Instructor Notes:

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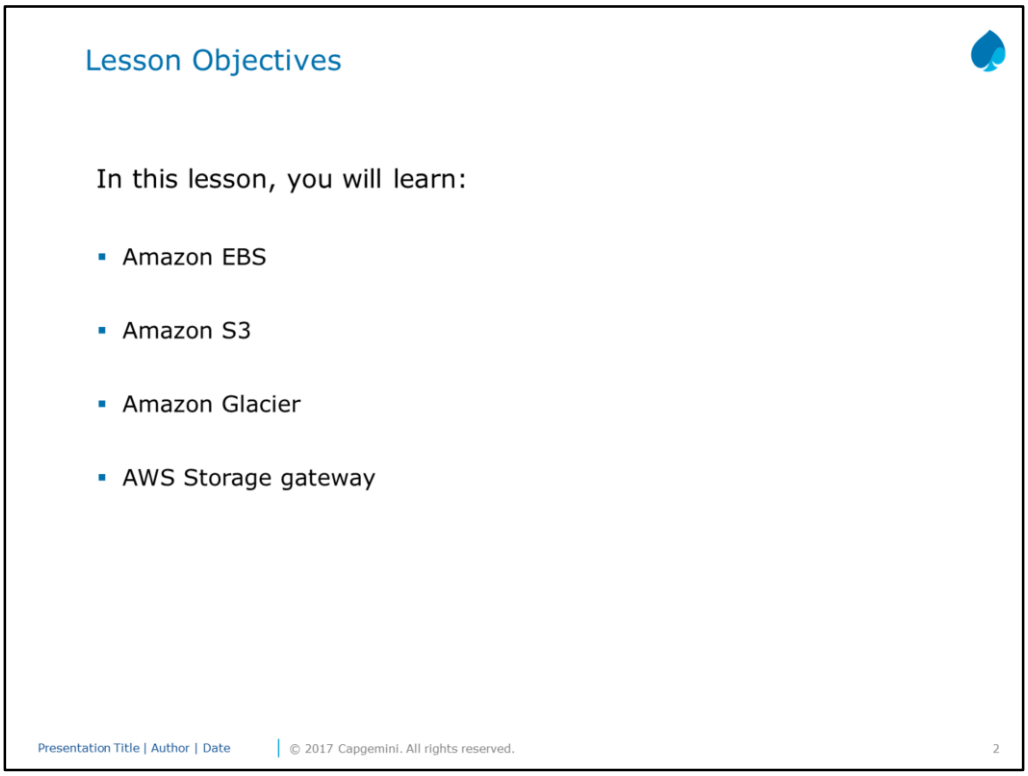
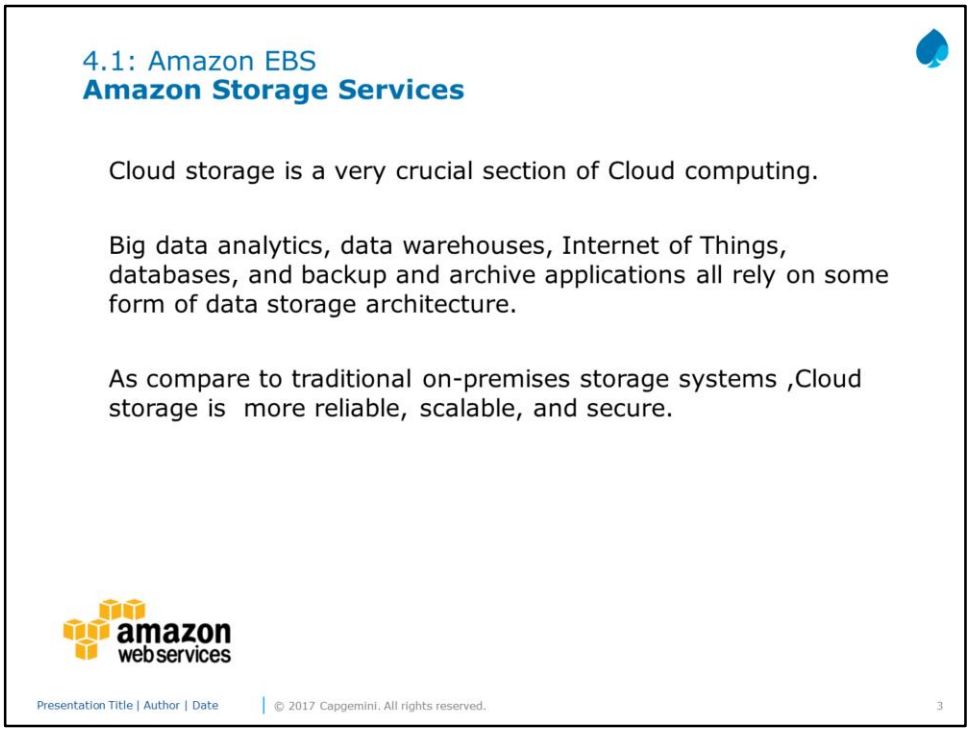
Instructor Notes:

This lesson is to give an Introduction on Java Server Pages



Amazon EBS
Amazon S3
Amazon Glacier
AWS Storage gateway

Instructor Notes:



Cloud storage is a critical component of cloud computing, holding the information used by applications. Big data analytics, data warehouses, Internet of Things, databases, and backup and archive applications all rely on some form of data storage architecture. Cloud storage is typically more reliable, scalable, and secure than traditional on-premises storage systems.

AWS offers a complete range of cloud storage services to support both application and archival compliance requirements. Select from object, file, and block storage services as well as cloud data migration options to start designing the foundation of your cloud IT environment.

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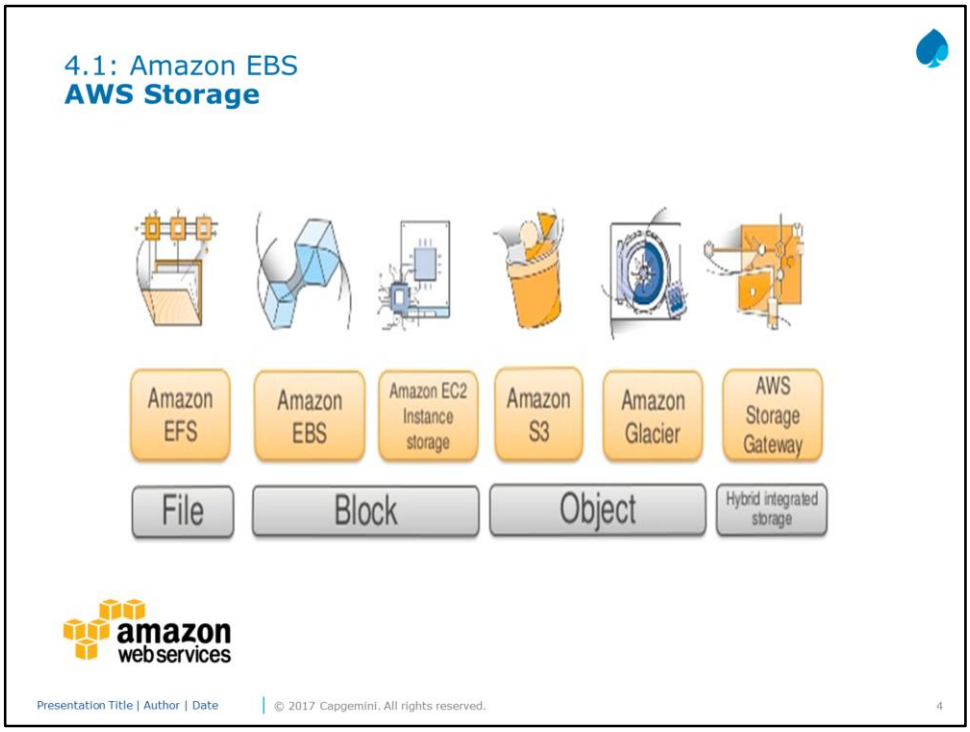


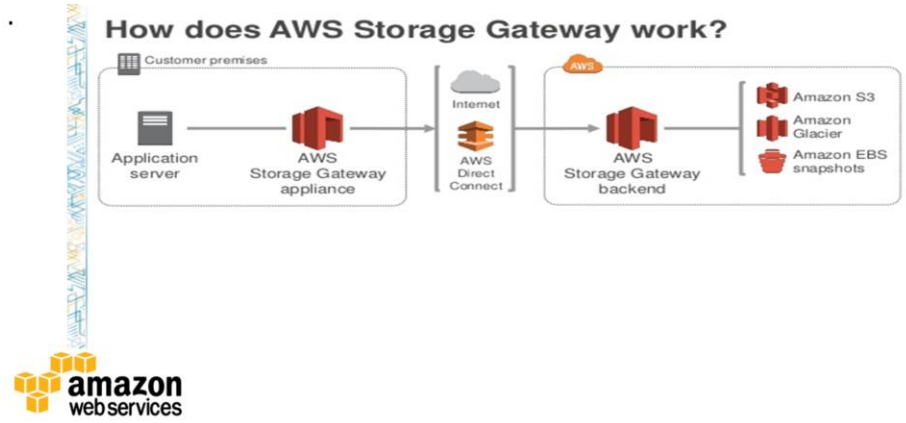
AWS provides Select from object, file, and block storage services as well as cloud data migration options to start designing the foundation of your cloud IT environment

Instructor Notes:

4.1: Amazon EBS

Amazon Storage Services

AWS offers a complete range of cloud storage services to support both application and archival compliance requirements .



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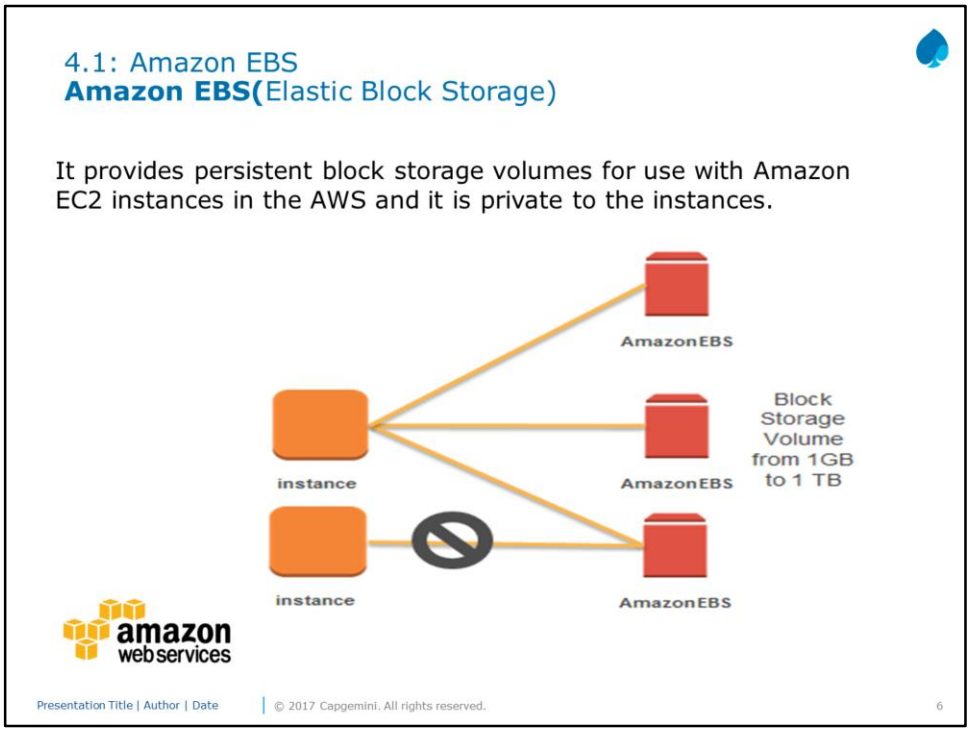

Each Amazon EBS volume is automatically replicated within its Availability Zone to protect you from component failure, offering high availability and durability.

One can attach multiple volumes to single EC2 instance in the same AZ.

One can Mount EBS as drives in EC2 instance and whenever required can be formatted.

Each Amazon EBS volume is automatically replicated within its Availability Zone to protect the user from any component failure.

It offers high availability and durability .

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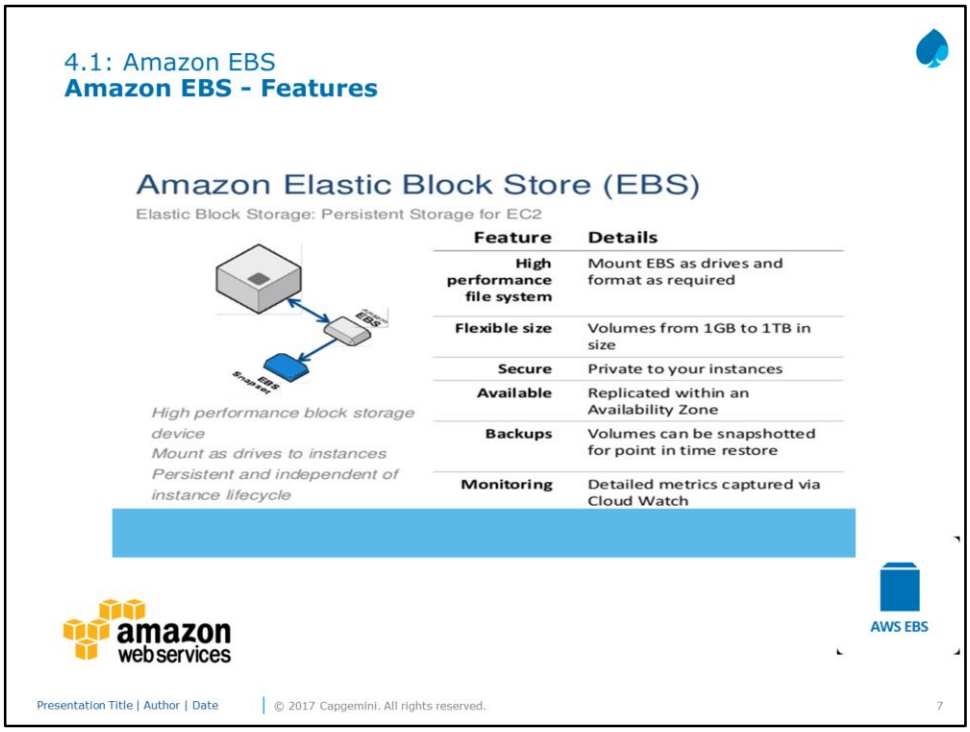

Amazon EBS encryption offers seamless encryption of EBS data volumes, boot volumes and snapshots, eliminating the need to build and manage a secure key management infrastructure.

Dynamically increase capacity, tune performance, and change the type of live EBS volumes. Elastic Volumes allows you to dynamically increase capacity, tune performance, and change the type of any new or existing current generation volume with no downtime or performance impact.

By using Amazon CloudWatch with AWS Lambda you can automate volume changes to meet the changing needs of your applications.

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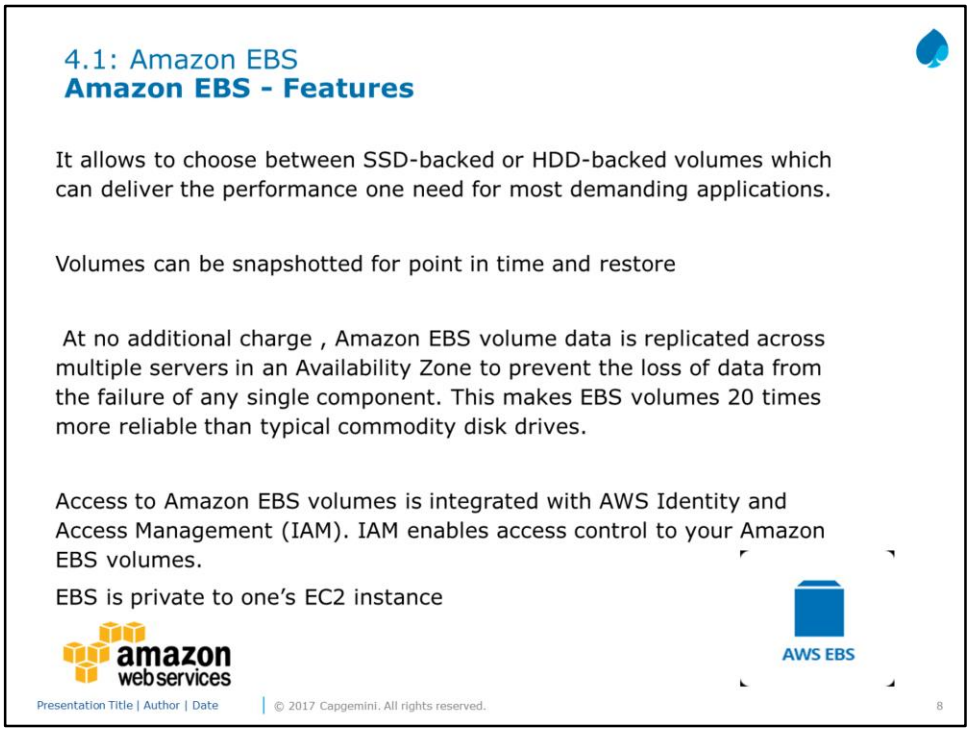
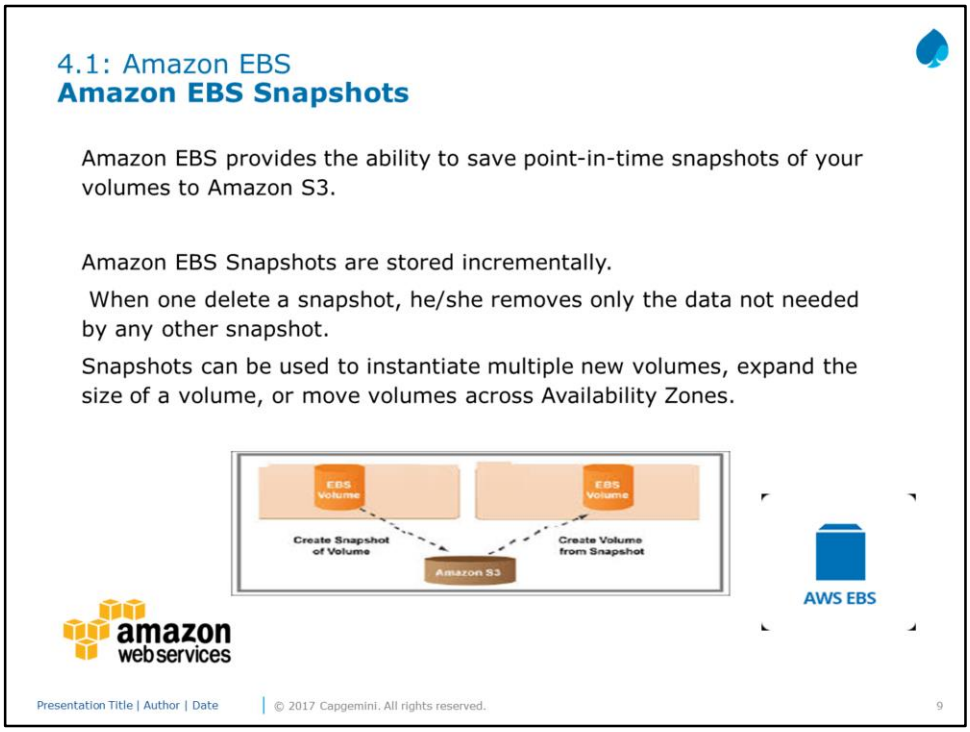


It allows to choose between SSD-backed or HDD-backed volumes which can deliver the performance one need for most demanding applications.

Each Amazon EBS volume is automatically replicated within its Availability Zone to protect you from component failure, offering high availability and durability.

Instructor Notes:



Amazon EBS Snapshots are stored incrementally: only the blocks that have changed after your last snapshot are saved, and you are billed only for the changed blocks. If you have a device with 100 GB of data but only 5 GB has changed after your last snapshot, a subsequent snapshot consumes only 5 additional GB and you are billed only for the additional 5 GB of snapshot storage, even though both the earlier and later snapshots appear complete.
When one delete a snapshot :-
All active snapshots contain all the information needed to restore the volume to the instant at which that snapshot was taken. The time to restore changed data to the working volume is the same for all snapshots.

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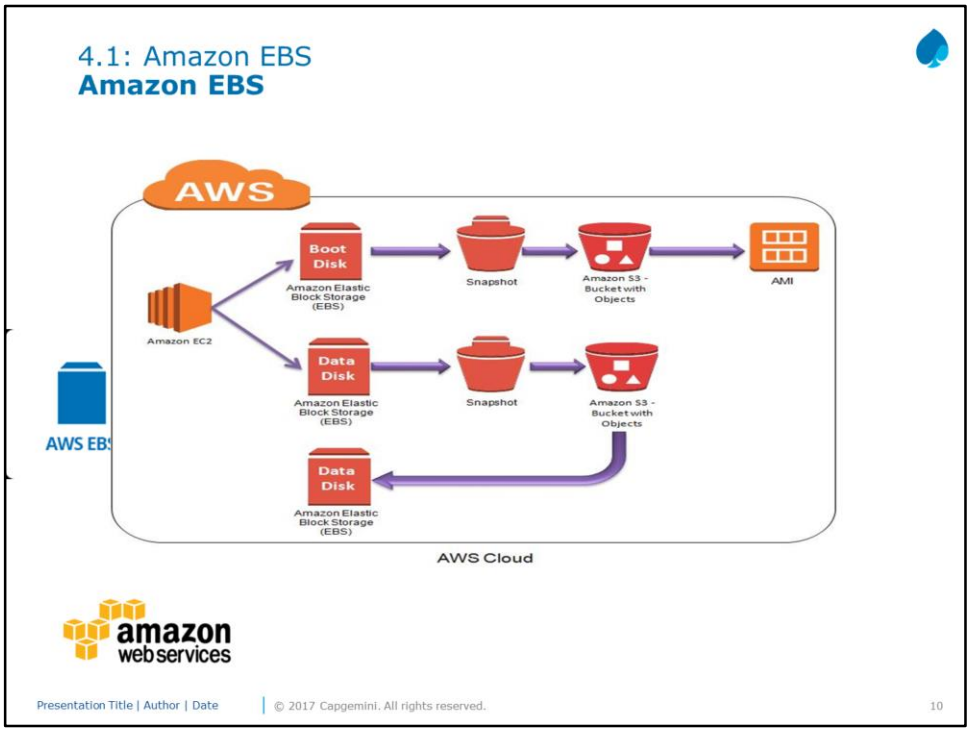

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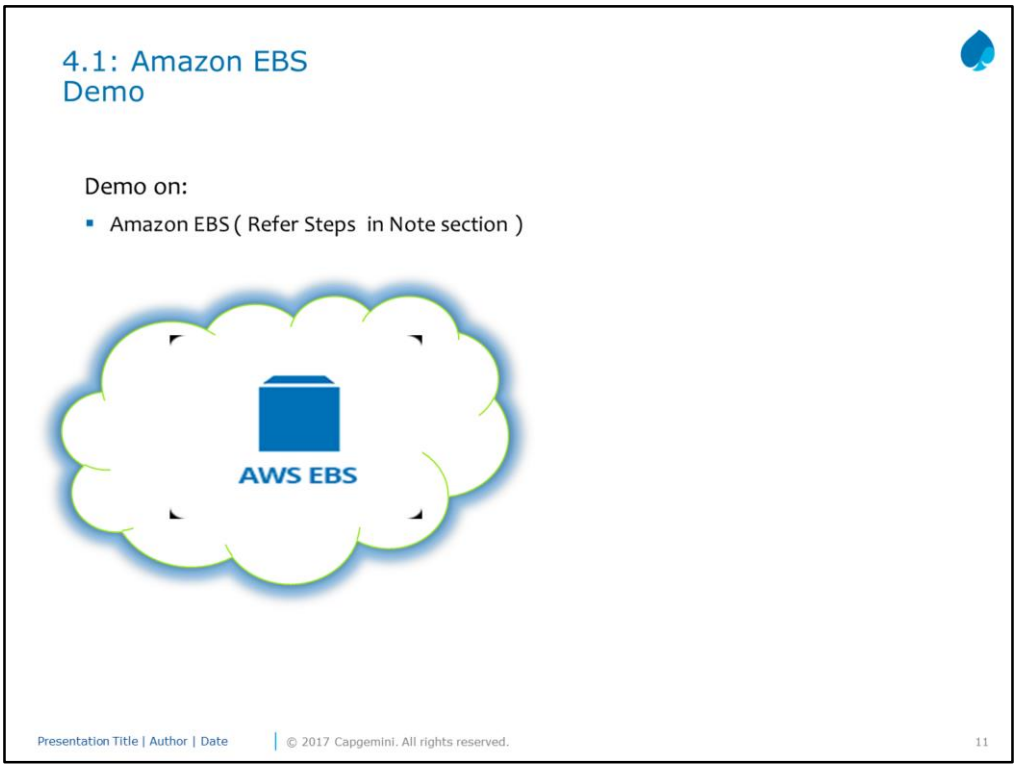

Step 1 : Go to EC2 dashboard and click on Volume
Step 2 : Click on Create volume
Step 3 : Select Volume type and Add a Tag
Step 4 : Click on Create Volume button
Step 5: Select the volume and attach it
Step 6: Note the Linux Device path

Step 7 : Click on Attach button

For Mounting your Volume , Go to Putty and type the below command

Step 1 : lsblk
Step 2 : sudo file – s /dev/xvdf

Step 3 : sudo file –s /dev/xvda1

Step 4 : sudo mkfs -t ext4 /dev/xvdf

Step 5 : sudo mkdir /data

Instructor Notes:

4.2: Amazon S3
Amazon S3(Simple Storage Service)

- Amazon S3 is the storage for the Internet , which is designed to make web-scale computing easier for Developers .
- It provides a simple web services interface which can be used to store and retrieve any amount of data, at any time, from anywhere on the web(i.e. web sites, mobile apps, corporate applications, and data from IoT sensors or devices) .
- The service aims to maximize benefits of scale and to pass those benefits on to developers.

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Instructor Notes:

4.2: Amazon S3
Amazon S3(Simple Storage Service)

- The container for objects stored in Amazon S3 is called an Amazon S3 bucket .
- Amazon S3 is the most supported cloud storage service available, with integration from the largest community of third-party solutions, systems integrator partners, and other AWS services.
- Store and retrieves digital files.
- Amazon S3 allows you to run sophisticated Big Data analytics on your data without moving the data into a separate analytics system

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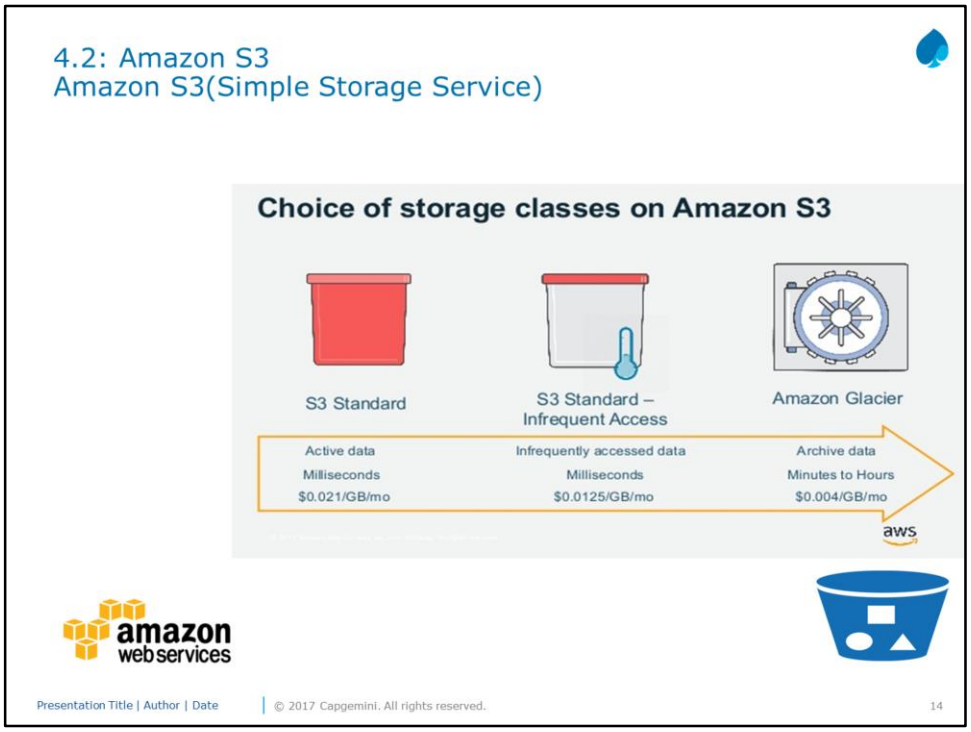

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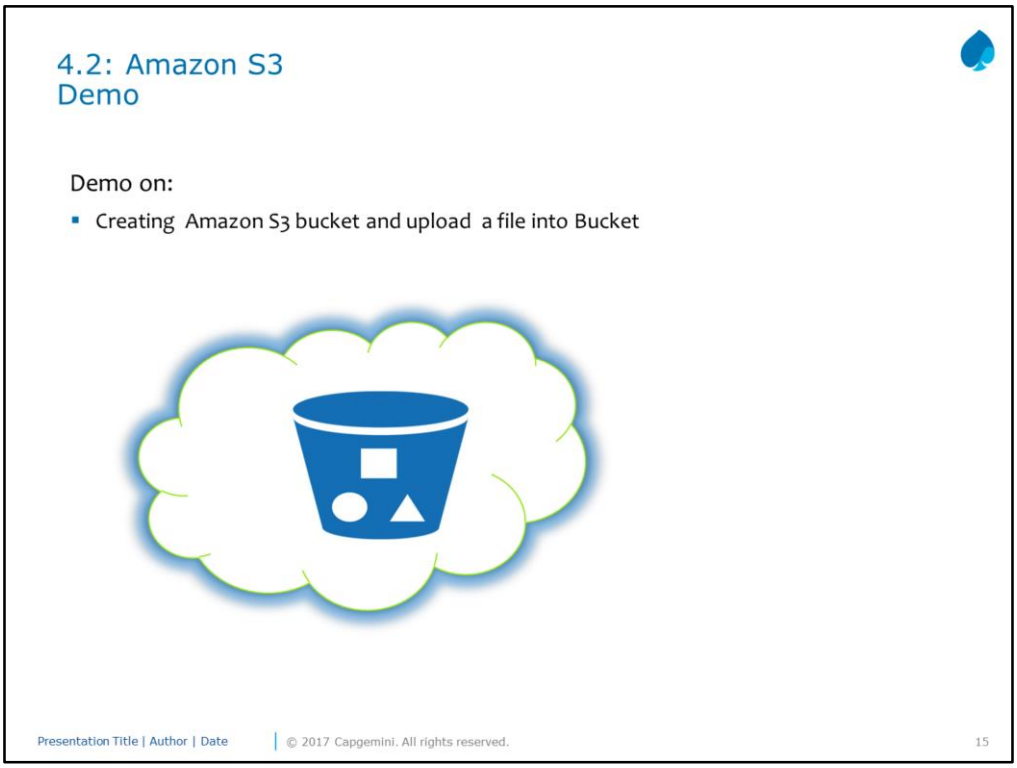


Follow the steps to Create a S3 Bucket and upload the file into the bucket

Step 1 : Choose S3 under storage service and click on Create Bucket button

Step 2 : Provide a Bucket Name and choose the Region

Step 3 : Click on Next

Step 4: Don't change anything in SetProperties window and click Next

Step 5: You can add one more Account and click on Read permission click on Save button

Step 6 : If you want give the public read permission to this bucket and click on Next

Step 7: Review it and click on Create Bucket button

Step 8: Close this window and see your Bucket from list

Step 9: Click on your Bucket and go to properties tab

Step 10 : Click on Static web hosting tab

Step 11 : choose "use this bucket to host your web site "

Step 12 : Provide the index document name and click on Save button

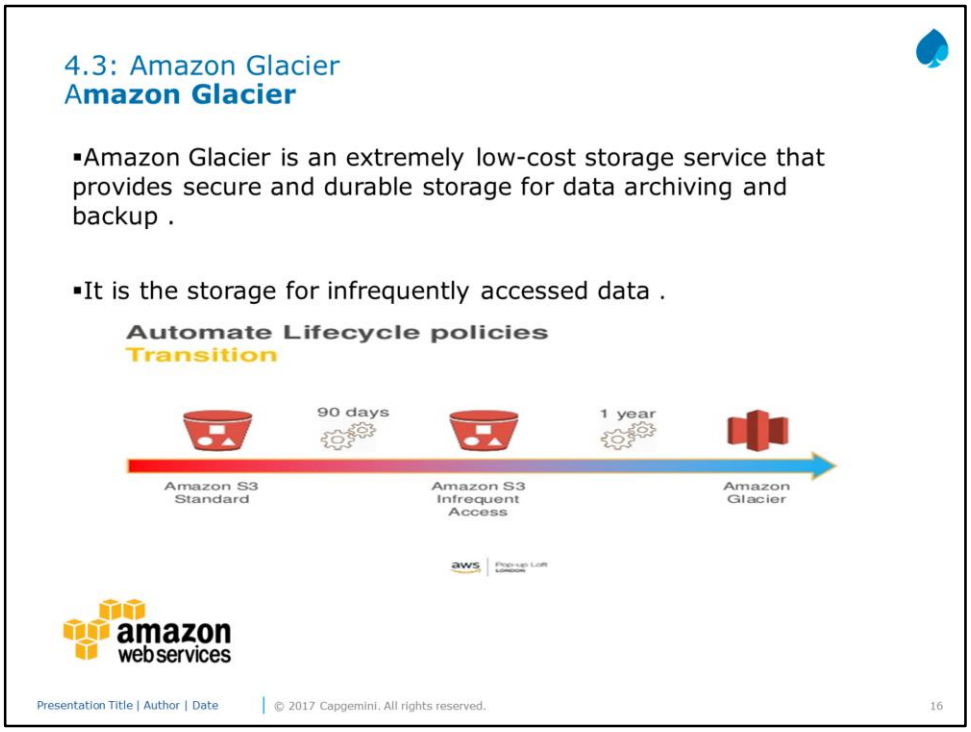
Step 13 : Come to Overview tab and choose a file and upload it

Step 14 : Click on the file you uploaded

Step 15 : Click on make public button

Step 16: Click on the link and see your file

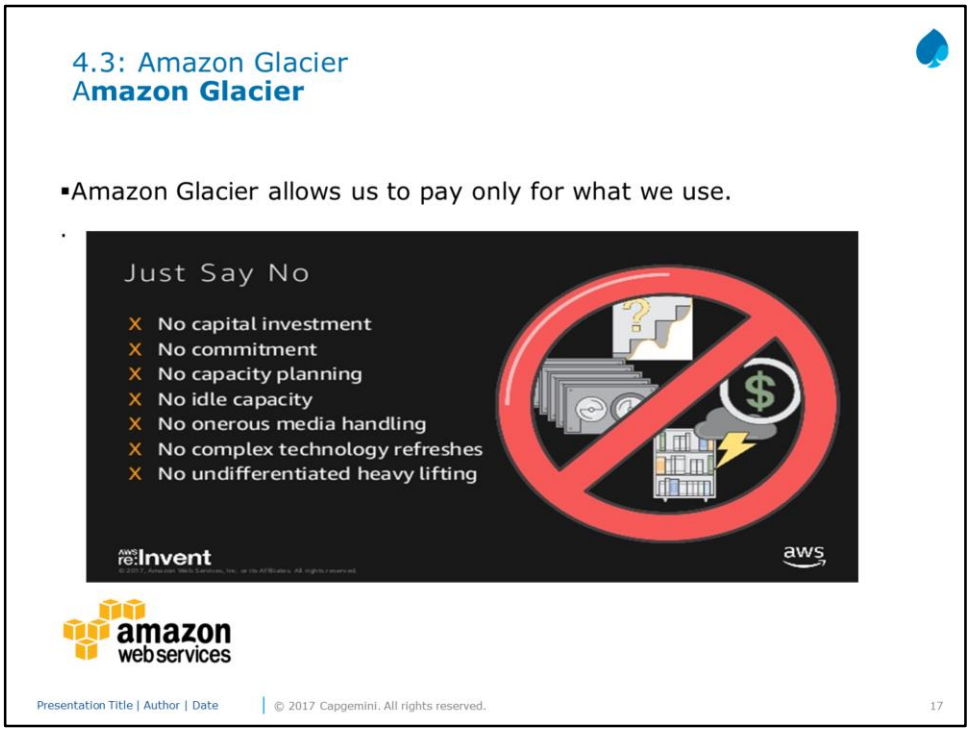
Instructor Notes:



▪Even lower cost than Amazon S3 with Same high durability.

▪With Amazon Glacier, customers can reliably store large or small amounts of data for as little as $0.01 per gigabyte per month, which is always better then on-premises solutions

Instructor Notes:



▪Amazon Glacier allows us to pay only for what we use.

.

▪For data archiving and backup no need to pay any upfront money.one can pay the low price for storage, and can scale your usage up or down as needed .

▪It is easy to use.

▪Amazon Glacier is the only cloud archive storage service that allows you to query data in place and retrieve only the subset of data you need from within an archive

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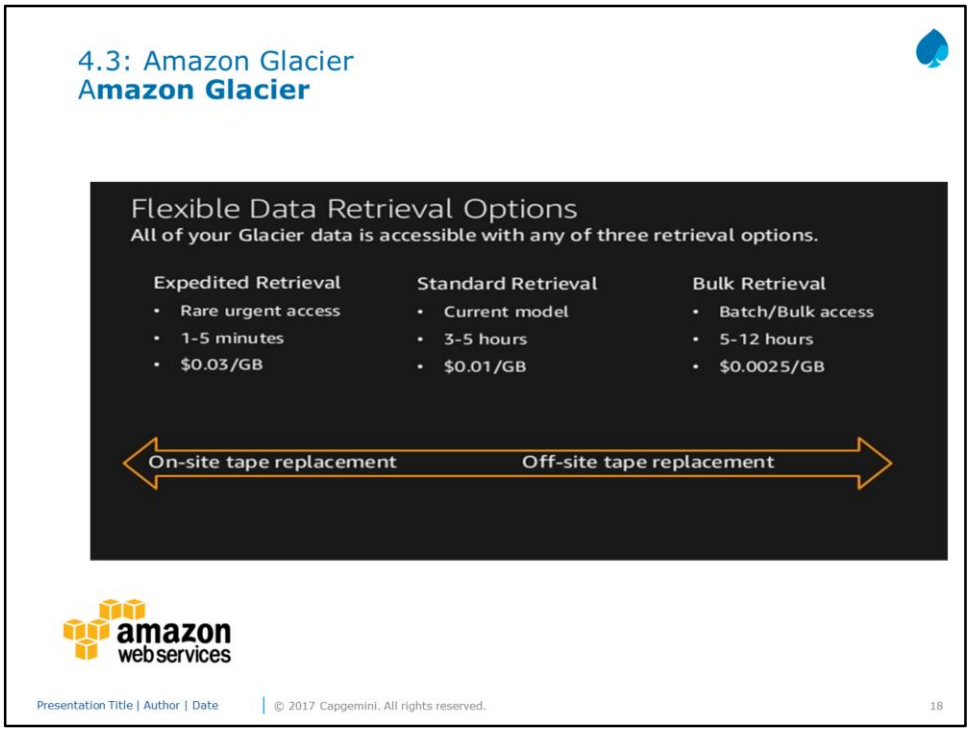

Just Say No :--

- capital investment
- No commitment
- No capacity planning
- No idle capacity
- No onerous media handling
- No complex technology refreshes
- No undifferentiated heavy lifting

Instructor Notes:

4.4: Amazon Storage gateway

AWS Storage gateway

- It is a hybrid storage service which enables the on-premises applications to seamlessly use AWS cloud storage.

- It provides three interface in a data center and it connects those three interface to AWS storage.
  - Files
  - Volumes
  - Tapes

It brings the AWS storage to your application by using a standard protocol.

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Instructor Notes:

Iscsi - Internet Small Computer Systems Interface, an Internet **Protocol** (IP)-based storage networking standard for linking data storage facilities. It provides block-level access to storage devices by carrying SCSI commands over a TCP/IP network.

NFS :-- Network File System (**NFS**) is a distributed file system **protocol** originally developed by Sun Microsystems in 1984, allowing a user on a client computer to access files over a computer network much like local storage is accessed. **NFS**, like many other **protocols**, builds on the Open Network Computing Remote Procedure Call ...

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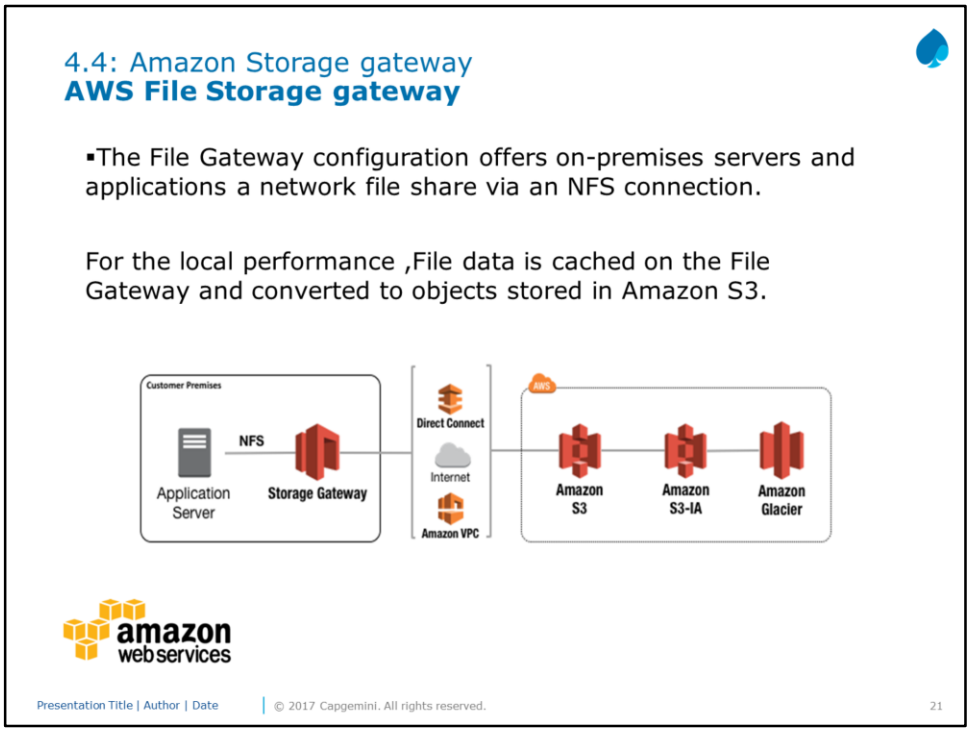


▪The File Gateway configuration offers on-premises servers and applications a network file share via an NFS connection.

For the local performance ,File data is cached on the File Gateway and converted to objects stored in Amazon S3.

In the data center Data moves to AWS storage through a Protocol called as NFS .

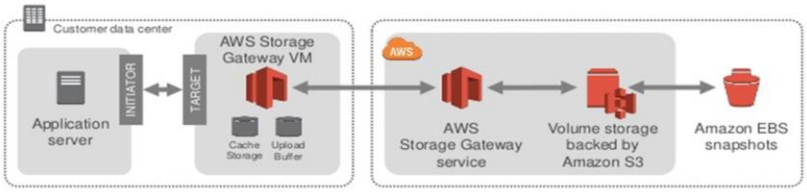
Instructor Notes:

4.4: Amazon Storage gateway

AWS Volume Storage gateway

Volume Gateway – Cached

Primary data stored in AWS
Frequently accessed data cached on-premises
Point-in-time backups stored as Amazon EBS snapshots
Up to 32 volumes, up to 32 TB each, for up to 1 PB per gateway



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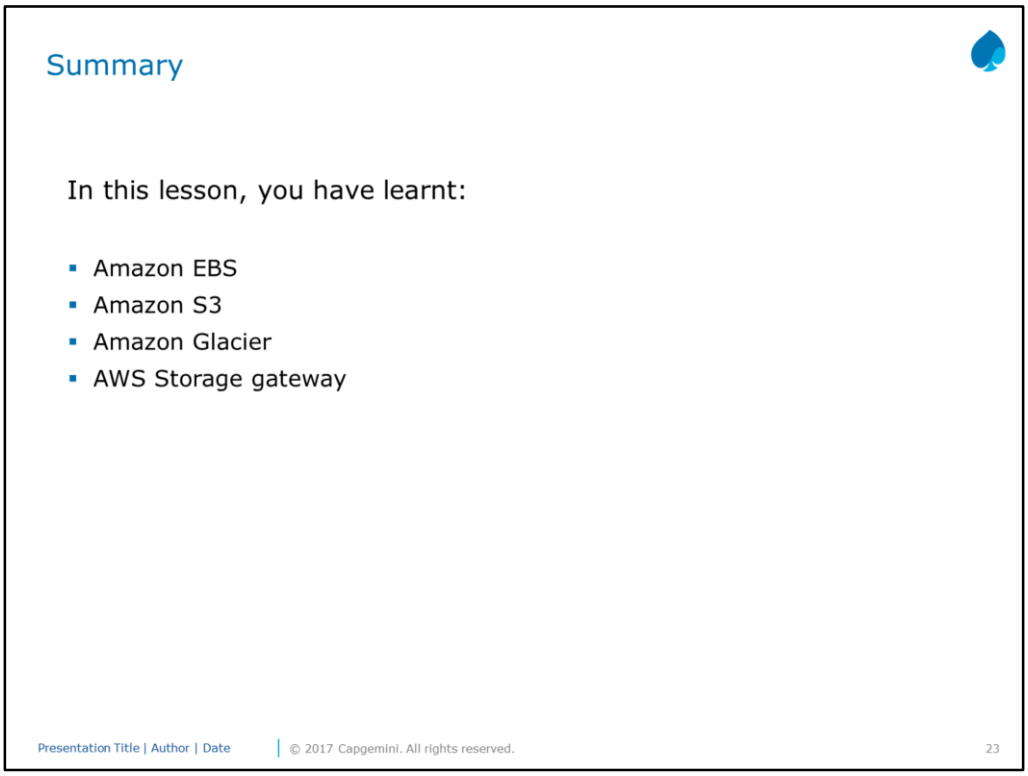
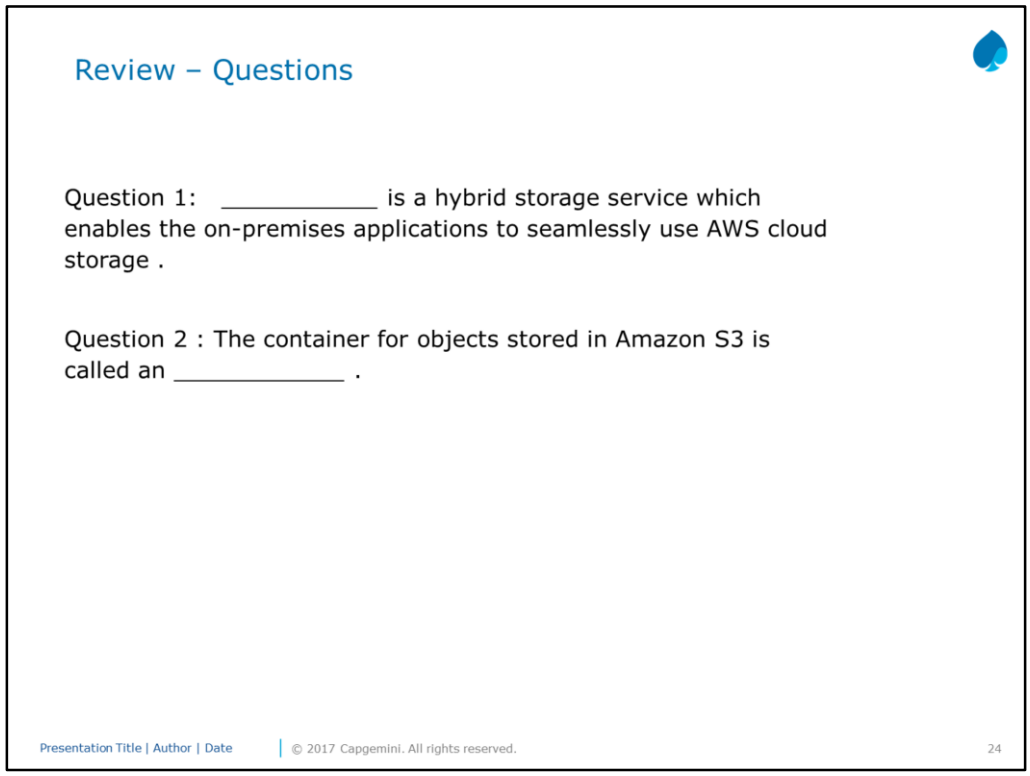


Instructor Notes:

Answers for the Review Questions:

Answer 1: Amazon Storage gateway

Answer 2: Amazon S3 Bucket



Instructor Notes:

Answers for the Review Questions:

Answer 3 AWS Glacier

Answer 4: Option 1