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1 What is openstack?

OpenStack is a cloud software which can be useful for building and managing cloud based softwares and platforms. It was originally founded by RackSpace and NASA. Currently openstack is managed by Openstack foundation (a non-profitable organization). Openstack in an open source technology so anybody can serve to the openstack community. Onestack can be considered as a future of cloud computing as it provides the Infrastructure as a service (IaaS). By this, one can interfere that openstack provides a hardware infrastructure which can be used to run different platforms. Openstack can be run using different VMs and instants so that multiple users can take advantage of same hardware at the same time.

2 Architectural details

Openstack is completely developed in to Python, which is considered as one of the most user friendly and powerful language. Going into the architectural details of Openstack, openstack is using modular and scalable approach of development. For particular instant, a user can add or modify any module for fulfilling any of his specific needs. Apart from this scalability, openstack provides nine basic modules which makes the infrastructure easily usable. These primary provided modules are as following.

1 Nova (Computing Engine):
For any computer application, one needs to take the computer processing power into consideration. Nova is fabric controller which is responsible for all computing capabilities of openstack. It provides the set of APIs to user in order to meet their computational processing needs. It helps to manage multiple VMs at a time.

2 Swift (Storage system):
Openstack swift is a cloud storage system which backs the openstack platform for its memory storage need. Swift provides a user scenario where developer doesnt need to think about where his files would be stored, instead swift will

Figure 1: Components of OpenStack cloud software

take care of this storing place and will give the address of storage to the user. It also takes care of regular backing up task.

3 Cinder (Block storage system):
Cinder is a block storage system which provides facility of accessing disk drive as a traditional computers. Cinder can be useful to store data for which access time is supposed to be very small.

4 Neutron (Networking module):
Neutron is responsible for computing capabilities of Openstack. It is responsible for taking care of communication of each module with other modules.

5 Horizon (Graphical interface):
Horizon is the only graphical interface behind openstack, so the new users must look at this module when they come across the openstack technology for the first time. It helps the administrator to look at the complete process logs on the dashboard.

6 Keystone (Identity service/ User records):
It keeps record of each user and services associated with that user so developer and administrator can keep track of their users and services used by them.

7 Glance (virtual image module):
Glance takes care of image of complete hard disk. This image can be used as a template at the time of establishing new instant.

8 Ceilometer (Billing service):
Ceilometer is a powerful billing module which allows to generate individual bill

for each user. It also keeps track of quantifiable usage of cloud resource by specific user.

9 Heat (orchestration component):
It allows developers to store the requirements of a cloud application in a file that defines what resources are necessary for that application. In this way, it helps to manage the infrastructure needed for a cloud service to run.

3 How it is different than Amazon cloud service?

Openstack is an open source technology which encourages the best input of developer across the globe and peer review increases the efficiency of the software. Openstack allows the user to add up a customized module on the requirement. Amazon mainly provides the cloud storage and few cloud computing options. Openstack provide a whole set of infrastructure where one can run any platform.
Openstack is very open in terms of the success and backing part of the service which makes it more reliable and customer acceptable.

4 Who can contribute to the project?

Anybody who is interested in contributing to this technologies can contribute to this project as a personal or corporate. There are many well-known companies who are contributing and supporting the project. Figure 2 is a diagram which shows the percentage contribution by some corporates. This percentage are dependent on the commits make by particular company. Again number of commits are not reasonable parameter of calculation contribution as there can be many unquantifiable things like some companies might have made less commits but have contributes to very core and important project or module.

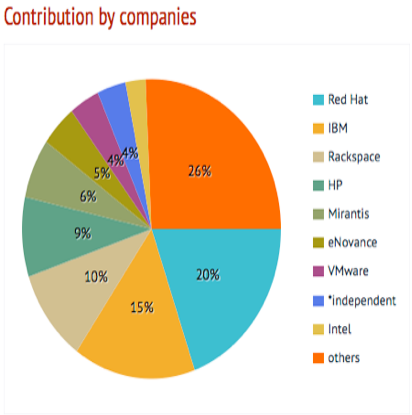

Figure 2: percentage contribution by corporates to openstack project

5 Users

There are many corporate users of openstack by the time. Not even corporate users but you might be a user of openstack and u dont know as the cloud application that you are using is backed up by openstack.
Below is a list of companies which are prominent user of Openstack. AT&T, Bhabha atomic research center, CERN, BMW, eBay, HP cloud services, INTEL, NASA,DELL, Many more.

6 conclusion

Openstack will change the scenario of computers as it provides infrastructure as a service which will lead to the development of mobile technologies and complex computations will be possible over an internet using a mobile phone so the need of a personal computers will be overcome by this technologies.
Apart from this, for a developer, this is a great thing to look into as it will be one of the most necessary cloud infrastructure technology for very near future. Contributing to this technology is little easier due to its modular approach.

References

[1] http://opensource.com/resources/what-is-openstack

[2] http://opensource.com/business/13/12/openstack-amazon-open-cloud

[3] http://opensource.com/business/13/7/openstack-swift

[4] http://opensource.com/business/14/1/corporate-contributions-to-openstack

[5] http://en.wikipedia.org/wiki/OpenStack

[6] www.openstack.org