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**Lab 5: AWS Storage Solutions and Management**

*RQF Level 5*

**Objective:**

The objective of this lab is to familiarize participants with AWS storage services and provide hands-on experience with Amazon S3, Amazon EBS, and Amazon EFS. Participants will explore various storage options, focusing on data storage, backup, and retrieval.

**Prerequisites:**

* SysOps Advancement Track

**Lab Steps:**

**Step 1: Introduction to AWS Storage Solutions**

- Briefly discuss the importance of storage in cloud computing.

- Introduce key AWS storage services: Amazon S3, Amazon EBS, and Amazon EFS.

- Highlight use cases for each storage service.

**Step 2: Working with Amazon S3**

- In the AWS Management Console, navigate to Amazon S3.

- Create a new S3 bucket with a unique name.

- Upload files to the S3 bucket.

- Configure bucket policies and access control settings.

- Enable versioning for the S3 bucket.

**Step 3: Configuring S3 Lifecycle Policies**

- Create a lifecycle policy for the S3 bucket.

- Configure rules for transitioning objects between storage classes.

- Set up expiration rules for objects.

**Step 4: Working with AWS EBS**

- In the AWS Management Console, navigate to Amazon EBS.

- Create a new EBS volume and attach it to an EC2 instance.

- Format and mount the EBS volume on the EC2 instance.

- Write data to the EBS volume and verify data persistence.

**Step 5: Snapshotting EBS Volumes**

- Create a snapshot of the EBS volume.

- Demonstrate how to create a new EBS volume from the snapshot.

- Discuss the importance of EBS snapshots for backup and recovery.

**Step 6: Working with AWS EFS**

- In the AWS Management Console, navigate to Amazon EFS.

- Create a new EFS file system.

- Mount the EFS file system on multiple EC2 instances.

- Demonstrate file sharing and synchronization across instances.

**Step 7: Cleanup**

- Guide learners through proper cleanup procedures to avoid unnecessary costs.

- Delete S3 buckets, EBS volumes, and EFS file systems created during the lab.

*Conclusion:*

*By completing this lab, participants have gained practical experience in working with AWS storage solutions, including Amazon S3 for object storage, Amazon EBS for block storage, and Amazon EFS for file storage. They have explored various features such as versioning, lifecycle policies, snapshots, and file system sharing. This lab equips participants with foundational knowledge for designing and managing storage solutions on AWS.*