Q. What is CMP Platform?

When it comes to cloud platforms, it can be difficult to define the differences between IaaS, PaaS, SaaS …and “CMP”.  The differences between a IaaS (Infrastructure as a Service), SaaS (Software as a Service) and PaaS (Platform as a Service), are reasonably well established although PaaS can still be tricky to define without debate.

Today, I’d like to focus on another type of platform: **Cloud Management Platforms.**Big IT and cloud vendors have launched their own but what is it for? And is it really necessary?

The CMP market is growing rapidly and getting more and more crowded – which is odd given that most clients we meet struggle to define what it is and what it stands for.  So let’s try and clarify things:

A Cloud Management Platform is software which combines a set of features or modules which enable the management of different cloud environments.  Public, private and hybrid cloud cannot be all handled with a simple virtualisation management console.  A CMP addresses a certain list of characteristics that will be described later on

**CMP Benefits**

CMP enables you to discover and visualize all cloud assets in a single view, providing the insight needed for effective strategic planning and governance. Customizable dashboard views give individual users filtered access to key performance metrics for fast decision making. The CMP also provides access to and management of flexible managed services enabling you to deliver IT as a service.

Q. What is Openstack?

OpenStack is a set of software tools for building and managing cloud computing platforms for public and private clouds. Backed by some of the biggest companies in software development and hosting, as well as thousands of individual community members, many think that OpenStack is the future of cloud computing. OpenStack is managed by the [OpenStack Foundation](http://www.openstack.org/foundation/), a non-profit that oversees both development and community-building around the project.

## How is OpenStack used in a cloud environment?

The cloud is all about providing computing for end users in a remote environment, where the actual software runs as a service on reliable and scalable servers rather than on each end-user's computer. Cloud computing can refer to a lot of different things, but typically the industry talks about running different items "as a service"—software, platforms, and infrastructure. OpenStack falls into the latter category and is considered Infrastructure as a Service (IaaS). Providing infrastructure means that OpenStack makes it easy for users to quickly add new instance, upon which other cloud components can run. Typically, the infrastructure then runs a "platform" upon which a developer can create software applications that are delivered to the end users.

## What are the components of OpenStack?

OpenStack is made up of many different moving parts. Because of its open nature, anyone can add additional components to OpenStack to help it to meet their needs. But the OpenStack community has collaboratively identified nine key components that are a part of the "core" of OpenStack, which are distributed as a part of any OpenStack system and officially maintained by the OpenStack community.

* **Nova** is the primary computing engine behind OpenStack. It is used for deploying and managing large numbers of virtual machines and other instances to handle computing tasks.
* **Swift** is a storage system for objects and files. Rather than the traditional idea of a referring to files by their location on a disk drive, developers can instead refer to a unique identifier referring to the file or piece of information and let OpenStack decide where to store this information. This makes scaling easy, as developers don’t have the worry about the capacity on a single system behind the software. It also allows the system, rather than the developer, to worry about how best to make sure that data is backed up in case of the failure of a machine or network connection.
* **Cinder** is a block storage component, which is more analogous to the traditional notion of a computer being able to access specific locations on a disk drive. This more traditional way of accessing files might be important in scenarios in which data access speed is the most important consideration.
* **Neutron** provides the networking capability for OpenStack. It helps to ensure that each of the components of an OpenStack deployment can communicate with one another quickly and efficiently.
* **Horizon** is the dashboard behind OpenStack. It is the only graphical interface to OpenStack, so for users wanting to give OpenStack a try, this may be the first component they actually “see.” Developers can access all of the components of OpenStack individually through an application programming interface (API), but the dashboard provides system administrators a look at what is going on in the cloud, and to manage it as needed.
* **Keystone** provides identity services for OpenStack. It is essentially a central list of all of the users of the OpenStack cloud, mapped against all of the services provided by the cloud, which they have permission to use. It provides multiple means of access, meaning developers can easily map their existing user access methods against Keystone.
* **Glance** provides image services to OpenStack. In this case, "images" refers to images (or virtual copies) of hard disks. Glance allows these images to be used as templates when deploying new virtual machine instances.
* **Ceilometer** provides telemetry services, which allow the cloud to provide billing services to individual users of the cloud. It also keeps a verifiable count of each user’s system usage of each of the various components of an OpenStack cloud. Think metering and usage reporting.
* **Heat** is the orchestration component of OpenStack, which 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.

## How do I get started with OpenStack?

If you just want to give OpenStack a try, one good resource for spinning the wheels without committing any physical resources is [TryStack](http://trystack.org/). TryStack lets you test your applications in a sandbox environment to better understand how OpenStack works and whether it is the right solution for you.

Ready to learn more? Every month, we publish a collection of the best new [guides, tips, tricks, tutorials](https://opensource.com/resources/openstack-tutorials) for OpenStack.

OpenStack is always looking for new contributors. Consider [joining](https://www.openstack.org/join) the OpenStack Foundation or reading this introduction to getting started with [contributing to OpenStack](https://opensource.com/business/14/2/how-contribute-openstack).

Q. Why do we need OpenStack?

Because of its open nature, anyone can add additional components to **OpenStack**to help it to meet their **needs**. ... Nova is the primary computing engine behind**OpenStack**. It is used for deploying and managing large numbers of virtual machines and other instances to handle computing tasks.

Q. Advantages of CMP platform using openstack