

THE BATTLE OF CLOUDS

OpenStack ® vs. Amazon Web
Services

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Chapter I. Overview

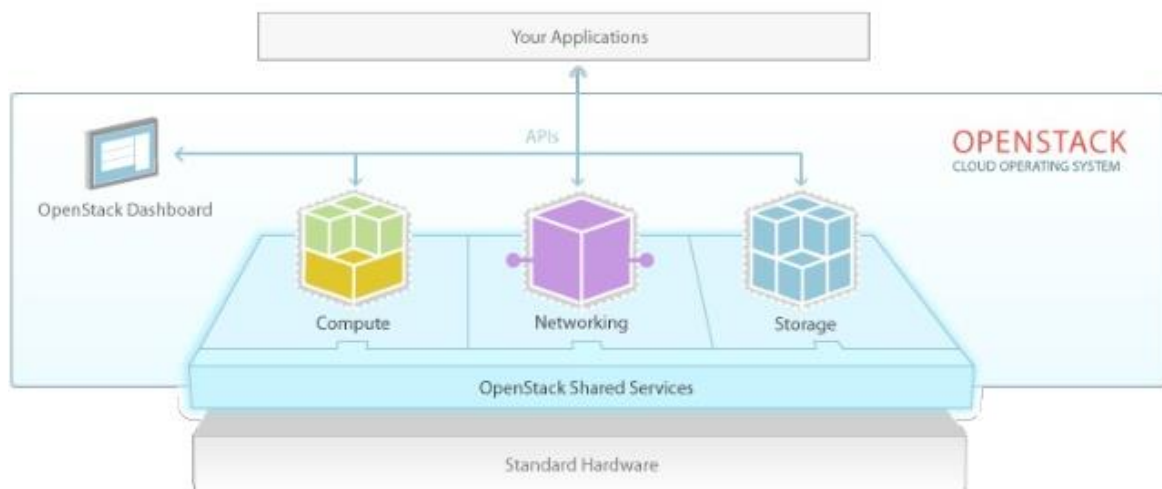
On a Red Hat Stack blog by Jonathan Gershater published in May 2015, he discusses parameters to get considered in choosing a cloud platform and when to use both as hybrid. The public vs private cloud debate is a path well-trodden. While technologies and offerings abound, there is still confusion among organizations as to which platform is suited for their agile needs. One of the key benefits to a cloud platform is the ability to spin up compute, networking and storage quickly when users request these resources and similarly decommission when no longer required. Among public cloud providers, Amazon has a market share ahead of Google, Microsoft and others. Among private cloud providers, OpenStack® presents a viable alternative to Microsoft or VMware.

In this report, the proponent will going to talk about the following points in comparing OpenStack® and Amazon Web Services.

- Compare services that the two platforms provide.
- Compare business characteristics of AWS and OpenStack.
- How to choose platform in different personal or business scenarios.

OPENSTACK ®

- × A cloud operating system that controls large pools of computing storage and network resources
- × Managed through a dashboard or command line
- × Empowers users to self-provision using a GUI or CLI

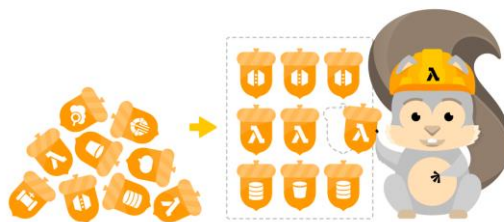


AMAZON WEB SERVICES (AWS)

- × Provides a way to access servers, storage, databases and a broad set of application services over internet.
- × AWS owns and maintain the network- connected hardware required for these application service.
- × You provision and use what you need.



MEET SAM.



USE SAM TO BUILD TEMPLATES THAT DEFINE YOUR SERVERLESS APPLICATIONS.



DEPLOY YOUR SAM TEMPLATE WITH AWS CLOUDFORMATION.

Chapter II. Comparison of Services

A. Compute

To run an application, you need a server with CPU, memory and storage, with or without pre-installed operating systems and applications.

	OpenStack	AWS
Name	Instance	Virtual Machine (VM)
Guest OS/ App offered	Certified by OpenStack vendor apps.openstack.org	Certified by AWS AMI marketplace

B. Networking

To network virtual servers to each other. You also need to control who can access the server. You want to protect/firewall the server especially if it is exposed to the Internet.

	OpenStack	AWS
Name	Neutron	Networking
Offering	IP Addressing Load Balancing Firewall (DNS)	IP Addressing ELB, Firewall, DNS VPC

C. Security & Identity

You need the option of public key cryptography for SSH and password decryption. You want to firewall virtual machines to only allow certain traffic in (ingress) or out (egress).

	OpenStack	AWS
Identity Authorization, Keypairs	Keystone – authentication, roles, privileges	IAM – Authentication, roles, privileges
Network security Ingress/ Egress	Virtual firewall	Virtual firewall

D. Orchestration

This allows repeatable copies of an application to be made.

	OpenStack	AWS
Name	HEAT	CloudFormation
Method	Text files for repeatable operations	Templates for repeatable operations

E. User interface and APIs

You can administer your cloud or users can self-serve their needs, from any compliant browser.

	OpenStack	AWS
API	OpenStack API (subset of Amazon EC2)	EC2 API
CLI	Available	Available
GUI	Horizon	Console

Chapter III. Business Characteristics

A. Service Level Agreement (SLA)

To run mission critical applications with minimal downtime you need an SLA from your cloud provider.

	OpenStack	AWS
SLA Offering	Support from OpenStack Team (Red Hat offers 24/7 support)	99.5%
High Availability	Available Zones	Available Zones

B. Ownership and Control of Data

Users should know who can access data stored in the cloud. Legal regulations for industries such as healthcare, financial services, government etc. stipulate who should have access to applications and data. Some users/countries fear that government security and spying agencies can gain access to public cloud data.

	OpenStack	AWS
Who owns the data?	You	You
Who controls the data?	You	You but... AWS SLA

C. Ecosystem

You may need help from consultants and community peers to use a private or public cloud. If you deploy a private OpenStack cloud, the community of software and hardware vendors that are certified with your OpenStack vendor give you the assurance that problems can be resolved.

	OpenStack	AWS
You are not alone	<p>Partners who offer:</p> <ul style="list-style-type: none">• Operating Systems• Applications• Add-ons• Consulting• Developer support• Hardware• Community	<p>Partners who offer:</p> <ul style="list-style-type: none">• Operating System• Applications• Add-ons• Consulting• Developer Support

D. Cost and Pricing

The cost of running servers and applications in a cloud can be operational (OPEX) or capital (CAPEX).

	OpenStack	AWS
Cost	<ul style="list-style-type: none">• Purchase hardware and software• Receive support, maintenance, consulting• Do It Yourself	<ul style="list-style-type: none">• Credit card billing by the minute/ hour• Pre-purchased blocks of usage at other rates

Chapter IV. Conclusion

Since both cloud platforms provide some similar services, you should consider your needs. For instant and temporary needs, AWS and its on-demand pricing model could suffice. For longer term projects AWS lists examples, as does OpenStack.

A hybrid cloud is a combination of an on-premise private cloud and a public cloud. A cloud management platform provides tools to administer both cloud environments. Red Hat offers an Open Hybrid Cloud, "A single-subscription offering that lets you build and manage an open, private Infrastructure-as-a-Service (IaaS) cloud and ease your way into a highly scalable, public-cloud-like infrastructure based on OpenStack®."

At the end of it all, choosing between the both OpenStack ® and Amazon Web Services cloud platforms depends on specific requirements, personal or business needs, duration of implementation, and budget towards cost and pricing.

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