Fundação para a Computação Científica Nacional
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National Cluster Survey

FCCN

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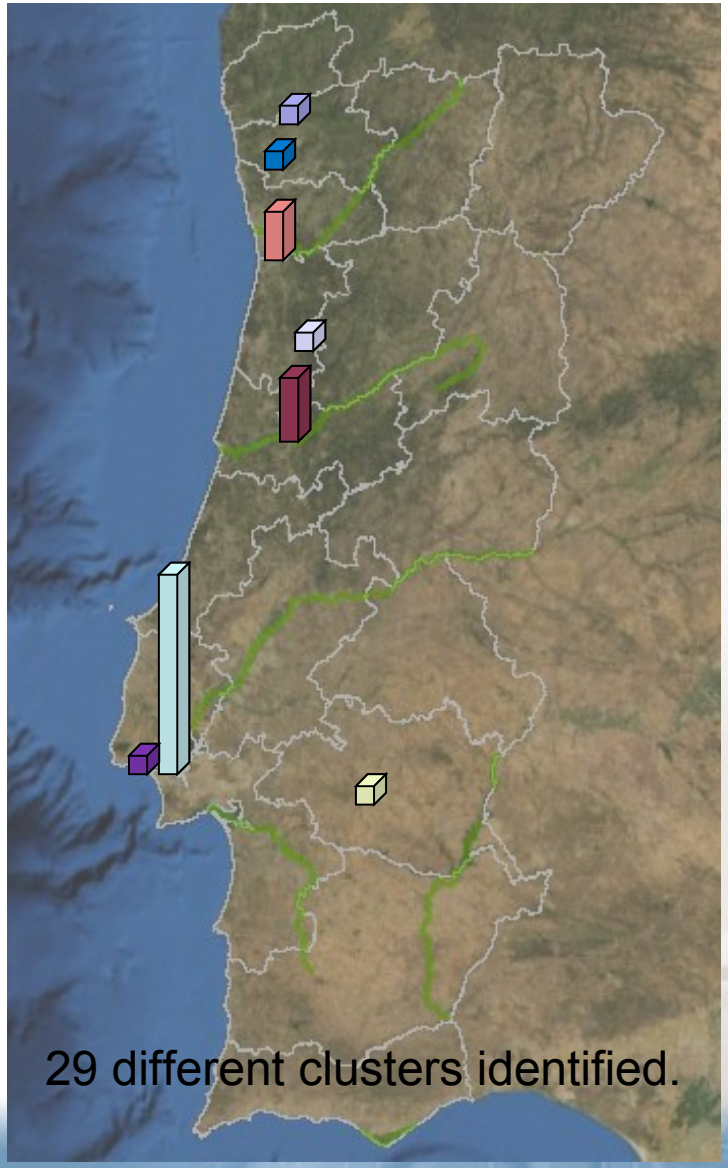
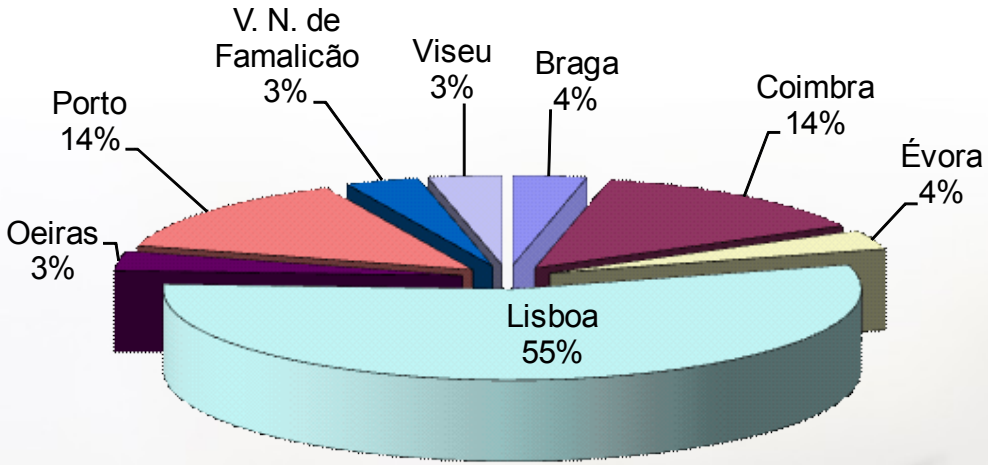
IBERGRID
2nd IBERIAN GRID INFRASTRUCTURE CONFERENCE
Porto (Portugal) May 12 - 14 2008

Number of Clusters per City



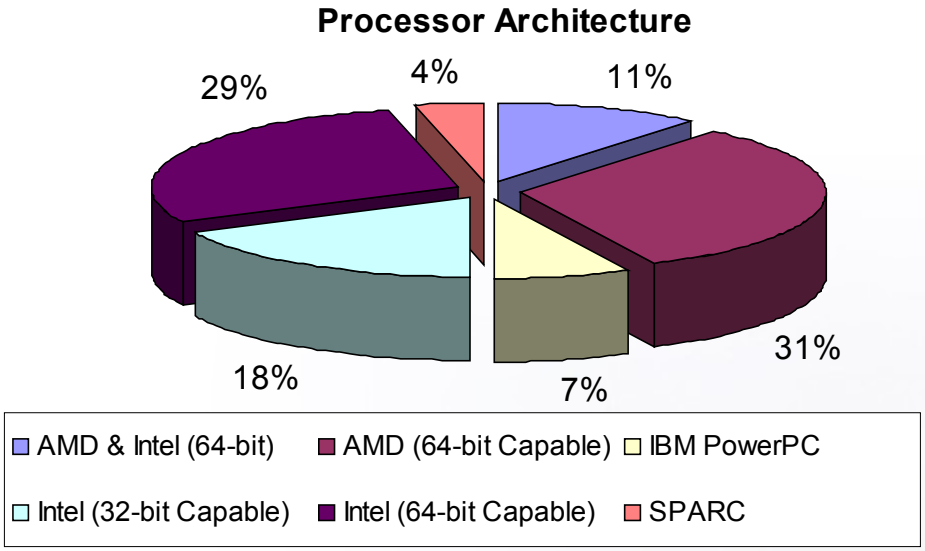
Cluster Distribution per City

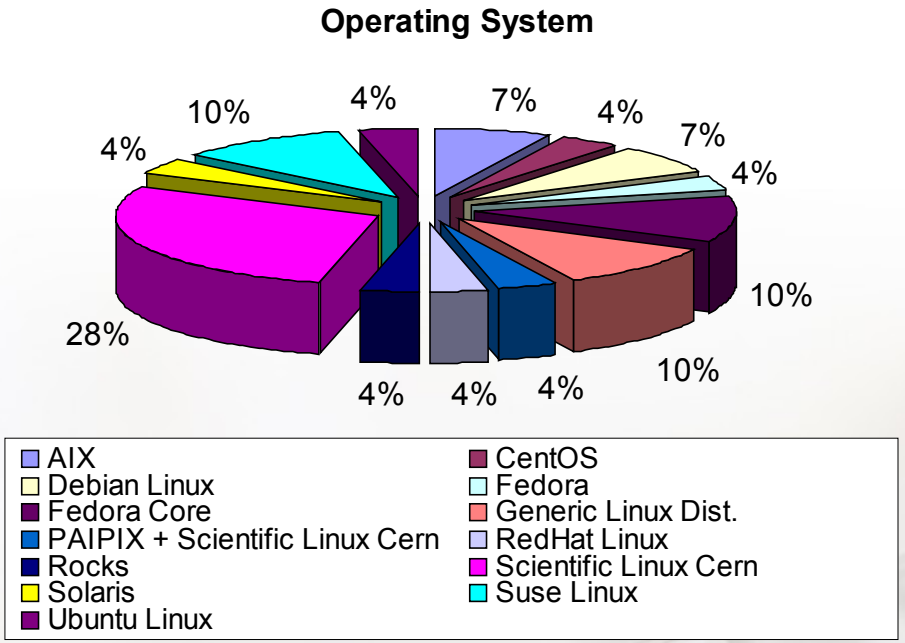


The survey made clear that resource distribution, owned by different institutions, is quite heterogeneous due to:

- Usage policies (Global Sharing vs. Local Ownership);
- Varying loads/capacity;
- System availability;
- Quality of service.

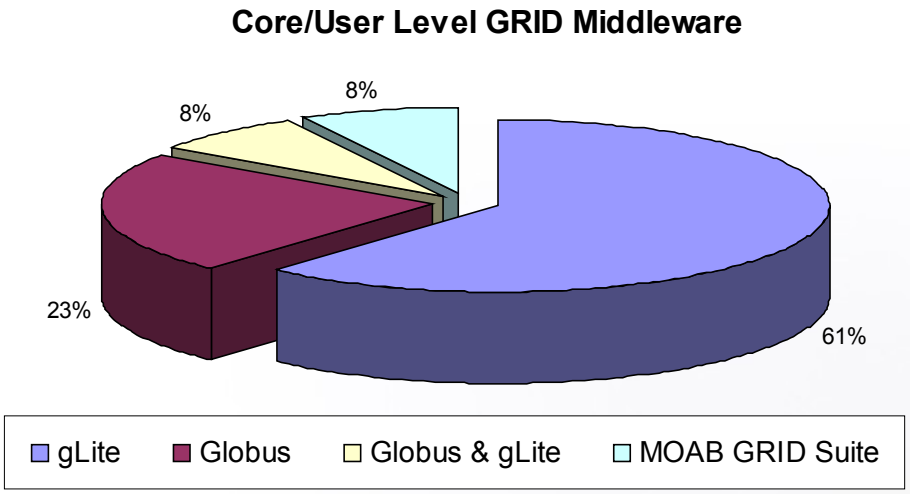
Processor and OS Heterogeneity

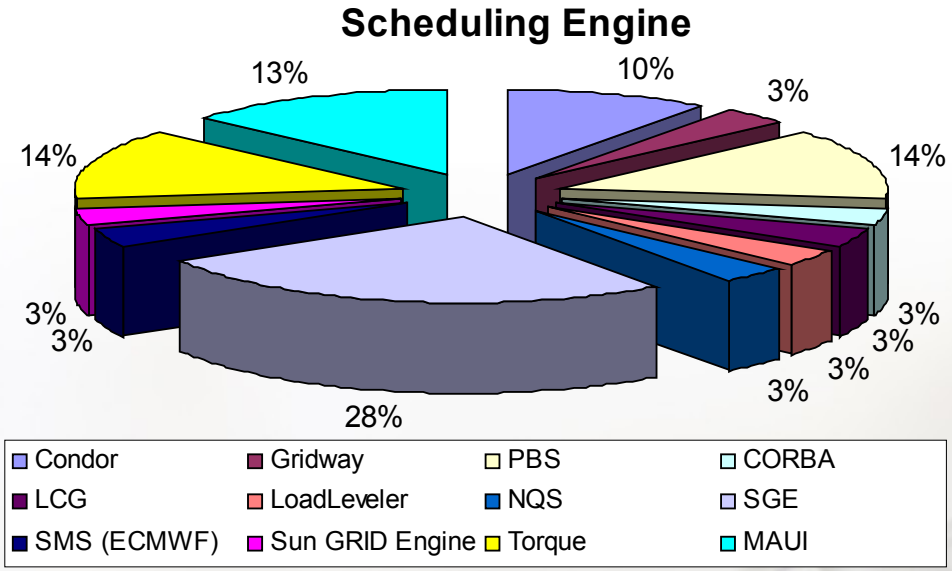




- Multiple architectures have been identified.
  - 82% of the hardware is 64-bit capable.
  - Almost all software is 32-bit.
- Researchers are more sensitive to raw processing power → always welcomed but rapidly depleted.

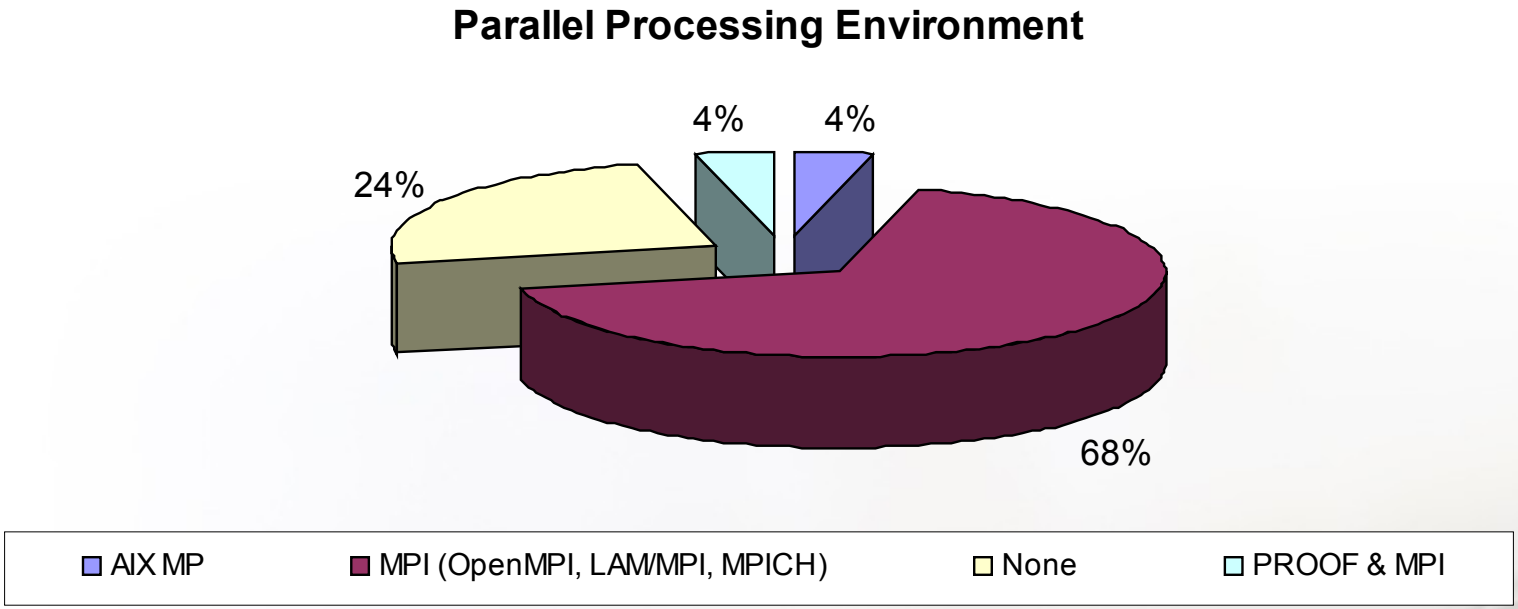
GRID Engine





- Most of the software surveyed extends across the “User-level GRID Middleware” and the “Core-level GRID Middleware” layers.
- gLite and SGE are largely deployed due to the EGEE project.

User Interface Applications



- MPI based applications/portals seem to be largely preferred by the users.
- Nevertheless, some clusters (24%) use the basic functionalities provided by the GRID Middleware.
- MPI allows to better deal with GRID heterogeneity by creating a simple interface for job submittal and results collection.

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VPN-L2

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13-05-2008/UP

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Motivation

- Avoid expensive 10G interfaces in routers.
- Be able to achieve higher 10G densities in a cost effective way.
- Obtain a continuous Ethernet transport plane, capable of creating nationwide VLANs.
- Explore new advanced carrier Ethernet protocols and services like
- Avoid the MPLS costs but retain the ability to use it in the future if needed.

FCCN's VPN-L2

- Point-to-point or multipoint Service.
- Ethernet based (not MPLS).
- Layer 2 -> supports several Protocols (ex: IPv6).
- Easy to deploy.
- Easy provisioning.
- Less expensive core equipment.
- Prospective interaction with GN2 AutoBAHN.

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FCCN's VPN-L2

- No need for sophisticated equipment in the institutions
- National/regional VLAN allocation for a project
- End user perception of a typical LAN (directly connected to his/her peers)
- Easy interoperability with Telecom and Service providers.
- Spans from lower 10Mbps interfaces, up to10Gbit/s.

Scope

- Any project that needs a high capacity point-to-point or multipoint connection with traffic protection, i.e. closed user group.

Potential Initial Users:

- GRID
- VoIP
- VLBI
- ...

Hardware

- Nortel 8600
- Software MERS (Metro Ethernet Routing Switch)
- 2 x Lisboa
- 1 x Porto
- On the edge:
  - Cisco 3750-12S (1G ports)
  - Cisco C3560E-12SD-S (10G ports)
  - NORTEL 5530-24TFD

Questions

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VPN-L2 Pilot

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iBERGRID

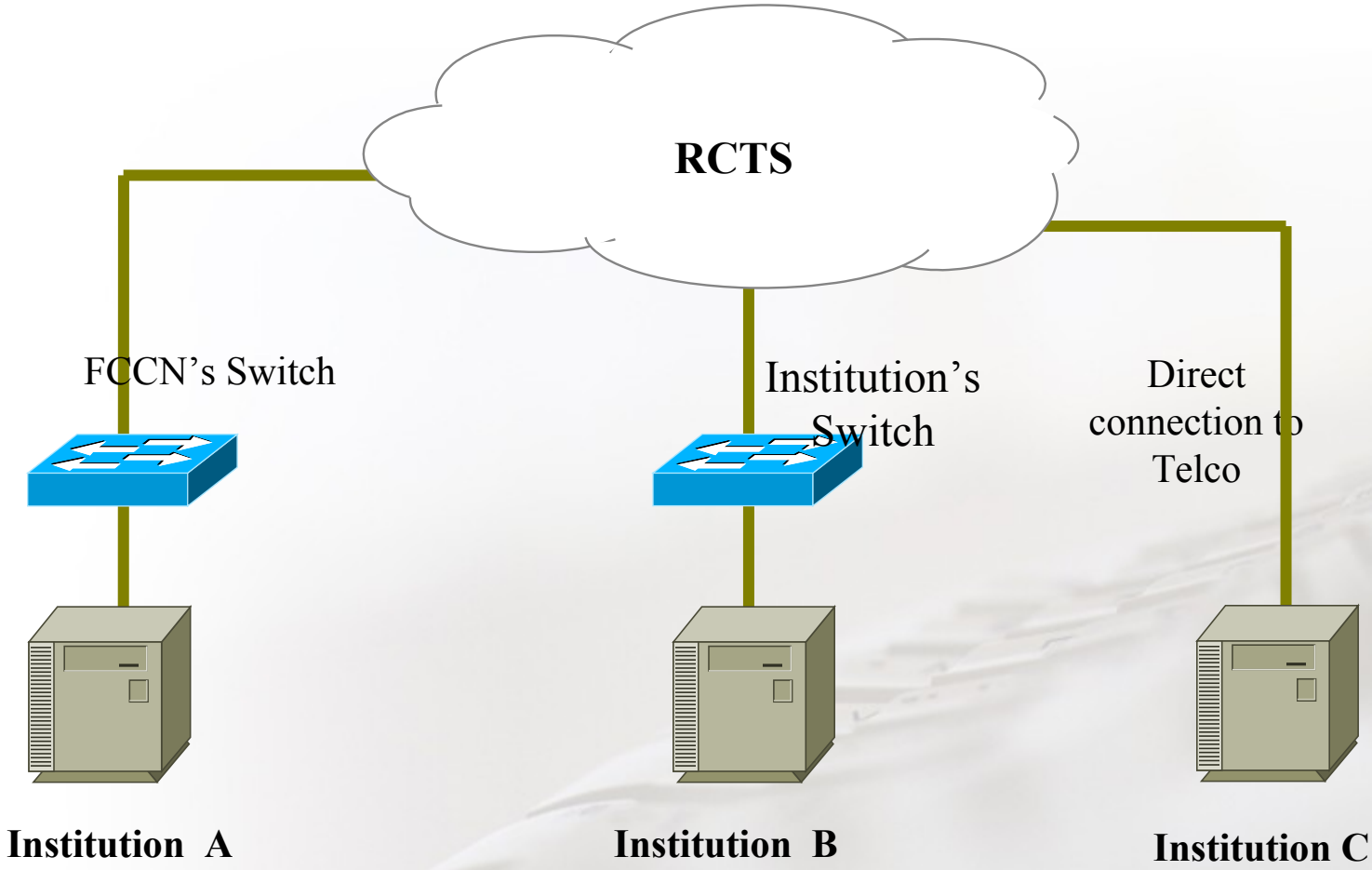
Goals

- Test the overall functionalities of the new equipment.
- Adjust configuration parameters both at the core, edge and campus LAN.
- Test provision and management mechanisms, namely monitoring.
- Document best practices.

Testbed

- In order to participate one needs:
  - Ethernet connection to RCTS.
  - At least 100Mbps access port.
  - A switch at the premises with free Ethernet port to connect to this project.
  - Participate in the GRID project.

Testbed


RCTS
FCCN's Switch
Institution's Switch
Direct connection to Telco
Institution A
Institution B
Institution C

Questions