**Lab Activity Report: Working with Amazon EBS (50 points)**

**ITELEC 4103**

**Overview:**

This lab is designed to show you how to create an Amazon EBS volume. After you create the volume, you will attach the volume to an Amazon EC2 instance, configure the instance to use a virtual disk, create a snapshot and then restore from the snapshot.

**REPORT TEMPLATE:**

The report **should not exceed 6 pages**. For each additional page beyond the limit, a 5-point deduction will be applied.

Please **use screenshots** to enhance your explanations or clarify specific points. Screenshots should be used to support the discussion and illustrate key concepts.

**I. Brief Rationale for the Activity Conducted:**

Provide a short introduction explaining the purpose of this activity. Discuss the importance of understanding cloud networking, securing web infrastructure, and deploying scalable web resources using VPC.

**II. Discussion (based on the tasks performed):**

* **Create an Amazon EBS Volume:**
  + Discuss how you created the EBS volume, the properties set, and its initial configuration settings.
* **Attaching the EBS Volume to the Instance:**
  + Explain how you attached the newly created EBS volume to an existing EC2 instance. What is the implication of attaching the EBS volume to that EC2 instance?
* **Configuring the instance to use the attached volume:**
  + Detail how you formatted, mounted, and integrated the EBS volume into the EC2 instance for the instance to recognize and utilize the volume as part of its available resources.
* **Creating an Amazon EBS snapshot:**
  + Explain how you created a snapshot of the EBS volume to provide a point-in-time backup.
* **Restoring the snapshot:**
  + Provide details on how you restored a snapshot to a new EBS volume

**III. Exploring Data Persistency:**

Discuss how EBS volumes allow data to persist independently of EC2 instances making them ideal for workloads requiring long-term data storage and high availability. Demonstrate how critical data is not lost when an instance is terminated.

**IV. Exploring Data Backup and Recovery:**

Discuss the role of the snapshot functionality in creating reliable backups. Demonstrate how data can be quickly restored in case accidental deletion, corruption, or system failure happens.

**V. Scalability and Cost Management:**

By creating, attaching, and detaching volumes, discuss how EBS enables scalable storage options for varying workloads. Explain how does proper configuration can optimize costs while meeting performance requirements.

**VI. Replicating Storage Across Instances**

Using snapshots to replicate an EBS volume, illustrate how to duplicate storage configurations for deployment in different instances, promoting efficiency in multi-instance setups.

**RUBRICS FOR THE ACTIVITY**

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| --- | --- | --- | --- | --- |
|  | **3 pts** | **6 pts** | **10 pts** | **12.5** **pts** |
| **Focus** | The discussion lacked clarity and direction, with little to no connection to the main topic or activity. | Some topics were addressed, but the discussion was not comprehensive or lacked depth in several areas. | All relevant topics were addressed with a clear and organized focus, though some areas may have lacked detail. | Each topic was addressed with thorough, detailed, and well-organized discussion, providing a deep focus on the key areas. |
| **Clarity** | The answer or discussion was unclear and difficult to follow, lacking a direct connection to the topic. | The answer or discussion addressed the topic, but in a roundabout or vague manner, making it harder to understand. | The answer or discussion directly addressed the topic, providing clarity and coherence. | The answer or discussion was exceptionally clear, concise, and to the point, making the topic easy to understand. |
| **Organization** | The answer or discussion had no clear structure, leaving gaps for readers to fill in. | The answer or discussion had some structure and painted a complete picture, but the organization was not orderly, making it less effective. | Details were presented in a logical order, but the structure could have been more engaging. Some loose ends remained, and the flow of the discussion was somewhat uneven. | Details were logically ordered and presented in engaging ways. The discussion flowed smoothly, covering all main points clearly, and concluded effectively. |
| **Application** | The answer or discussion showed a lack of understanding of basic concepts and principles, with no clear connection to the material. | The answer or discussion was able to state a few concepts and principles but did not fully apply them. | The answer showed a clear understanding and application of basic concepts and principles, demonstrating comprehension of the material. | The answer integrated and applied concepts and principles from the module materials effectively, showing a deep understanding and practical application of the ideas. |