Grid’5000: A Production-grade Testbed for Experiment-driven Computer Science on HPC and Clouds
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A Production-grade Testbed for Experiment-driven Computer Science on HPC and Clouds
http://www.grid5000.fr/

**Overall Goal**
Design & provide a testbed that supports high-quality experimental science
- Large scale, complex experiments
- Trustworthy results
- Reproducible experiments

**Ground-breaking experiments**

- **Snooze Autonomic Cloud Management System**
  - Scalability evaluation on 538 nodes / 5 sites

- **Testing of the Kadeploy3 provisioning system**
  - 4000 virtual machines in a global VLAN

- **Solving combinatorial optimization problems**
  - Hybrid multi-core and GPU computing

- **Calibration of the SMPI simulator models**
  - Combining real and simulated executions

**Key features**

- **Experiment on all layers : fully reconfigurable**
  - Software stack (root on bare metal)
  - Network isolation (intrusive security-sensitive protocols)
  - Experimental conditions (fault injection)
  - Resources reservation (nodes, network, storage)
  - REST API for XP control tools (Expo, XPFlow, Execo)
  - Measurement and monitoring infrastructure
  - Support for Big Data and Open Science

- **Access high end hardware networks**
  - High performance networks: Infiniband, Myrinet
  - Accelerators (GPU, MIC)
  - Dedicated 10 Gbps backbone (RENATER)

**Get a free account**
http://www.grid5000.fr/open-access

1200 nodes (8000 cores) in 10 sites
500+ users per year since 2006

**Software stack**

- **Kadeploy**: http://kadeploy3.gforge.inria.fr
- **OAR**: http://oar.imag.fr
- **Distem**: http://distem.gforge.inria.fr
- **Expo**: http://expo.imag.fr
- **XPFlow**: http://xpflow.gforge.inria.fr
- **Execo**: http://execo.gforge.inria.fr

and several French universities