



# **The National Institute for Research and Development in Informatics**

## **I C I Involvement and Commitments regarding Software Services Research**

**West University of Timisoara,  
Romania, April 30, 2010**

**Gabriel Neagu, PhD  
Vladimir Florian, PhD**

# "Distributed Systems" Research team

- Set up in 2002, in the Department of Research
- Main R&D topics:
  - Computing architectures: loosely coupled architectures, large area distributed architecture (Grid), cloud computing architectures, autonomic computing
  - Architectures, technologies and tools for distributing applications and systems: Service oriented architectures for Web (SOA) and Grid (OGSA) services, data management in distributed systems, workflow modeling and execution; business processes administration in network enterprises;
  - Distributed systems implementation: e-Science services in virtual organizations, distributed systems and SOA in industry (distributed manufacturing, management of virtual enterprises)

# "Distributed Systems" Research team

- R&D permanent staff: 3 PhD, 1 PhD candidate, 2 programmers
- Infrastructure:
  - RO-01-ICI computing cluster in production regime, 12 CPU cores;
  - Computing cluster in installation phase, about 300 CPU cores, 28 TB storage

# Main National Projects

- “Distributed architectures for access to heterogeneous resources ” (2002-2004)/ Institutional Research Programme:
  - Main results: SOA investigation, development of Web services on .NET+SQL Server platform, ebXML experimentation; set up and installation of RO-01-ICI grid cluster
- “Service Oriented Approach in Grid application development” (2006-2008)/ Institutional Research Programme:
  - Main results: Skills and competencies increase, development documentation, Pilot platform (GT4, gLite, Medicus Grid gateway, DICOM image transfer service)

# Main National Projects

- “Research regarding structuring, design and development of industrial virtual enterprises” (2005-2008) / National Program for Excellence Research (CEEX)

Partners: “Politehnica” University of Bucharest, 2 SMEs

- Main results: design, development and integration of software components, systems and platforms for V E management (BPMN, WS-BPEL, distributed Web based decision support and operational management)

# Main National Projects

- “Virtual Grid organization for advanced modeling, simulation and optimization” (2005-2008) / National Programme CEEEX:
  - Partners: “Politehnica” University of Bucharest, West University of Timisoara, Technical University of Cluj-Napoca, National Institute for Aerospace Research Bucharest
  - Main results: gridification of legacy MOSI applications, set up of the first national Grid VO, upgrade cluster configurations in partner organizations

# Main National Projects

- “Experimental Grid platform for workflow oriented application development” (2008-2010) / National Research Programme II:
  - Partners: University “Politehnica” of Bucharest, West University of Timisoara, SIS S.A. (private company);
  - Main results: SOA investigation, development of Web services on .NET+SQL Server platform, ebXML experimentation; set up and installation of RO-01-ICI grid cluster

# Main National Projects

- “Evolution of service oriented infrastructures and related technologies supported by European technology platforms” (2009-2011) / Institutional Research Programme :
  - Main expected results: investigation of SRAs for service oriented ETPs (NESSI, eMobility, NEM); study NESSI specific concepts, principles and reference architecture; experimentation of NESSI framework for open services

# Main International Projects

- “SEE-GRID - South Eastern European GRid-enabled eInfrastructure Development” (2004-2008) / FP6, and
- “SEE-GRID-SCI - SEE-GRID eInfrastructure for regional eScience” (2008-2010) / FP7
  - Local project coordinator
- “EGEE - Enabling Grids for E-scienceE” (2004-2010) / FP6 – FP7
  - In charge with local coordination of the SA1 activity (infrastructure operation)

# Main International Projects

- “Upgrade of the RO-01-ICI cluster as nod in the national Grid infrastructure” (2009-2010) / Structural funds:
  - Main expected results: installation of data center utilities, significant computing cluster upgrade (1 Tflops).

# Priorities from NESSI SRA

- According to NESSI Holistic View:
  - NESSI Framework:
    - virtualization of resources
    - service integration through SOA
    - business process semantics
    - SLA and management services
  - NESSI Adoption:
    - a new business services ecosystem (e.g. cross-sector collaborative applications)
    - NESSI technology platform
    - research, training & demonstration centre

## Priorities from NESSI SRA

- According to NESSI Research Priorities for 2009-2010:
  - Service-oriented utility infrastructure
  - Service and System Engineering
  - Business process modelling
  - Reference Architecture and Implementations
  - Building NESSI