



ARCHITECTURE FOR SCIENTIFIC COMPUTING IN FINLAND

Prof. Keijo Heljanko (keijo.heljanko@helsinki.fi)
Department of Computer Science, University of Helsinki
Chairman of the
Expert Forum for Scientific Computing



EXPERT FORUM FOR SCIENTIFIC COMPUTING

- Ministry of Education and Culture has nominated the Expert Forum for Scientific Computing 2019-2021
- One of the main tasks of the Expert forum is to:
 - Create a **Reference Architecture for Scientific Computing 2025**
 - Document is available in Draft form (in Finnish) from the Web page:
 - <https://wiki.eduuni.fi/display/CscKtpoYtf/Viitearkkitehtuuri+2025>



HOW TO GET THE BEST OUT OF THE INFRASTRUCTURE INVESTMENTS

- The HPC computing infrastructure has received significant investments
 - Mahti, Puhti, Puhti-AI, Allas
 - EuroHPC LUMI
- The question is: How to get the best out of these investments?
 - Special skills are needed for scientific computing, e.g., AI and GPUs
 - How to make scientific computing benefit an even larger user base?



IDENTIFIED ACTION POINTS

1. Predictable long term funding
2. Create a New Reference Architecture for Data
3. Create a National Competence Network for Scientific Computing (Research Software Engineers - “Train the trainers”)
4. Maintain Local Computing Infrastructures
5. Increase European level Collaborations, especially EuroHPC/LUMI
6. Collaborations between Academic Research and Companies (E.g., data sharing using LUMI)
7. Improve Usability and survey User Satisfaction
8. Research Program for Scientific Computing



REFERENCE ARCHITECTURE TEAM

- **Expert Forum Members and Expert Members:** Riitta Teiniranta, SYKE (vice chair), Mikko Hakala, Aalto University, Cimmo Nurmi, Satakunta University of Applied Sciences, Vesa Nykänen, Geological Survey of Finland, Jonna Kaleremo-Poranen, Kajaani University of Applied Sciences, Anu Juslin, Tampere University, Juha Haataja, Ministry of Education and Culture, and Sami Niinimäki, Ministry of Education and Culture
- **Reference Architecture Experts:** Pekka Lehtovuori, CSC, Juha Fagerholm, CSC, Jussi Heikonen, CSC, Juha Herrala, Tampere University, Ari Rouvari, CSC, and Jussi Tella, CSC
- In addition thanks participants of our Architecture Workshops