

Cloud Computing

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Tutorial 3

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Q1 OpenStack is a free and open cloud computing platform. It is deployed as an Infrastructure-as-a-service (IaaS) in both public & private cloud where virtual servers are made available to the users.

Q2 OpenStack provides a number of services like Compute, Container services, object storage, block storage, networking, load balancing, DNS service, dashboards, key management, identity service etc.

The OpenStack deployment contains these resources and components with APIs to access infrastructure resources.

Q3 OpenStack is a free and open IaaS platform. The following 8 reasons make OpenStack a key player in the cloud infrastructure offerings market:

1 Basic Physical Data Center Management:

Openstack does not assume the existence of an operating datacenter. It provides tools to operate datacenter and make resources available to customers.

2 Plays Well with others

Openstack supports the addition of layers of abstraction including Platform as a Service, Serverless Compute platform & Container orchestration Engines.

3 Hardware Virtualisation

Openstack provides vendor independent APIs for hardware services like routers, load balancers, firewalls etc.

4 Built-in Reliability > Durability

Openstack cloud offerings are highly elastic and available from ground up.

5 Continuous Scaling

Customers can use and scale cloud resources as per their needs. Openstack is designed to handle large workloads.

6 Customisable Integration

Openstack does not impose any deployment model or architectures on applications. This makes it highly configurable as per requirements.

7 Abstract Specialised Operations

Certain components of applications, benefit from a specialist skillset to operate them. Openstack abstracts this management behind an API.

8 Graphical User Interface

GUIs in the form of web based dashboards help in monitoring and management tasks on the cloud.

Q4 Snapdeal recently launched its hybrid cloud platform with OpenStack at its center.

Snapdeal Cirrus which is its private cloud platform covers three datacenter regions with 100000 cores, 16 petabytes of storage and 100G SDN infrastructure.

Q5

OpenStack

Web Frontend

Horizon

API Proxies

EC2 API

Workload Provisioning

Magnum

Trove

Application Lifecycle

Morano

Freezer

Orchestration

Heat

Mistral

Compute

Virtual Machines - Nova

Containers - Zane

Storage

Object - Swift

Block - Cinder

File - Manila

Networking

SDN - Neutron

Load Balancing - Octavia

FNS - Designate

Hardware Lifecycle

Bare Metal - Ironic

Accelerator - Gborg

Identity
KeystoneScheduling
PlacementImages
GlanceSecrets
Barbican

Q6 Tool Tools & Packaging Recipes :

Openstack Lifecycle Management:

- 1 Tripleo - deploys on openstack
- 2 Openstack Helm - deploys on helm
- 3 Kolla - deploys on ansible
- 4 Kayobe - deploys on baremetal
- 5 Openstack Ansible - ansible playbooks to deploy Openstack
- 6 Openstack Charm - deploys in containers using charm
→ Juju
- 7 Bifrost - deploys using ironic
- 8 Openstack Chef - cookbooks to build, operate and consume Openstack

Packaging Recipes

- 1 Loci - Lightweight OCI containers
- 2 Puppet Openstack - Puppet modules to deploy openstack
- 3 RPM Packaging - RPM Package Specs to deploy Openstack