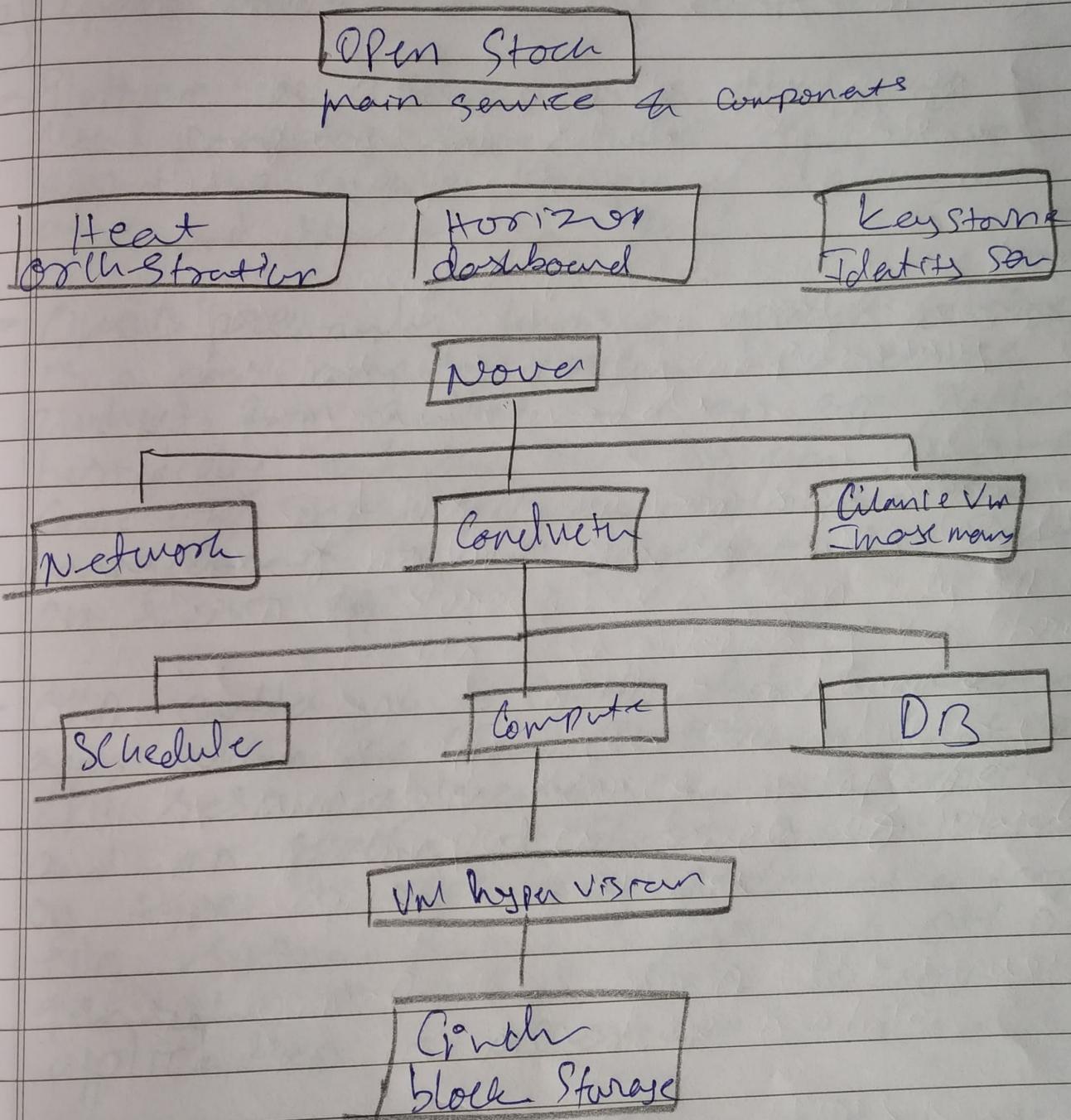


Cloud Assignment 3

Q1) Open Source IaaS Software.

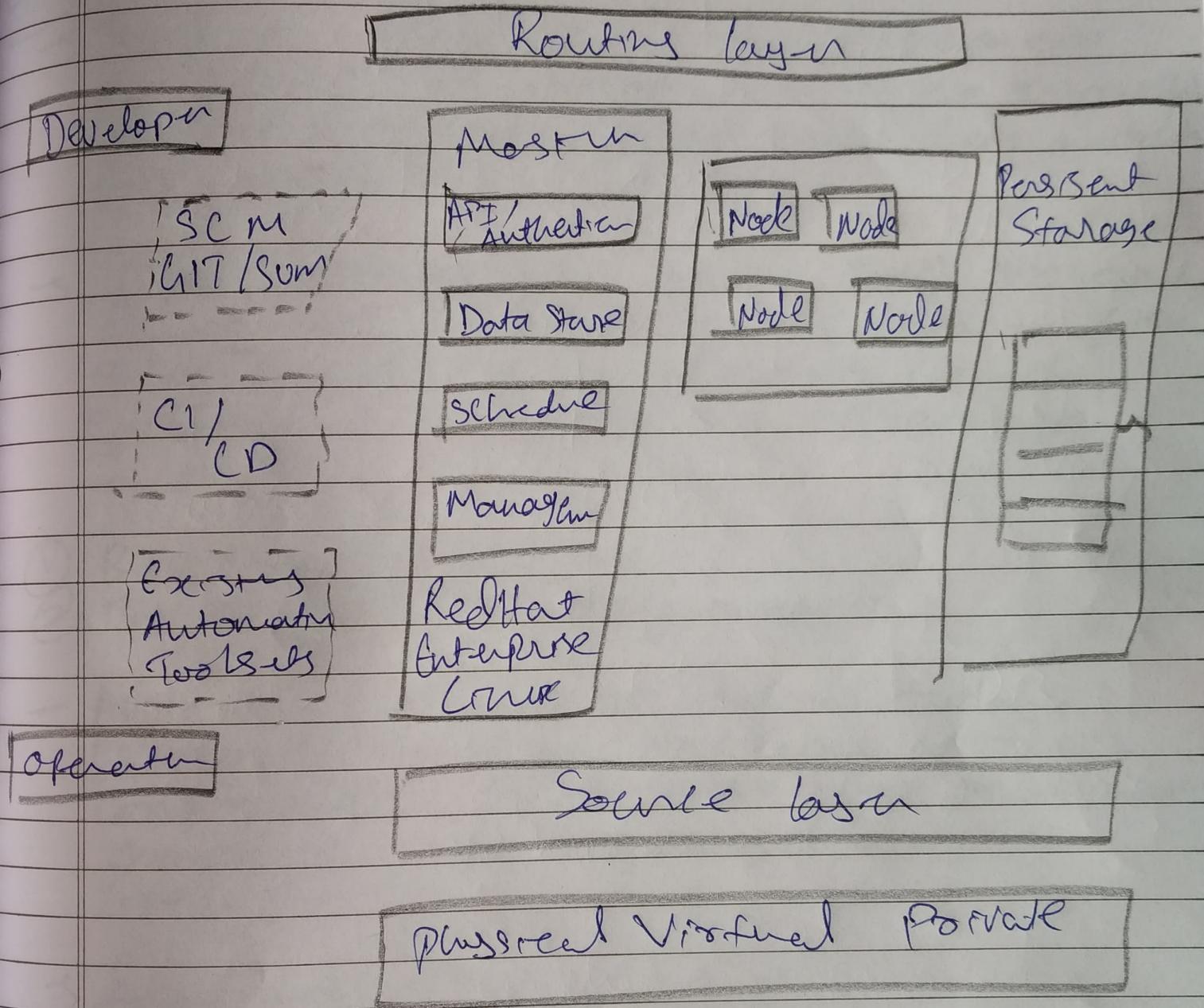
- Infrastructure as a Service model where an organisation does not own the equipment used to support storage hardware, server and network components.
- Open Stack is an open source Cloud Computing project to provide an Infrastructure as a Service. This integration is facilitated through public APIs that each sources offer.
- Open Stack controls large pool of compute and networking resources throughout a data center all managed through a dashboard that gives admin control while empowering the user to provision resources through web interface.
- The technology consists of a service of connected projects that controls pool of processing, storage and networking resources throughout a data center all managed through a dashboard that gives admin control while empowering the user to provision resources through web interface.



Open Source PaaS Software

- Platform as a Service is a category of Cloud Computing Services which offer a way to support the complete lifecycle of delivering web apps and services via cloud.
- OKD previously known as OpenShift origins is a PaaS computing platform as a service product from Red Hat. It is an app. platform test, deploy and run their application. OKD takes care of Infrastructure, middleware the management so that developers can focus on their app.
- OKD enables you to create, deploy & manage apps within the cloud. It provides default spec CPU resources, memory, network connectivity and an Apache or Thanos server. Depending on type of apps being deployed a template file system layout is provided. OKD also generates a limited DNS so your application is accessible online.
- It provides support for a wide variety of language runtimes and deployment layers including Java, Ruby, PHP, Python etc.

OKP Architecture



Q3) Open Source Soa Software

- SoaS is a distribution model where in the code part is hosted with the respective or hosting application and make them available for customer with help inter.
- Cloudify is an open source cloud orchestration framework. It helps in the customization of the entire lifecycle of an application. Cloudify enables user to deploy the application in 2 days.

- ① By opting for CLI only
- ② By opting for Cloudify manager

- Application Configuration are defined through blue prints which are developed on TOSCA Configuration Files. These blue prints have complete info regarding the application lifecycle.

3 Features

- Local blue prints
- IT governance & Security
- Blue printing on modeling
- TOSCA Orchestration
- Built in node types

Open Source Cloud Simulator Software

~~CloudSim~~ → CloudSim is a new highly generalized and extensible cloud based simulation toolkit and is actually regarded as software framework.

- It supports several core functionalities like ~~entities~~ queuing in processing of event the creation of clouds, entities communication among components and management of the simulation clock.
- CloudSim has been developed by Cloud Laboratory of Computer Science & Software Engineering department of University of Melbourne.
- This toolkit enables seamless modeling simulation and experimentation in cloud computing and application dev.

→ Key Features

- Supports modeling and simulation of large scale cloud computing data centers
- Supports dynamic inclusion of simulation events (e.g. contions)
- Support the creation of various data center network, topologies etc.

USER CODE

Simulation
SpecificationCloud
ScenarioUser
RequestAPP
ConfigScheduling
Policies

User or Data Center broker

Cloudsim

User interface
Structure

Cloudlet

Virtual Machine

VM Service

Cloud Exec

VM Management

Cloud
ServicesVM
ProvisioningCPU
AllocationMemory
AllocationCloud
ResourcesEvents
Handling

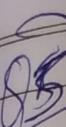
Sensor

Cloud
coord

Network

Network
TopologyMessage
delay Cate

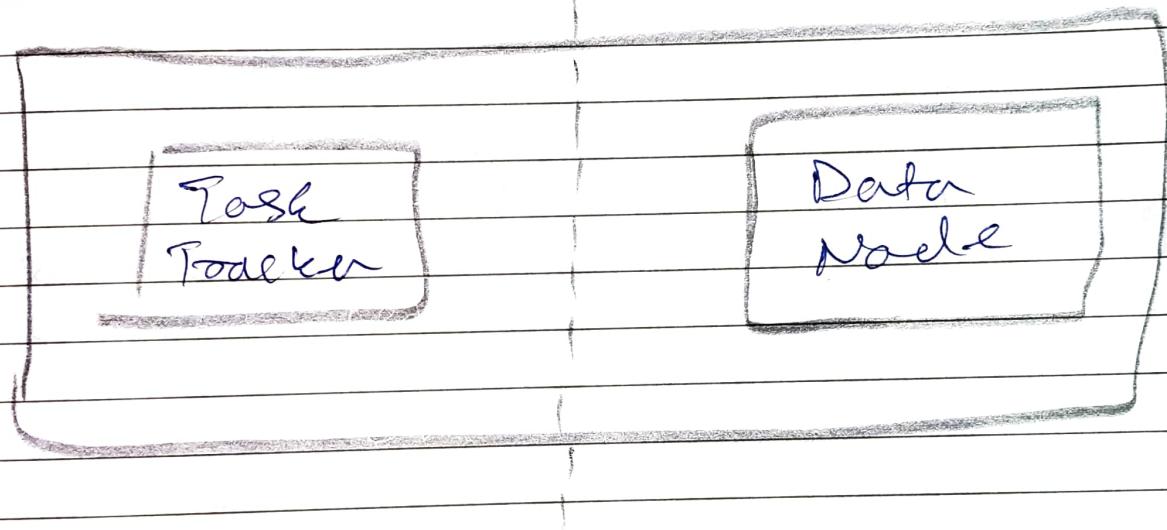
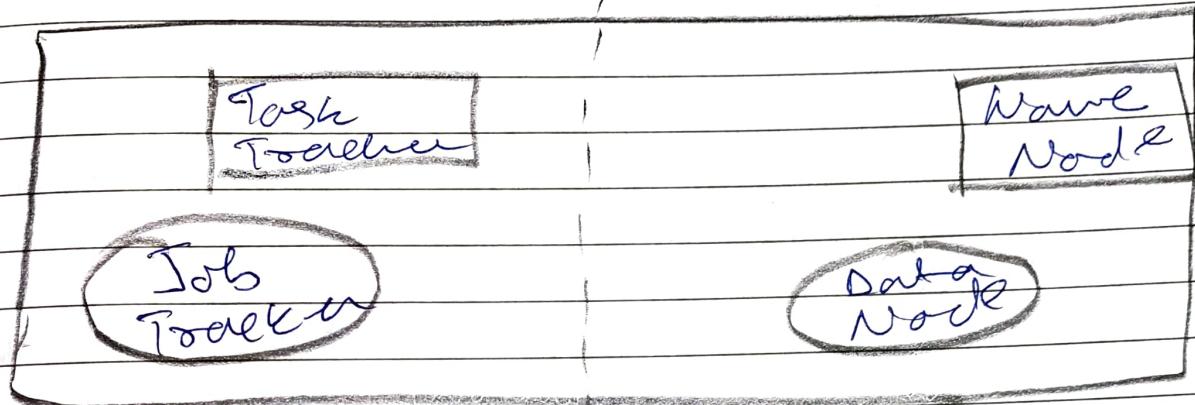
Cloud Sim Can Simulation Engin.



Open Source Distributed System Software

- The Apache Hadoop project develops open source software for reliable, scalable, distributed computing.
- The Apache Hadoop Software Library is a framework that allows for distributed processing of large dataset across cluster by computers using simple programming models.
- It is designed to scale up from single servers to thousands of machines, each of them being local computation & storage rather than rely on hardware to deliver high availability. The library itself is designed to detect and handle failures at the app layer, so delivering highly available service on top of a cluster of computers, each of which may be prone to failures.
- Hadoop Common: The common utilities must support the other Hadoop modules.
- Hadoop distributed file system - HDFS is a distributed file system that provides high throughput access to application.
- Hadoop YARN - A framework for Job scheduling & cluster resource management.

MapReduce Layer / HDFS Layer



- Hadoop MapReduce is a YARN based system for parallel processing of large data sets
- Hadoop Ozone → an object store for hadoop

— X —