

NAME = AMAN D EUPHANDANI
ROLL = 07
MCA 03

CLOUD COMPUTING ASSIGNMENT-3

Q. Open Source IaaS Software.

→ Infrastructure as a Service is a Service model where an organization outsource the equipment used to support storage, hardware, services and networking component.

Open Stack is an Open Source cloud computing project to provide an Infrastructure as a Service (IaaS). This integration is facilitated through public APIs that each source offers.

Open Stack Control large pool of compute, storage and networking resource throughout a data center, all managed through a dashboard that gives administrator control while empowering their users to provision resource through a web interface. It delivers a massively scalable cloud operating system.

The technology consist 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 its users to Provision resource through a web interface.

OPEN STACK

main Service & Component

HEAT
OrCHESTRATION

HORIZON
DASHBOARD, WEBUI

KEYSTONE
IDENTITY SOURCE

NOVA

NETWORK

CONDUCTOR

GLANCE, VM
IMAGE MANAGER

SCHEDULER

COMPUTE

DB

VM HYPERVISION

(INDEX)
BLOCK STORAGE

Open Source PaaS Software

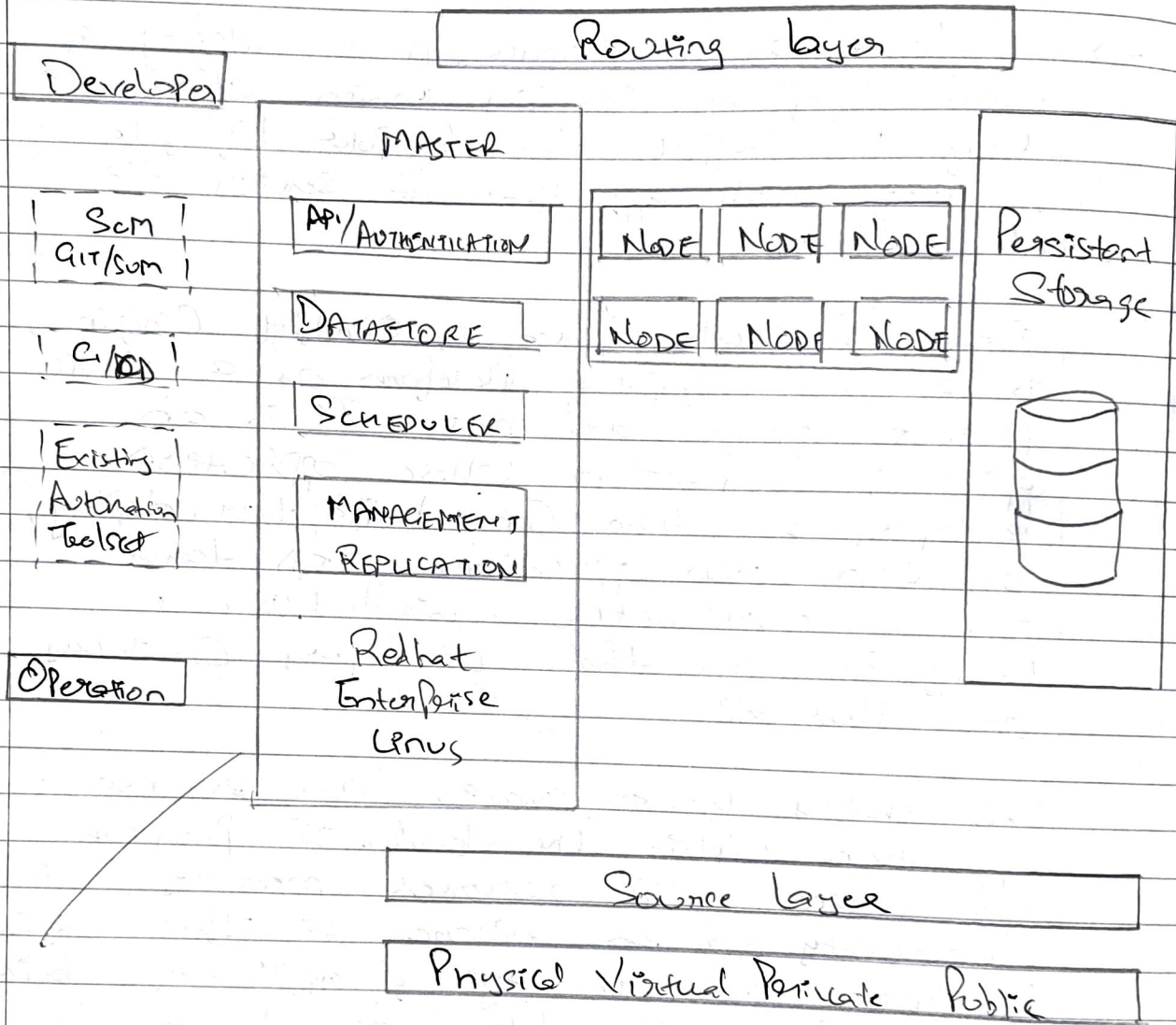
→ Platform as a Service is a Category of cloud Computing services which offers a way to support the complete lifecycle of delivery web application & services via the cloud.

OKD (Previously known as OpenShift Origin) is a PaaS Computing Platform as a Service Product from Red Hat. It is an application Platform where application developers and team can build, test, deploy, and run their applications. OKD takes care of infrastructure, middle layer & Management so that developers can focus on their app.

OKD enables you to create, deploy and manage application within the cloud. It provides disk space, CPU resources, memory, network connectivity and an Apache on Java Server. Depending on the type of application being deployed a template file system layout is provided. OKD also generates a limited DNS so your application is accessed online.

It provides support for a wide range variety of language runtimes and dot layers including Java, .NET, Ruby, PHP, Python, Perl, MongoDB, MySQL, & PostgreSQL.

OKD Architecture



Open Source SaaS Software

→ SaaS is a distribution model where a third party is trusted with the responsibility of hosting application and make them available for customers with the help of Internet.

Cloudify is an Open Source cloud orchestration framework. It helps in the automation of the entire lifecycle of an application. Cloudify enables users to deploy the application in two ways.

- 1) By opting for CLI only
- 2) By opting for the Cloudify Manager

Application Configuration are defined through blueprint that are developed on YAML DSL Configuration files. These blueprints have complete information regarding the application life cycle starting from installation to monitoring.

Features

- Local Blueprint
- IT Governance & Security

→ Blueprinting Modeling

→ Tosca Orchestration

→ Built-in node types

Q. Open Source Cloud Simulator Software.

→ CloudSim

CloudSim is a new, highly generalised and extensible Java based Simulation Toolkit and is actually regarded as Software framework.

It supports several core functionalities like Scheduling & Processing of events, the creation of CloudSim entities, Communication among Components and the management of the Simulation clock.

CloudSim has been developed by the Clouds Laboratory of the Computer Science & Software Engineering department of the University of Melbourne.

This toolkit enables Seamless Modeling, Simulation and experiment in cloud computing and application Service.

Features

- Support Modeling and Simulation of large Scale, cloud Computing data Centers.
- Support Modeling and Simulation of Virtualize Servers host, along with Customisable Policies for provisioning host resources to virtual machines.
- Support dynamic inclusion of simulation events discontinuous.

USER CODE

Simulation
Specification

cloud
Scenario

User
Req

...

Application
Configuration

Scheduling
Policy

User on database Center Broker

CloudSim

User
Interface
Structure

Cloudlet

Virtual Machine

VM
Service

Cloudlet Execution

VM Management

Cloud
Service

VM
Provisioning

CPU
Allocation

Memory
Allocation

Storage
Allocation

Bandwidth
Allocation

Cloud
Resource

Event
Handling

Sensor

Cloud
Coordinate

Data
Center

Network

Network
Topology

Message Delay
Calculation

cloud Sim Core Simulation Engine

Q. OpenSource Distributed System Software

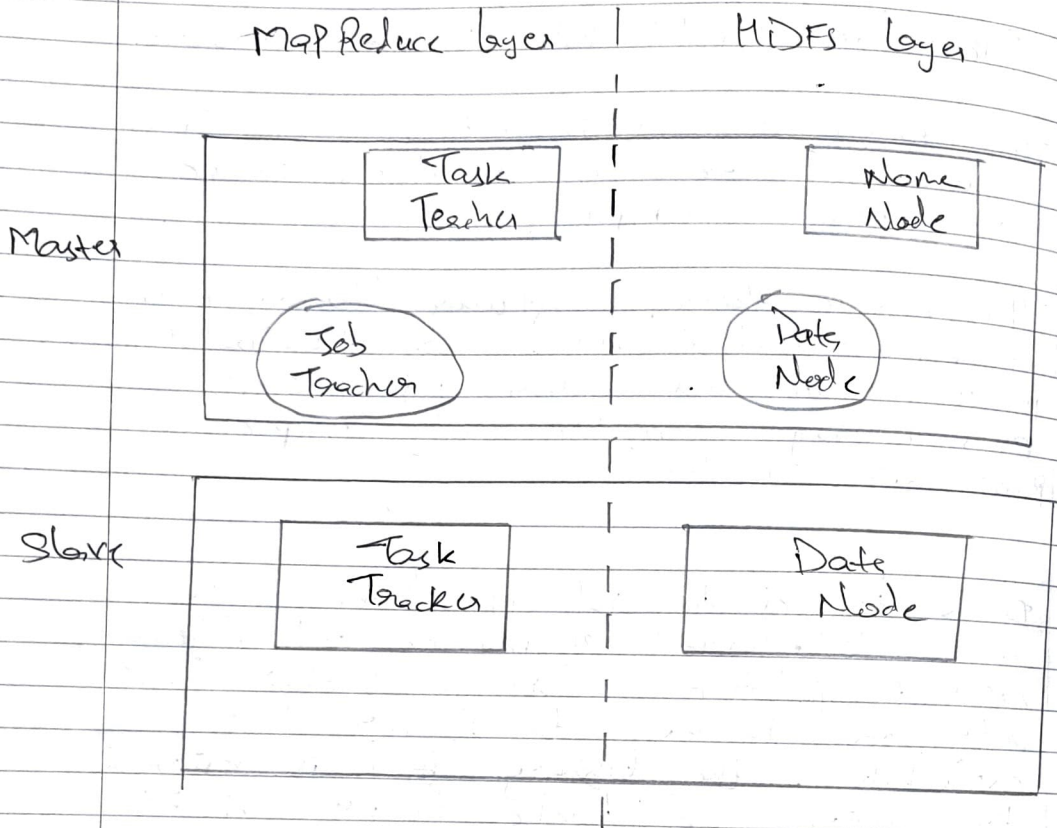
→ The Apache Hadoop Project develop Open Source Software for reliable, scalable, distributed Computing.

The Apache Hadoop Software Library is a framework that allows for distributed processing of large data sets across cluster by Computer using simple programming Model.

It is designed to scale up from single server to thousands of machine each offering local computation & storage rather than rely on hardware to deliver high availability, the library itself is designed to detect and handle failures at the application layer, so delivery highly available service on top of a cluster of computer each of which may be prone to failure.

Hadoop Common = The Common Utilities that support the other hadoop modules.

Hadoop Distributed file System = HDFS is a distributed file system that provide high throughput access to application data.



Hadoop MapReduce = A YARN based system for parallel processing of large data set.

Hadoop Ozone = An object store for Hadoop.