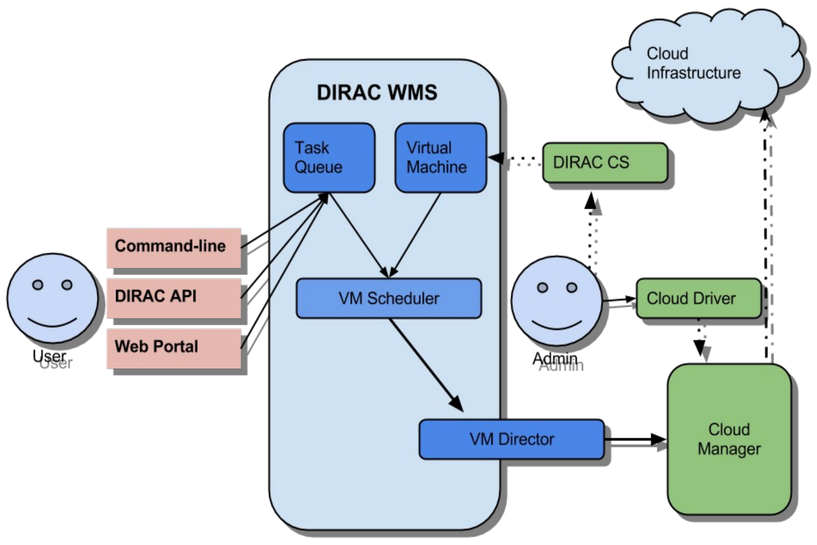
Cloud flexibility using DIRAC Interware

VMDIRAC Multi-Platform

The DIRAC Admin have to upload the images to the Cloud Manager using the corresponding Cloud Driver, and set Cloud specific values on the DIRAC Configuration.

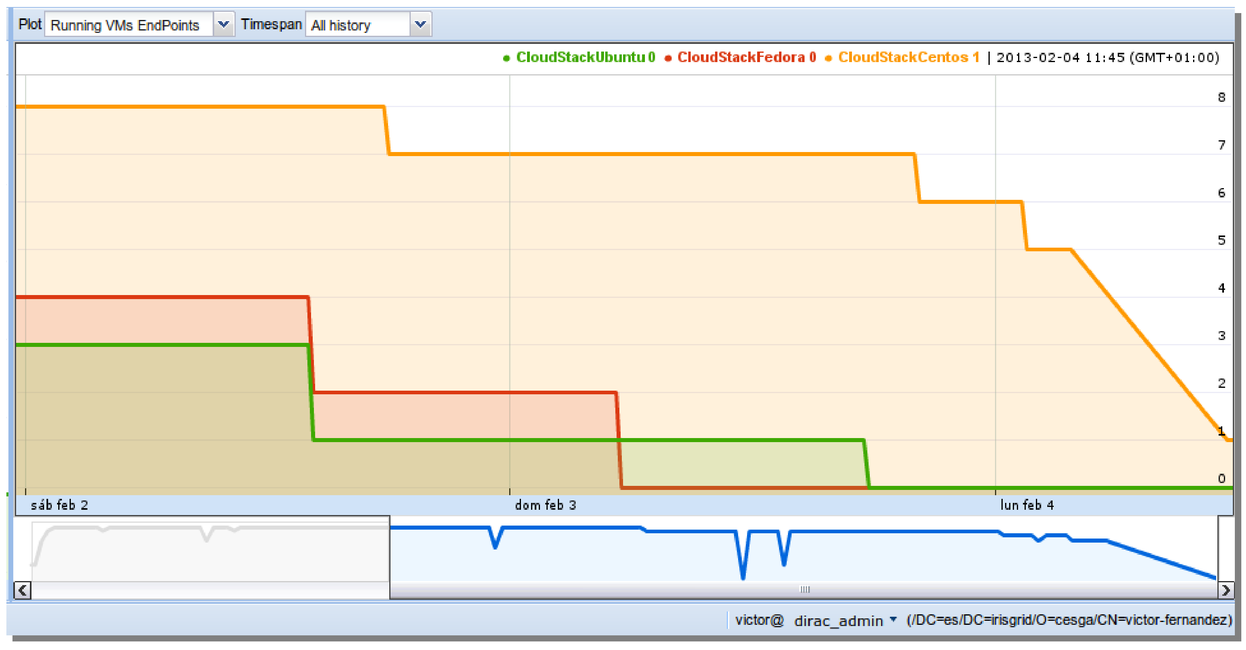
The VM Scheduler starts a full VM with DIRAC pre-installed and configured to execute the Job Agent, together with a VM Monitor Agent.



VMDIRAC can interacts with generic Cloud Managers to virtual machine submission. The Cloud Managers can be CloudStack, OpenStack, Amazon EC2 or OpenNebula.

VMDIRAC was designed with a Multi-Endpoint concept. DIRAC provides flexibility with the support of Grid, BOINC, Clusters and Clouds.

Results

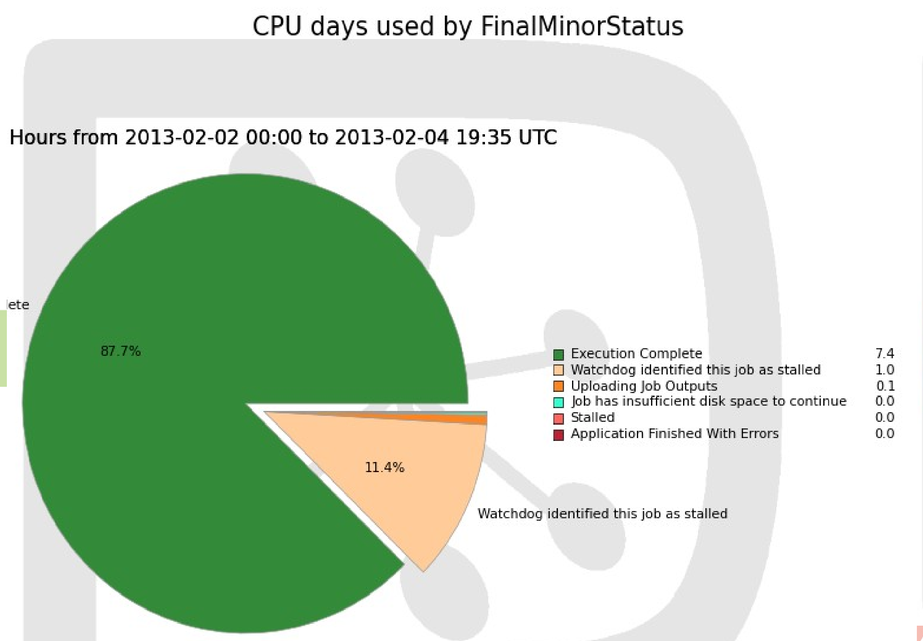


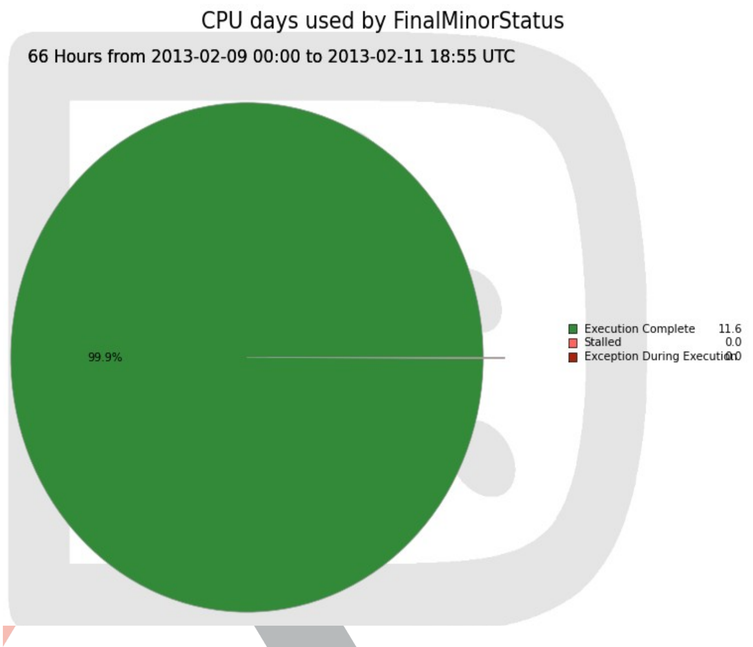
- 500 short jobs, with a time execution of 20 minutes

- 50 long jobs, of around 8 hours of execution time.

- Each user has been configured in a specific VO, and each VO has been assigned to a unique Platform.

- CernVM-FS was tested successfully in Centos, Ubuntu and Fedora.





Testbed structure

Simulations of Multi-VO were executed in different Platforms:

- Fedora 12 - Centos 5.5 - Ubuntu 9.04

The test infrastructure was using KVM hypervisor with 4 nodes

(IntelXeon X5355 @ 2.66GHz, 16 GB RAM)

(1) DIRAC admin is in charge of adding the Cloud settings in the DIRAC CS, taking care of the different preconfigured images of the Cloud manager.

(2) Job submission, with the 3 ways to submit the job.

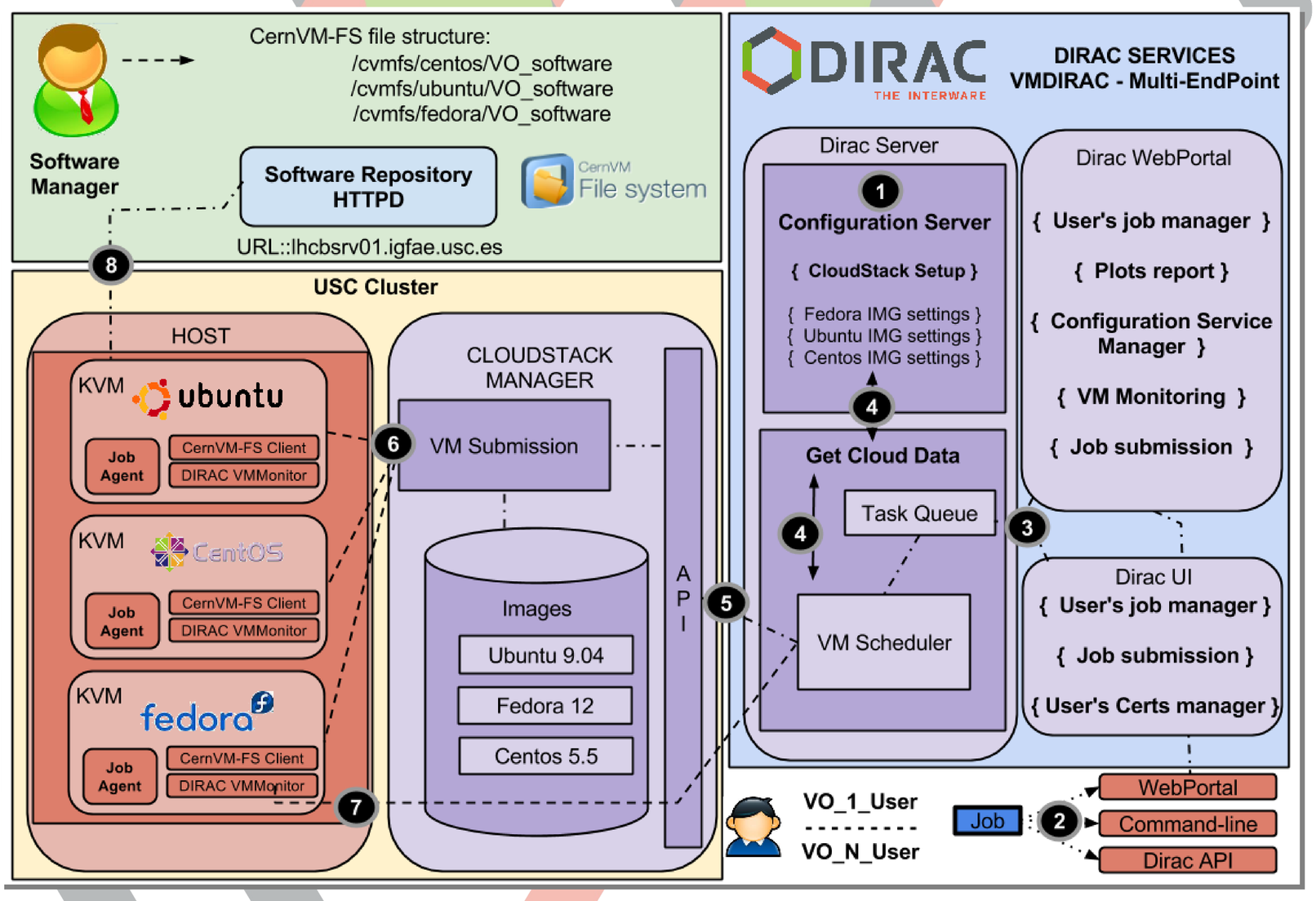
(3) Cloud information is obtained from the DIRAC CS according to the user credentials.

(4) The VM Scheduler component sends the specific EndPoint command to the CloudStack Server API.

(5)The Cloud Manager submits the specific image, which in this case correspond to Ubuntu, Centos and Fedora.

(6) VM Scheduler that is running in the DIRAC get a started message Notification (“Up status”) from the Virtual Machine.

(7) CernVM-FS client connects to the USC CernVM-FS repository, which is hosted in USC TIER-2 and provides the software.



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