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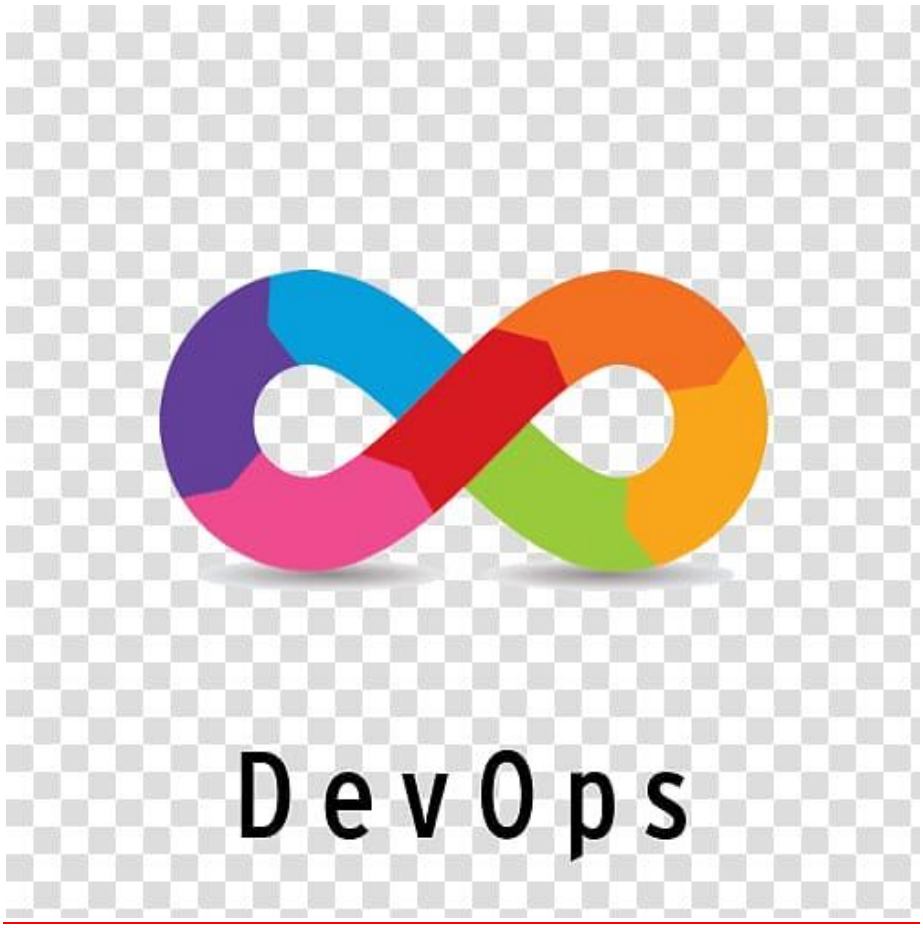
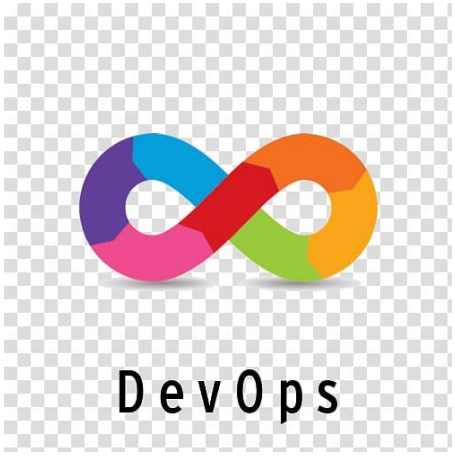
DevOps Engineer Diploma



DevOps Engineer Diploma



AWS Labs

Lab 19

Cross-Region EBS Snapshot and EC2 Recovery

Lab Objectives

- **Creating and Managing EC2 Instances in Different Regions**
- **Working with EBS Volumes and Storage Expansion**
- **Creating and Tagging EBS Snapshots**
- **Copying Snapshots Across AWS Regions**
- **Restoring Volumes from Cross-Region Snapshots**
- **Launching EC2 Instances Using Recovered Volumes**
- **Verifying Volume Attachment and Data Availability**

This lab focuses on understanding how Amazon EC2 and Amazon EBS work together to provide regional resiliency, backup capability, and cross-region data recovery. Students will simulate a real-world scenario where application data stored on an extra EBS volume in one AWS region must be backed up, replicated to another region, and restored onto a newly launched EC2 instance.

The goal is to ensure students understand how data persists across regions and how to recreate compute environments from previously backed-up disk volumes.

Region A – Source Environment

In the first region (Region A), you will work with an active EC2 instance that hosts an application or data set. This instance must meet the following conditions:

EC2 Instance

- Runs a general-purpose Linux distribution such as **Amazon Linux** or **Ubuntu**.
- Uses a lightweight instance type such as **t2.micro** or **t3.micro** to remain within free-tier or low-cost usage.
- Operates inside the **default VPC**, using default networking settings.

Storage Layout

The instance includes:

- A **root volume** (automatically created with the instance).
- An **additional EBS data volume** (10–20 GB, gp3), used specifically for storing application data or custom files that need cross-region backup.

This extra volume is the focus of the snapshot and recovery workflow.

Snapshot Requirements

A **snapshot** must be created from the extra EBS data volume.
The snapshot is intended to serve as a recoverable backup that can be transferred to other regions.

The snapshot must meet the following requirements:

- It is created **only** from the attached data EBS volume (not the root volume).
- It must be **eligible for cross-region copying**, meaning its configuration and access permissions allow duplication.

- It must contain **tags** to identify:
  - The original region where it was created.
  - The purpose of the snapshot (e.g., backup, disaster recovery, migration).

These tags help track snapshots across environments and align with AWS tagging best practices.

Region B – Recovery Environment

In a separate region (Region B), students will recreate the environment by restoring data from the snapshot copy.

The following must exist in Region B:

Snapshot Copy

- A successfully copied version of the original snapshot must appear in Region B.
- This snapshot should retain the meaningful tags provided in Region A.

Volume Creation

- A **new EBS volume** must be created from the snapshot copy.
- The volume must be placed in the **same Availability Zone (AZ)** as the EC2 instance that will use it.
  - This is required because EBS volumes are AZ-specific.

EC2 Instance

- A new EC2 instance must be launched in Region B.
- It must run in the **same AZ** where the new EBS volume exists.
- This instance will be configured to simulate a disaster-recovery or migration target environment.

Volume Attachment

- The restored EBS volume must be attached to the new EC2 instance as a **secondary data volume**.
- This verifies that the data originally stored in Region A can be accessed and used in Region B.

You are Welcome