Göttingen Report

Arnulf Quadt, **Sebastian Wozniewski**
II. Physikalisches Institut, Georg-August-Universität Göttingen

Freiburg – 26.03.24

Outline

- GoeGrid Site Overview
- Major upgrades/updates
- Support of NHR integration
- Monitoring and related studies
- Given trainings
- Workshops and outreach activities
- Outlook

GoeGrid site overview

GoeGrid is a joint cluster: ATLAS Tier 2, local Institute of Theoretical Physics and local Institute of Non-Linear Dynamics

CPU: **~18k virt. cores** (~40% ATLAS)
Mass storage (ATLAS only): **3.73 PB total**
3.20 PB ATLASDATADISK (pledgeable)
0.15 PB ATLASSCRATCHDISK (pledgeable)
0.15 PB ATLASLOCALGROUPDISK

OS: CentOS 7 / Alma 9
5 CEs: ARC-CE 6.15.1 (large number because of NHR integration)
Batch system: HTCondor 9.0.17
Mass storage: dCache 7.2.15 (soon update ->9.x.x i.p. for token readiness)

Major upgrades/updates

- IPv6 enabled for worker nodes (enabled on SEs and CEs already) and related network modifications
- OS upgrades ongoing: CentOS 7 -> Alma 9
- Purchased and put into operation 1.2 PB disk storage (replacement and extension)

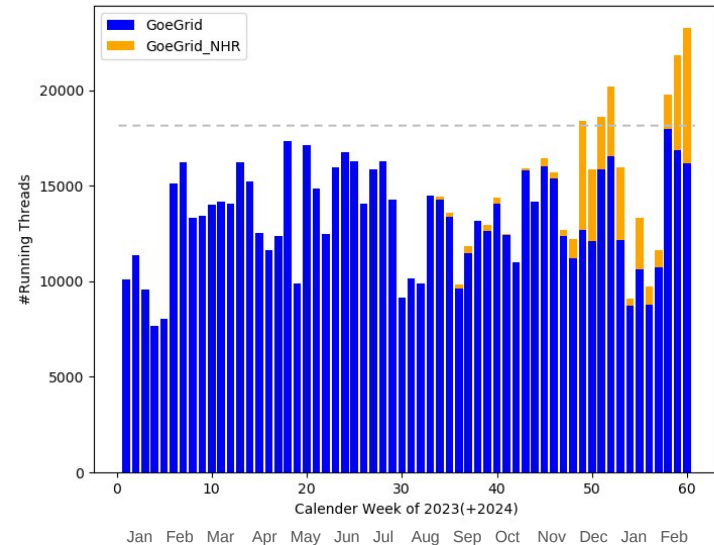More hardware purchases invisaged for this year.

Support of NHR integration

NHR cluster Emmy located at the Göttingen Campus.
Integration of Emmy resources into WLCG via GoeGrid
conducted within the FIDIUM project.

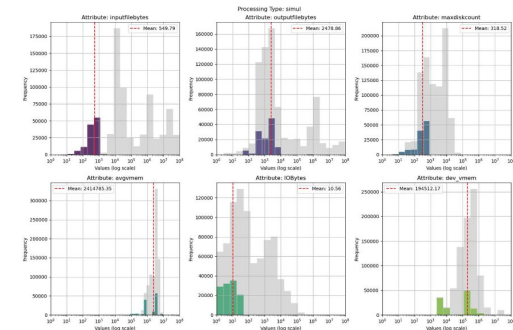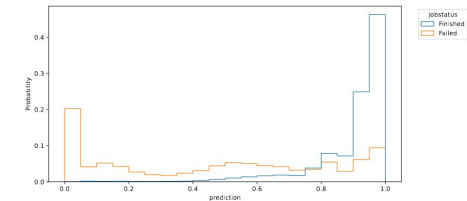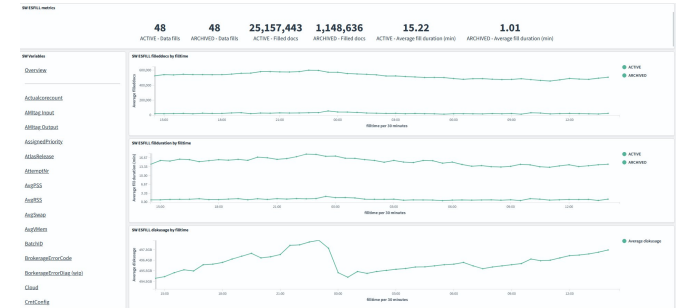Provided support for this:
- Using some existing interfaces and services:
    - ARC-CEs (+ set up additional ARC-CEs)
    - GoeGrid batch system as overlay batch system
    - frontier squid
    - mass storage
- Network adaptations on the GoeGrid side

Significant contribution of compute power by Emmy over the past months!

Monitoring and related studies

- Extension and improvement of Kibana instance for ATLAS Panda Job Monitoring:
  - New dashboards for JEDI task related information
  - Migration to new servers
  - Further polishing and improvement of dashboards

- ML-driven study of correlations in job meta data wrt. fail/success rate (MSc.Thesis) - ongoing

- Characterization study of ATLAS job types wrt. resource consumption for facilitating future load balancing approaches (student internship project) - about to finish

Given trainings

besides local teaching

- Lectures at the ErUM-Data-Hub Machine Learning School in Meinerzhagen

- Introduction to the Grid, Panda and Rucio at the FSP ATLAS-D Meeting in Bonn

- Introduction to Panda at an ATLAS Analysis Software Tutorial at CERN

Workshops and Outreach activities

- Workshop "Next Generation Environment for Interoperable Data Analysis" in Berlin

- Workshop "Sustainability in ErUM-Data" in Meinerzhagen + co-editing of resulting white paper

Participation in joint booths of LHC FSP Office + FIDIUM + PUNCH4NFDI at

- Hannover Messe

- ISC Hamburg

Outlook

- Last hardware purchases forseen for this year and operation for at least 5 further years

- Gradual transition to NHR sites starting now:

  - 1 year pilot phase without pledged NHR resources applied for based on this project (whitelist) and starting in April
  - Afterwards pledges are supposed to be partially fulfilled with NHR resources (still to be supervised by us)