HPC working seminar for physicists

Scientific Computing Department at HIM

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bi-weekly meeting – 19.7.2022

Today’s Topics

1. T-Bit link update
2. cooling
3. training
4. your questions / discussion / requests to the maintainers

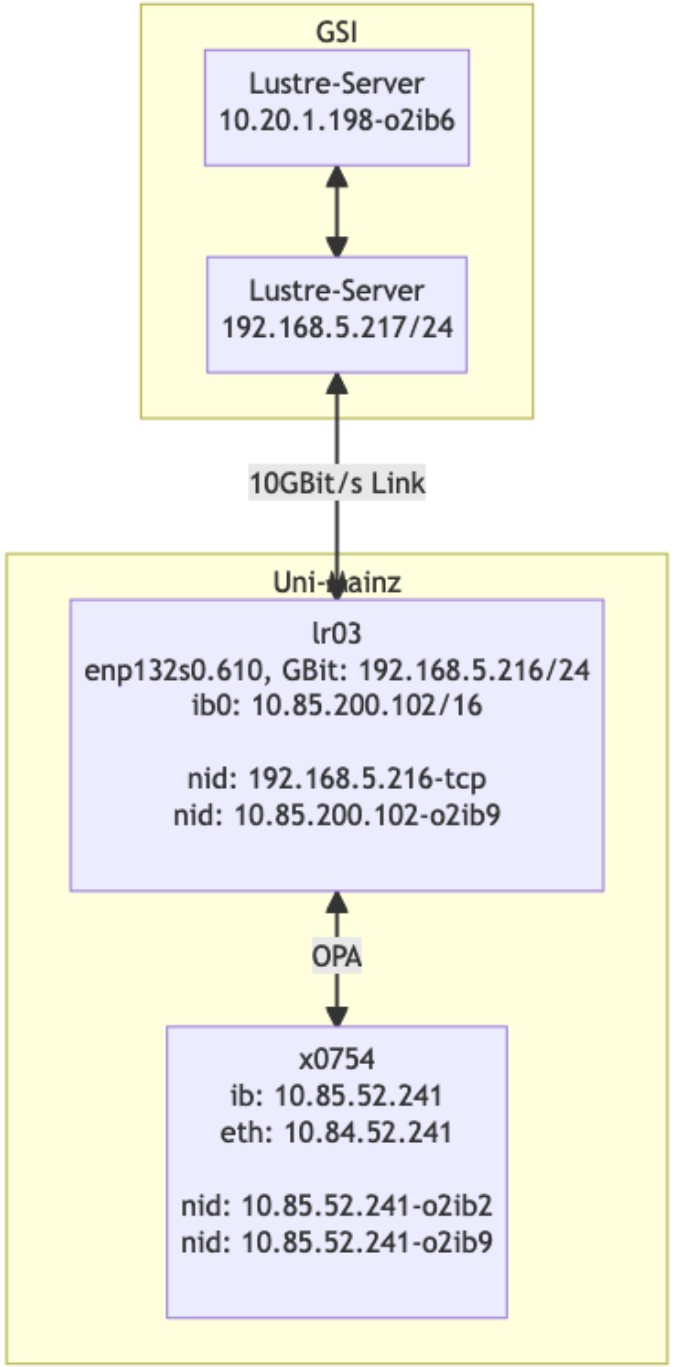
- compact in time (20mins + user questions/discussion).
- bring people together tackling the same problems
- minutes: https://www.hi-mainz.de/research/computing/hpc-working-seminar/

T-Bit link GSI <-> HIM

- @GSI: test Lustre system
- 10GBit/s Ethernet connectivity
- @HIM: compute node accesses remote Lustre

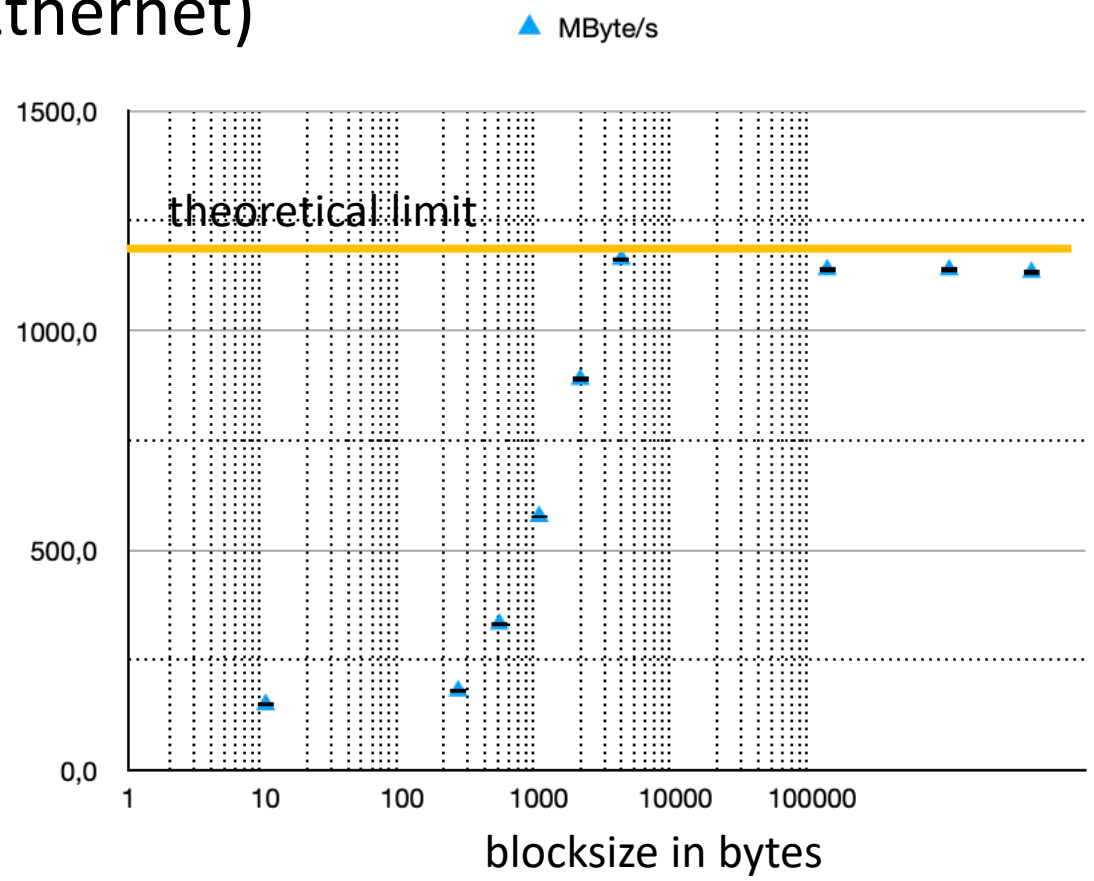
- including user mapping

→ demonstrator successful!



T-Bit link GSI <-> HIM

- Lustre access with 1162,1(2) MByte/s mit BS=4k.
- @ 97,3% of theoretical limit (10GBit/s Ethernet)



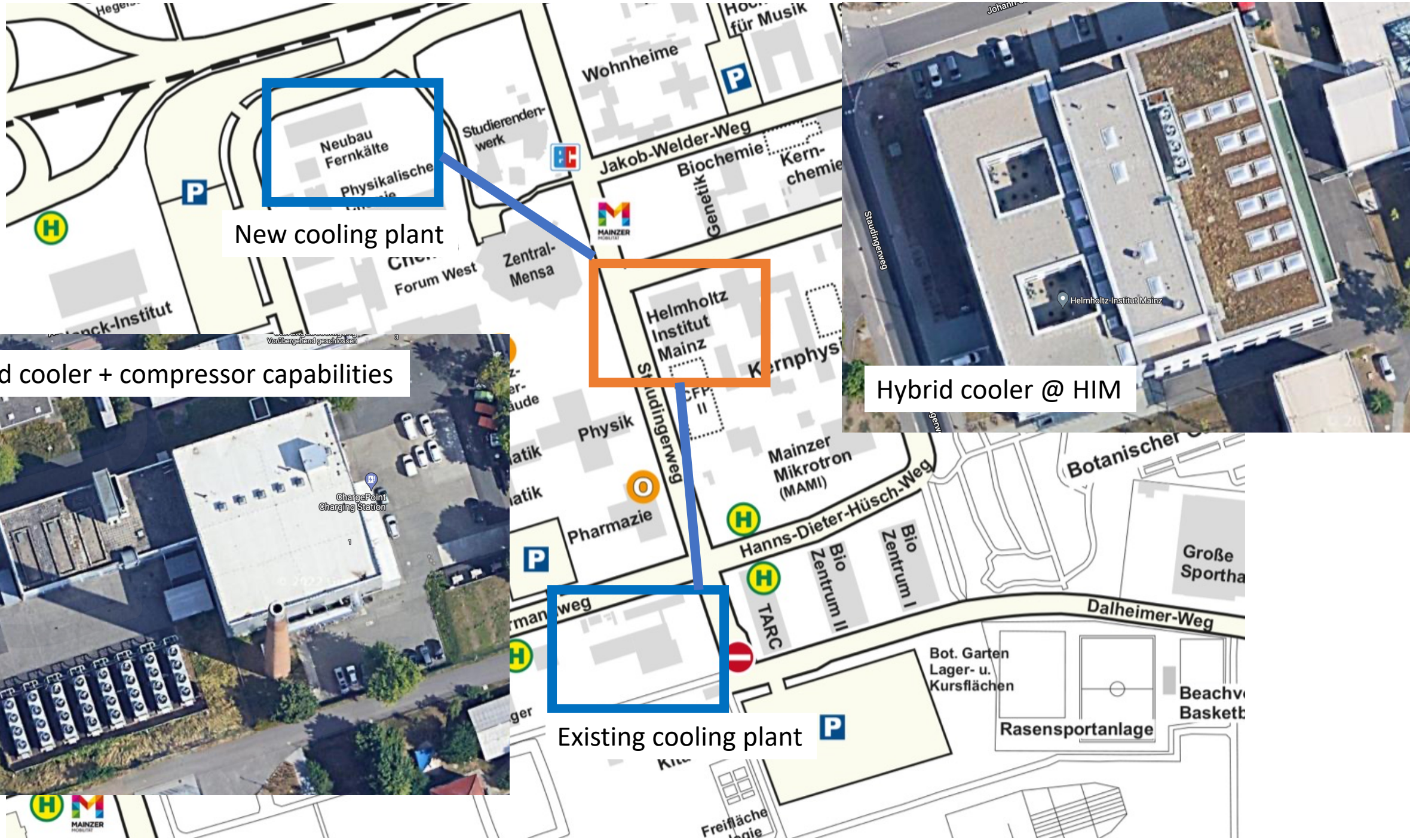

- ```
  for i in {1..5}; do
    sync
    echo 3 > /proc/sys/vm/drop_caches
    dd if=N451r000n1 of=/dev/null \
      conv=sync bs=4k
  done
  ```

- Next:
  - Upgrade to 40GBit/s
  ```

Cooling capabilities on campus

- Increasingly need for cooling (higher temperatures and more users / buildings)
- Existing cooling plant too small, not fail-saife and needs maintenance
- New cooling plant soon in operation

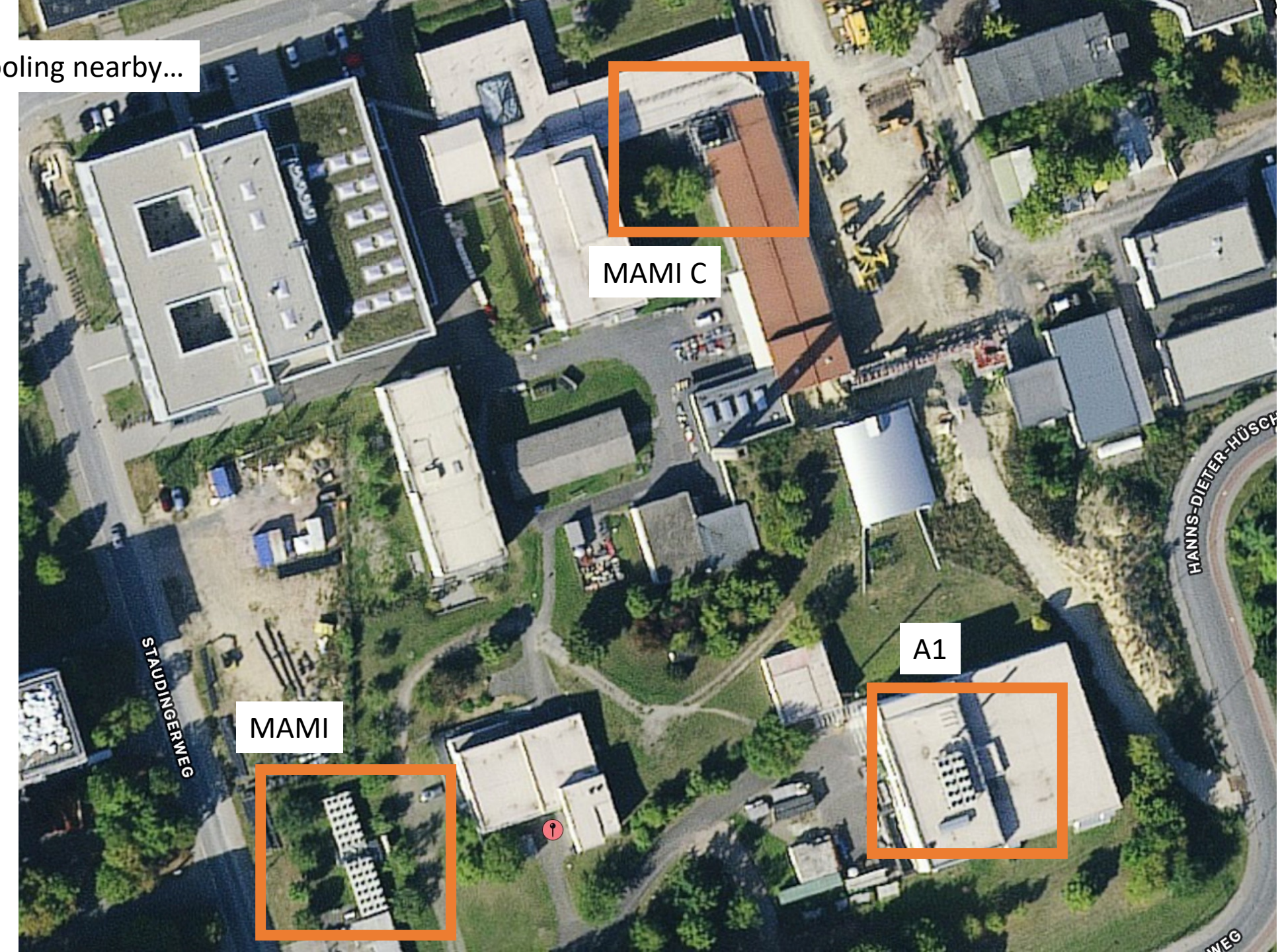
- ~~No plan.~~


New cooling plant
Hybrid cooler + compressor capabilities
Hybrid cooler @ HIM
Existing cooling plant
Neubau Fernkälte
Physikalische
Studierenden-werk
Wohnheime
für Musik
Jakob-Welder-Weg
Biochemie
Kern-chemie
Genetik
Zentral-Mensa
Forum West
Helmholtz Institut Mainz
Physik
Pharmazie
Mainzer Mikrotron (MAMI)
Hanns-Dieter-Hüsch-Weg
Bio Zentrum II
Bio Zentrum I
TARC
Dalheimer-Weg
Bot. Garten Lager- u. Kursflächen
Rasensportanlage
Große Sportha
Botanischer
Staudingerweg
Helmholtz-Institut Mainz
ChargePoint Charging Station
Vorübergehend geschlossen
MAINZER MOBILITÄT

Hybrid cooler @ HIM

- 1.5MW free cooling (no compressor)
- Good for winter + spring + autumn.

More cooling nearby…



HPC Training

- **For Physicists by Physicists:**
  PyHEP 2022 remote Workshop
- Learn how to use Python at large scale for your analysis
- 12.-16.9.2022
- https://indico.cern.ch/e/PyHEP2022

- Courses @ HKHLR Hessen: https://www.hkhlr.de/de/events/kurse-und-tutorien
- Courses @ HLRS Stuttgart: https://www.hlrs.de/training/hpc-training
  - Julia, Datenanalyse mit HPC, Introduction to Computational Fluid Dynamics, Iterative Linear Solvers and Parallelisation, Six-day course in parallel programming with MPI/OpenMP, Performance Optimierung - Node Level, Scientific Visualization, …

your questions / discussion / requests to the maintainers?