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Experimenting clouds with HEALPix surveys

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Context

- Clouds are now common, used by people to store their music, pictures, movies, etc.

- Clouds are mainly based on « Pay what you use »

- It is possible to use Public clouds to extend

private clouds on demand

$\Rightarrow$ can be a solution to maintain

a good availability during the rush hours

History

- In May 2010 we presented at Victoria Interop a first evaluation around VizieR in the clouds. The same year we had also tested private clouds through Ubuntu Enterprise Cloud
- This year, during the Spring, we experimented some implementations, the most significant was to evaluate a HEALPix image server

Remarks

- Different kind of providers
  - Servers in the cloud
    - Amazon Web Services, Microsoft Azure, etc.
  - Tools to become a provider
    - VmWare Vcloud, Citrix CloudStack, etc.
  - Others
    - Cloudbees, PHPFog, etc.
- Krach of providers
  - SliceHost, GoDaddy, ZumoDrive, etc.

N.B.

- All the tests were done with evaluation clouds

HEALPix case study

- After a State of the Art we decided to use

  - Dasein Cloud which provides an abstraction layer

    - Compute Services, Datacenter Services, etc.
    - Avoid the use of too specific functionnalities

  - **wm**ware Cloud EVALUATION

- We were limited to 50GB servers but it was enough to

  evaluate with one survey or with a limitation of

  HEALPix levels

HEALPix case study results

- Performances were stable
    - Download 1MB/s
    - Upload from 128 to 256 KB/s
    - Answer time around 100 milliseconds

Other test

- Java computing application :

  - Performances were stable

  - Results corresponding to the kind of processor
    - Average of 14 minutes in the cloud with a 1,2 Ghz processor simple core
    - Average of 8 minutes at CDS with a 2,4 Ghz Processor, double core

Monthly cost evaluated during the State of the Art

- Data server with the following features
  - 25 TB
  - 1 GB download / day
  - free upload
  - between 1080 and 3960 euros
- Computing server with the following features
  - 16 GB of memory
  - 8 computing units
  - 1 TB storage
  - between 270 and 390 euros for a public cloud

Conslusion

- Cloud can be a solution if you take into account only the cost (compared to own data and computing servers with manpower, cooling, etc.)
  - But a cloud provider can stop his services and you must have a survival plan
- « Pay what you use » is not easy to put in a budget
- Probably more a political problem