EU Research Information Event
Towards Integration into the European Research Area
Beograd, 29.06.2009.

e-Infrastructure Development in Serbia

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SCIENTIFIC COMPUTING LABORATORY

June 29, 2009

seeraei
South East European
Research Area
for eInfrastructures

EU Centre of Excellence
CX-CMCS
July 2006 - June 2009

eInfrastructure

- **Network**
  basic underlying physical infrastructure
- **e-Science grids**
  middleware layer to pool distributed resources
- **Scientific data**
  the knowledge layer
- **Supercomputing**
  increase competitiveness of the research by providing HPC resources
- **Virtual research communities**
  innovative way of doing e-Science

Policy

- **European level:**
    - ESFRI + eIRG
    - Overcoming the "digital divide" EC comm's

- **Regional level:**
    - "Action Plan of EU-Balkan countries in the sector of R&D", Thessaloniki 2003
    - "eSEE AGENDA +", Sarajevo 2007
    - Projects: SEERA-EI, WBC-INCO-NET, SCORE, WINS-ICT, …

- **National level:**
    - In preparation; eInfrasturctures one of core priorities

Network

- **AMRES** = Academic and Research Network of Serbia (http://www.amres.ac.rs/)
- Coordinating institution: Belgrade University Computing Centre (RCUB)
  - central infrastructure, operational and management node in AMRES
  - 30 employees
  - knowledge and experience in ICT (development, implementation, know-how, maintenance, support)
- International dimension:
  - Pan-European: GEANT3
  - Regional: SEELIGHT, SEERA-EI
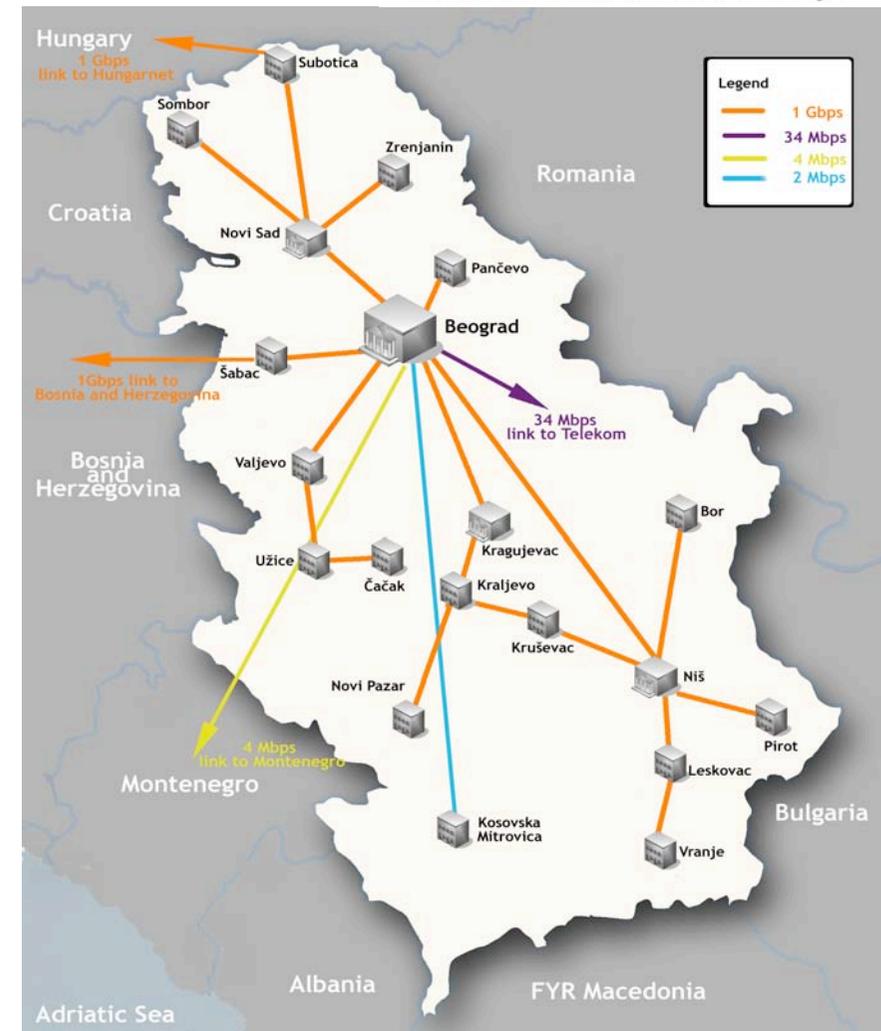 - Finished projects: SINSEE, SEEREN, SEEREN2, SEEFIRE

Network today

Layout:

- 155 members
- 100,000 active users
- 2100 km fibre links
- 20 cities

Services:

- IPv4 multicast
- IPv6 multicast
- Eduroam service (in final stage of joining)

Grid

- **AEGIS** = Academic and Educational Grid Initiative of Serbia (http://www.aegis.rs/)
- Founded in April 2005
- Mission:
  To provide Serbian research and development community with reliable and sustainable grid infrastructure.
- Coordinating institution: Institute of Physics Belgrade
  - central infrastructure, operational and management node in AEGIS
  - national focal point for HPC
- International dimension:
  - Pan-European: EGEE-III
  - Regional: SEEGRID-SCI, SEERA-EI
  - Finished projects: EGEE-II, SEEGRID, SEEGRID-2
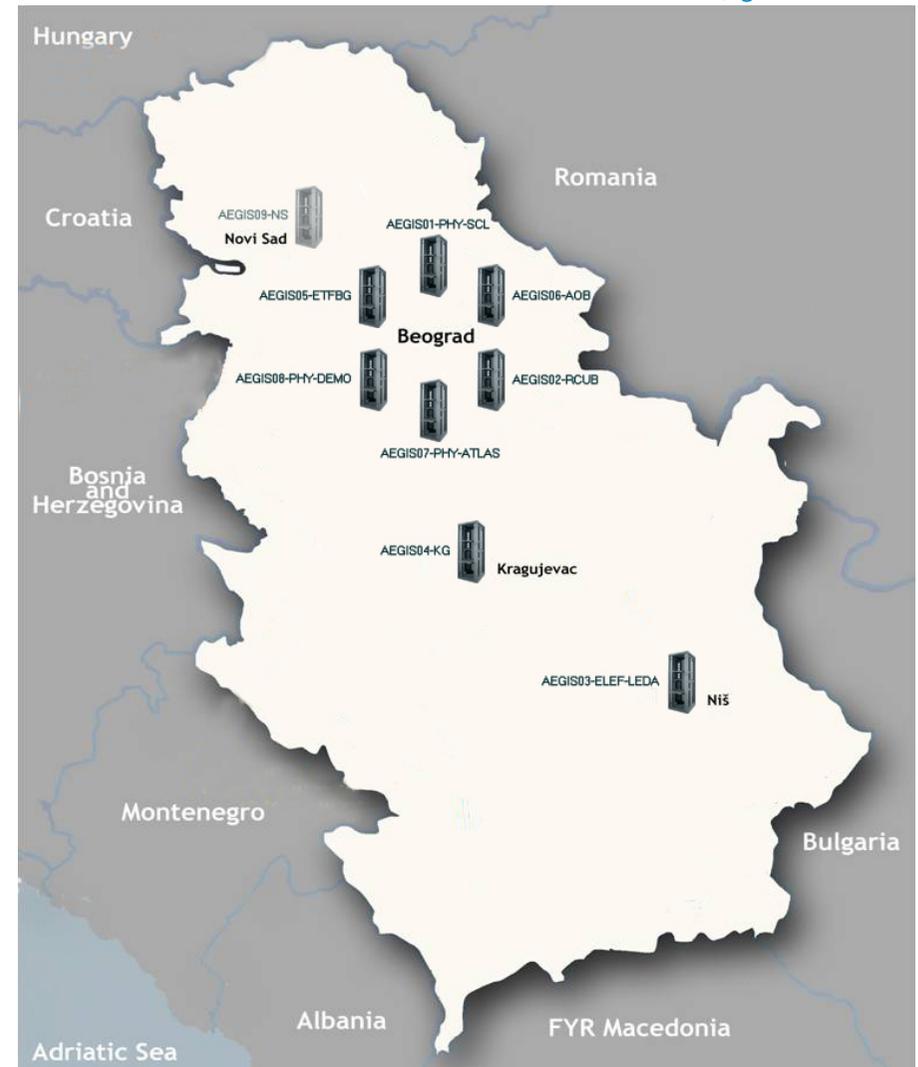
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Grid today

Infrastructure:

- 9 core sites
- 1000 CPUs
- 40 TB storage space

Services:

- AEGIS CA
- Grid core services: VOMS, WMS, LB, BDII, LFC, PX
- Operational support
- Training

Supercomputing

Blue Danube

- National Supercomputing and Data Storage Center Project – Blue Danube
    - Duration: 7 years
    - Coordinator: Institute of Physics Belgrade
- Objectives
    - eInfrastructure development
    - Development of human resources
    - Increasing competitiveness of R&D sector
    - Opening up new R&D venues
    - Collaboration with industry
- International dimension:
    - Pan-European: PRACE
    - Regional: SEERA-EI

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Knowledge layer

Data

- KoBSON library documentation consortium

    - \> 35K journals available

    - ≈ 1M articles downloaded in 2007

    - Indexing of Serbian research papers

Virtual organizations

- AEGIS catch-all national VO

- Participation in regional catch-all VOs: SEE, SEE-GRID

- Discipline VOs: METEO, ENV, SEISMO

- European VOs: ATLAS, CMS

Summary

- The importance of eInfrastructure recognized;
  full sustainability is not achieved.

- Network and Grid are success stories;
  HPC and knowledge layer are in development.

- Full integration at European and Regional levels achieved;
  particularly successful sequence of regional projects (SEEREN, SEEREN2, SEE-GRID, SEE-GRID-2, SEE-GRID-SCI, SEERA-EI)

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