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Assignment - 3

1] open source IaaS software carry one software with architecture.)

-) openstack is one of the best open source IaaS Platform which is basically used for deploying virtual private servers within a data center.

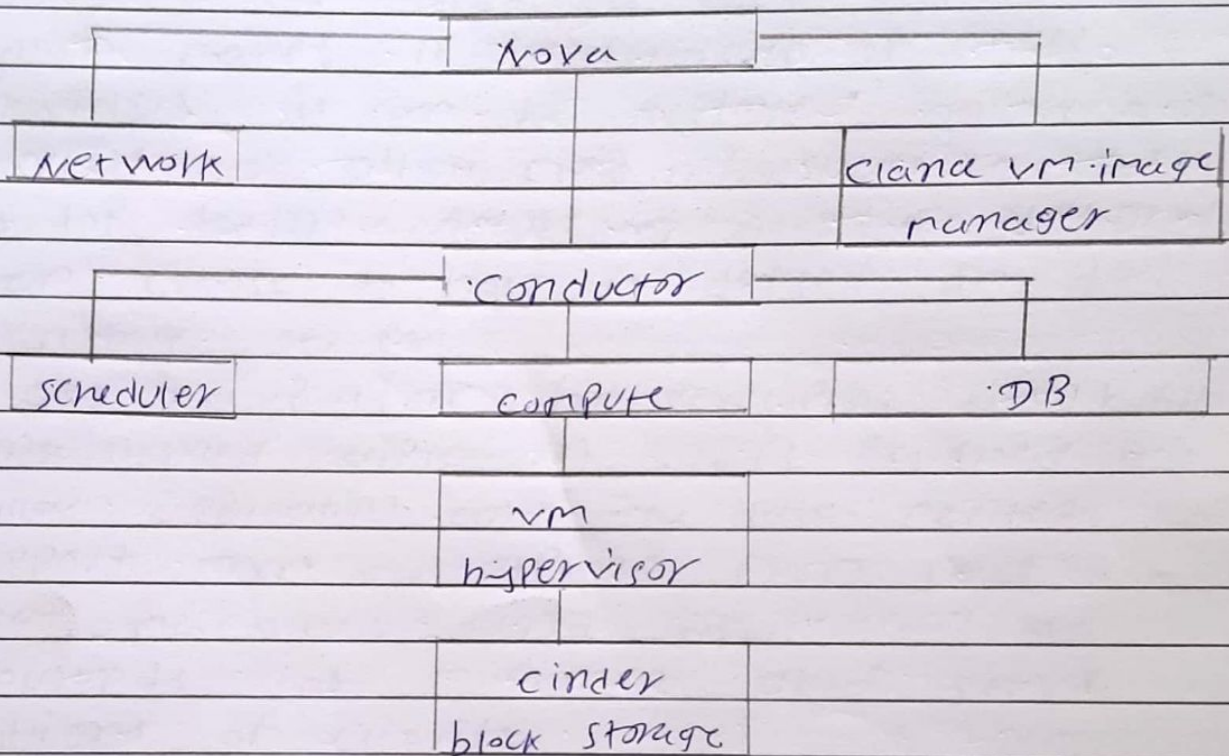
The main purpose of using the openstack IaaS Platform is that it helps in supporting the business in building their own cloud services within their on-premise infrastructure.

openstack IaaS Platform also consists of various projects which help in the functioning of various important functionalities like computing, data storage, networking, security, authentication, automating and development of UI user interface.

The latest release of openstack IaaS Platform also consists of data processing capabilities.

OpenStack

Heat orchestration	Horizon dashboard, web UI	Keystone identity service
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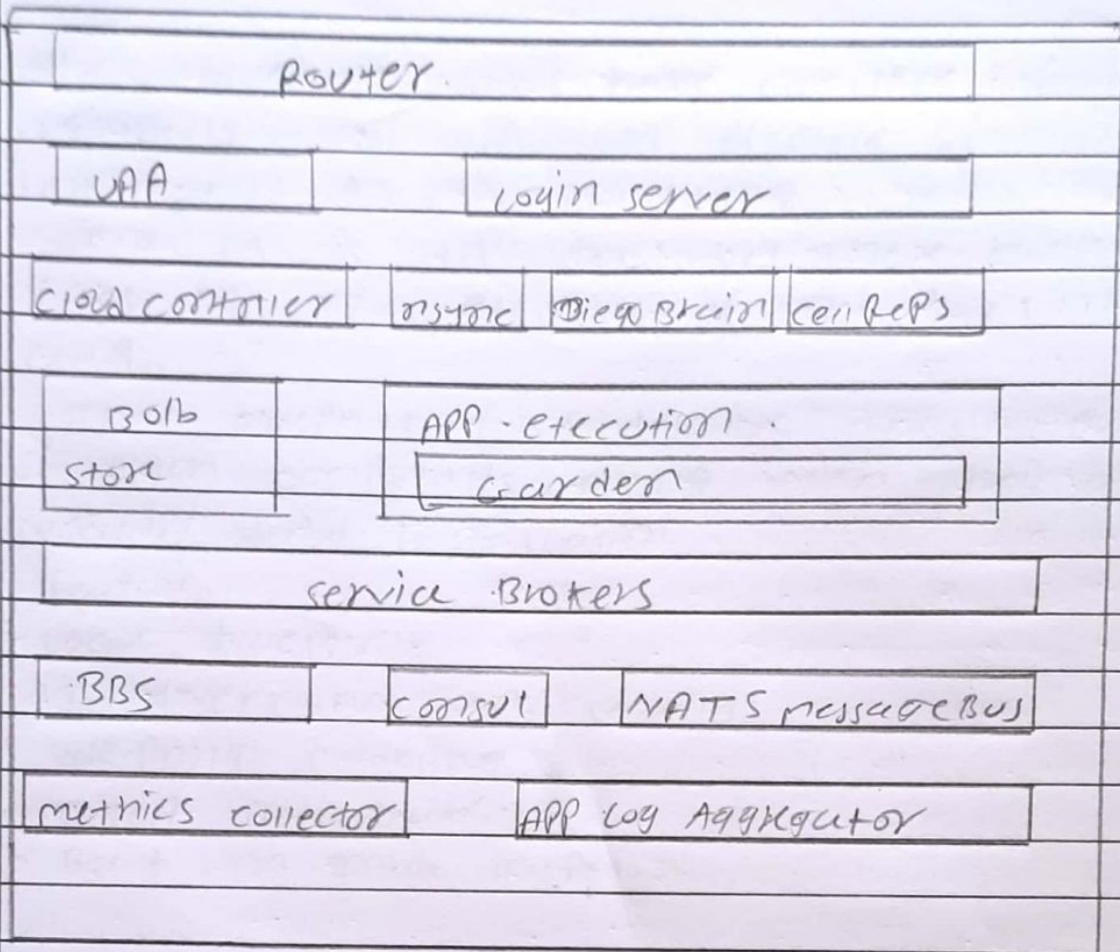
=> nova is a project of openstack that facilitates a way for provisioning compute instances. nova supports building bare-metal servers, virtual machines. it has native support for various system containers.

B-2 open source PaaS software runs on
→ cloud foundry.

originally developed by vmware (now owned by Pivotal software) cloud foundry outstands for being available as an open source, stand-alone software application which makes it independent of cloud providers. it can be deployed on vmware vsphere or other cloud infrastructure, such as HP Helion, Azure or AWS or you could even choose to host it yourself on your openstack server.

OKD is a platform for developing and running containerized applications. it is designed to allow applications and the data centers that support them to expand from just a few machines and applications to thousands of machines that serve millions of clients.

with its foundation in Kubernetes OKD incorporates the same technology that serves as the engine for massive telecommunication, streaming video, gaming, banking and other.



Q-3 open source SaaS software with architecture
→

cloudify it is an open-source cloud orchestration framework

→ it helps in the automation of the entire life cycle of an application

cloudify enables users to deploy the application in two ways:

→ By opting for CLI only

→ By opting for the Cloudify manager.

application configurations are defined through blueprints that are developed on YAML/JSON configuration files.

These blueprint files have complete information regarding the application lifecycle starting from installation to its monitoring.

Cloudify is dependent on these blueprint files for the execution of the plans in the cloud.

These blueprint files describe the configuration of each component along with their binary location and installation feature.

- Local blueprints.
- IT governance and security
- Blueprint modeling
- Tosca orchestration.
- Built-in node types.

Prerequisites:

need to contact vendor for Quota Planner

Q-11 open source cloud simulator software.

→ cloud computing is one of the hottest topic in IT world. it has completely transformed how modern-day applications are developed and maintained with high scalability and low latency.

CloudSim is an open-source framework which is used to simulate cloud computing infrastructure and services. it is developed by the Clouds Lab organization and is written entirely in Java. it is used for modeling and simulating software development in order to reproduce tests and results.

for example: if you were to deploy an application or a website on the cloud and wanted to test the service and load that your product can handle and also tune its performance to overcome bottlenecks before risking deployment then you can evaluate cloud performance by simply coding a simulation of that environment with the help of various flexible and scalable classes provided by the CloudSim package, free of cost.

following are the benefits of CloudSim.

→ no capital investment involved. with a simulation tool like CloudSim there is no installation or maintenance cost.

→ easy to use and scalable. you can change the requirements such as adding or deleting resource by changing just a few lines of code.

user code					
simulation	cloud scenario		user		application
specification			requirements		configuration

scheduling
policy

user or datacenter Broker

cloudsim		cloudlet		virtual machine
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user		cloudlet		vm
interface		execution		management
structure				

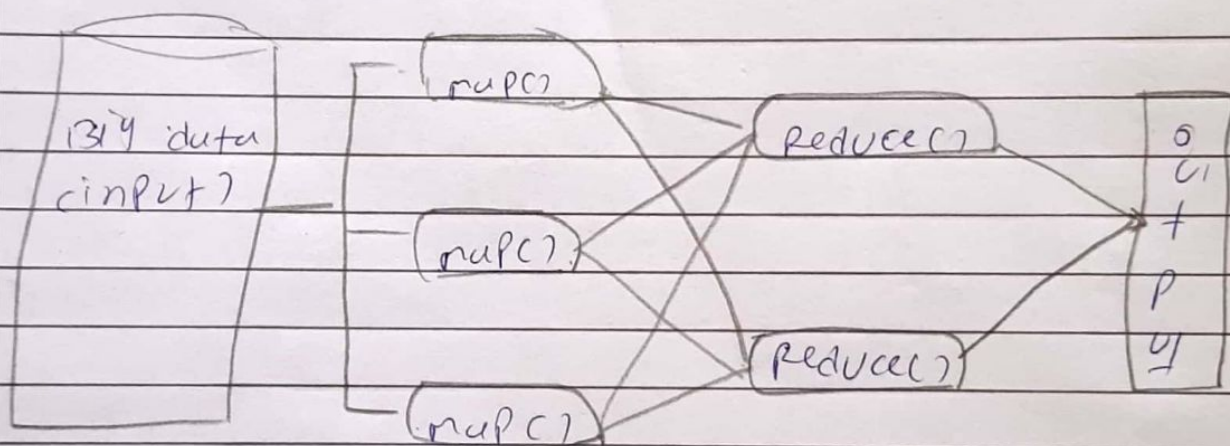
vm	vm.	cpu	memory	Storage	Bandwidth
services	provisioning	allocation	allocation	Allocation	Allocation

cloud		cloudlet	sensor	cloud	datacenter
services		handling		coordinator	center

cloud		network		message delay
resources		topology		calculation

Q-5 open source distributed system software.
-> distributed application can solve problems across devices in a computer network. When used in conjunction with middleware this can operational interaction with locally accessible hardware and software

Distributed computing is a multifaceted field with infrastructure that can vary widely. It is nearly impossible to define all type of distributed computing. This field of computer science is commonly divided into three subfields.



Here we can see that the input provided to the `map()` function then its output is used as an input to the `Reduce` function and after that we receive our final output. Let's understand that `map()` and `Reduce()` does.