CloudPYME: A Full Value-chain Ecosystem for the Provision of Modeling and Simulation Services on Cloud for SMEs

20 years supporting research, development and innovation in Galicia
ESTABLISHED IN 1993 IN SANTIAGO DE COMPOSTELA (SPAIN)
To provide **high performance computing** and advanced communications resources and services to the scientific community of Galicia and to the Spanish National Research Council (CSIC), as well as, to institutions **and enterprises with R&D&I activity**.

To promote **high quality research in Computational Science** in close collaboration with the research community from Galicia as well as from other regions or countries all over the world; contributing in this way to the advancement of science, **to transfer technology to industry and administrations**, and as consequence, to the welfare of society as a whole.
Customers

- Universities of Galicia
- Regional Research Centers
- National Research Council Centers (CSIC)
- Hospitals
- Private Companies from any country
- Technological Centers
- Other Non Profit RTD Centers

ISO 9001:2008
Quality Management

UNE166002
R&D Management

Excellence in Management
Daily Execution of Operational Weather Forecast

http://www.meteogalicia.es
HARBOR SAFETY
Daily Execution of Operational Oceanographic Forecast

http://www.puertos.es
Number of Computing Users
HPC SERVICES USER SATISFACTION LEVELS

- Computing: mean 4.5
- Storage: mean 4.5
- Support: mean 4.6
SIMULATION IN SMEs (2004)
Constraints from CAE users

- Other
- Too expensive
- Too much time to get useful results
- Lack of trained people or external support
- Software does not fit
- Complex software. Lack of info
- Computers busy for other tasks
- Difficult to get parameter’s info

Open Source
Training, V&V, and consulting
External CPUs: CLOUD
Activities

- Identify, **Verify and Validate** Open Software
  - Salome
  - Code_aster
  - OpenFOAM

- Training
- External Support

Technological Centres

CPU on demand

Supercomputer Centres or Cloud Providers
CLOUD INFRASTRUCTURE

- **CloudPYME Distribution**
  - **SALOME**
  - **CODE_ASTER**

- **Storage**
  - Remote Storage
  - Shared for SMEs employees
  - Protected

- **HPC on Cloud**
  - CPUs on Demand
  - Same CloudPYME Distribution

- **Batch Queue**
  - Better Performance
  - Must wait on Queue
Full-Value-Chain Cloud Support

**LEVEL 1**
- **aimen**: Application, V&V, Training, Modeling
- **AIMMAP**: ASSOCIAÇÃO DOS INDÚSTRIAS METALÚRGICOS, METALOMECÂNICOS E AFINS DE PORTUGAL
- **CATIMA**

**LEVEL 2**
- **CESGA**: Cloud Computing

**CLOUD SUPPORT**

Full-Value-Chain Cloud Support
Cloud Portal

Lista de Máquinas Virtuales

Datos del usuario:
Login: cloudsme
Solicitud: cpyme000

Máquinas Virtuales en Ejecución
No hay máquinas en ejecución.

Máquinas Virtuales finalizadas en los últimos 7 días

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Lista de trabajos encolados
NO hay trabajos en cola

Información de Consumo

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Esta información refleja la situación el 02/06/2012 13:01:11 +0200
Tested with companies

- Carpintaria Domingos Fernandes Ralha e Herdeiros
- Weproductise
What have we learnt?

• Open Source CAD is not welcome.
• CAE Open software is not easy to use, not friendly. But IT is powerful.
• Bandwidth is a barrier. Another solution for shared storage.
• Windows (SMEs) vs Linux world.
• New functionalities (as robust studies) are more suitable for Cloud.
Conclusions

• Simulation is a must for SMEs
• Still important barriers to adopt it
• Supercomputing centres have the computing knowledge
• But need collaboration with Tech Centers
• Open Software and Cloud could help adoption, but need improvements
• And…
Thanks! Q&A