HPS
https://hps.vi4io.org

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High-Performance Computing System Administration

Welcome to the Practical

Practical: Learning Objectives

- Discuss theoretic facts related to networking, compute and storage resources
- Integrate cluster hardware consisting of multiple compute and storage nodes into a “supercomputer”
- Configure system services that allow the efficient management of the cluster hardware and software including network services such as DHCP, DNS, NFS, IPMI, SSHD
- Install software and provide it to multiple users
- Compile end-user applications and execute it on multiple nodes
- Analyze system and application performance using benchmarks and tools
- Formulate security policies and good practice for administrators
- Apply tools for hardening the system such as firewalls and intrusion detection
- Describe and document the system configuration

Seminar with Practical

- The module consists of the parts:
  - Two 4-hour sessions (beginning of term) - introduction (virtual) - **First TODAY**
  - Administrative topic - Choose a topic
    - Individual work on a topic - but collaborate!
  - 5-day block course (end of term)
    - Hands-on building a cluster with its software stack
    - Quick presentation of your results (10+5 min), not marked
  - 100% marks: Report about the topic and your results
    - 10-15 pages (core content, without appendix)
- We aim to publish all presentations and reports on our webpage
  - Please consider and agree
- Please check also organisational remarks
- A supervisor for formative assessment will be assigned per student
- Pick topics from the webpage anytime - assignment is on FCFS base

Practical Aspect

- You'll look deeper into the selected administration topic, various options:
  - Evaluate practically a tool (on GWDG system and/or your Laptop)
  - Write your own use case to demonstrate framework/tool
  - Perform a performance analysis, write a benchmark
  - Compare different tools (theoretically and practically)
  - Extend the existing tool(s)
- Create a report from your findings with content such as:
  - Your problem description
  - Background (tool, context), existing knowledge
  - Your methodology (e.g., How you evaluated a tool)
  - Your results
  - Your assessment and conclusion
- For best results, involve your supervisor:
  - Discuss proposal of activities
  - Discuss results