Cloud computing : Heavy and Light Virtualization

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***Abstract*— This electronic document permits me to synthesis the third course of virtual cloud computing.**

I. Introduction

The issue is that we need to manage serveral OS on one computer. A Virtual Machine Monitor is also called hypervisor. A server can be a VMWare Sphere or Microsoft Hyper V. A client will be Virtual box or VMware player.

A. Why virtualizing ?

A lot of server with specific operation use ten percent of a time. We also need to reduce number of physical server and more space on server room.

B. Virtualization : new features

The image of OS is fast than an ISO. A versioning image is called **snapshot**. A hypervisor managed drivers of virtual machines.

C. Container-based vs hypervisor based

Inside a box, it looks like a virtual machine. And outside a box, it looks like a process. The container is used by **Docker** (kubernetes).

A vagrant file is used to manage everything with **Openstack**. This file is used by a hypervisor.

II. The nuts and bolts of (hypervisor based) virtualization

A. Processor

A processor servicing a single program at a time. Instruction Set Of Architecture (ISA) uses registers and logical operations.

B. L1 and L2 hypervisors from the inside

Useful to test and android application with multiple layers. Be careful with privilege instructions.

III. Hardware support for virtualization

The processor can virtualize what we want.

IV. Containers : namespaces and docker

A. Namespaces

It permits to obtain a logical separation of processes. It contains its own :

- Interfaces,
- Routing tables,
- Iptables,
- Socket.

*This work was not supported by any organization

B. Cgroups

It manages ressource of processes.

V. CONCLUSIONS

Docker will be a good tools to do virtualization.

ACKNOWLEDGMENT

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References

[1] http://www.i3s.unice.fr/ urvoy/