Experimental Cloud using Commodity Hardware

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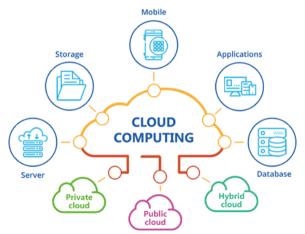
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Cloud

Essentially, it is a term used to describe a global network of servers, which are hooked together and meant to operate as a single ecosystem.



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Cloud Services

Subscriber's Control Diminishes Key Subscriber Infrastructure Responsible Platform as a Software as a On Premise as a Service Service (PaaS) Service Provider Service (SaaS) (laaS) Responsible Apps Apps Apps Data Data Data Data Runtime Runtime Runtime Runtime Middleware Middleware Middleware Middleware **Operating System Operating System** Operating System Operating System Virtualization Virtualization Virtualization Virtualization Servers Servers Servers Servers Storage Storage Storage Storage Networking Networking Networking Networking

Service Provider's Responsibilities Increases

Pros & Cons

Pros

- Reduced hardware equipment for end-users
- Improved performance
- Lower H/W and S/W maintainence
- Instant software updates
- Improved disaster recovery
- Less expensive
- Accessibility

Cons

- Requires good internet connection & bandwidth
- Limited control on infrastructure

Problem Statement

Experimental Cloud using Commodity Hardware

The objective of this project is to create an experimental cloud by repurposing commodity hardware. The cloud we create would be made available to students as virtual desktops which may be used to host web services which can vary from simple static page to complex web applications.

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Metal-as-a-Service: MaaS

Bare metal cloud

Bare metal cloud is an environment in which physical, dedicated servers can be provisioned to customers with cloud-like ease and speed. Bare metal cloud customers are given access to the entire processing power of individual servers, as well as any storage, networking or other services they require.

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laaS vs. MaaS

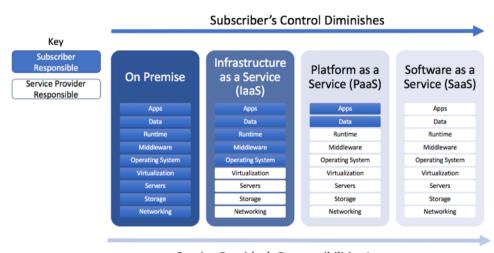
Is there any difference between IaaS & MaaS?

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laaS vs. MaaS

This depends on the view point.

laaS vs. MaaS



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Interim Report

Major Milestones

- MAAS based cloud in VENV
- Hardware Assembly and Configuration
- Opploying cloud server

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Things that I learnt so far...

- Docker & Containerization (might need in future)
- MAAS (a provisioning construct created by Canonical)

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Progress Report

MAAS in VENV

The problem statement is to repurpose the commodity hardware to create an experimental cloud. At present we don't have access to those hardwares hence we are conducting our experiments in a virtualized environment.

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Conclusion

Future Work

- Fix some occasional errors while commissioning nodes due to netowork and connectivity related problems.
- "In Production" maas based virtual cloud.
- Moving out of the virtual platform to physical racks and controllers.

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