**AWS** is a platform of web service for storing, networking, and computing that works well together.

**The AWS access key** can verify identity in programmatic calls.

**AWS benefits:**

Services solve common problems.

Automation.

Scalability.

Reliability.

Global infrastructure.

Reducing time.

**Cloud Computing** is a service model allowing users to access shared computing resources (network, storage, servers, applications, services) through the network connection anywhere, anytime, on request.

**Virtual machines** provide a flexible and efficient way to run multiple operating systems and applications on a physical machine.

**Elastic Beanstalk** is a service for deploying and scaling web applications and services.

**Why Elastic Beanstalk:** The fastest way to get web applications up and running on AWS.

**How to deploy an application using Elastic Beans:**

1. Create an application.
2. Explore the environment.
3. Deploy a new version of the application.
4. Configure environment.
5. Clean up.

**AWS tools to call API:**

*Command-line interface* (CLI) – Call AWS API from the terminal.

*Software development kit* (SDK) – Call AWS API from the programming language.

*AWS CloudFormation* – Translate the templates used to describe the state of the infrastructure into AWS API.

**AWS account** contains all the AWS resources and comes with a root user.

**IAM user:**

IAM entity assigned to a person.

Password.

Access key.

Belong to a group.

Security Token services are **permanent**.

**IAM role:**

IAM entity assigned to a service.

Security Token services are **temporary**.

Can be associated with an **EC2, Lambda function, or ECS container**.

**IAM policy:**

*Identity policies:* attached to users, groups, or roles.

*Managed policy*: can be reused in your account.

*Inline policy:* belong to a specific IAM role, user, or group.

*Resource policies:* attached to resources.

**IAM is about:**

Allow or deny?

What actions?

On which resources?

Who? Authentication and authorization.

Condition.

**How to create AWS IAM Identities:**

1. Create an IAM policy:

A screenshot of a computer program

Description automatically generated

1. Create a user group.
2. Attach permissions policies.
3. Add user.
4. Add the user to the group.

**How to assign IAM Role for EC2 instance:**

1. Create an S3 bucket.
2. Create an IAM role and choose EC2 for the trusted entity.
3. Create a policy to attach to the EC2 instance’s role:A screenshot of a computer program

   Description automatically generated
4. Attach policy to the EC2 instance's role.
5. Go to EC2 instance -> security -> Modify IAM role -> select IAM role created.

**VPC** is a virtual network. If you want to create networked resources in AWS, you will create a VPC first.

**The Internet gateway** is a resource created and added in a VPC. IGW allows for routing traffic between the VPC and the public internet.

**The NAT gateway:** routing traffic to the internet but not back in.

**Route tables:** directs all nonlocal traffic from the subnet to the gateway.

**The security group** is a set of rules determining what network traffic is allowed in and out of an instance.

Inbound

Outbound

**S3:** Amazon Simple Storage Service is a typical web service that lets you store and retrieve data organized as objects via API reachable over HTTPS.

**S3 use cases:**

Storing and delivering static web content.

Backing up data.

Storing structured data for analytics, also called a data lake.

Storing and delivering user-generated content.

**S3 uses buckets** with globally unique names to group objects.

**How to host simple static web pages using S3’s static website hosting functionality:**

1. Create a bucket on S3, ACLs enabled.
2. Add sample object for static Web hosting (index.html, aws.png).
3. Enable public access for objects.
4. Make the object public using ACL.
5. Enable static website hosting for bucket (properties tab).
6. Enable bucket versioning (properties tab).

**RDS**: Amazon Relation Database Service is a managed service operating a relational database system (Aurora, PostgreSQL, MySQL, MariaDB, Oracle Database, and Microsoft SQL Server).

**Controlling Access to RDS:**

*Configuration access management*: **IAM policies**

*Network access management:* **Firewall rules**

*Database access management:* **Database** user and access management itself

*Data:* **Sensitive data** must be protected from unauthorized access

**How to access RDS from EC2:**

1. Launch an RDS Instance.
2. Save RDS Credentials to AWS Secrets Manager.
3. Create a policy that allows the web server to read a secret.
4. Attach the policy to the IAM role with **AmazonSSMInstanceCore**.
5. Go to EC2 instance -> security -> Modify IAM role -> select IAM role that attached policies.

**DynamoDB** is a fully managed NoSQL database service provided by AWS. It is designed for applications that require low latency and high scalability, closed source key-value store with document support in handling large amounts.

**“Users” table:**

**A primary key** is unique within a table and identities an item (one or two attributes).

**Partition key** using a single attribute as the primary key.

**“Tasks” table**: At least two attributes are needed for the partition key and sort key.

**Eventually consistent** reads can return old values after a write operation until the change is distributed to all machines.

**DynamoDB** dose not run in VPC. It is accessed via the DynamoDB API.

**How to launch an EC2 VM:**

1. Naming the virtual machine.
2. Selecting the operating system.
3. Choosing the size of your virtual machine.
4. Configuring details.
5. Adding storage.
6. Configuring a firewall.
7. Granting permissions to access other AWS services.

**What does Reliable means in cloud benefits?**

When running apps and stored data are being handled by multiple data centers (availability zone) or even multiple regions. That will improve:

- High availability and fault tolerance for the apps.

- Durability of the data.

- Even more, the cloud will help scale your app and data.

**What is AWS STS?**

Security Token Service is a web service that enables you to request temporary credentials for an IAM role.

**Access key ID** are long-term credentials for an IAM user. Like username.

**Secret access key** like a password.

**Session token** validates temporary credentials.

**Duration** defines how long the temporary credentials last.

**What are the difference and similarities between IaaS and PaaS?**

* IaaS (Infrastructure as a service) has hardware, networking, and building deployed in the cloud as a web service.
* PaaS (Platform as a service) comes with an EC2 instance providing a preconfigured platform that can run on the cloud as a web service.

Amazon S3 autoscaling enables you to scale in or out to handle changes in requirements or spikes in popularity, reducing your need to forecast traffic. \* **FALSE**, EC2

EBS volumes are highly available and reliable storage volumes that can be attached to any running instance in a different Availability Zone. \* **FALSE**, same AZ

Backups are manually enabled in RDS. Initially, the retention period will be 7 days by default. You can decrease or increase it up to 35 days. \***FALSE**, automatically enabled daily

Snapshots are triggered by RDS: \* **FALSE**

IAM is a global service. **\* TRUE**

SG is a firewall. You can write allow/deny rules. **\* FALSE**

Data is replicated synchronously to standby instances. **\* TRUE**

In the cloud, stop thinking of your infrastructure as hardware and instead, think of it as software. **\* TRUE**

Which of the following services belongs to serverless?

A. S3

**B. ECS \***

C. EC2

D. IAM

Which of the following is not included in an EC2 instance?

A. Instance Type

B. EBS

C. Security Group

**D. Snapshots \***

Which of the following we cannot do?

A. Assign an IAM Policy to a Group

B. Assign an IAM Policy to a User

**C. Attach an IAM Policy to a Service \***

D. Attach an IAM Policy to a Role

Which of the following we cannot do?

**A. We can create multiple Amazon S3 buckets with the same name in different regions. \***

B. We can backup data in S3 Glacier or S3 Glacier Deep Archive for the long term.

C. We can directly apply a policy to S3 bucket.

D. We can host a static website using Amazon S3 with its public access.

The Read Replicas in Amazon Aurora don’t do:

A. decouple computing and storage.

B. share the same underlying storage as the source instance.

C. improve the scalability of storage.

**D. replicate read replicas asynchronously \***

When should you use PaaS?

A. When you need low-level OS configurations.

**B. When you have code without resources. \***

C. When you need a great web UI.

D. All of the above.

Select one software below that is similar to EC2:

A. GitHub.

B. Firebase.

C. Visual Studio Code.

**D. Docker \***

Which one below does not relate to identity-based policies?

A. User.

B. Role.

C. Group.

**D. Bucket \***

Select one false about S3:

A. Unique bucket name.

B. Scale infinitely.

C. Regional service.

**D. Small size \***

When using RDS, you will be charged by:

A. Per image.

B. Per bucket.

C. Per OS.

**D. None of these \***

What is not the benefit of the cloud?

a.Performant,

b.Built-in metrics,

c.secure,

**d. Expensive \***

Which of the following cloud service models gives more control over IT resources compared to others

**A. IaaS \***

B. PaaS

C. Saas

D. None

If you are running multiple instances over different availability zones and you want to use volume, which all instances could share you would use?

A. EBS

**B. EFS \***

C. S3

D. None

What is the format of an IAM policy

A. XML

B. yaml

C. txt

**D. JSON \***

Not the benefit of Multipart upload

A. Good for uploading an object whose size is unknown

B. Good for uploading huge file, typically files greater than 100MB

C. Enables you to pause and resume your upload

**D. All of the above are benefits \***

Which Amazon RDS support Muti-AZ

A. MySql

B. PostgreSQL

C. Amazon Aurora

**D. All \***

Which architecture does Lambda Function is based upon?

a. IaaS

**b. FaaS \***

c. CaaS

d. SaaS

Which one is not a way to call AWS services?

a. AWS StepFunctions

**b. AWS Console \***

c. AWS SDK  
d. AWS CLI

You want to deploy a High-Performance Computing (HPC) application on EC2 instances. Which EC2 instance type should you choose?

a. Storage Optimized

**b. Compute Optimized \***

c. Memory Optimized

d. General Purpose

Which answer is INCORRECT regarding IAM Users?

a. IAM Users can belong to multiple Users Group

b. IAM Users don't have to belong to Users Group

c. IAM Policies can be attached directly to IAM Users

**d. IAM Users access AWS services using root account credentials \***

You have a 25 GB file that you're trying to upload to S3, but you're getting errors. What is a possible solution for this?

a. The file size limit on S3 is 5GB

b. Update the bucket policy to allow larger file

**c. Use multi-part upload when uploading files larger than 5GB \***

d. encrypt the file

Amazon RDS supports the following databases EXCEPT:

**a. MongoDB \***

b. MySQL

c. MariaDB

d. Microsoft SQL Server

Which EC2 Purchasing Option can provide you with the biggest discount, but it is not suitable for critical jobs or databases?

a. Convertible Reserved Instances

b. Dedicated Hosts

**c. Spot Instances \***

d. On Demand

What is a proper definition of an IAM Role?

a. IAM Users in multiple User Groups

**b. An IAM entity that defines a set of permissions for making requests to AWS services and will be used by an AWS service \***

c. An IAM entity that defines a password policy for IAM Users

d. Permissions assigned to IAM Users to perform actions

The serverless model in cloud computing refers to which of the following?

A. Running an application without a server,

**B. Cloud provider allocates machine resources on demand, \***

C. Cloud provider provides template server configurations,

D. All of the above,

You have an application running in EC2 and general EBS volume showing poor performance, but the CPU and Memory tests are good. What is likely the problem?

A. Tornado wiped out the data center,

B. Server OS is misconfigured for the app,

**C. The EBS volume has reached its IOPS credit limit, \***

D. You configured the partition placement group, and the server rack is malfunctioning,

IAM policies can be:

A. Identity-based,

B. Resource-based,

**C. Either A or B**, \*

S3 buckets are:

A. Infinitely Scalable,

B. Hosted in one region,

C. Globally named,

**D. All of the above \***

EBS, EFS, and S3 are like a \_\_\_\_\_\_\_ in traditional infrastructure.

a) server

**b) hard drive \***

c) relational database

d) network

One of the following is not a cloud benefit.

**a) You do have to guess capacity \***

b) Secure

c) Do less and achieve more

d) Performant

IAM refers to \_\_\_\_\_\_

a) Image of Amazon Machine

b) Identity of Amazon Machines

**c) Identity and Access Management \***

d) Image Access Machine

One of the following is not S3 storage class.

a) S3 Intelligent-Tiering

b) S3 One Zone IA

**c) Glacier Lite Archive \***

d) S3 Standard

What is an event bridge in AWS?

**a) Serverless event bus that connects application data from other apps and AWS services \***

b) Transfer files from EC2 instance to S3 bucket

c) Alarm service to trigger a specific event

d) Event to trigger any operation on EC2 instance

What kind of IP address is provided by EC2 instance?

a) Private IP address

**b) Public IP address \***

c) Static IP address

d) Dynamic IP address

What kind of S3 storage class should we use for long-term archival storage?

a) S3 Intelligent-Tiering

b) S3 Standard

**c) Glacier \***

d) S3 One Zone IA

IAM Policies are permissions assigned to any ...

a) User

b) Group

c) Roles

**d) All of the above \***

As EC2 is for IaaS and Lambda is for FaaS, what is for PaaS?

A - RDS

B - EFS

**C – EBS \***

D – None

One of the following instances is best for performing graphics processing.

A - t4g.nano

**B - g5.xlarge \***

C - r6g.medium

D - c7g.large

IAM Manages

**A – Multi-factor Authentication \***

B – Bucket policies

C – Billing reports

**D – Roles \***

What can help S3 objects from being deleted or overwritten for a specified or indefinite period of time?

A – Object Secure

B - Object Hidden

C - Object Flexible

**D - Object Lock \***

What service is Amazon's No-SQL database service?

A – Elasticache

B – RDS

**C – DynamoDB \***

D – Redshift

Which EBS volume type has IOPS equal to three times the volume size?

a. Provisioned

**b. General-purpose \***

c. Magnetic

d. All of the above

Object identification in S3 bucket is based upon

a. Object Name

b. Key of the object

**c. A combination of key, bucket, and version \***

d. None of the above.

In the deployment of RDS on multiple availability zones, which one of the following is true?

a. Maintains asynchronous standby replicas in each AZ.

**b. Maintains synchronous standby replicas in each AZ. \***

c. Replicas need to be defined manually.

d. Need to define whether to create synchronous or asynchronous replicas.

What is the hierarchy maintained in IAM? (left most has less privilege)

a. Root user, IAM user, Temporary access

b. IAM user, Root user, Temporary access

**c. Temporary access, IAM user, Root user \***

d. Root has the most privilege, and IAM and Temporary access users have the same privilege level.

What is not the benefit of the cloud?

a. Built-in metrics

**b. 24x7 free support from the experts \***

c. More security  
d. More performance

Which one is the same regardless of the region?

**a. Service high availability \***

b. Service Features

c. Limit  
d. Pricing

Which one is the smallest region in these options?

a. N. Virginia

b. Ohio  
**c. Hong Kong \***

d. Singapore

There is a one-and-one relationship between the subnet and

a. Region

**b. AZ \***  
c. EC2

d. NACL

Select an incorrect property of Private IP

a. All EC2s have it

b. Selected from the subnet  
**c. If 2 instances have public IPs, they can use them to connect to one another. \***

d. Used for communication within VPC.

Which one is not an lAM best practice?

**a. Use AWS-managed policies over user-managed policies \***  
b. Set MFA on the root user and always use the IAM user to login to the AWS console

c. Use roles on EC2 instead of permanent tokens  
d. Use an IAM analyzer

Which is an optional part of the IAM identity-based policy?

a. Effect

b. Action  
c. Resource

**d. Principle \***

Which one is not true about the lAM role?

a. When you log in to the AWS console, it uses the lAM role under the hood

b. IAM tokens are temporary and rotated automatically  
**c. You must write a principle tag in the permission policy of the IAM role\***  
d. STS generates temp tokens for the role

Which one is not an S3 design principle?

a. Decentralized

b. Decompose

c. Simplicity  
**d. Synchrony \***

What is the cloud we learned?

a. A white collection of water vapor in the sky.  
b. A collection of services including blockchain, AI, VR, etc.  
c. Storage where you can store your data, and it's always available.

**d. B and C. \***

You get hired at a startup as a software engineer. Your company uses data storage for storing images, videos, etc. That storage costs a lot. Your company is looking for ways to reduce costs by utilizing services in the AWS cloud. What service would recommend?

a. EBS

b. EFS

c. RDS

**d. S3 \***

Which model of cloud services is best for building event-driven applications?

a. IaaS

**b. FaaS \***

c. SaaS

d. PaaS

How do you deploy a global application on AWS?

a. Use only global services

**b. Deploy to each region. \***

**c. Use global replication features like S3 global replication \***

**d. Use backups and recover them in other regions. \***

Assume you have different work files in your company that need to be accessed differently. Some of the files are accessed daily, some frequently, and some will probably have never got accessed. As a developer and AWS expert, what is your solution to meet user needs and minimize storage costs?

a. Destroy the never accessed files.

**b. Create an S3 Object lifecycle rule. \***

c. Zipped the files to a safe space.

d. All

Which do we not attach an IAM Policy to?

**a. service \***

b. role

c. user

d. groups

What is included in the types of permissions used for S3 service?

a. Identity-based

b. Resource-based

c. Access Control List

**d. All of the above \***

Which DB engine delivers the most throughput?

a. PostgreSQL

**b. Amazon Aurora \***

c. MySQL

d. MariaDB

ABC company uses AWS S3 services. You are working as a software developer in the company. Your immediate supervisor asked you to give suggestions on where to implement the object lifecycle class policy that helps to minimize the storage cost. Which one of the following is not the level to apply the policies?

a. All bucket levels in the storage

b. One specific object in the bucket level

c. One specific folder in the bucket level.

**d. Key level \***

You have an app developed for React project. This app works with the S3 buckets in the US East region. The app is hosted on an EC2 instance. Which of the following should be used to ensure that the EC2 instance has the appropriate access to the S3 buckets?

a. Users

b. Groups

**c. IAM Roles \***

d. IAM Policies

The students of MIU are planning to host a development environment on the cloud. This consists of EC2 and RDS instances. This environment will probably only be required for 3 months. Which options of EC2 instances would you use for this purpose?

**a. On-Demand \***

b. Reserved

c. Spot

d. a and b

Which model of cloud service is said to be serverless?

a. SaaS

**b. FaaS \***

c. Paas

d. IaaS

A Solutions Architect is developing a document-sharing application and needs a storage layer. The storage should provide automatic support for versioning so that users can easily roll back to a previous version or recover a deleted account. Which AWS service will meet the above requirements?

a. Amazon EBS

**b. Amazon S3 \***

c. Amazon EFS

d. Amazon RDS

Which of the following is true about key-pairs?

a. Private key is used to encrypt the information while at the receiver's side.

b. Public key is used to decrypt the information.

c. Key-pairs allows you to access the instances securely.

**d. All of the above correct \***

To make our front-end application hosted on S3 available to the world, we must provide public access to:

a. Bucket

b. Object

c. Key

**d. A and B \***

e. All