

Virtualization on the Track I

An Introduction

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Virtualization is the technique of managing and presenting storage devices and other resources functionally, regardless of their physical layout or location.

HEPiX Spring 2007



An Introduction to the Virtualisation Tracks

Véronique Lefébure

(CERN-IT-FIO/FS)

Hepix Fall 2007

Saint-Louis, U.S.A.

*All key and buzz words
to host virtualisation said !
Thanks.*

The Arts of Virtualization

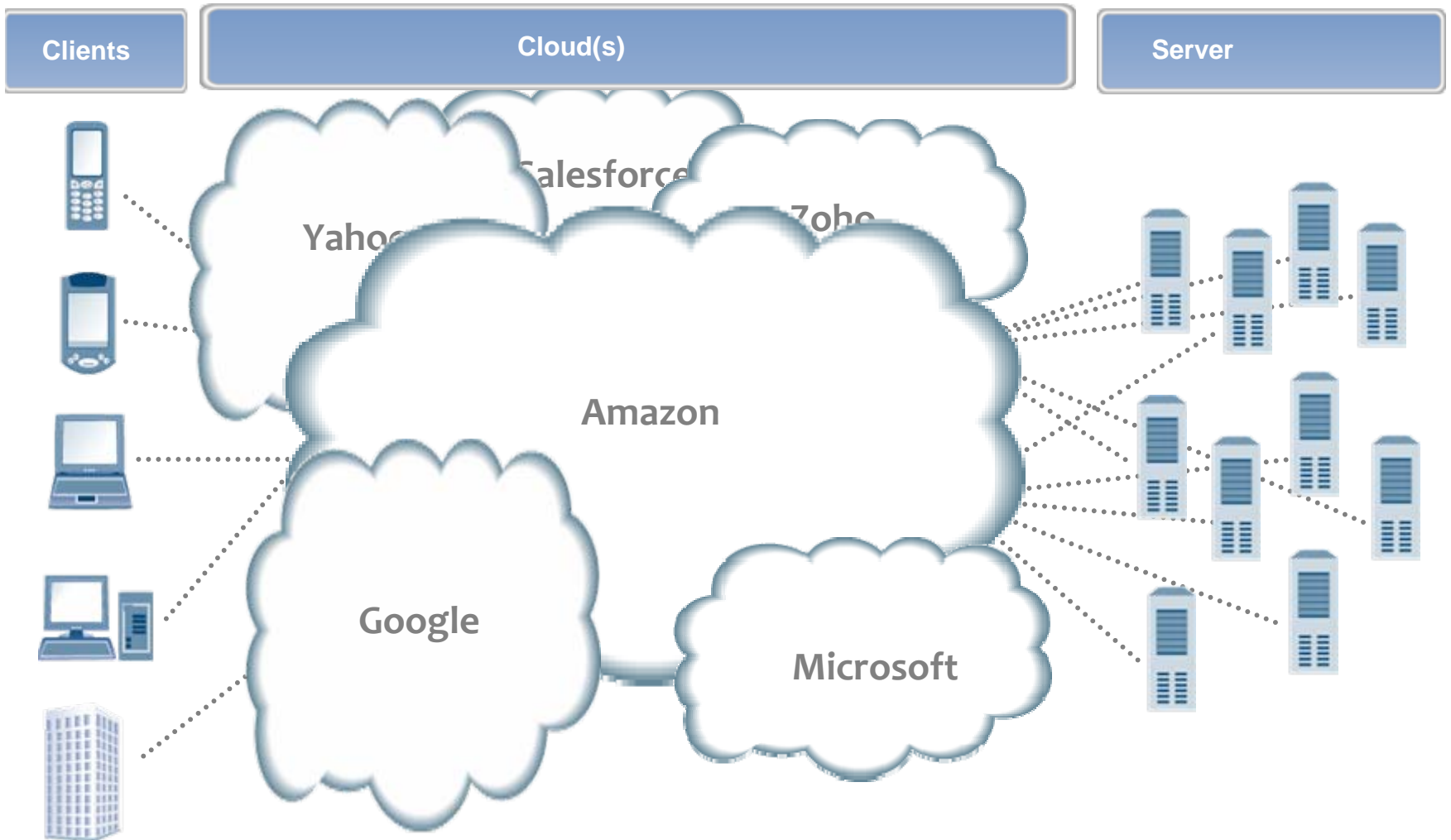
- > Operating System Virtualization
 - Core component of today's IT infrastructure
- > Application Server Virtualization
 - Virtual server front end for load balancing and high availability
- > Application Virtualization
 - Application GUI runs e.g. on local thin client connecting to central service
- > Management Virtualization
 - Role based segmented administration model on virtual (overlapping) resources
- > Network Virtualization
 - Virtual network adapters, VLAN's, virtual routing tables
- > Hardware Virtualization
 - Similar to OS virtualization, slicing hardware to functional pieces with resource allocation
- > Storage Virtualization
 - Block and file virtualization in SAN and NAS, also RAID and iSCSI
- > Virtual People and Organizations
 - As in Second Live or robotics and as VO's for GRID
- > ...
- > Service Virtualization
 - Towards cloud computing: Simply Access Service by GUI, API or appliance



- > Wikipedia: Cloud computing is a style of computing in which dynamically [scalable](#) and often [virtualized](#) resources are provided [as a service](#) over the Internet. Users need not have knowledge of, expertise in, or control over the technology infrastructure "in the cloud" that supports them.
- > Fred Baker (Cisco, Hepix 2008): Today's GRID is Cloud Computing
 - **"A style of computing where massively scalable IT-enabled capabilities are delivered as a service to external customers using Internet technologies."**
- > Promises
 - Unlimited Computing Resources available on Demand
 - No up-front Commitment by the User
 - Pay for use of computing resources only as needed
- > Main Components:
 - Local Internet Device
 - Computing
 - Storage
 - Communication (Network)



The Cloud



Questions and Topics

- > How does it work ? Does it work ?
- > Will the users like it ? Will the user become aware of it ?
- > Will the admins like it ? Will they benefit from it ?
- > What does cost ? Is it worth the price ?
- > What does it change ? Must we care ?
- > Are there obstacles ? Will these fade with time ?
- > How do grids and clouds coexist ?
- > Where is the data ?
- > Which are the service level agreements ?
- > Which is the level of security (needed) ?
- > ...



(Attempted) Outline of Track and Summary

- > Session I: Common Virtualization Aspects (Chair: Thomas Finnern)
 - > Session II: Virtualization Systems (Chair: Riccardo Veraldi)
 - > Session III: Miscellaneous Virtualization (Chair: Peter van der Reest)
 - > Session IV: Towards Cloud Computing (Chair: Thomas Finnern)
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- > Virtualization is on the track
 - > It is changing our work
 - > ...



