Assignment-06

Aim: Study OpenStack and TryStack. Prepare one document for their usage and functionality.

1. OpenStack:

- OpenStack is an open source platform that use
- spooled virtual resources to build and manage private and public clouds.
- The tools that comprise the OpenStack platform, called "projects," handle the core cloudcomputing services of computer, networking, storage, identity, and image services. More than a dozen optional projects can also be bundled together to create unique, deployable clouds.
- **How does OpenStack work?**
  - OpenStack is essentially a series of commands known as scripts. Those scripts are bundled into packages called projects that relay tasks that create cloud environments. In order to create those environments, OpenStack relies on 2 other types of software:

    - Virtualization that creates a layer of virtual resources abstracted from hardware
    - A base operating system (OS) that carries out commands given by OpenStack scripts
- **The OpenStack components:**
  - OpenStack's architecture is made up of numerous open source projects. These projects are used to set up OpenStack's undercloud and overcloud—used by sys admins and cloud users, respectively.
  - There are 6 stable, core services that handle compute, networking, storage, identity, and images while more than a dozen optional ones vary in developmental maturity.
  - Components:

    i. **Nova**: Nova is a full management and access tool to OpenStack compute resources—handling scheduling, creation, and deletion.
    ii. **Neutron**: Neutron connects the networks across other OpenStack services. iii. **Swift**: Swift is a highly fault-tolerant object storage service that stores and retrieves unstructured data objects using a RESTful API.
    iv. **Cinder**: Cinder provides persistent block storage accessible through a selfservice API.
    v. **Keystone**: Keystone authenticates and authorizes all OpenStack services. It's also the endpoint catalog for all services.
    vi. **Glance**: Glance stores and retrieves virtual machine disk images from a variety of locations.

- **Works with OpenStack**:
  - Public clouds
  - Network functions virtualization
  - Private clouds

- Containers

2. TryStack

- TryStack is a free and easy way for users to try out OpenStack, and set up their own cloud with networking, storage, and computer instances.
- TryStack is intended to provide users the ability to launch instances in one of several TryStack zones, representing different OpenStack reference architectures and geographical locations

- **Why to use TryStack:**
  - Try OpenStack without any commitment
  - Remove complexity of deployment
  - Increase usage/adoption of OpenStack
  - Showcase latest OpenStack features
  - Vanilla OpenStack, all distribution images

- **Challenges:**
  - **Demand and Growth:**
    Dozens of people sign up every day, small volunteer effort -
    Security:
    Free, public cloud can lead to some 'interesting' usag -
    Rationing of Resources:
    We never seem to have enough resources to keep up with demand, e.g. floating IP space, so culling is needed -

  Record Keeping and Audit:
  Custom tooling sometimes needed to record things like when a tenant sets a gateway, or tracking history of floating IP addresses