

## Assignment-

1. Write AWS Well architected frame working with 6 pillars and design principles and respective services. Complete details

Ans

AWS Well architected framework helps to build systems with all the features.

1. Operational Excellence Pillar :-

Operational excellence pillar includes the ability to run the workloads effectively, gain the insights of the operations and to deliver the business needs.

Design Principles:-

It has following design principles :

- Perform operations as code
- Small, frequent reversible changes
- Automation
- Anticipate failure

AWS Services :-

1. CloudFormation
2. AWS Config
3. AWS CloudWatch
4. AWS CloudTrail
5. AWS CloudBuild
6. AWS CodeCommit
7. AWS CodeDeploy
8. CodePipeline

## 2. Security Pillar:-

The security pillar includes the ability to protect data, systems and assets by the help of cloud to improve security.

### Design principles:-

- Implement a strong Identity
- Enable traceability
- ~~pro~~ protect the data in transit and at rest
- Automate best practices

### AWS Services:-

1. IAM - Identity And Access Management
2. MFA - Token
3. AWS Organizations
4. AWS Config
5. AWS Cloud Watch
6. AWS Cloud Trail
7. AWS VPC
8. AWS Shield
9. AWS WAF
10. S3
11. KMS
12. AWS ELB

## 3. Reliability Pillar:-

It is the ability of a workload to perform its intended functions & do correctly and consistently. It is the ability to operate and test the workload.



### Design Principles:-

- Recovery from failure
- Stop guessing capacity
- Automation
- Scalability

### AWS Services:-

1. IAM
2. VPC
3. Amazon CloudWatch
4. Cloud Trail
5. Auto Scaling
6. AWS Config
7. S3
8. Amazon S3 types

### 4. Performance Efficiency:-

The performance efficiency pillar includes the ability to use the computing resource efficiently to meet system requirements and to maintain the efficiency as demand change

### Design principles:-

- Go Global in minutes
- Use Serverless architectures
- Experiment more often
- Advanced Technologies

AWS Services:-

1. AWS Lambda
2. AWS Auto scaling
3. Amazon RDS
4. AWS Cloudwatch
5. AWS S3
6. Amazon Cloudfront
7. Amazon S3

5. Cost Optimization

This pillar includes the ability to run systems to deliver business value to the lowest price point

Design principles:-

- Implement cloud financial management
- measure efficiency
- Analyze expenditure

AWS Services:-

1. AWS Budgets
2. AWS Cost explorer
3. AWS Cost Usage and reports
4. Auto scaling
5. AWS Lambda
6. Spot Instances

6. Sustainability:-

The discipline of sustainability address the the long-term environmental, economic and societal impact of your business activities.



Design Principles

- Establish goals
- Maximize Utilization
- Use managed services
- Reduce the downstream impact

2. S3 storage classes Complete table and S3 use cases

Ans.

S3 storage classes

1. S3 Standard
2. S3 Intelligent tiering
3. S3-IA
4. S3 One IA
5. S3 Glacier
6. S3 Glacier Deep Archive

|                | S3 Standard              | S3 Intelligent Tiering  | S3-IA                   |
|----------------|--------------------------|-------------------------|-------------------------|
| Durability     | 99.999999999<br>11 nines | 99.999999999<br>9 nines | 99.999999999<br>9 nines |
| Availability   | 99.9%                    | 99%                     | 99%                     |
| AZ's           | ≥ 3                      | ≥ 3                     | ≥ 3                     |
| Capacity       | -                        | -                       | 128KB                   |
| Storage charge | -                        | 30 days                 | 30 days                 |
| Retrieval fee  | -                        | -                       | per GB                  |
| Storage Type   | object                   | object                  | object                  |

S3 One-zone IA

S3 Glacier

S3 Deep Archive

99.99999999

99.9999999

99.9999999

9999

99999

999999

99%

99.9%

99.9%

1

$\geq 3$

$\geq 3$

128KB

40KB

40KB

30 days

60 days

180 days

Per GB

Per GB

Per GB

Object

object

object

S3 Usecases are data lakes, websites, mobile applications, backup and restore, IoT device, big data analytics



Q3 AWS EC2 shared Responsibility model.

Ans

shared Responsibility model of EC2.

Responsibility of Users:-

- security of the data & at rest
- Security Group rules
- Software updates & utilities
- OS patches & updates
- IAM user management & IAM Roles for the instance

Responsibility of AWS:-

- Security of the physical hosts
- Compliance validation
- Infrastructure
- fault-tolerance

Q4. What is AWS marketplace?

Ans

AWS marketplace is a place where we can buy or sell the softwares.

AWS Marketplace is an online store that helps customers find, buy and immediately start using the software and services that run on AWS.

We can find thousands of the partners through the marketplace.

5. write a detailed AWS support plans.

Ans

Different types of AWS support plans are

- Basic plan
- Developer plan
- Enterprise On-Ramp
- Enterprise
- Business plan

#### Basic Support plan

→ Customer service & Communities --

24x7 access to customer service, documentation, white papers and support forums

→ AWS Trusted Advisor

Access to 7 core Trusted Advisor checks and guidance to provision your resources

→ AWS Personal Health Dashboard

#### AWS Developer support plan

→ All basic support plan +

→ Business hours email access to cloud support

→ Unlimited cases / 1 primary contact

→ General guidance < 24 business hours

→ System Impaired < 12 business hours



### Business Support Plan:

- Intended to be used if you have production workloads
- Trusted Advisor - Full set of checks + API access
- Unlimited cases / unlimited contacts
- Additional fee
  - General guidance  $\leq 24$  business hours
  - System Impaired  $\leq 12$  hours
  - Production Impaired  $\leq 4$  hours
  - ~~down~~ system down  $\leq 1$  hour

### Enterprise On-Ramp:

- Support all with Technical Account Managers (TAM)
- can contact with
- down time  $\leq 30$  hours

### Enterprise Support:

- mission critical workloads
- has a designated TAM
- can contact with  $\leq 15$  minutes

Q. Write IAM (user, group and policies) generation process.

Ans

IAM :- Identity And Access Management

IAM is a web service that helps you securely control access to AWS resources.

Users :- IAM user represents a person or application that uses its credentials for making AWS resource request.

Creating IAM User :-

1. Sign in to the AWS management console and open the IAM console.
2. Navigate to Users.
3. Click on Add User.
4. Enter the name of user (new). This will be the sign-in name for user.
5. Select the type of access this user will have.
  - a. i. Management Console.
    - a. Auto generated password
    - b. custom passwordType the password that will be used
  - ii. CLI Access
6. Choose Next
7. Set will go to Set Permissions page. On that will have three columns that can be selected.



- Add users to group  
choose the option if you want to add user to one or more groups that already have permission policies.
- Copy permission  
can copy permission, boundaries of existing users to new users.
- Attach policies directly:  
We can attach list of AWS managed and ~~my~~ customer managed policies.  
Select the policies that are wanted to attach.

8. Set permission boundaries (optional)

9. choose next

10. Can add meta data

11. Review and create page.

12. This will view the user.

Also can download user's password in -CSV.

8. What is <sup>AWS</sup> Code Pipeline?

Ans

AWS Code Pipeline is a continuous delivery service you can use to model, visualize and automate the steps required to release your software. You can quickly model and configure the different stages of a software release process. It also automates software changes continuously.

9. What is AWS Outposts?

Ans

AWS Outposts is a fully managed service that extends AWS infrastructure, services, APIs and tools to customer premises. By providing local access to AWS.

AWS Outposts enables customers to build and run applications on premises using the same programming interfaces as in AWS.

10. What is EFS and setup procedure?

Ans

Amazon EFS is a elastic file storage service to store and create files for AWS and on-premises resources.

Procedure:

1. Sign in to AWS Management Console and open the Amazon EFS console.
2. Choose create file system and open.
3. Enter a name for your file system.
4. Choose your VPC (default or custom).
5. Select storage class.
  - standard
  - onezone
6. Click on create.

Mount EFS to instance using mount command.



11. What is AWS FSX Lustre Explain

Amazon FSX for Lustre is an FSX solution that offers scalable storage for Lustre system.  
(Parallel and high-performance file storage system)

- Supports fast processing workloads like custom EDA and high performance computing.
- Offers to choose between SSD and HDD for storage.

13. What is Kinesis?

Ans

Amazon Kinesis is a managed, scalable, cloud-based service that allows real-time processing of streaming large amount of data per second.

Makes it easy to collect, process and analyze streaming data in real-time.

- Kinesis data streams
- Kinesis data firehouse
- Kinesis data Analytics
- Kinesis Video streams

14. AWS Glue Explains!

Ans

It is an serverless data integration service.

- manage extract, transform, and load (ETL) service
- Useful to prepare and transform data for analytics

15. AWS Shield?

Ans

AWS shield is to protect from DDoS attack.

- AWS shield standard
- AWS shield Advanced



- Q5. On prem, IaaS, PaaS and SaaS detailed Shared Responsibility model diagram: customer vs AWS

| On prem                  | IaaS                        | PaaS                        | SaaS                            |
|--------------------------|-----------------------------|-----------------------------|---------------------------------|
| Application              | Application                 | Application                 | Application                     |
| Data                     | Data                        | Data                        | Data                            |
| Runtime                  | Runtime                     | Runtime                     | Runtime                         |
| middleware               | middleware                  | middleware                  | middleware                      |
| O/s                      | O/s                         | O/s                         | O/s                             |
| Visualization            | Visualization               | Visualizations              | UI's                            |
| Servers                  | Servers                     | Servers                     | Servers                         |
| Storage                  | Storage                     | Storage                     | Storage                         |
| Networking               | N/W                         | N/W                         | N/W                             |
| managed by user/customer | managed by service provider | managed by service provider | All managed by service provider |

- Q10. How to do one bill provided for multiple accounts

In order to have centralized bill for accounts we have "AWS Organization"

AWS Organizations provides you with the capability to centrally manage and govern the accounts. We can create custom permissions and access to the users. With organization can get high discounts on the bills.

- Q21. An Elastic IP Address can be remapped between E2 Instance across which boundaries

Ans. Elastic IP addresses are for use in a specific region only and can therefore only be remapped between instances within that region.