CSC

Finnish
IT center for
science

CSC Grid Activities

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Contents

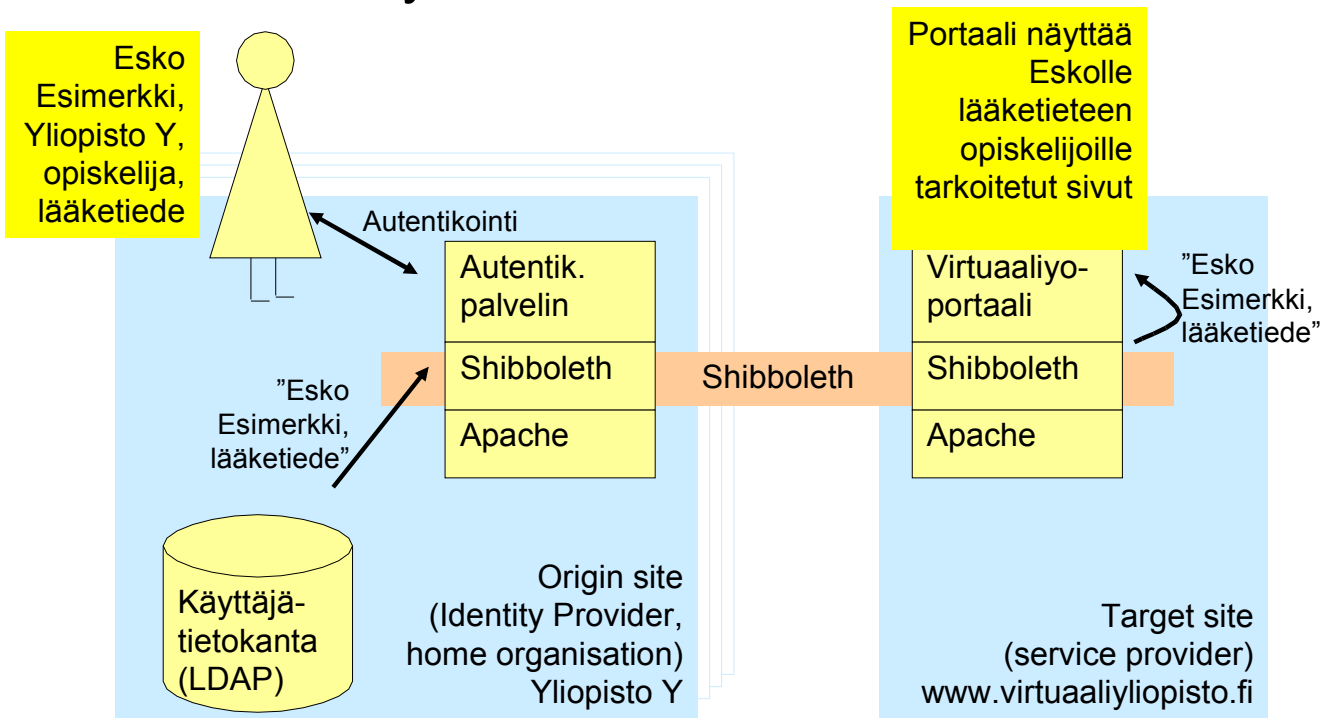
- The Role of CSC
- CSC Grid Activities
  - Haka authentication network
  - Material Sciences Grid (M-grid) and NorduGrid collaboration
  - EU Projects: DEISA, ENACTS, EMBRACE
  - European Southern Observatory (ESO) project
- Future Challenges

The Role of CSC

- Goal: Better user environment to researchers in Finland
- Deploying suitable Grid middleware in production use
  - Can participate in development projects, but Grid research mainly left to universities
- Coordinator in projects spanning several universities
  - Discussing security issues and building trust
  - Previously internal operations such as user management and accounting need to become interoperable with partners
  - How users can easily get Grid certificates (project started)
- Dissemination and training

Haka Authentication Network

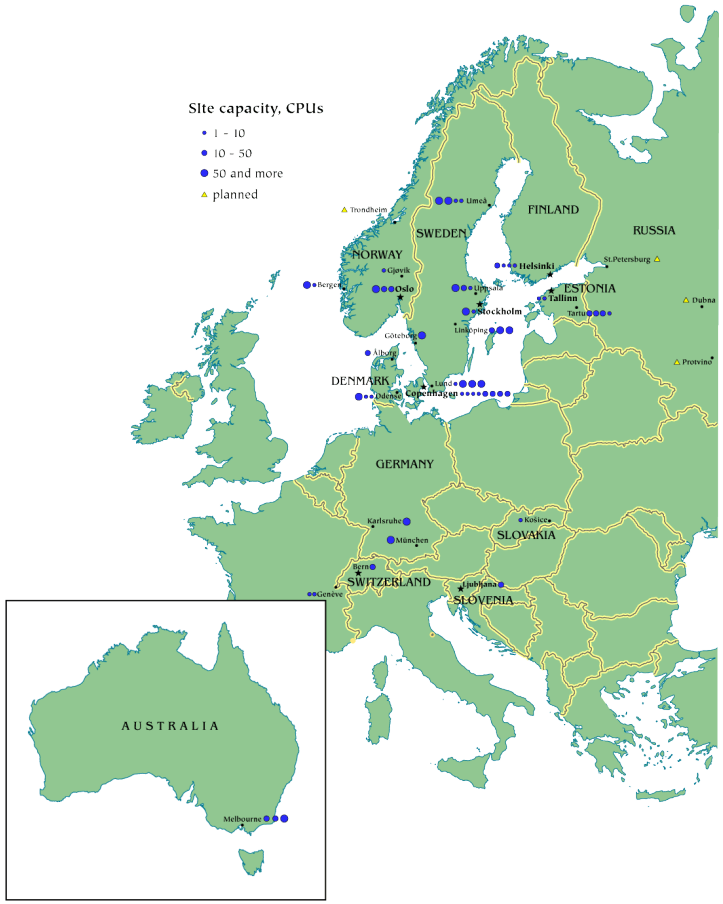
- Idea: User has only one password to web services provided by universities in Finland, up to date information fetched from the home university user database



Material Sciences Grid (M-grid) Overview

- Joint project between seven Finnish universities, Helsinki Institute of Physics and CSC
- Jointly funded by the Academy of Finland and the participating universities
- First large initiative to put Grid middleware into production use in Finland
- Based on Linux clusters, currently 443 CPUs, targeted for serial and ”pleasantly parallel” applications
- http://www.csc.fi/proj/mgrid/

NorduGrid Collaboration and the Role of CSC



- Putting ARC middleware into production in Finland
- Tutorials for users, guides
- Nordic Data Grid Facility (NDGF)
  - Juha Lento funded by the Finnish Academy, hosted by CSC
  - Working particularly on the NorduGrid Runtime Environments

Distributed European Infrastructure for Supercomputing Applications

DEISA

- EU funded four year project between several European supercomputing centers
- Targets especially very demanding applications in high end systems
  - E.g. coupling several IBM Regatta systems together
  - Heterogeneous environment uses UNICORE as the middleware (at least in the first phase)
- CSC is particularly responsible for dissemination of the project

ENACTS and EMBRACE

- ENACTS (Ended Dec. 2004)
  - Reports and Surveys of current state and trends in Grid Computing and HPC
  - CSC contributed the User Survey (in collaboration with CINECA Italy), now available at the ENACTS web site
  - http://www.enacts.org/
- EMBRACE
  - Integrating major databases and Software tools in Bioinformatics
  - Evaluate technologies and implementation

European Southern Observatory (ESO) Project

- Development of a distributed data analysis for extensive astronomical data (Finnish in-kind contribution to ESO)
  - Technical solutions still largely open
- Project started in 2005, two full-time employees at CSC and four at the University of Helsinki
- http://www.csc.fi/proj/eso/

Future Challenges

- Interoperability
  - Library dependency and other OS related problems, combining huge independently developed applications
  - interoperability between different middleware
- Managing users and access rights
- User interfaces
- Trust
  - Getting users to trust the Grid where their data can be anywhere, making organizations trust each other
  - Co-operation is power, Grid is a lot more than technology!

Thank you!

- CSC Grid pages:
  - http://www.csc.fi/grid/
- Slides of this presentation:
  - http://staff.csc.fi/ajt/presentations/CSC_Grid_Activities_2005-02-18.pdf
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- Questions?