associated with your AWS account in a specific Region. Unlike an auto-assigned public IP address.

04th_May - 2022

1) Steps to create an windows ec2 server.

2) steps to connect to windows ec2 server from a windows machine.

03) What are the different types of Accessing services?

→ IAM :- Identity & Access Management
EC2 :- Elastic cloud computing
SSO :- AWS single Sign-On.
AWS Directory services.
CLI,

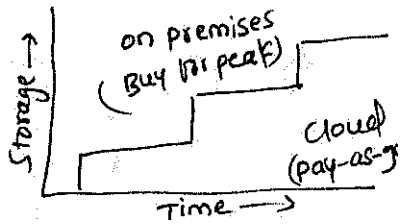
06th_May -22

1) what are the different types of storages? pros & cons

→ There are three types of cloud data storage (S3)

* object storage : object storage's vast scalability & metadata charecte
* File storage : some applications need to access shared files & require file system (EFS)
* block storage : other enterprise applications like database, ERP system often required dedicated low latency sto

Benefits :
* Total cost of ownership
* Time to Deployement
* Information management
* Durability
* Availibility
* Security



2) EBS :

Amazon Elastic Block store (Amazon EBS) provides block level storage volumes for use with EC2 instances. EBS volumes behave like raw, unformatted block device. you can mount these volumes as devices on your instances. EBS is like a hard drive in the cloud that provides persistent block storage volumes for use with Amazon EC2 instance

AWS Snapshot: EBS Snapshots are a point-in-time copy of your data and can be used to enable disaster recovery, migrate data across regions and accounts. and improve "Backup" compliance

you can create and manage your EBS snapshot through the AWS management console, AWS command line interface (CLI) AWS SDKs