

Q.1

Open source IaaS software

⇒ Infrastructure as a service is a service model, where an organization out sources the commitment used to support storage, hardware, servers and networking components.

→ open stack is an open source cloud computing project to provide an infrastructure as a service. This integration is facilitated public API that each source offers.

→ open stack controls large pool of computer storage and networking resources throughout a data center, all purchased through a dashboard that gives administrator control while empowering their users to provision resources through a web interface. It delivers a massively cloud operating system.

→ The technology consists of a service or control project 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 resources through a web interface.

open stack

main service & components

Heat  
Orchestration

Horizon  
dashboard, webUI

key stone  
Identity Service

Novac

Network

conduces

VM image  
manager

scheduler

compute

DB

VM Hypervisor

render

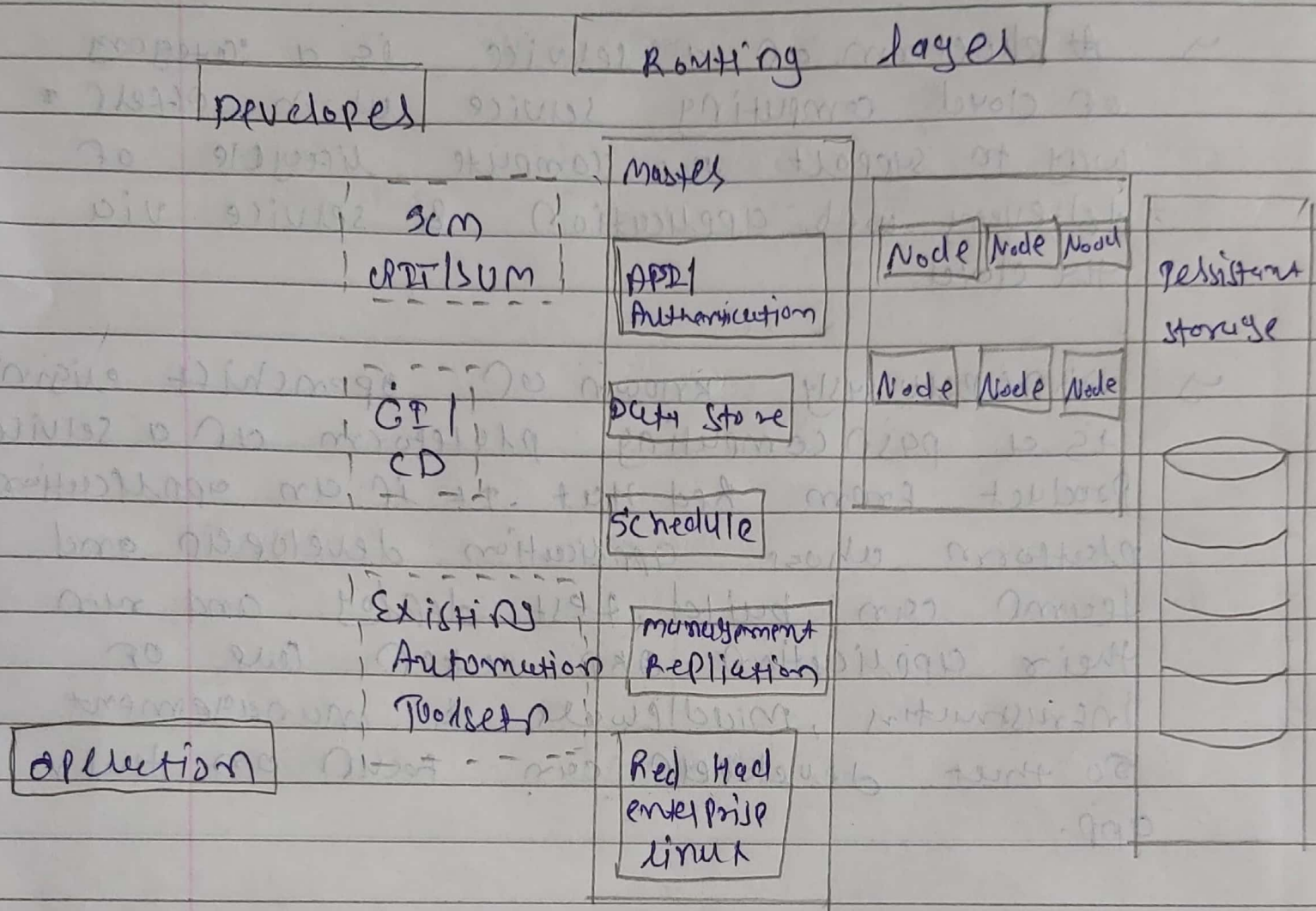
Block storage



## Q-2 Open Source PaaS Storage

- A platform as a service is a category of cloud computing service which offers a way to support the complete lifecycle of delivery web application & service 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 whose application developer and team can build, test, deploy and run their application. OKD takes care of infrastructure, middleware & management so that developer 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 archive of those services, depending on the type of application being deployed a complete 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 runtime, and ~~dot~~ layers including Java, .NET, Ruby, PHP, Python, Perl, MongoDB, MySQL & PostgreSQL.

# OKD Architecture





## Q-3 open source SaaS software

2) SaaS is a distribution model where in third party is trusted with the responsibility of hosting application and make them available for customers with the help

→ cloudify is an open source cloud orchestration framework. It helps in the customization 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 configurations are defined through blueprints that are developed on YAML DSL configuration files. These blueprints have complete information regarding the application lifecycle, starting from installation to its monitoring.

### → Features

→ Local Blueprints

→ IT Governance & security

→ Blueprinting modeling

→ Tosca Orchestration

→ Built-in mode type()



## Q.4 open source cloud simulator Software

→ cloudsim → Cloudsim is a new, highly generalized and extensible JAVA based simulation toolkit, and is actually regarded as software framework.

It support several core functionalities like queuing & processing of event, the creation of cloudsion entities, ~~communication~~ among components and the management of the simulation clock.

→ Cloudsim has been developed by the cloud laboratory of the Computer science & software engineering department of the University of Melbourne.

→ This toolkit enabled seamless modelling simulation and experimentation in cloud computing and application service.

### \* Features

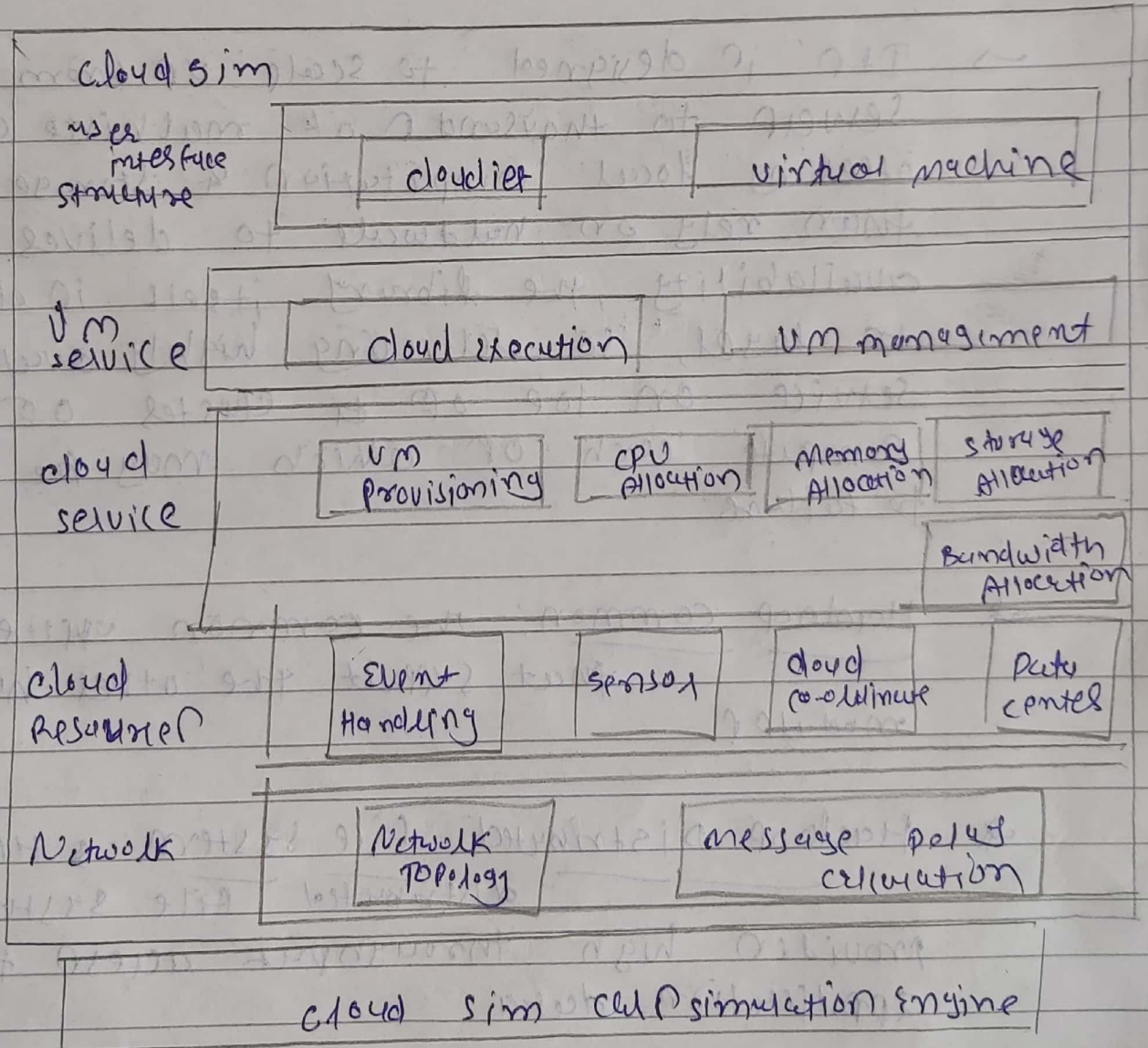
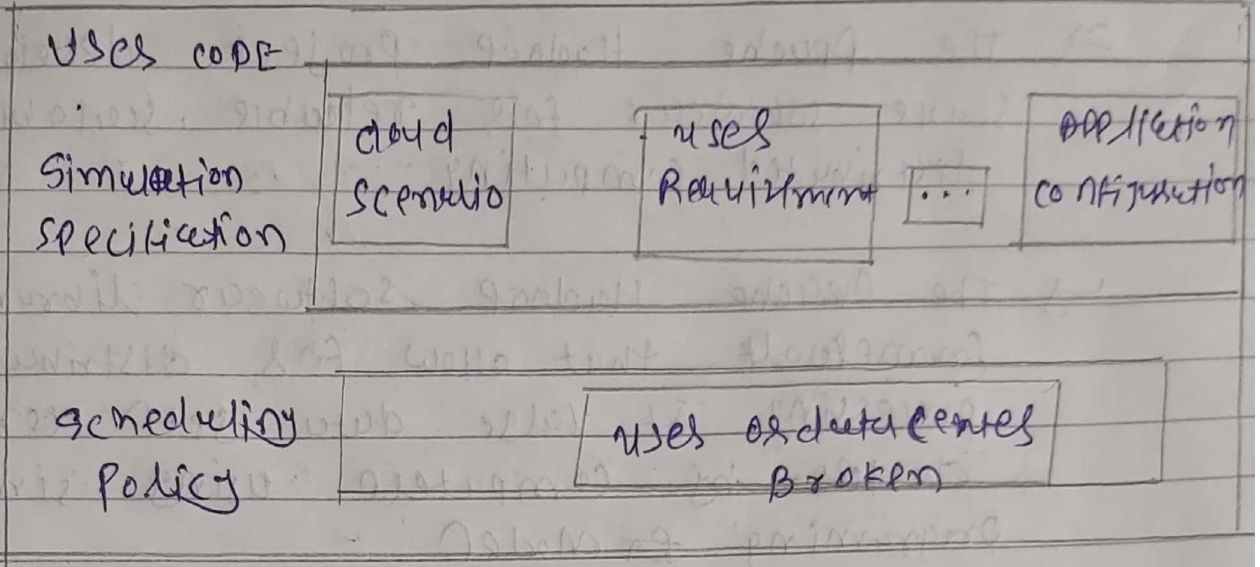
→ supports modeling and simulation on large scale, cloud computing data center

→ support modeling and simulation of virtual server hosts, along with customized policy for provisioning host resources to virtual machine

→ supports dynamic inclusion of simulation events discontinuous.

→ Support the creation of various data center network topologies, messenger

# passing application





## Q-5 Open Source Distributed System Software

⇒ The Apache Hadoop project develop open source softwares for reliable, scalable, distributed computing

→ The Apache Hadoop software library is a framework that allow for distributed processing of large data sets across clusters of computers using simple programming ~~at~~ model

→ DFR is designed to scale up from single server to thousand of machine each offering local computation & storage. rather than rely on hardware to deliver high availability, the library itself is designed to layer, so delivering highly available service on top of a cluster of compute each of which may be prone to failure

→ Hadoop common:- the common utility that support the other hadoop modules

→ Hadoop Distributed File System:- HDFS is a distributed file system that provides high throughput access to application data.

→ Hadoop YARN:- A framework for job scheduling and cluster resource management



MapReduce layer

HDFS layer

Master

Task  
Tracker

Name  
Node

Job  
Tracker

Data  
Node

Slave

Task  
Tracker

Data  
Node

⇒ Hadoop MapReduce: A YARN based system  
for parallel processing  
of large data sets

⇒ Hadoop HDFS: An object store for  
Hadoop