UL HPC School 2015

PS 2C: Virtualization on Grid'5000 with VM5K

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Latest versions available on ulhpc-tutorials.readthedoc.org:

UL HPC tutorials:	`https://github.com/ULHPC/tutorials`
UL HPC School:	`http://hpc.uni.lu/hpc-school/`
PS 2Ctutorial sources:	`http://bit.ly/1Gwq3BL`

Summary

Summary

Presentation

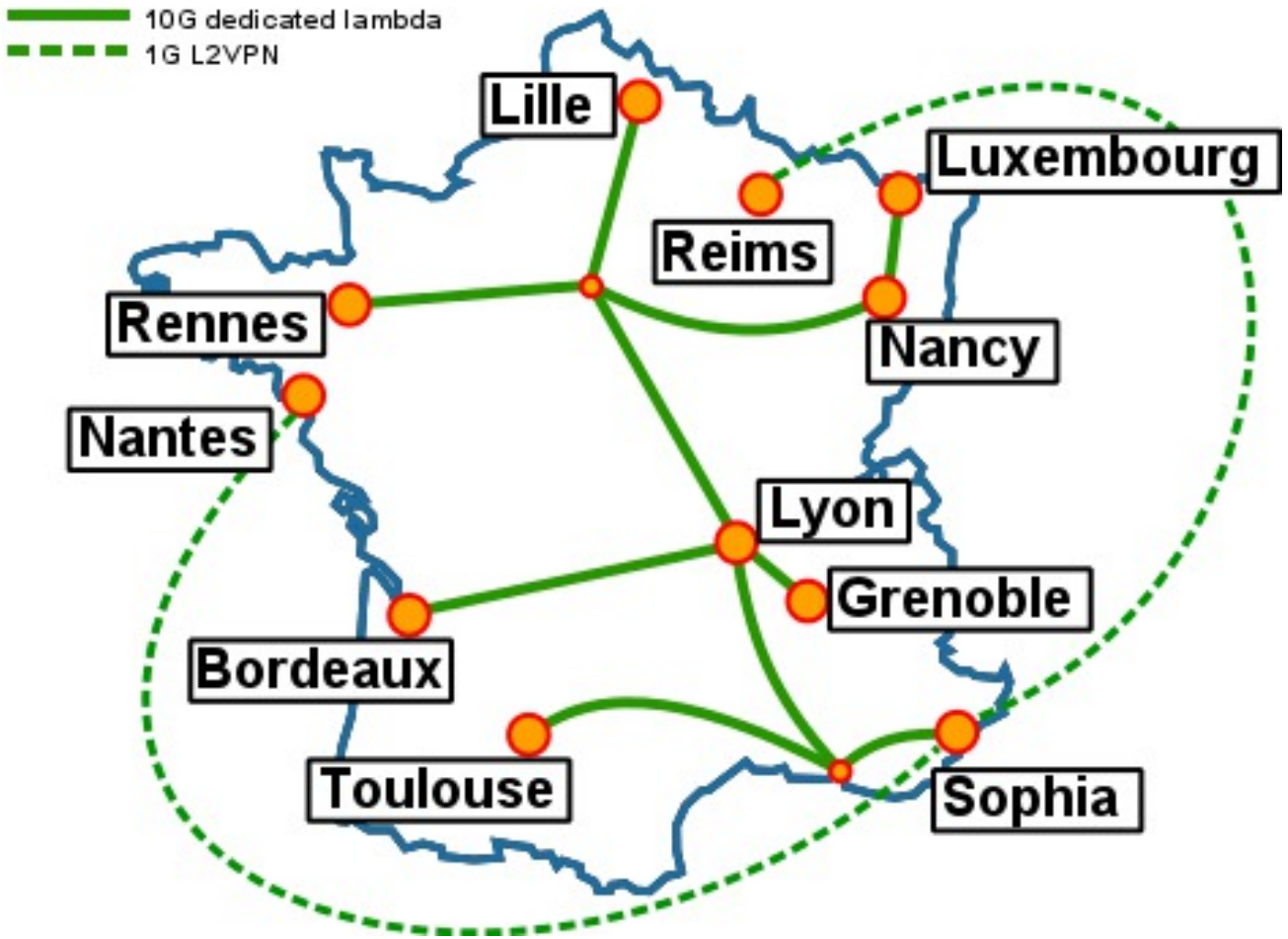
Experimental grid

- **10 sites** in France and Luxembourg
- **1035** nodes / **7782** cores
- **10Gb/s** interconnect

Key features

- highly reconfigurable and controllable
- get access to the bare metal computing nodes
- advanced monitoring and measurement

Grid


10G dedicated lambda
1G L2VPN
Lille
Luxembourg
Reims
Rennes
Nancy
Nantes
Lyon
Grenoble
Bordeaux
Toulouse
Sophia

Presentation

Technical features:

- reserve subnets and vlan (**kavlan**)
- reserve storage capacity (iscsi / nfs)
- reconfigure the nodes for your experiment (**kadeploy**)

Request your account and connect

1. Fill the account request form on http://www.grid5000.fr
2. Use the glocal access

```
(node)$> ssh <login>@access.grid5000.fr
```

```
(node)$> ssh luxembourg
```

3. Use the local access for the University

```
(node)$> ssh <login>@grid5000.uni.lu
```

Objectives of the PS

- Connect to Grid'5000
- Discover the key features of Grid'5000
- Use VM5K in order to deploy virtual machines on the grid

Read the full subject of this PS here

- http://bit.ly/1LvixgO

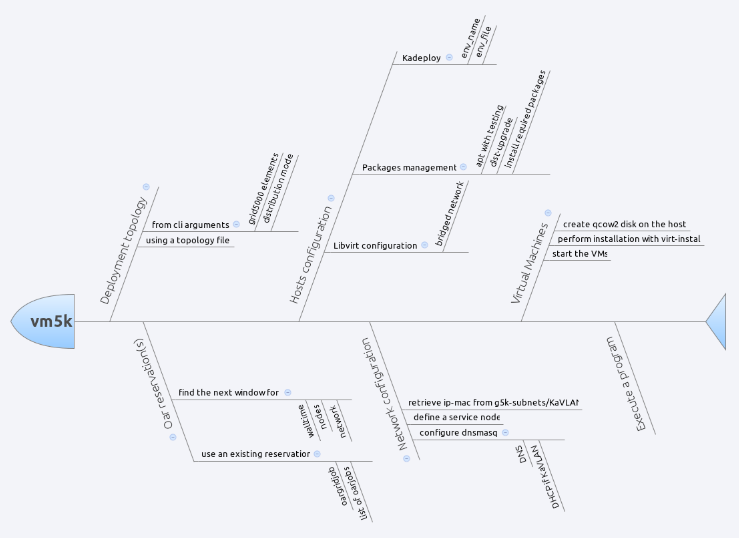
Summary

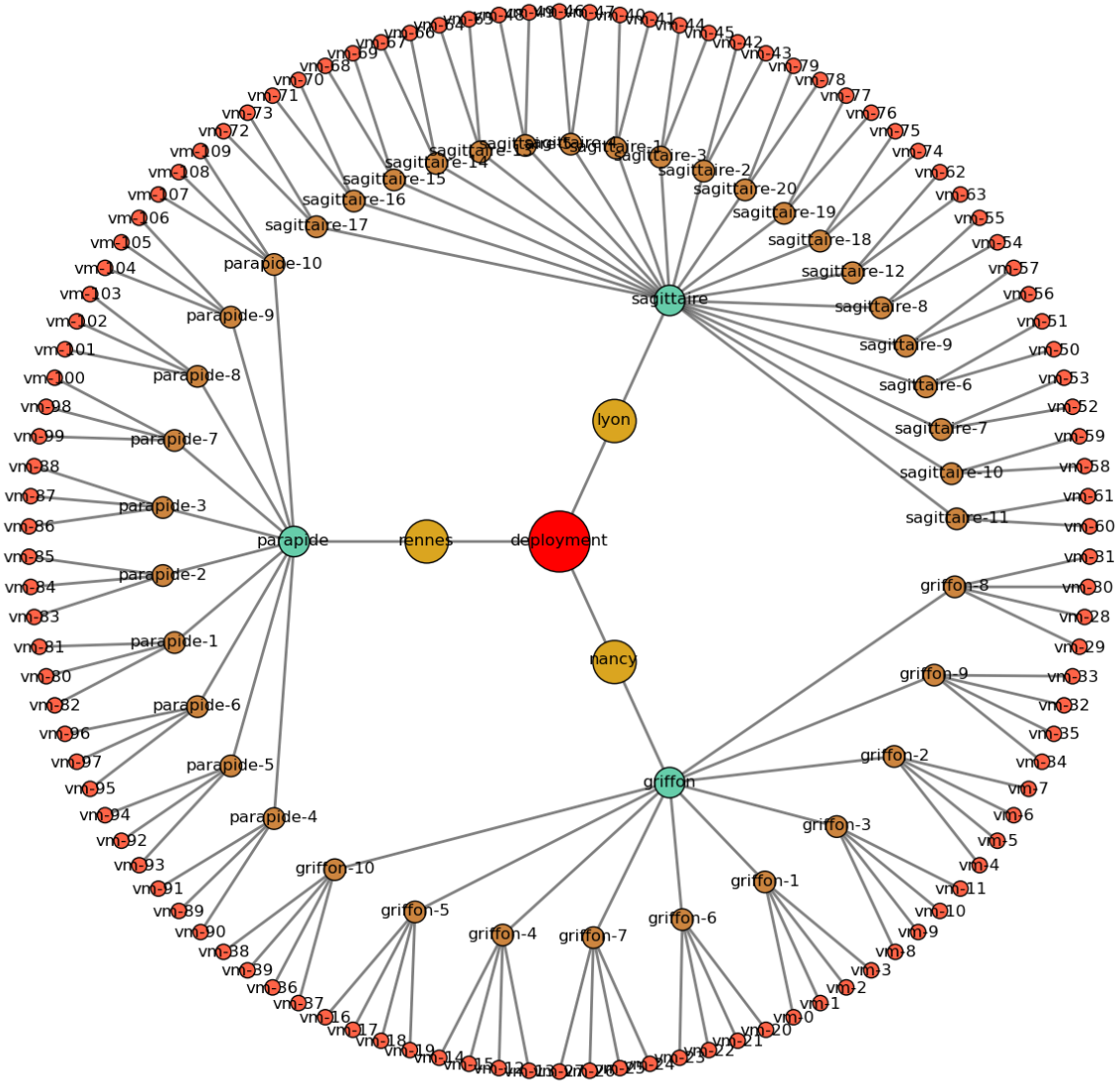
Presentation of VM5K

- manage the reservation, locally or globally
- install the hosts with kadeploy
- configure the virtualization stack
- configure the network
- deploy the virtual machines

Official website:

- http://vm5k.readthedocs.org/


vm5k
Deployment topology
from cli arguments
using a topology file
grid5000 elements
distribution mode
Hosts configuration
Kadeploy
env_name
env_file
Packages management
apt with testing
dist-upgrade
install required packages
Libvirt configuration
bridged network
Virtual Machines
create qcow2 disk on the host
perform installation with virt-instal
start the VMs
Oar reservation(s)
find the next window for
walltime
nodes
network
use an existing reservatior
oargridjob
list of oarjobs
Network configuration
retrieve ip-mac from g5k-subnets/KaVLAN
define a service node
configure dnsmasq
DNS
DHCP if KaVLAN
Execute a program


deployment
lyon
rennes
nancy
sagittaire
parapide
griffon
sagittaire-1
sagittaire-2
sagittaire-3
sagittaire-4
sagittaire-5
sagittaire-6
sagittaire-7
sagittaire-8
sagittaire-9
sagittaire-10
sagittaire-11
sagittaire-12
sagittaire-14
sagittaire-15
sagittaire-16
sagittaire-17
sagittaire-18
sagittaire-19
sagittaire-20
parapide-1
parapide-2
parapide-3
parapide-4
parapide-5
parapide-6
parapide-7
parapide-8
parapide-9
parapide-10
griffon-1
griffon-2
griffon-3
griffon-4
griffon-5
griffon-6
griffon-7
griffon-8
griffon-9
griffon-10

Tutorial

- VM5K tutorial
  - ↪ http://ulhpc-tutorials.readthedocs.org/latest/advanced/vm5k/README/
- G5K Getting started tutorial
  - ↪ https://www.grid5000.fr/mediawiki/index.php/Getting_Started

Questions?

1. Grid'5000
2. VM5K