LP2 Mini Project Report

OpenStack deployed in

Virtual Machine

Team Members

1)Tanmay Rai (60)

2) Priya Suryawanshi (72)

3) Aditi Suryawanshi (71)

Professor Guide

Title:
OpenStack

Problem Statement:
Develop OpenStack Environment and deploy in virtual machine

Objective:
To develop a Portal for:

1. OpenStack

Outcome:
On Successful completion of the project students were able to learn Cloud Computing deployment and got acquainted with technologies like Openstack and Ubuntu.

Technologies:

1. **OpenStack**

> OpenStack is a free, open standard cloud computing platform. It is mostly deployed as infrastructure-as-a-service in both public and private clouds where virtual servers and other resources are made available to users

Features of OpenStack used:

Compatibility and portability. Aside from its open source nature, OpenStack has a number of advantages for cloud users. For starters, OpenStack is agile and easy to deploy; it supports both private and public clouds, but often companies choose it to build the former. OpenStack APIs are compatible with Amazon Web Services, so users don't need to rewrite applications for AWS. This compatibility also allows applications and storage to transit between private clouds and public cloud providers.

Security. One of the biggest roadblocks for cloud adoption -- no matter the service provider -- remains security concerns. To calm those companies' worries, OpenStack's robust security system supports multiple forms of identification.

Management and visibility. The open source cloud's Horizon dashboard gives administrators an overview of their cloud environment -- including resources and instance pools.

Cloud storage. OpenStack offers unlimited storage pools and supports block-IO from a variety of vendors, as well as object file storage. Its built-in storage management automatically recovers failed drives or nodes. Replication and erasure coding with Ceph provides strong data integrity. To avoid the effects of drive failures, users can take advantage of pre-emptive drive checking. Additionally, OpenStack's scaling capabilities enable users to add servers and storage elastically.

As the need to tackle big data in the cloud rises, OpenStack's flexibility is an added bonus. Users can run Hadoop apps and Web pages for big data analytics, media files and standard block-IO.

Quality control. Because its code base is evolving, OpenStack's release process is broken down into blocks -- roughly four to six months apart. This ensures quality control and release stabilization. The current stable release is Icehouse, but a recent Juno release is a likely replacement.

2. Virtualization

Virtualization is the "creation of a virtual (rather than actual) version of something, such as a server, a desktop, a storage device, an operating system or network resources".
In other words, Virtualization is a technique, which allows to share a single physical instance of a resource or an application among multiple customers and organizations. It does by assigning a logical name to a physical storage and providing a pointer to that physical resource when demanded.

3. UBUNTU

Ubuntu is a Linux distribution based on Debian and composed mostly of free and open-source software. Ubuntu is officially released in three editions: Desktop, Server, and Core for Internet of things devices and robots. All the editions can run on the computer alone, or in a virtual machine.

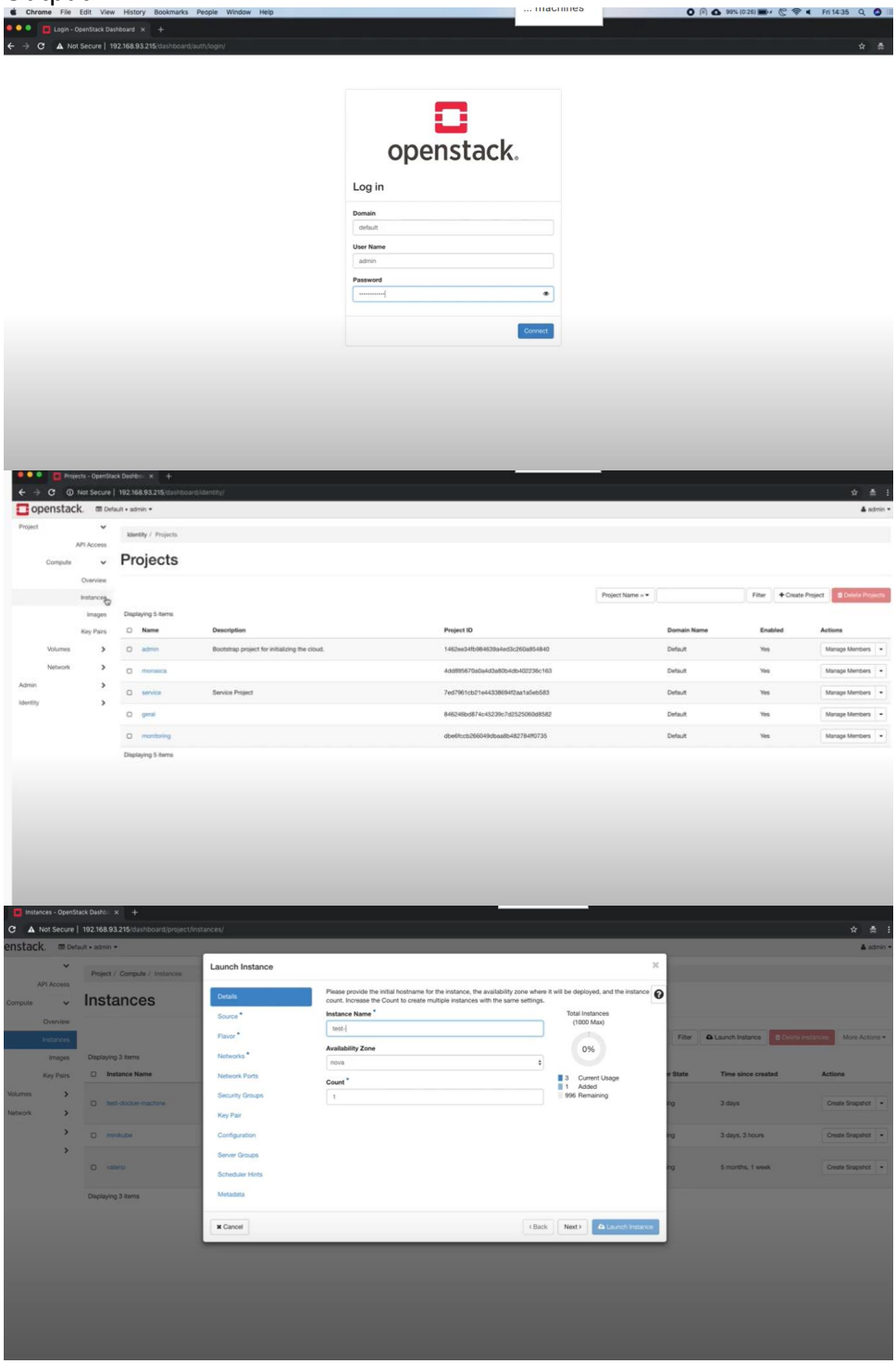
STEPS:

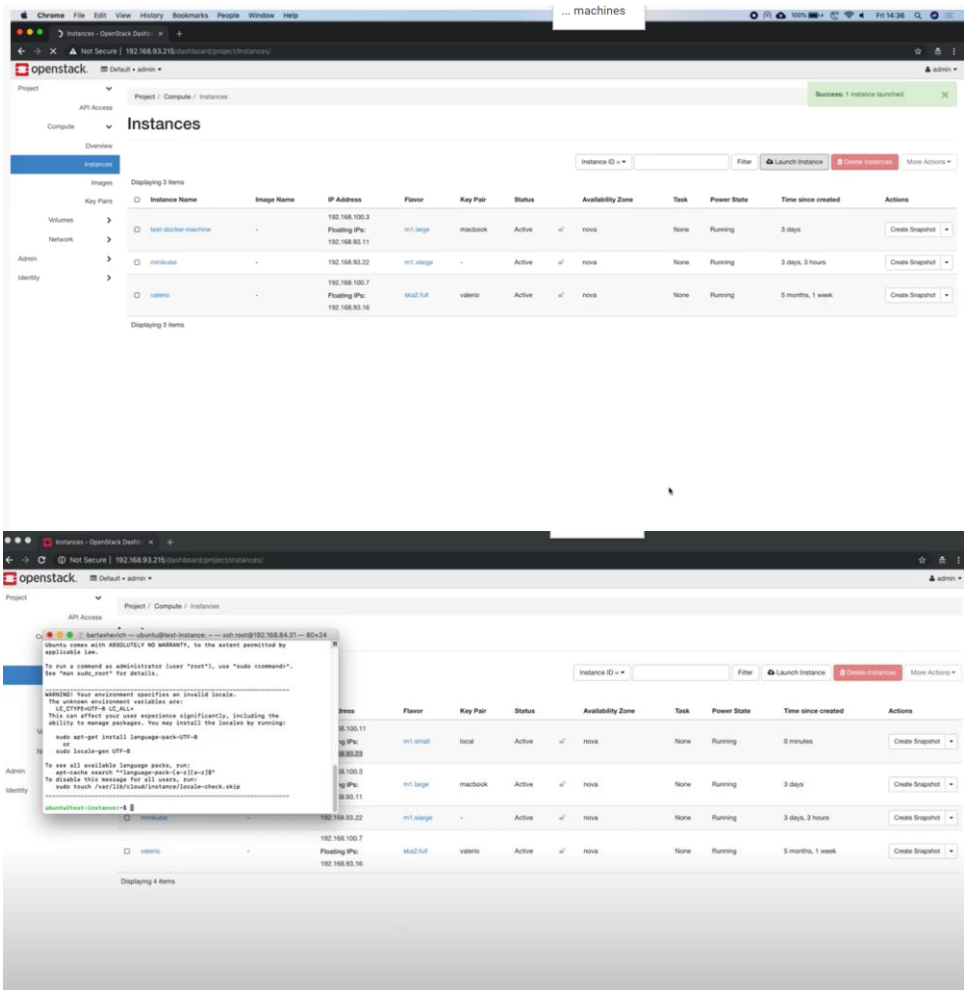
1. sudo apt-get update
2. sudo apt-get upgrade
3. sudo apt-get install git
4. git clone https://opendev.org/openstack/devstack

5. ls
6. cd devstack\
7. /stack.sh

.

Output:


openstack.
Log in
Domain
default
User Name
admin
Password
Connect
Projects
Instances
Launch Instance
Details
Source
Flavor
Networks
Network Ports
Security Groups
Key Pair
Configuration
Server Groups
Scheduler Hints
Metadata
Instance Name
Availability Zone
nova
Count
Cancel
Back
Next
Launch Instance



Conclusion:

Through this project we successfully learned various concepts OpenStack and Cloud Computing and Virtual Machine