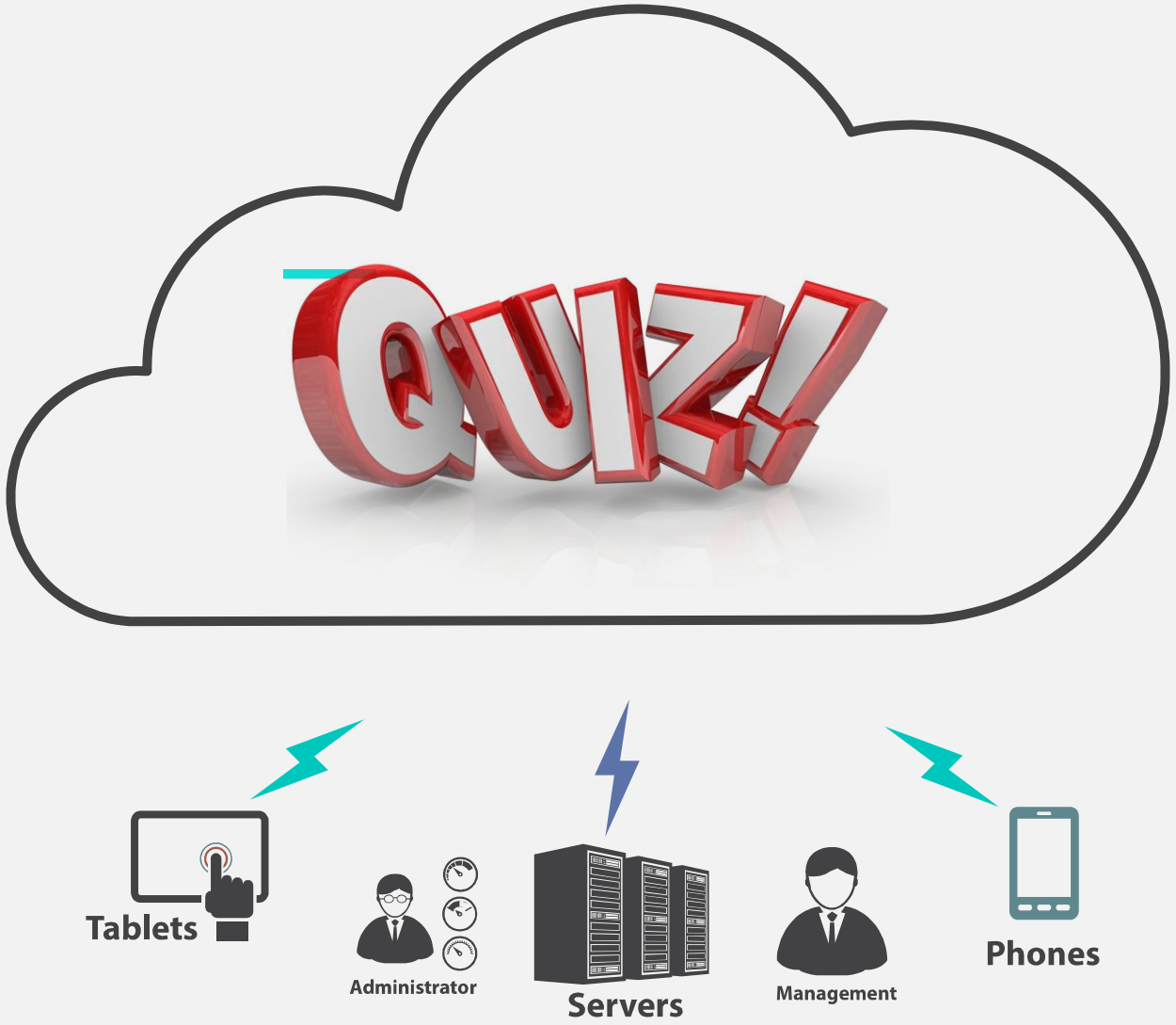
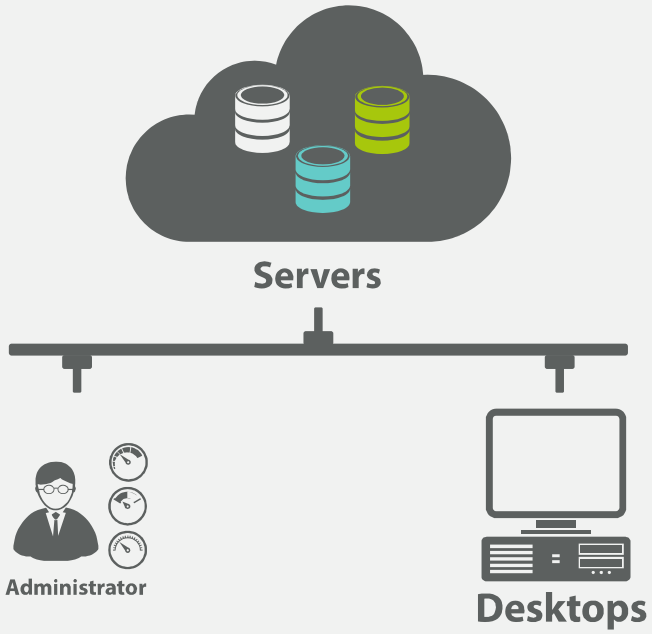
클라우드 아키텍처 구조

AWS Storage Service

USW
수원대학교


QUIZ!
Tablets
Administrator
Servers
Management
Phones



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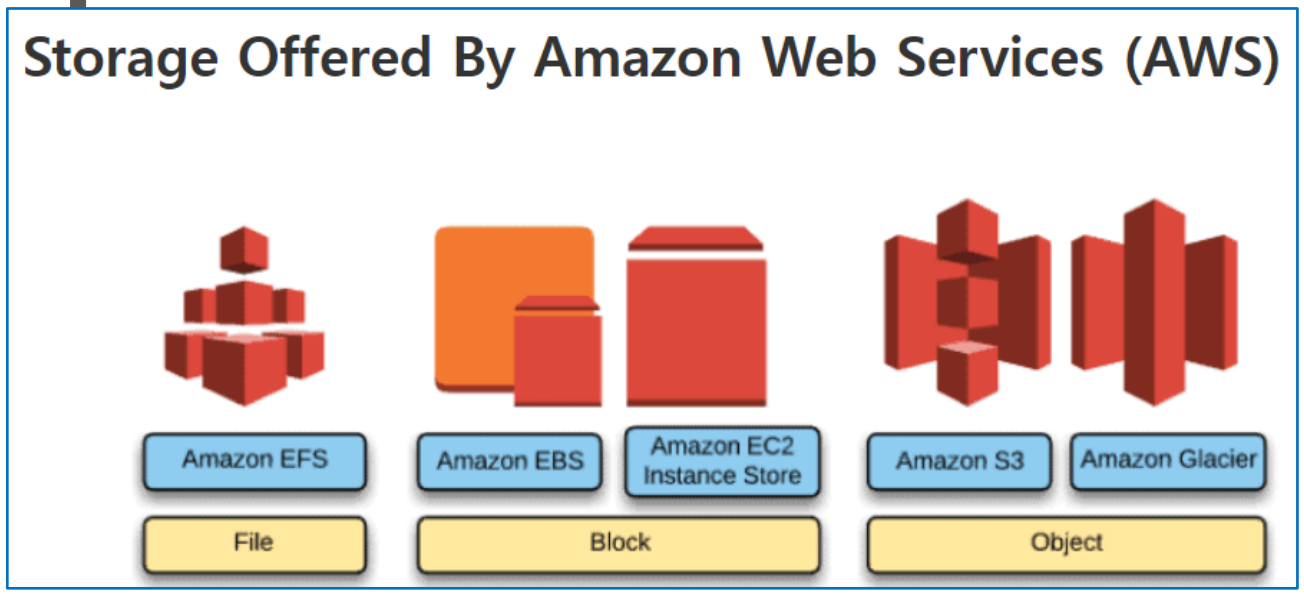
수업 목표

개요



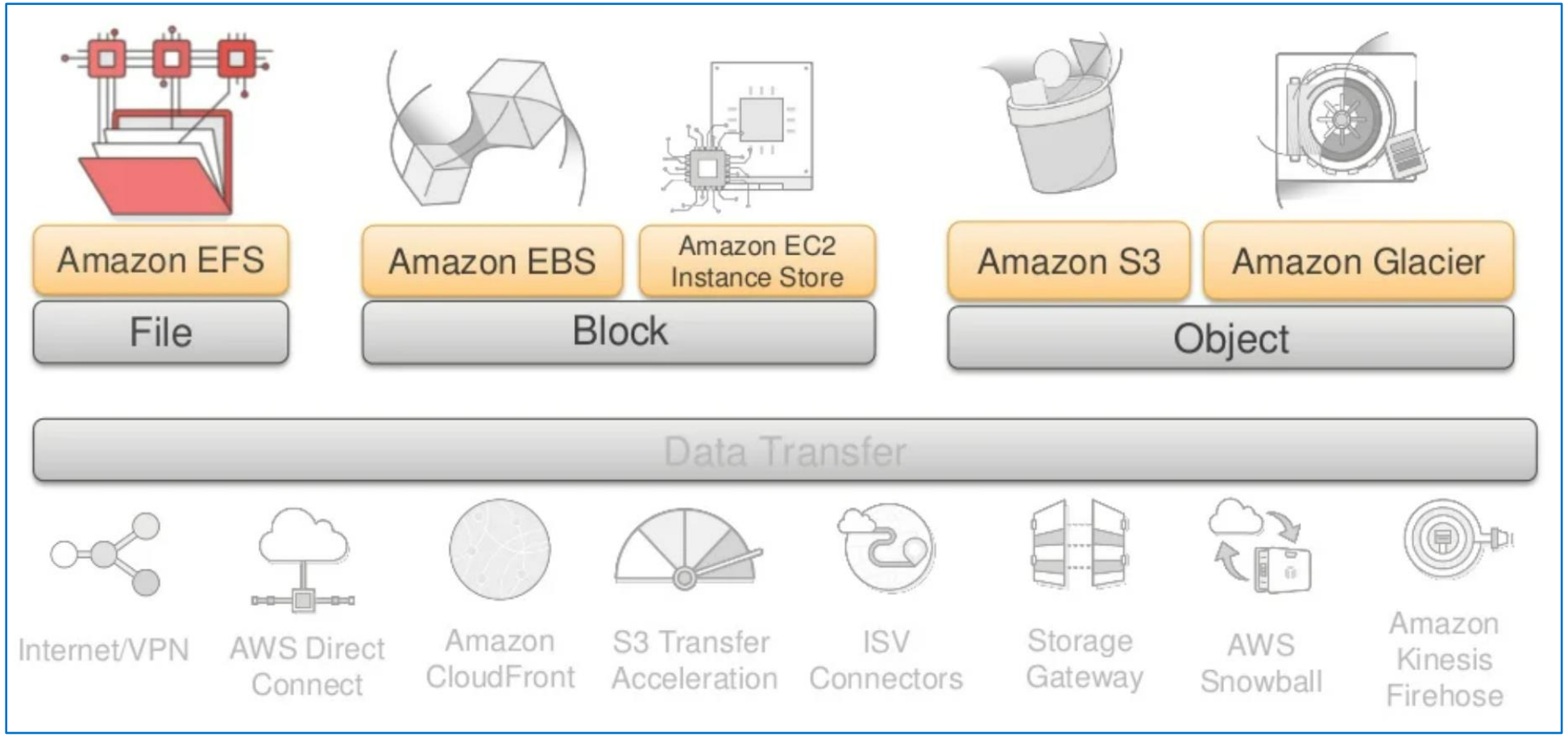
https://k21academy.com/amazon-web-services/aws-solutions-architect/aws-storage-overview-types-benefits/

- AWS Storage Service에 대한 이해
- Amazon EBS에 대한 이해
- Amazon S3에 대한 이해
- Amazon EFS에 대한 이해

AWS Storage Service Overview

AWS Storage Service Overview

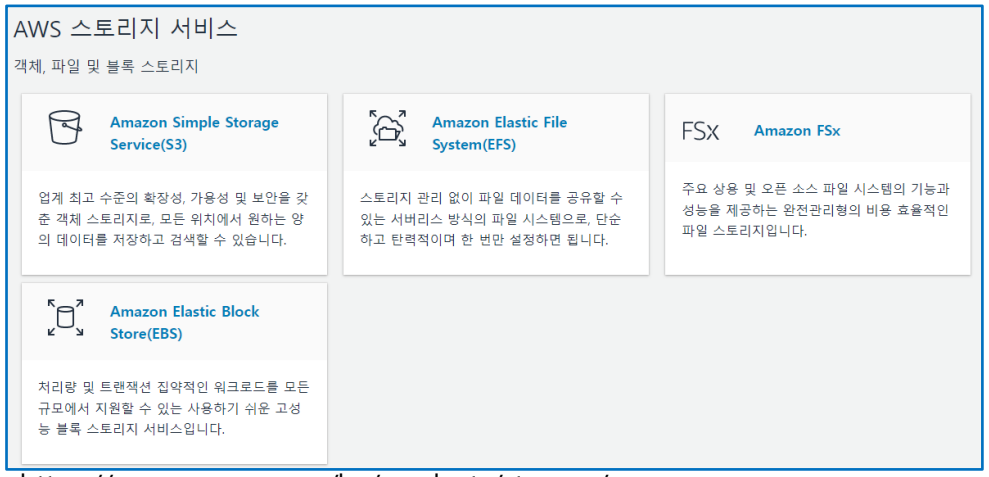
The AWS Storage Platform



https://www.slideshare.net/AmazonWebServices/introduction-to-amazon-elastic-file-system-efs-64919870

AWS Storage Service Overview

Storage Service Overview



https://aws.amazon.com/ko/products/storage/

- Block Storage
  - Instance Stores
  - Amazon Elastic Block Store(Amazon EBS)
- File Storage
  - Amazon Elastic File System(Amazon EFS)
- Object Storage
  - Amazon Simple Storage Service(Amazon S3)

Instance Stores

AWS Storage Service

Instance Stores

- Block-level storage volumes behave like **physical hard drives**.
- Provides temporary block-level storage for an Amazon EC2 instance.
- Is disk storage that is physically attached to the host computer for an EC2 instance.
- Has the same lifespan as the instance.
- When the instance is terminated, lose any data in the instance store.

Instance Stores

An Amazon EC2 instance with an attached instance store is running.

Instance Stores

The instance is stopped or terminated.

Instance Stores

All data on the attached instance store is deleted.

Amazon EC2 Instance

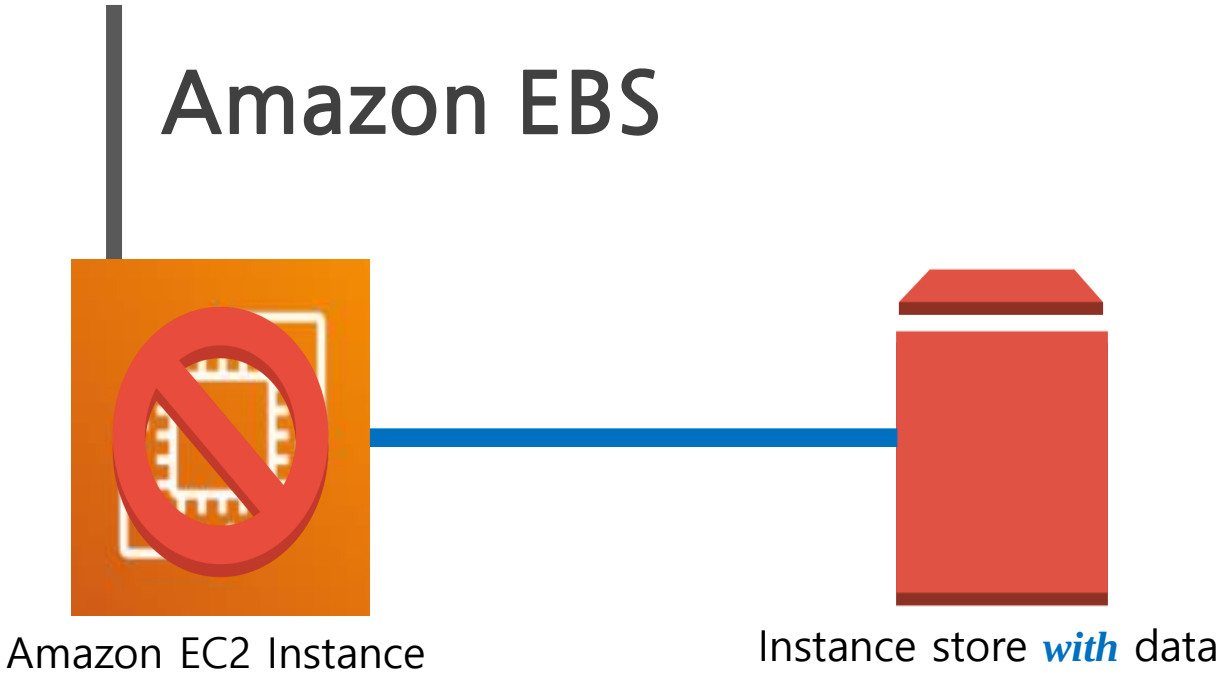
Instance store *without* data

Instance Stores

- Amazon EC2 instances are virtual servers.
- If start an instance from a stopped state, the instance might start on another host.
- Therefore the previously used instance store volume does not exist.
- Finally, AWS recommends instance stores for use cases that involve **temporary data** that do not need in the long term.
- https://docs.aws.amazon.com/ko_kr/AWSEC2/latest/UserGuide/InstanceStorage.html#instance-store-volumes

Amazon EBS

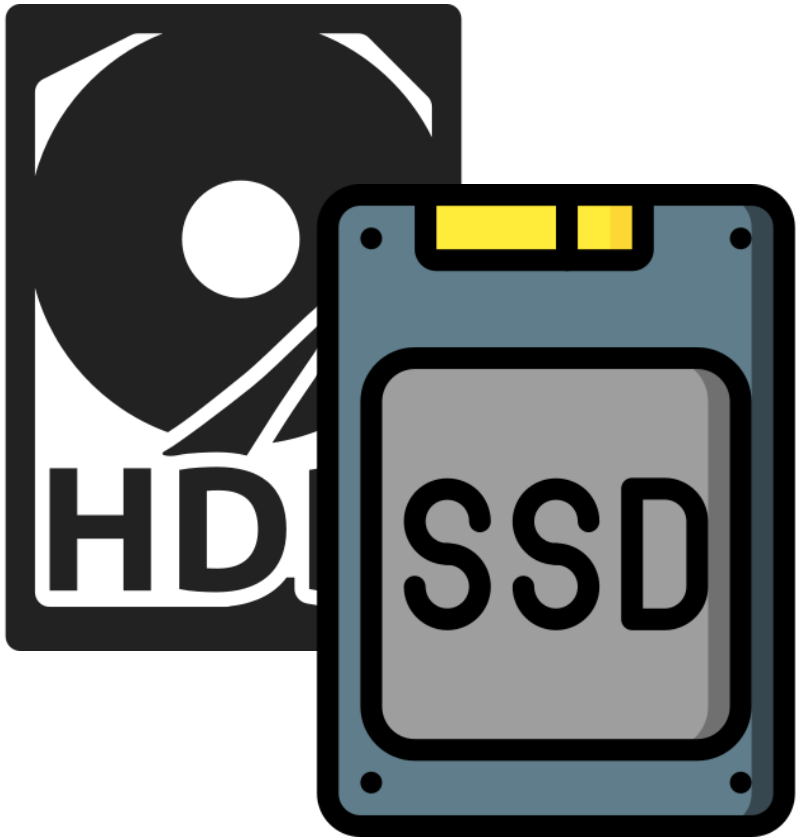
AWS Storage Service



- Amazon Elastic Block Stores
- Provides block-level storage volumes.
- If stop or terminate an Amazon EC2 in stance, all the data on the attached E BS volume **remains available**.

AWS Storage Service

Amazon EBS

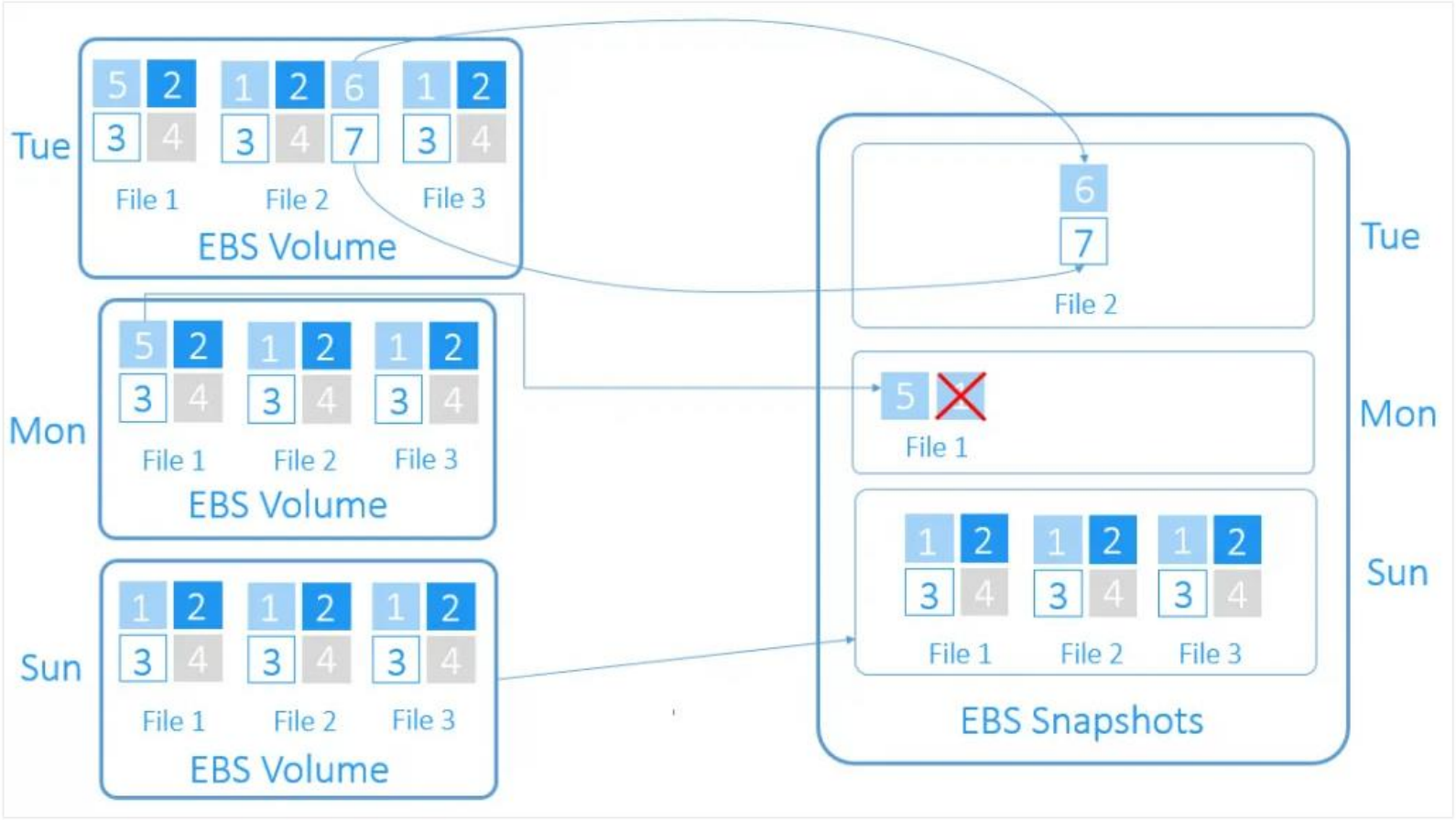


- Selection between HDD and SSD
- Customizable permanent blocks
- Replicated in the same Availability Zones.
- Backup using Snapshots
- Easy and transparent encryption.
- Elastic Volumes

Amazon EBS Snapshots

- Is an ***incremental*** backup.
- This means that the first backup taken of a volume copies all the data.
- For subsequent backups, only the blocks of data that have changed since the most recent snapshot are saved.
- Incremental backups → all the data in a storage volume copies each time a backup occurs.
- The full backup → includes data that has not changed since the most recent backup.

Amazon EBS Snapshots



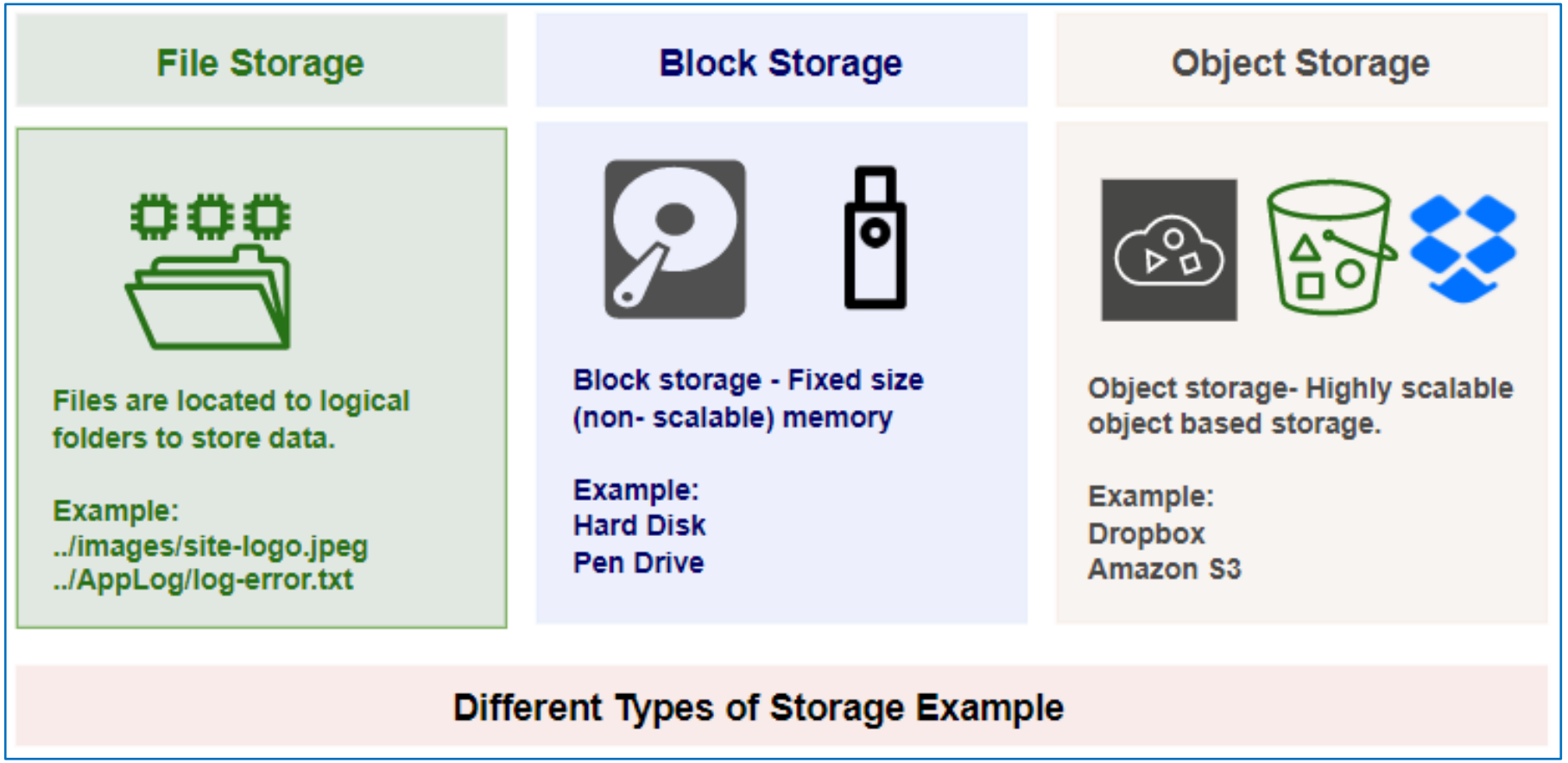
https://www.nakivo.com/blog/aws-ebs-snapshot-explained/

Lab1. Manage Amazon EBS

Amazon S3

Amazon S3

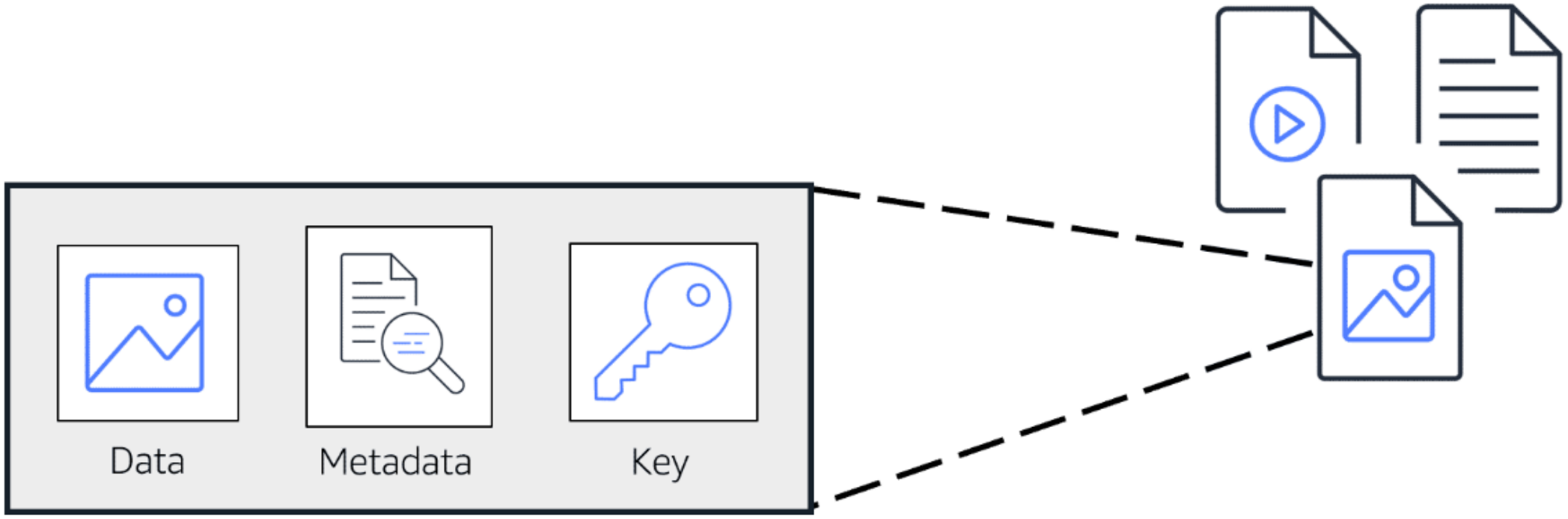
Object storage



https://cloudiofy.com/aws-simple-storage-service/

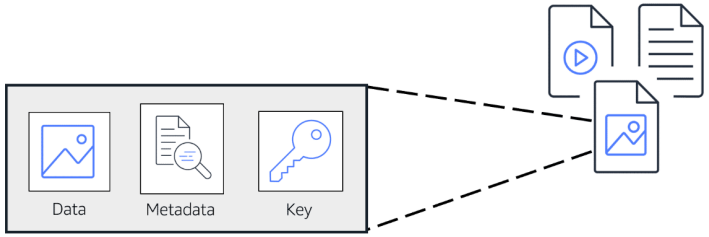
Amazon S3

Object storage



Amazon S3

Object storage



- In object storage, each object consists of data, metadata, and a key.
- The ***data*** might be an image, video, text document, or any other type of file.
- ***Metadata*** contains information about what the data is, how it is used, the object size, and so on.
- An object's ***key*** is its unique identifier.

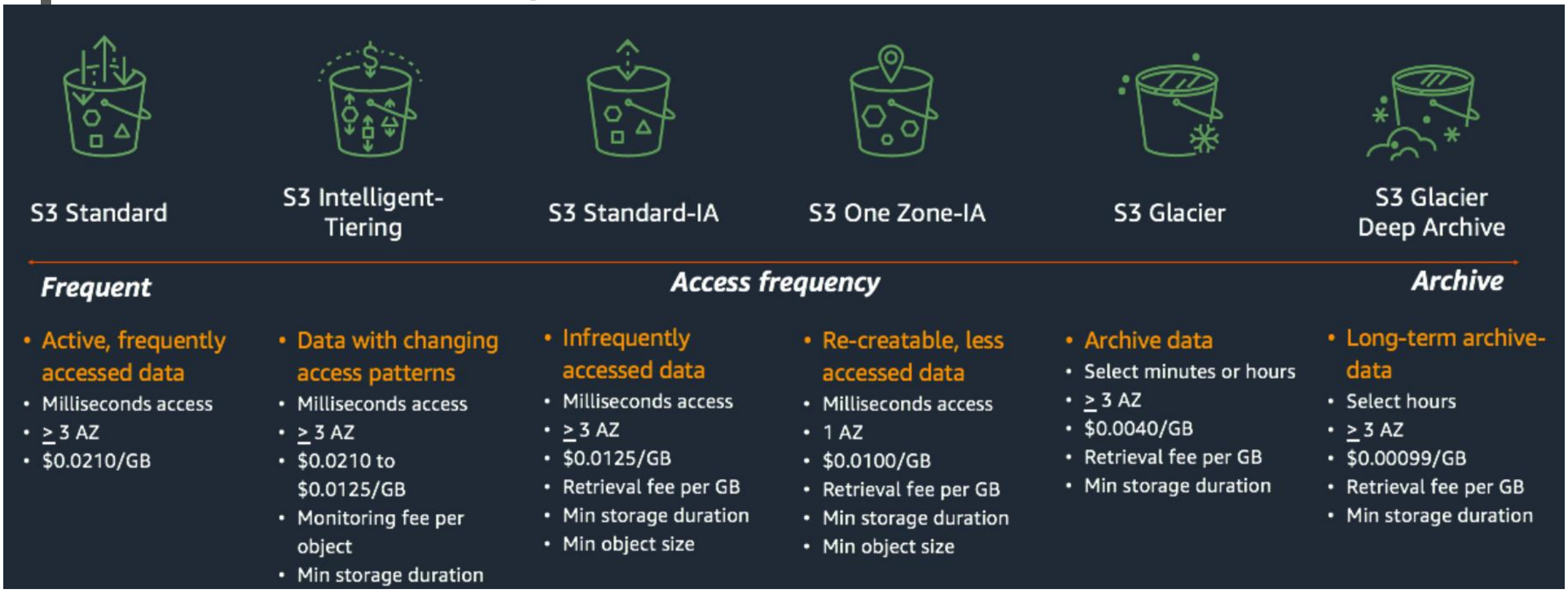
Amazon S3

Simple Storage Service

- Is a object based storage.
- Provides secure, fast, highly scalable and durable platform to store any type of data.
- Allows users to create a bucket (storage resource) to store different types of data like videos, images, files, documents etc.
- Objects size can be 5TiB.
- Bucket's name must be unique globally.
- For example:
  - https://s3.{Region}.amazonaws.com/{your-bucket-name}/

Amazon S3

Amazon S3 Storage Classes



https://catalog.us-east-1.prod.workshops.aws/workshops/f238037c-8f0b-446e-9c15-ebcc4908901a/en-US/002-services/002-storage/003-s3

Amazon S3 Storage Classes

- With Amazon S3, pay only for what use.
- Can choose from a range of storage classes to select a fit for your business and cost needs.
- When selecting an Amazon S3 storage class, consider these two factors:
  - How ***often*** you plan to retrieve your data
  - How ***available*** you need your data to be

Lab2. Create Amazon S3 Buckets and Manage

Amazon EFS

AWS EFS

File storage

- In file storage, multiple clients (such as users, applications, servers, and so on) can access data that is stored in shared file folders.
- In this approach, a storage server uses block storage with a local file system to organize files.
- Clients access data through ***file paths***.
- Is ideal for use cases in which a large number of services and resources need to access the same data at the same time.

AWS EFS

Amazon EFS

- Amazon Elastic File System.
- Is a scalable file system used with AWS Cloud services and on-premises resources.
- As add and remove files, Amazon EFS grows and shrinks automatically.
- It can scale on demand to PB without disrupting applications.

AWS EFS

Amazon EFS

- Is a regional service.
- It stores data in and across multiple AZs.
- The duplicate storage enables to access data concurrently from all the AZs in the Region where a file system is located.
- Additionally, on-premises servers can access Amazon EFS using AWS Direct Connect.

Lab3. Create Amazon EFS

Ref.

- https://docs.aws.amazon.com/ko_kr/AWSEC2/latest/UserGuide/AmazonEFS.html#efs-prerequisites
- https://docs.aws.amazon.com/ko_kr/efs/latest/ug/installing-amazon-efs-utils.html
- https://aws.amazon.com/ko/getting-started/tutorials/create-network-file-system/?pg=ln&sec=hs
- https://docs.aws.amazon.com/ko_kr/efs/latest/ug/installing-amazon-efs-utils.html#installing-other-distro

Quiz

#1

회사에 Amazon EC2 인스턴스를 사용하여 고객 대상 웹 사이트를 실행하고 Amazon RDS 데이터베이스 인스턴스를 사용하여 고객의 개인 정보를 저장하는 애플리케이션이 있다. 모범 사례에 따르면 개발자는 VPC를 어떻게 구성해야 하는가?

① Amazon EC2 인스턴스를 프라이빗 서브넷에 배치하고 Amazon RDS 데이터베이스 인스턴스를 퍼블릭 서브넷에 배치한다.

② Amazon EC2 인스턴스를 퍼블릭 서브넷에 배치하고 Amazon RDS 데이터베이스 인스턴스를 프라이빗 서브넷에 배치한다

③ Amazon EC2 인스턴스와 Amazon RDS 데이터베이스 인스턴스를 퍼블릭 서브넷에 배치한다

④ Amazon EC2 인스턴스와 Amazon RDS 데이터베이스 인스턴스를 프라이빗 서브넷에 배치한다

Quiz

#2

다음 중 보안 그룹을 가장 잘 설명한 것은 무엇인가?

① 보안 그룹은 상태 저장이며 기본적으로 모든 인바운드 트래픽을 거부한다.
② 보안 그룹은 상태 저장이며 기본적으로 모든 인바운드 트래픽을 허용한다.
③ 보안 그룹은 상태 비저장이며 기본적으로 모든 인바운드 트래픽을 거부한다.
④ 보안 그룹은 상태 비저장이며 기본적으로 모든 인바운드 트래픽을 허용한다.

Quiz

#3

다음 중 VPC를 인터넷에 연결하는 데 사용되는 구성 요소는 무엇인가?

① 퍼블릭 서브넷
② 엣지 로케이션
③ 보안 그룹
④ 인터넷 게이트웨이