

HPC User Forum – Site Introduction

Notur II Norwegian HPC infrastructure

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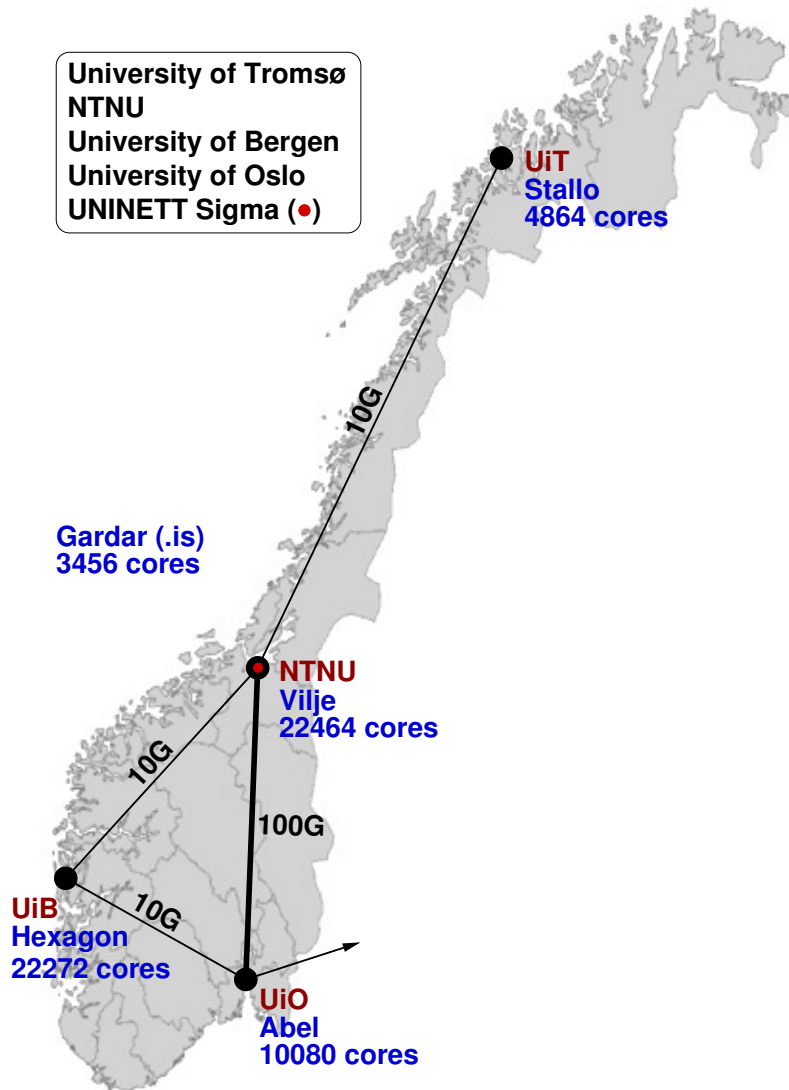
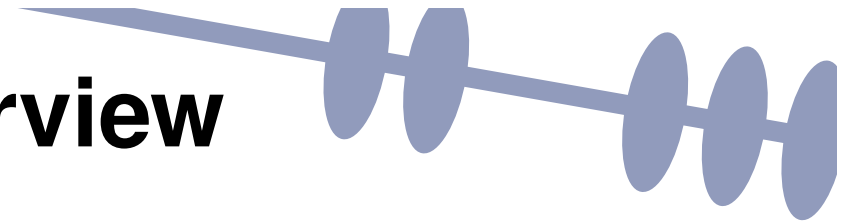
Project manager

Notur II

UNINETT Sigma

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HPC Infrastructure overview



Key figures

- 5 Mio. people, 100 KUSD GDB/capita
- A national HPC program for Universities and colleges since mid-80s
- Avg. spending 12 MUSD/yr in HPC and storage '09-12
- Financed by Govt., Research Council, University cash and in-kind
- Current 10-year program ends in '14
- Suggested 21 MUSD/yr for the next 10-year period

[notur.no/hardware]

Top two issues in HPC operations



1 Organization

- Q1: What is the purpose of this spending?
- Q2: How to organize to maximize the outcome?
- **Estimate for Norway: 3 - 5% of public spending is waste**
- The challenge is to optimize the multi-party funding and the organization of the program

2 Storage infrastructure

- The complexity and diversity of needs scares me
- Likewise the skills and usage competence of SI end users
- Lacks SW competence on the support side
- Several issues, including storage and computing interplay – sorting out issues and prioritizing becomes difficult

New solutions needed the most

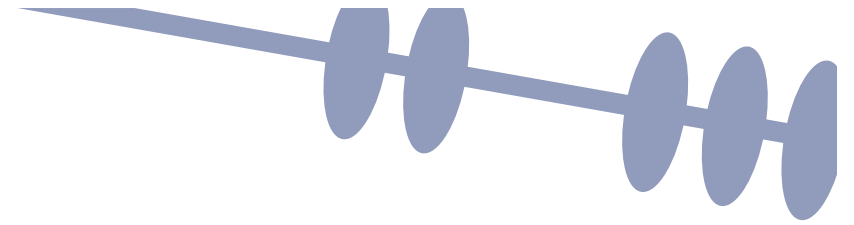


- Portal computing [www.bioportal.uio.no]
 - 98.7% of TOP500 performance is Linux/Unix
 - Main usage is job oriented and CLI based
 - Although CLI are fine with some, portal computing might be an important tool to deploy HPC in other communities
 - Currently difficult to connect usage with publications, and difficult to prioritize limited SW development capacity on which portal efforts
- HPC training
 - Courses are traditionally conducted by the U's – individually
 - Developing material, prioritizing and unifying courses is difficult
 - Making good courses and providing course videos requires substantial effort
 - Currently, there is a big gap between what we do and what we should have done here

New technologies to advance the HPC industry



- Energy focus and mobile computing
 - Energy consumption is the obvious obstacle to everybody in the HPC business today
 - Energy usage research is a hot topic in current computer science research
 - Performance of mobile devices and HW is on a steep rising edge
 - This is very promising in terms of future HPC solutions
- Uptake of programming and computations in education
 - The advent of very cheap and high performance units like the Raspberry Pi is very interesting to spread public interest in programming
 - Developments in education, like the “Computers in Science Education” at the Univ. of Oslo is very promising to tightly integrate the use of computers in university education
[\[mn.uio.no/english/about/collaboration/cse/\]](http://mn.uio.no/english/about/collaboration/cse/)



Thank you for your attention!



“The other spire”, Window Peak, Tucson, 7468’