



EDGI

JRA2

JRA2.4 Virtualization technology

Oleg Lodygensky

- Objectives
- State of the art:
 - Desktop Grids
 - Using VM over DG
- Volunteer Sharings on DG
- Deploying VM over DG



Objectives

Deploy Virtual Machines to

- ✓ enable any user to deploy its own VM
- ✓ protect volunteer resources
- ✓ extend grid infrastructure over XWHEP
- ✓ enable customized OSes
- ✓ deploy complex applications

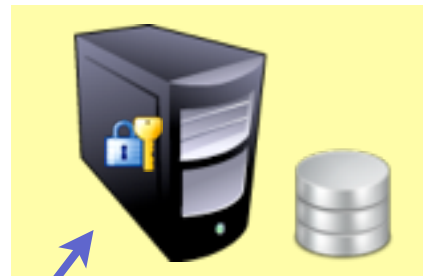


This does not make DG a Cloud

State of the art : Desktop Grid

Centralized and securized services store applications and data

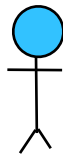
- scheduler
- repository
- etc.



Submit/
retrieve



Download/
update



Distributed User

- monitor the platform
- upload applications jobs, datas..
- download job results



Distributed ressource (volunteer PC)

- download jobs, applications, data
- compute jobs
- upload results

State of the art : using VM over DG

Centralized and securized services store applications and data

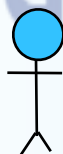
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OurGrid



Distributed User

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JRA2.4 Virtualization technology
Oleg Lodygensky - May 2011 - Corsika

JRA2
version: 1

- run end user jobs in a VM
- use a **preinstalled** VM



Volunteer sharings

➔ still the same DG, with some new features

Centralized and securized services store applications and data

- scheduler
- repository
- etc.
- volunteer sharings must be registered



Distributed resource may declare some sharings (apps; libs)



Distributed User

- monitor the platform
- upload applications jobs, datas..
- download job results



Distributed resource (volunteer PC)

- download jobs, applications, data
- compute jobs
- upload results
- download nothing for their own sharings

VM deployment over DG

Centralized and securized services store applications and data

- scheduler
- repository
- etc.

- VirtualBox must be registered as a sharing



Submit/retrieve



Download/update

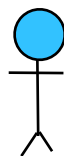


share

Distributed resource may share VirtualBox (installed locally)



StratusLab proposes distributions with the IaaS paradigms

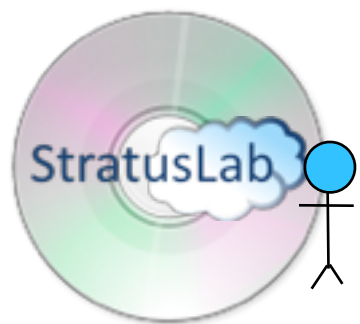


➔ this has already been successfully tested within XtremWeb-HEP

Distributed resource dynamically

- download the end user VM
- create and run a new VM inside its local VirtualBox

VM deployment over DG

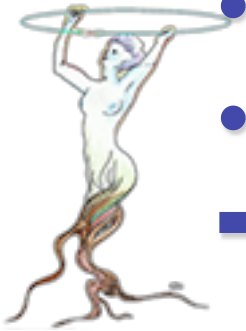


The BitDew P2P network places the virtual disk to the expected XWHEP workers.



- ➔ to solve performance problems
- ➔ this is still a work to do

Use case



- HEP applications are linked to ROOT (<http://root.cern.ch>)
- DG resources don't have ROOT
- ➔ submitted jobs will not run

- ✓ Deploy a VM with ROOT and XWHEP worker
- ✓ Submit such VM on the fly
- ➔ the native worker shares VirtualBox
- ➔ the native worker launches the VM
 - ➔ the virtualized worker shares ROOT
 - ➔ the virtualized worker run HEP jobs