Practical - 02

- **AIM :** Installation and configure google app Engine or Installation and configuration of virtualization using KVM.

- **OBJECTIVE :**
  - To study concept of virtualization
  - Get familiar with google cloud platform.

- **Pre-requisite -**
  - Have a Google Cloud account
  - Access google app Engine.

- **THEORY :**

1) Google App Engine is a platform as a Service (PAAS) that allows developers to build, deploy and scale applications without managing infrastructure. It supports various programming languages like python, java, Node.js, Go.

2) Steps to install and configure google app engine. -

Step 1 : Create a Google Cloud account.
- Click on Select a project → New project to create a project.
- Give your project a name and click create.

Step 2: Install google cloud SDK.
It provides command line tools. Download the SDK. On windows run .exe file to install. Restart terminal after installation.

Step 3: Initialize Google cloud SDK.
- Open terminal / cmd. and run -

```
gcloud init
```

- Follow prompt to Select google cloud project and set a default region for deployment.

check configuration use -

```
gcloud config list.
```

Step 4: Enable app Engine for your project.

```
gcloud app create --region = us-central.
```

Step 5: Deploy an application to app Engine -
- In project directory create app.yaml file.
- This file defines applications runtime and settings.

Eg. app.yaml -

```
runtime : python39.
entrypoint : gunicorn -b :$PORT main:app.
```

Step 6: Deploy the application.

```
gcloud app deploy.
```

Step 7: Access application. - gcloud app browse.

This opens application in app browser.

Google app engine simplifies app deployment and scaling by providing an automatic infrastructure management system. By following this, quickly applications can be deployed, managed and scaled.

3) KVM - Virtualization - Installation and configuration -

- KVM - Kernel Based virtual machine is a linux based virtualization solution that allows running multiple virtual machines (VMs) on a single physical host.

- Installation and configuration -

1. sudo apt update.
   sudo apt install qemu-kvm libvirt-daemon-system virt

2. Enable virtualization - egrep -c '(vmx|svm) /proc/cpuinfo.
   Enable KVM modules - sudo modprobe kvm.

3. Start and enable kvm services - sudo systemctl enable --now libvirtd

4. Create and manage VMs -
   - Open Virt-manager GUI or use CLI -

```
virt install --name myvm --ram 1024 --vcpus 1
  --disk size=10 --os variant ubuntu20.04
  --cdrom /path/to/iso.
```

This setup allows users to efficiently run virtual machines using KVM.

- **Conclusion** : Thus we successfully installed and configured the google app engine and KVM.

Vishal

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