Grid computing vs Cloud Computing

Grid computing	Cloud Computing
It is for Application oriented	It is for Service Oriented
It operates with in a corporate network	It can also be accessed through the internet
User management: Decentralized management	User management: Centralized management
Accessibility : Through Grid middleware	Accessibility : Through standard web protocols
Scalability : normal	Scalability : high
Architecture : Distributed	Architecture : Client server
Computation : Maximum	Computation : On Demand
Virtualization : Data and Computing resources	Virtualization : Hardware and software platforms

The **main difference** between grid and cloud computing is that the **grid computing refers to a collection of computer resources located at different locations to process a single task while the cloud computing refers to manipulating, configuring and accessing hardware and software resources remotely over the internet.**

Virtualization

Virtualization : Virtualization in Cloud Computing is making a virtual platform of server operating system and storage **devices. This will help the user by providing multiple machines at the same time it also allows sharing a single physical instance of resource or an application to multiple users.**

Virtualization types:

- Operating System Virtualization
- Hardware Virtualization
- Server Virtualization
- Storage Virtualization

Advantages Virtualization :

- **Security**
- **Less Expensive**
- **Maximum Hardware resources utilization**
- **Maximum throughput**

Virtualization softwares: vmware ESX , Microsoft's Hyper-V. etc ..

Virtualization methods: Full virtualization and Para virtualization

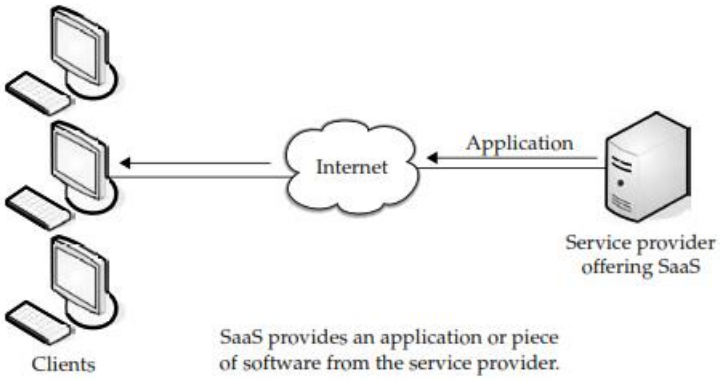
Full virtualization : Para virtualization:

The **main difference** between full virtualization and Para virtualization in Cloud is that **full virtualization allows multiple guest operating systems to execute on a host operating system independently while Para virtualization allows multiple guest operating systems to run on host operating systems while communicating with the hypervisor to improve performance.**

Full Virtualization is less secure.	**While the Paravirtualization is more secure than the Full Virtualization.**
Full Virtualization is slow than paravirtualization in operation.	**Paravirtualization is faster in operation as compared to full virtualization.**
It provides the best isolation.	**It provides less isolation compared to full virtualization.**

Cloud services :

SaaS (Software-as-a-Service) – Provides access to the software applications as a service to the end users.



Examples of software applications :

Customer resource management (CRM)

Video Conferencing

IT Service Management

Accounting

Web analytics

Web Content management

Advantages of SaaS:

Smaller staff

Better marketing

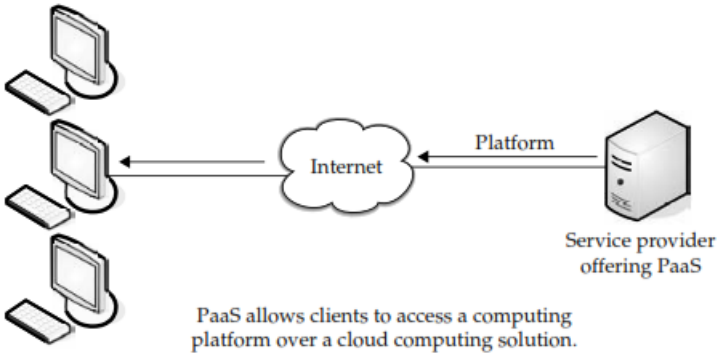
Security

More bandwidth

Customer support 24*7

Customization

PaaS (Platform-as-a-Service) – Provides the runtime environment for applications, development and deployment tools.

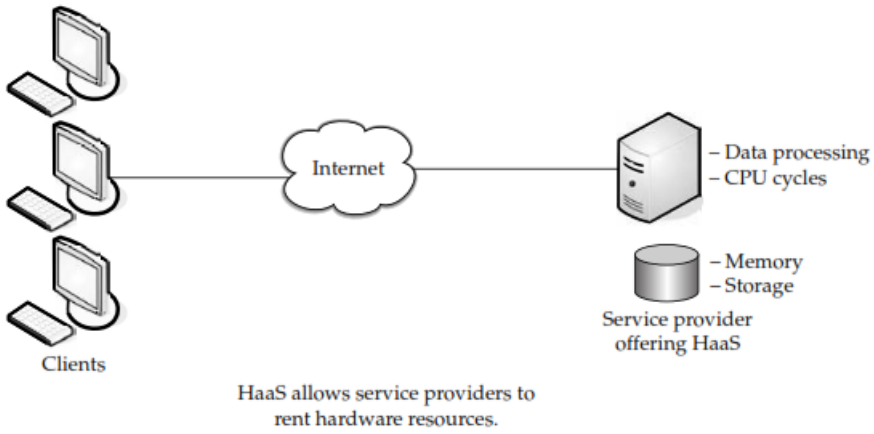


PaaS allows clients to access a computing platform over a cloud computing solution.

Examples of PaaS :

- AWS Lambda. ...
- Google App Engine. ...

HaaS (Hardware-as-a-Service) – Provides resources such as virtual machines, virtual storage, etc.



HaaS allows service providers to rent hardware resources.

Haas provide services

server space

network equipment,

Internet connectivity

memory,

CPU cycles

storage space etc..