



# NGI presentation, Finland

**Presentation in NDGF seminar**

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**CSC – the Finnish IT Center for Science**

**March 3<sup>rd</sup>, 2008**



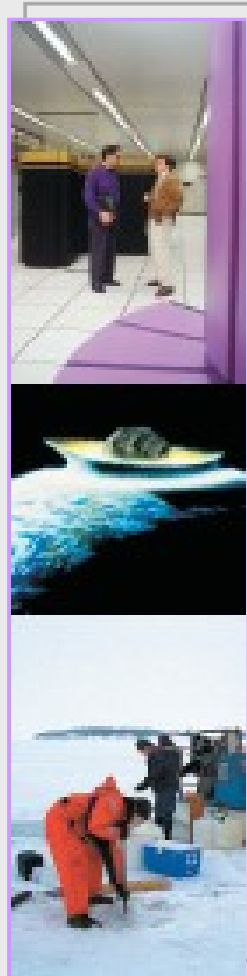
# CSC Fact Sheet

**Operated on a non-profit principle**

**All shares to the Ministry of Education of Finland in 1997**

**Reorganized as a limited company, CSC-Scientific Computing Ltd. in 1993**

**Founded in 1971 as a technical support unit for Univac 1108**



**CSC Turnover in 2008 expected 20 M€, Over 160 employees**

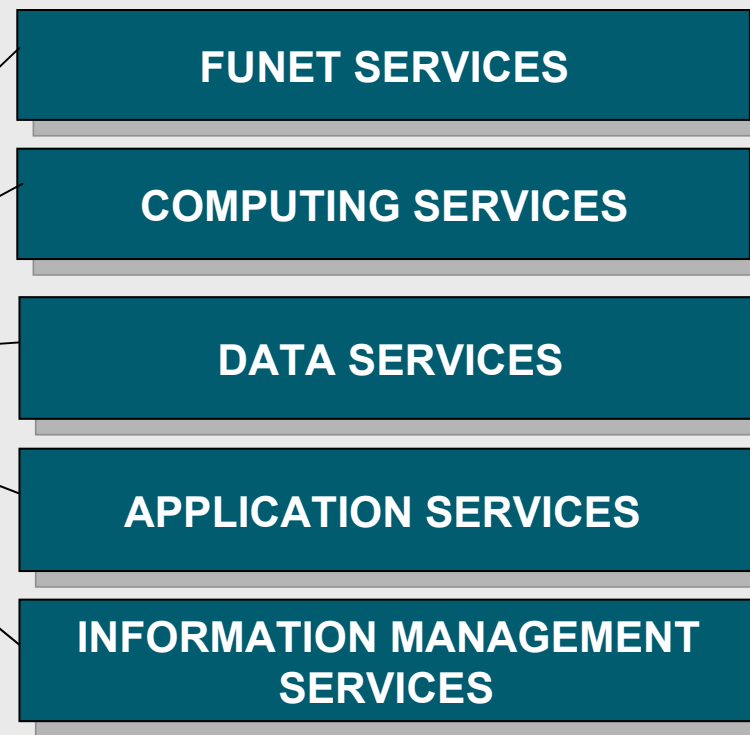
**Since March 2005, facilities in Keilaniemi, Espoo**

**First supercomputer Cray X-MP/EA 416 in 1989**

**FUNET started in 1984**



# CSC Fields of Services



**MISSION:**

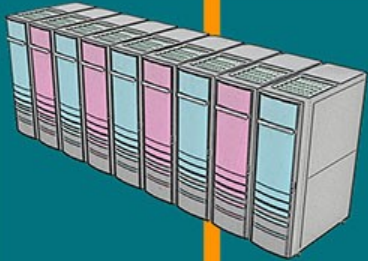
**CSC, as a part of the Finnish national research structure, develops and offers high quality information technology services**

**VISION 2012:**

**CSC – a leading center of excellence in information technology for science in the European research area**



## CSC's supercomputers



### Cray Hood

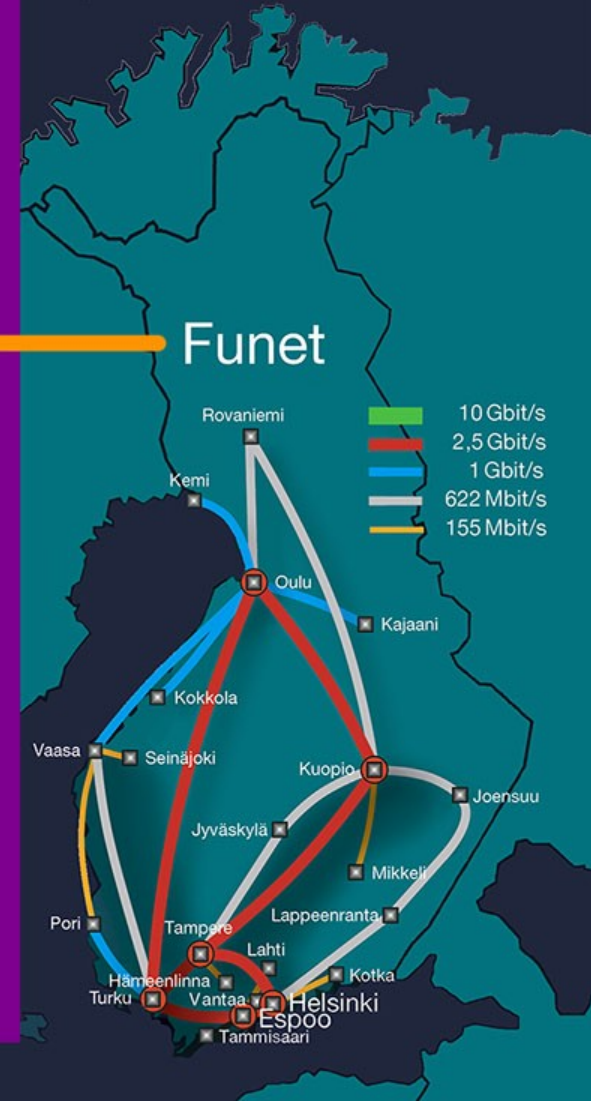
6736 processor cores  
6,7 TB memory  
70 Teraflops peak computing power  
70 TB disk space



### HP ProLiant cluster

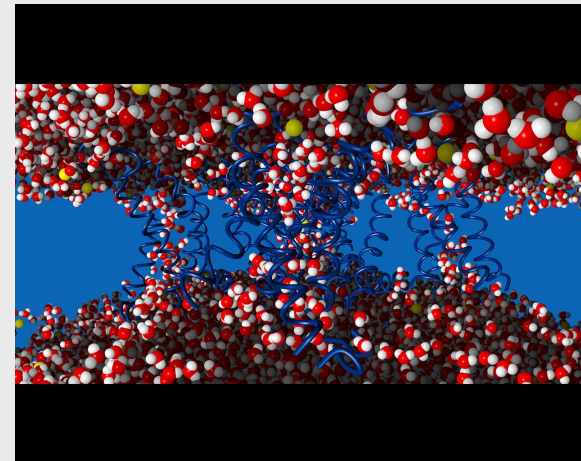
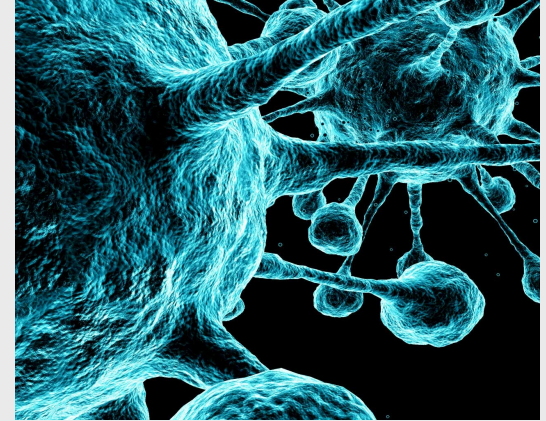
2048 processor cores  
4 TB memory  
10 Teraflops peak computing power  
98 TB disk space

**Sun Fire 25K**  
192 processor cores  
384 GB memory



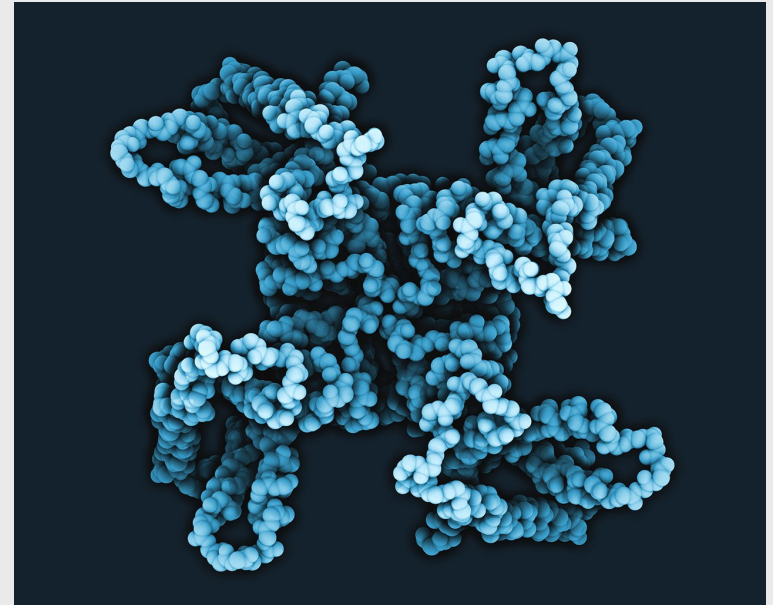
# International project participation, examples

- **PRACE**
- **DEISA, eDEISA, DEISA2 proposal**
- **EGEE-II, EGEE-III proposal**
- **EGI**
- **ESFRI-list: ELIXIR (bio), CLARIN (linguistics), ...**
- **EUFORIA (fusion)**
- **EMBRACE (bio)**
- **NDGF (Nordic Data Grid Facility, including Nordic Tier1 for LHC)**
- **e-IRG**
- **Etc.**



# National Infrastructures, examples

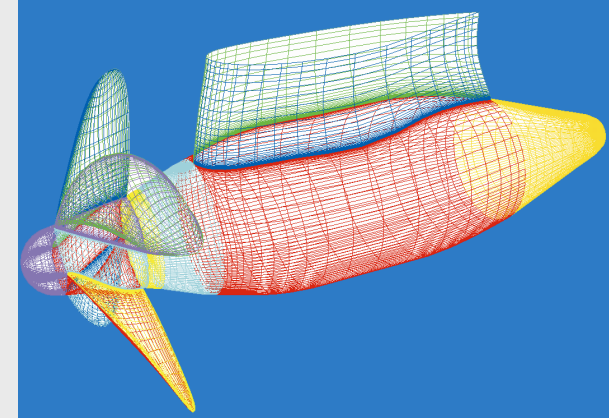
- **ESFRI-list items**
- **FIMM, molecular medicine**
- **CERN/LHC with HIP**
- **Radio- and TV-archive**
- **Biocenters**
- **Research centers, various topics**
  
- **MGRID and related efforts**
  
- **Finnish NGI at CSC**
  
- **Growing amount of need for computational science**



# Finnish Grid Strategy 2005-2006

- **Working group report ‘Finnish eScience-program’ 2007 recommendations**
  - Start master’s and doctoral programs in computational science
  - Initiate multi-disciplinary research program for computational science and engineering
  - Ensure competitive level for FUNET network
  - Establish multi-disciplinary or discipline-specific grid infrastructures
  - Initiate the Finnish NGI
  - Utilize EU FP7 opportunities
  - Build a national cost-efficient environment for massive data management
  - Develop funding systems for software quality
  - Develop funding systems for collaboration network creation
  - Establish a steering body
- **Grid, HPC, computational science, ... all interlinked**

# The Finnish system



- **There is often confusion in terminology between grid and HPC**
  - Both need similar competencies for computational science
  - Customers use both approaches, even for same kind of tasks
  - Synergy in services and infrastructure
  - “Grid projects” link HPC resources (Deisa, for example): grid as access to different kind of resources
- **Centralized model (CSC) serves the full spectrum**
  - Critical mass important, possible in highly distributed university system with limited resources only through centralization
  - NGI role is integrated in the national center
- **Workload division agreed between CSC and university local computing**
  - Common understanding about services between universities, Ministry and CSC
- ***The future plans for NGI Finland are equal to the future plans for the national center***

# Nordic Grid Infrastructure Strategy

## ➤ **Comments on Nordic Grid Infrastructure strategy**

- Drivers for the strategy need more analysis (Why linear development in terms of volume? What external impact is foreseen? What changes or added value for the customer? etc.)
- Increasing scope to 10 major VO's and 5 development communities with a thin organization by 2017 is contradictory with (Finnish) NGI needs. Future Nordic Grid Infrastructure should instead concentrate on few key areas with common Nordic benefit and aim to critical mass on those.
- Since grid work is closer to HPC and services for computational science than networks, the optimal location is one of the Nordic NGIs or centers. A combination of centers or circulation between centers is also possible. An evaluation with pros and cons should be done before decision.

## ➤ **Open issues with the current collaboration need to be solved (issues from the Nordic meeting last October)**

- Steering involvement of NGIs
- Focusing to core business (HEP, middleware)
- Better connections to Nordic centers
- Focus on technical tasks, not political issues
- NDGF European collaboration through other Nordic stakeholders

# Finnish NGI/National center plans

- **Centralized model and growing scope**
- **Developing national infrastructure, target to be close enough to the European peak**
- **Impact in European IT for science and beyond**
- **Nordic collaboration valuable, close ties to other Nordic centers**
- **NDGF collaboration in specific areas, such as LHC or middleware**
- **Impact study for NDGF benefits for Finland (CMS-oriented)**
- **Involvement in EGI and other European infrastructure work**
- **Services for the whole research project lifespan**