

Research e-Infrastructures

Leif Laaksonen

CSC – Finnish IT center for Science, Finland



What is e-Science?

"e-Science is about global collaboration in key areas of science, and the next generation of infrastructure that will enable it."

John Taylor, Director General of research Councils Office of Science and Technology, 2000

“In order to facilitate international collaboration the e-IRG wishes to reaffirm the importance of the national e-Infrastructure initiatives that aggregate on a national level relevant e-Infrastructure activities.”

e-IRG London December 2005

What is an e-Infrastructure?

- e-Infrastructure stands for electronic infrastructure with 3 main layers:
 - *Networking,*
 - *Grid resources (computing, storage, sensors, etc.) and*
 - *Data sharing*
- *Some other views...*
 - “Anything that enables eScience, collaborative research – distributed, persistent, reliable, accessible services”
 - “Broader than Grids – e.g. digital libraries, networking”
 - “A framework (political, technological and administrative) for the shared use of distributed electronic resources” ...



Changes driving the need for a long term vision

1. Changes in the way research is conducted through virtualization, simulation, computation and collaboration.
2. Many areas of research need to be more collaborative and interdisciplinary across Europe;
3. Improved sharing and access of research information resources (research outputs and data) is required;
4. Younger researchers may have a different perspective on, and requirements of, the research process;
5. The effective use of modern e-RI needs better training and skills than is often provided to researchers;
6. Europe must support advanced e-RI provision to enable this collaboration to be effective and offer Europe a competitive advantage.



Short term (2008-2009):

- The requirement, at the European level, is one of providing a joined up set of e-infrastructure “layers”;
- Support is needed to create and sustain infrastructures particularly in the following areas:
 - Network: GÉANT
 - Access management: seamless access to resources
 - Adequate HPC provision and access to them
 - Middleware provision => virtual research communities
 - Coherent and managed layer of research resources by joining up scientific repositories and significantly growing the resources available
 - Public/private partnerships to speed up innovation



The e-Infrastructure is not about a technology tool, it's about a new way to conduct research.

Thank you!