

Victoria Interop, 17-21 May 2010

# Some comments and questions about cloud computing / storage and Software as a Service

André Schaaff, CDS



# Purpose

- Public and private clouds
- Software as a Service (SaaS)
- Just a fashion ?
- Consequences ?
- Comments about
  - VOSpace in the clouds
  - VizieR nearer to the stars
  - Private clouds
- Conclusion
- Links

# Public and private clouds

- Public clouds

Resources (hardware, manpower, etc.) are not managed by the consumer himself

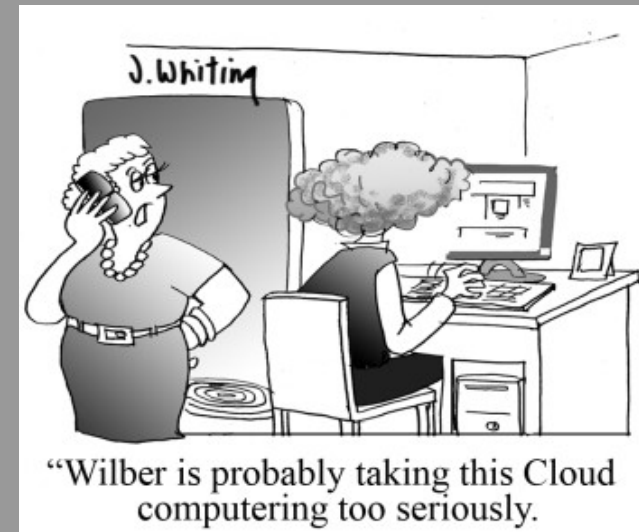
It means an externalization of the infrastructure, the economic model is based on "you pay what you use" (like water, electricity, etc.), it is possible to resize the storage size or the number of processors, the bandpass, to follow the "instant" needs (...)

- Private clouds

The same but local to a company

Mainly for security reasons

- Protection against industrial spying, etc.
- Where is the data ?
- etc.



# SaaS

- SaaS, Software as a Service

You have not to install anything on your computer, you use any application as an online service (... use from everywhere) (no version to take into account, no patch to apply, etc.)

Example : when a standalone application is replaced by a RIA (Rich Internet Application)

# Just a fashion ?

- Just a fashion like a lot of previous “(r)evolutions” ?

Cloud Computing / Storage and SaaS are a trivialization of the use of IT resources. A certain percent (maybe high) of the companies and of the people would be happy to avoid the technical aspects like the build of an infrastructure (hardware, storage (with replication of the data), security, etc.), the installation/upgrade of OS and softwares

You can use an application and access to a huge amount of data through a simple browser

Major IT actors are involved in this “(r)evolution”

IT is not the first industry sector to be in this situation



# Consequences ?

- End of desktops (and laptops...) and migration to simplified terminals (more and more mobiles)
  - The OS virtualization has begun the job → e.g. 1000 desktops replaced by one Box + 1000 light terminals
- Networks with large bandpasses to guarantee the quality of service
  - Imagine that you have to use an SaaS in this hotel !
- Less "own" developments and increasing use of online services (which should be customizable)
- Less IT manpower in the companies, externalization is realized de facto
- etc.

# VOSpace in the clouds

- With your own storage system

- You must evaluate the size of the hardware side, you are responsible of the high availability of your service, etc.

- With a cloud

- More flexible, as the cost is based on the storage you use (GBs per month, ...) and on the traffic, you have not to fix a storage size

- With Amazon S3 : if a user of the VOSpace needs 1 TB to store images (during 6 month) with data download/upload during the period

- Storage : \$0.15 per GB per month → 920\$
    - Transfer
      - Upload → \$0.10 / GB (e.g. 102\$ for the first (1TB images) storing)
      - Download → \$0.15 / GB (e.g. 153\$ if all the images are downloaded one time during the period)
    - Total : around 1300\$ for 6 month

# VizieR nearer to the stars

- For a service like VizieR, it would no longer be necessary to maintain the hardware, just to rent a storage space. The final cost would depend on the use of the services. In the case of open services like VizieR, accesses are done by a large variety of users (professionals, amateurs, curious, etc..). What will happen if someone downloads or migrate several TB of data from one space to another ?
- VizieR in the clouds (Amazon S3)
  - 1,2 TB of stored data → 185\$ / month
  - User upload/download 3300 GB / month → 330\$ / month
  - Around 6000\$ / year + maintenance (archives upgrade, etc.)
  - Additional costs : Mirrors ? Computation of data (xmatch, etc.) ?
  - Final cost : ?



# Private clouds

- We have tested Ubuntu Enterprise Cloud.
- Remark : free softwares are used in the most known cloud computing solutions. For example, Amazon is based on Xen, one of the most famous open source virtualization software. In addition, Amazon is providing the most common APIs, Amazon EC2, which is free. Many solutions are based on it, it is the case of Ubuntu.
- Since version 9.04 (April 2009), Ubuntu provides packages to create private clouds. And since Ubuntu 9.10 (October 2009), the Cloud is available as part of the server version and the installation is very easy.

## Private clouds (2)

- Ubuntu Enterprise Cloud provides only the "back-end". Installation is easy but not the use. It provides only script tools (compatible with Amazon EC2) from the Eucalyptus project but the documentation is poor and the tools not easy to use. For more “user-friendly” interfaces, Ubuntu provides links to partners providing non free solutions for an administration through online tools they host.
- Has to evolve, so wait and see...

# Conclusion

- A significant percent of the companies are ready to go into the clouds
- Large companies will probably not use the clouds for their sensible data and services
- Would be interesting to put a service in the clouds to evaluate the quality of service and the cost during a year (volunteers ?)
- Clouds : Heaven or Hell ?

# Links

- <http://www.ibm.com/ibm/cloud/>
- <http://aws.amazon.com/ec2/>
- <http://code.google.com/intl/fr/appengine/>
- <http://www.microsoft.com/windowsazure/>
- etc.

