

# Diamond Light Source Site Report

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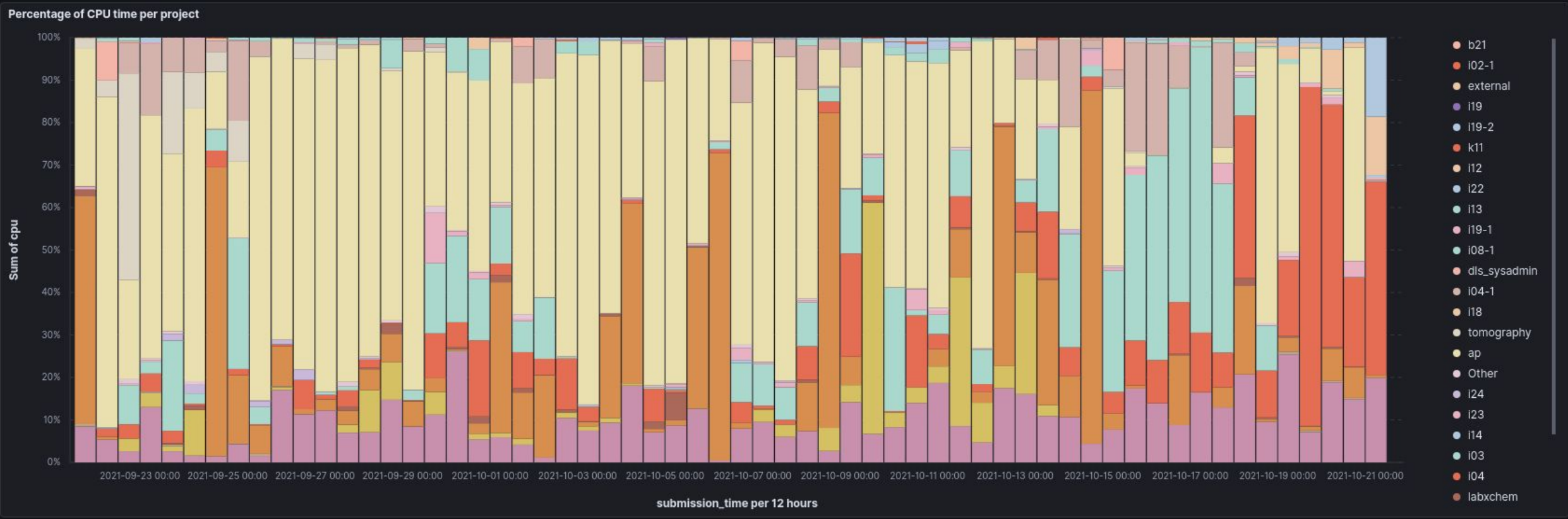
# Diamond Light Source



# Compute

- Science cluster
  - 7,132 cores
  - 84 GPUs
  - 1,800 cores and all GPUs are out of support
- Hamilton
  - 6,376 cores
  - 300 GPUs
- [Still] Univa Grid Engine
- RHEL 7

# Compute

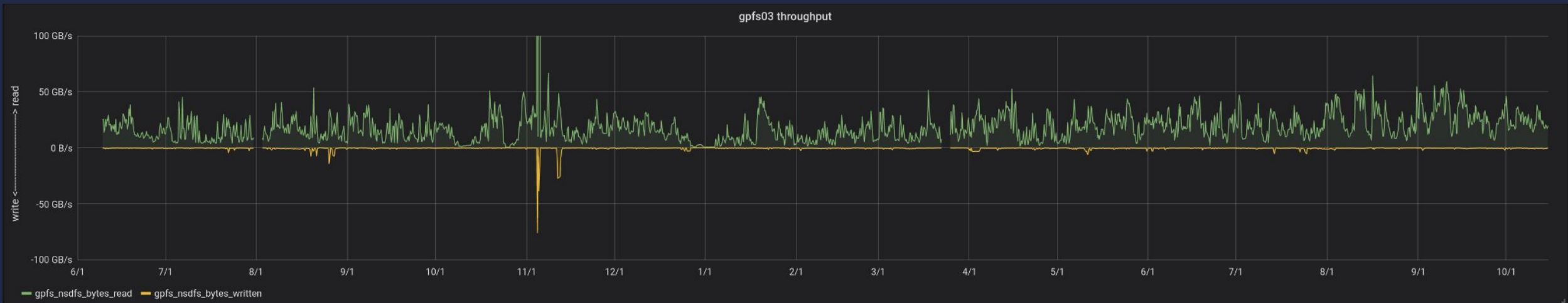
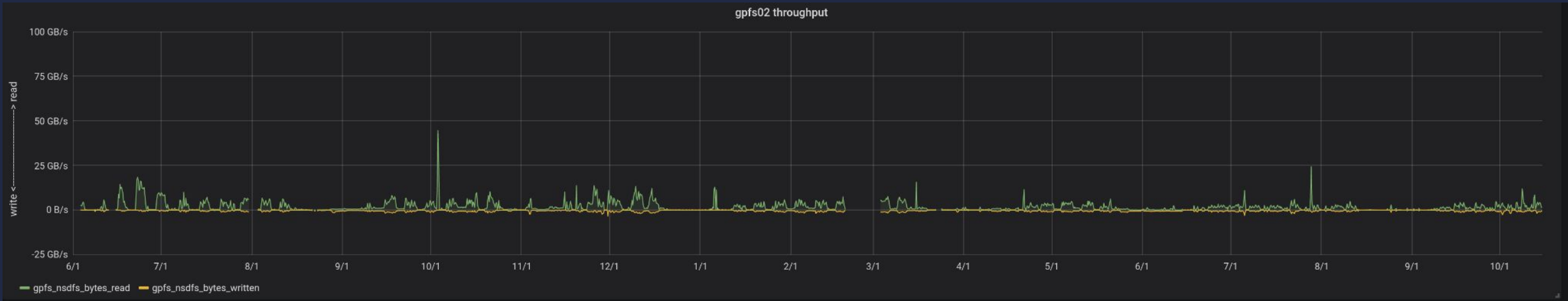


# Storage

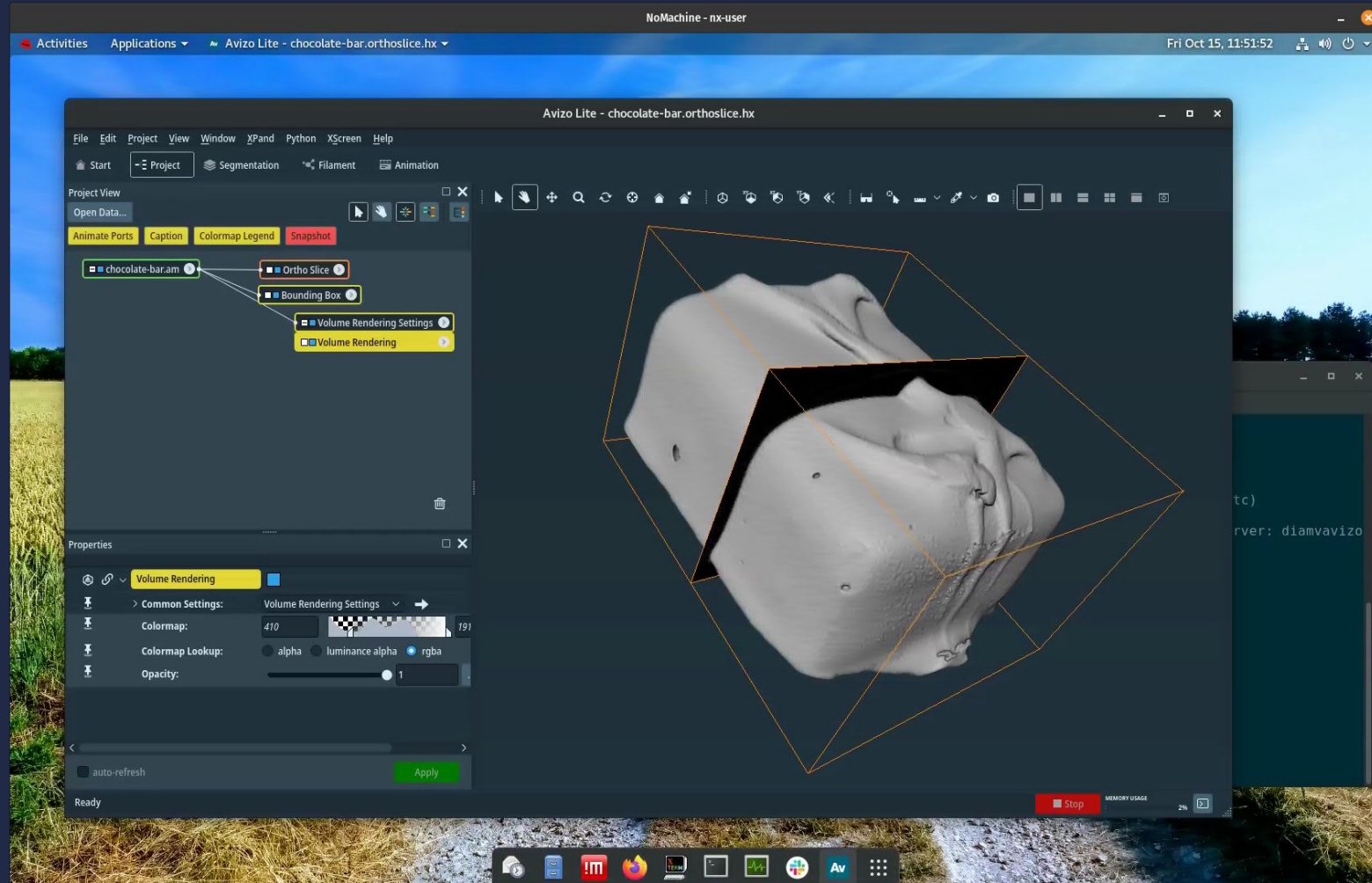
Capacity over the last 24 months:

- NetApp: ~900TB (on science side)
- NetApp: ~200TB (on controls/accelerator side)
- gpfs02: 7.3PB
- gpfs03: 15PB

# Storage



# Remote visualisation



# Cloud Infrastructure

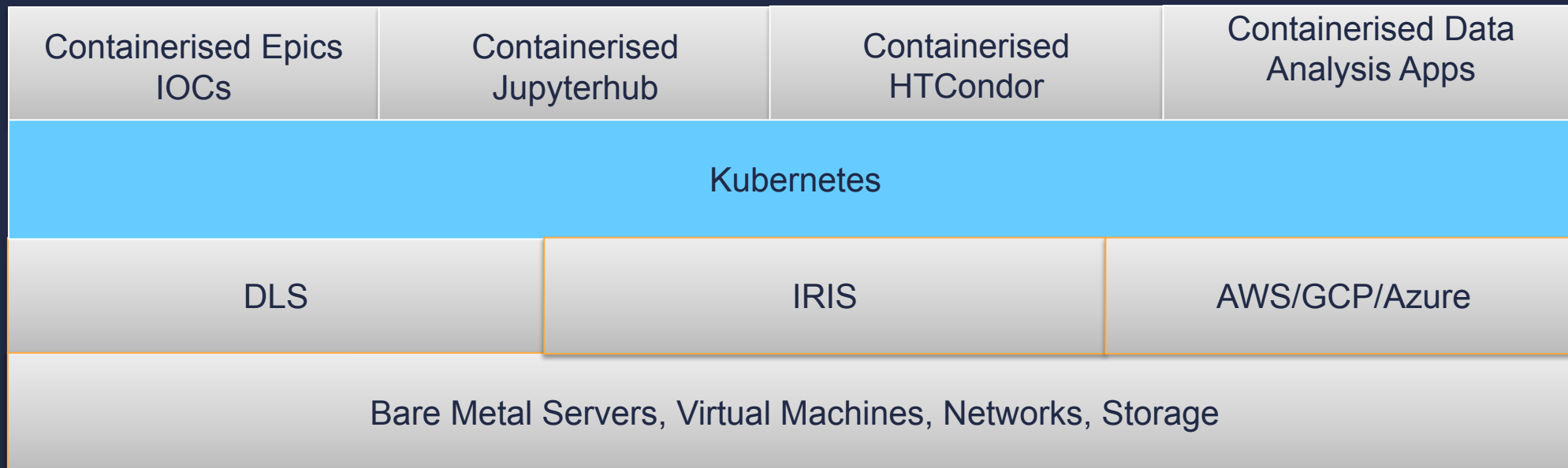
- Based on [Kubernetes](#)
- Multi-tenant, allows self-service deployment of containerised apps
- Many groups have begun adoption:

Application	DLS Groups	Use Case & Benefits
Jupyterhub	Mainly Science Groups, particularly EM.	Well-resourced Scientific Notebooks to all DLS users
Containerised EPICS IOCs	Beamline Controls	Prototyping for running controls processes in containers.
CCP4 and DIALS	MX Data Analysis	One of many data processing apps. Cloudbursting on to IRIS
Monitoring: Prometheus, Grafana, Alertmanager	Controls, Scientific Computing	Infrastructure monitoring: improved reliability and visibility



# Cloud: Future Plans

- Kubernetes is offered as a service by AWS, Azure, and GCP. We have also deployed it onto IRIS (on STFC Cloud)
- Common application deployment layer across many locations, facilitating **portability and collaboration** for Science and Controls
- Likely to become the DLS standard for running applications
- Work underway to make more applications Containerised



# Miscellaneous

- Linux Distribution
  - Updating to RHEL 8
  - Mostly RHEL 7
  - Still some RHEL 6 🤖
  - Thinking about the future
- Moved from Quest VAS to SSSD for auth{n,z}
- Moving to Red Hat Satellite (from Cobbler)
- CFEngine for configuration management

Questions?