

# Maxwell

Status 2025



# Basics



- Started nearly 15 years ago, on the ruins of a failed Lustre project
- 931 Nodes
  - 183 of which have 404 GPUs
- Heterogenous cluster in any way you can imagine
  - CPU / GPU (range 10 years)
  - Memory
  - IB connect
  - Manufacturer / Supplier
  - Owner

# We enable science



- Node scheduler without limits (nearly)
  - oversubscribe for special nodes
- SSH login on compute nodes with your job
- We provide many ready-made applications and environments.
- Multiple interfaces
  - FastX
  - Jupyterhub
  - SSH
  - Slurm REST
  - FUTURE: Web Interface



# Playing tetris all the time

- IB Connect Type
  - FDR/EDR
  - HDR
  - NDR
- Rack
  - space
  - power
  - cooling
  - IB Ports
- Various owners
  - Who decides?



# The real Problems

- Experiments without own IT expertise
- Energy
  - We cannot make rules, only provide information.
- Money
  - IT has no own budget for computing
  - Always project budget → Partitions
  - Accounting in real world is not easy
- Wasting resources
  - Partition (preemption)
  - Heterogeneous Hardware
  - No experienced cluster users



# The not so real problems

- Container / K8S
  - you can start container with slurm
- Federated Accounts
  - Currently no demand
- Security
  - We are too exotic; the black hats prefer AD.
  - We have set up a simple firewall that protects the internal networks
    - maybe we should change the direction ;-)