

OpenStack Instance Management Lab 6: Orchestrating Virtual Machines for Optimal Efficiency

Use Case Scenario:

Welcome to the OpenStack Instance Management Lab – a pivotal part of your cloud computing journey. In this lab, you, as a student, are entrusted with the responsibility of efficiently managing instances in an OpenStack environment. Picture yourself as a cloud administrator, ensuring that virtual machines are orchestrated seamlessly for diverse projects and use cases.

Part 1: Creating Instance Snapshots

Imagine you are leading a team of developers working on an innovative software project. As the project progresses, you encounter critical milestones. In this lab, you will learn how to create snapshots of instances at these key points, allowing you to preserve the state of your work. This ensures that you can always revert to a known good state or launch new instances with the same configuration.

Activity 1: Creating Instance Snapshots

- Your task: Log in as an admin, navigate to Compute ► Instances, choose an instance, and create a snapshot. This process mirrors the critical checkpoint in your development cycle, ensuring reproducibility and flexibility.

Activity 2: Controlling the State of an Instance

- Now, envision a scenario where one of your instances requires specific actions based on its current state. As an admin, you can control various aspects such as shelving, unshelving, rescuing, editing, and more. Explore these options as you manage instances tailored to your team's needs.

Part 2: Tracking Usage for Instances

In a dynamic cloud computing environment, resource usage and cost tracking are essential. As the admin overseeing multiple projects, you need insights into resource consumption for billing and optimization purposes.

Activity 1: Track Usage for Instances

- Step into the shoes of a cloud financial analyst. Log in to the dashboard, select the appropriate project, and analyze usage metrics. Understand the costs associated with instances, such as vCPUs, disks, RAM, and uptime. This real-time tracking ensures efficient resource allocation.

Activity 2: Download CSV Summary

- As part of your financial oversight role, learn how to download a summary of usage metrics in a CSV format. This downloadable report provides a comprehensive overview of monthly usage, enabling you to make informed decisions about resource allocation and project budgets.

To summarize:

- Activity 1 in Part 1 involves creating instance snapshots, which is a Nova feature.
- Activity 2 in Part 1 involves controlling various aspects of instances, which is again a Nova feature.
- Activity 1 in Part 2 involves tracking usage for instances, and this is likely done through the Nova Compute service or associated tools.
- Activity 2 in Part 2 involves downloading a CSV summary, which may involve utilizing tools like Nova or potentially other OpenStack components for reporting.

Conclusion:

In this lab, you, as a student administrator, gain practical experience in managing instances effectively. The scenario-based activities mimic real-world cloud administration challenges, preparing you for diverse roles in the ever-evolving landscape of cloud computing. From creating instance snapshots for project milestones to tracking resource usage for financial planning, this lab equips you with the skills needed to navigate the complexities of OpenStack instance management.