



WestAI Service Center

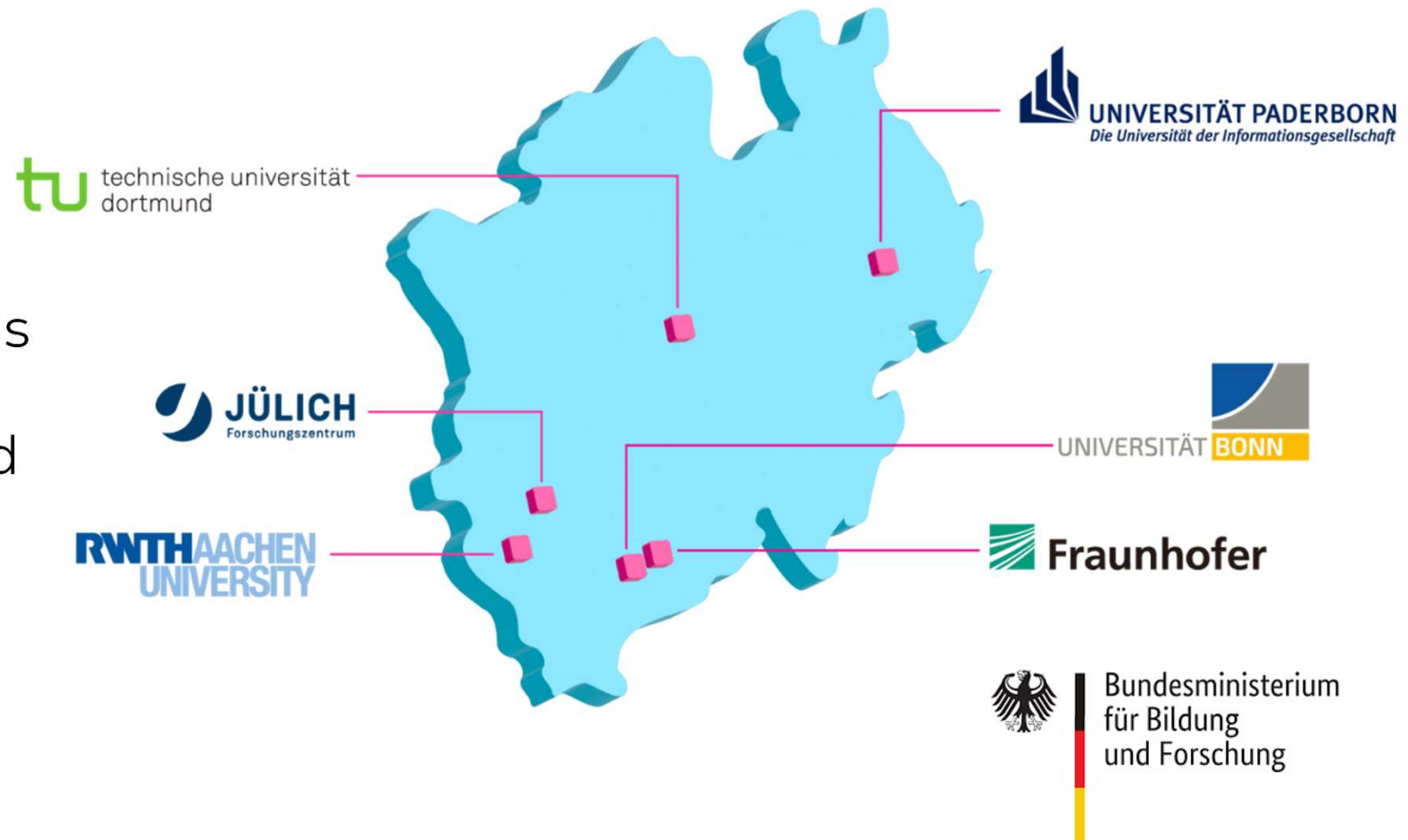
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westai.de

Goal and Partners of WestAI

Support researchers and industry partners in adapting AI/ML methods into their workflows by providing **consulting services, trainings,** and **computing resources.**



AI-Consultation



Entry Consultation

- Analysis on the feasibility of your AI idea
- Overview of current research trends
- Estimation of the required computational effort



Research Cooperations

- Support in the development and optimization of AI prototypes
- Access to scientific evaluation
- Collaboration with renowned research institutions

Trainings

10. – 12. März
Fraunhofer SCAI

Englisch / Online

Workshop „Data analytics for engineering data using machine learning“

INFO

10. – 14. März
RWTH Aachen

Englisch / Präsenz

Parallel Programming in Computational Engineering and Science(PPCES)

INFO

17. – 21. März
Universität Bonn

Deutsch / Präsenz

Advanced Machine Learning

INFO

24. – 26. März
Universität Bonn

Englisch / Präsenz

C++ and CUDA programming for Machine Learning

INFO

AI Research



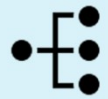
Scalable data management and integration of heterogeneous data

- Generation of datasets for training large models
- Development and application of methods for handling sensitive data



Large-scale model training

- Training of generic models transferable to different domains and tasks
- Deriving scaling laws



Transfer of pre-trained models to different domains

- Model transfer to diverse domains and tasks (language, image, audio, video, etc.)
- Investigation of factors influencing transfer behavior



Transfer of models to applications with limited resources

- Model compression
- Transfer of models to resource-constrained use cases

Jureca (FZJ) / CLAIX-2023 (RWTH)

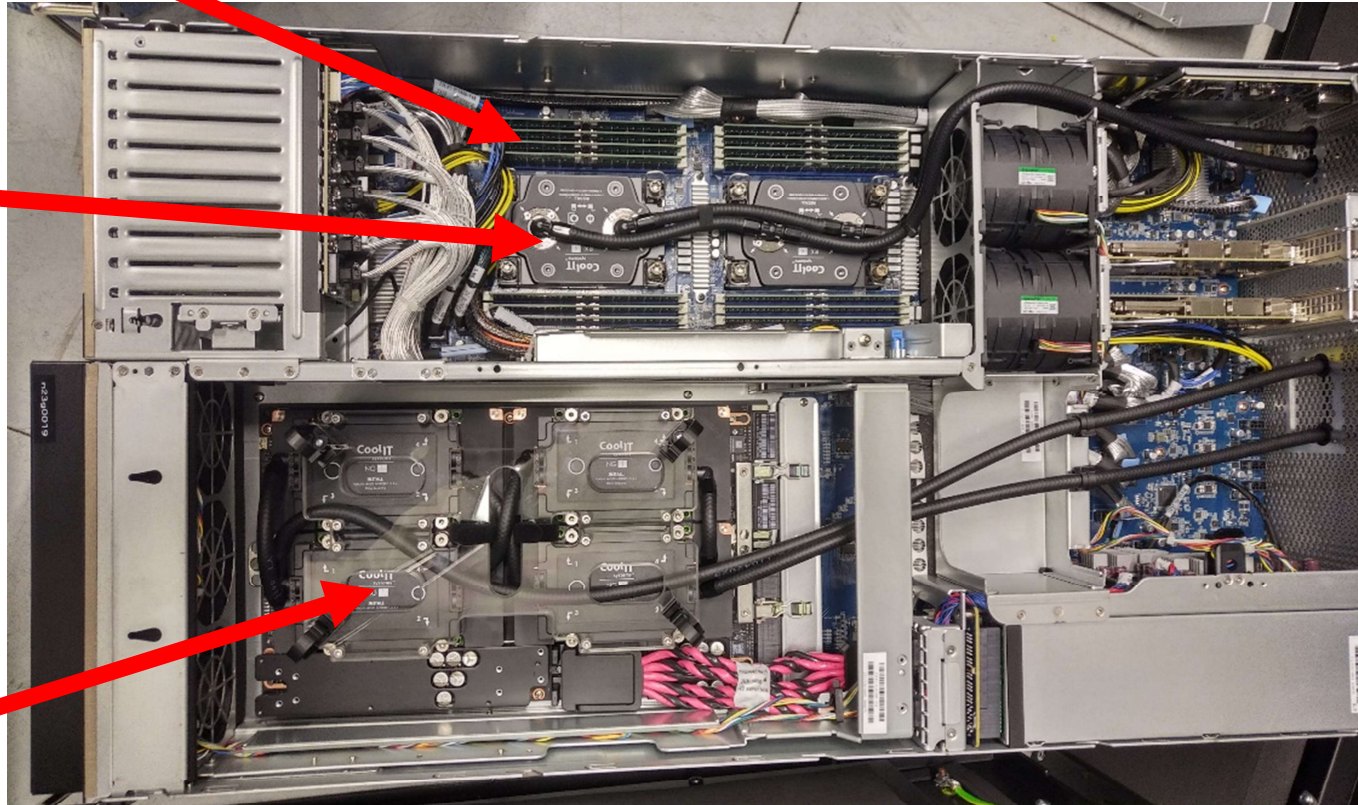


High Performance Computing

Memory

CPU

GPU



Hardware

RWTHAACHEN
UNIVERSITY

15 Compute Nodes[†]
2 × Xeon 8468, 512 GB DDR5
4 × H100 GPUs*

Part of the 52 Nodes
of CLAIX-2023

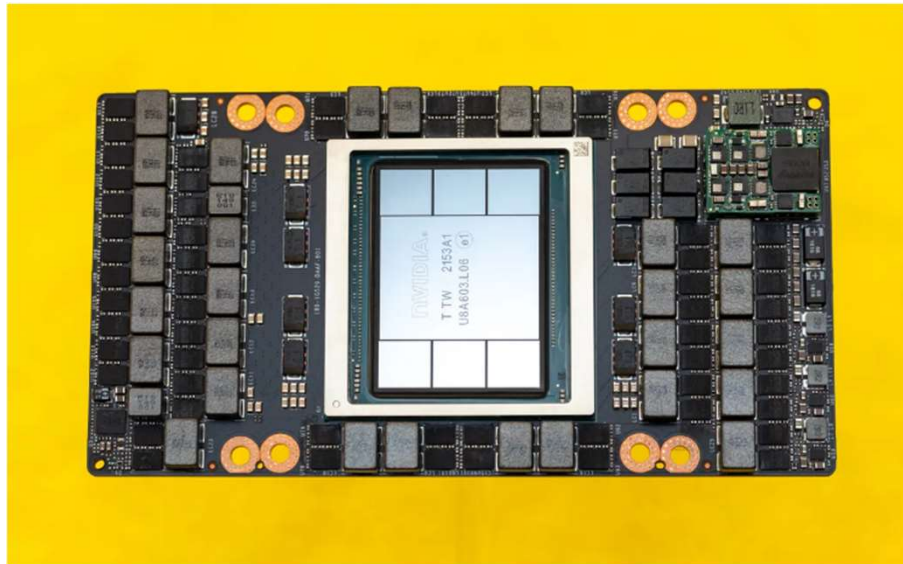
 **JÜLICH**
Forschungszentrum

16 Compute Nodes[†]
2 × Xeon 8468, 512 GB DDR5
4 × H100 GPUs*

Isolated: Exclusive for WestAI

[†]Infiniband Network
*Full NVLINK, 96 GB HBM2e

High Performance Computing



H100:

67 TFLOPS (FP32)

96 GB HBM2e



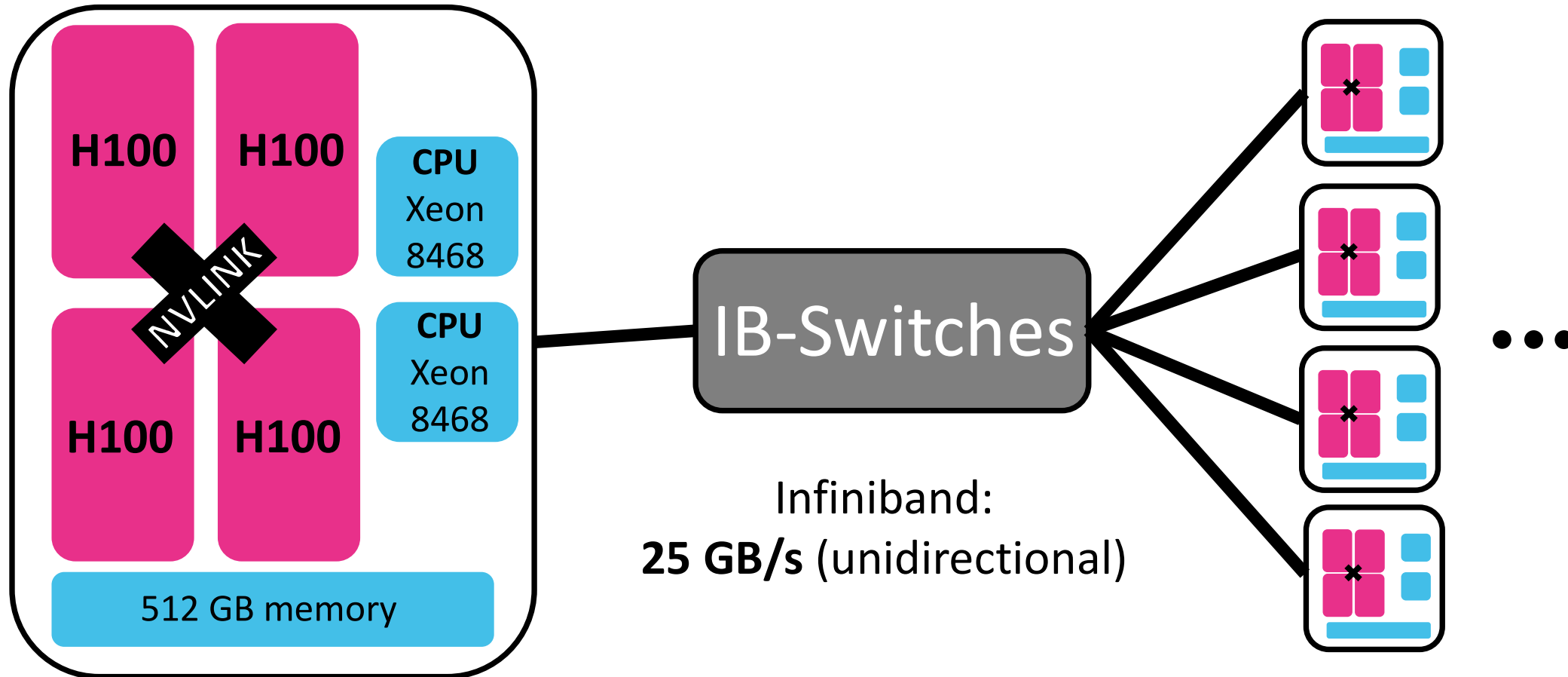
RTX 5090:

105 TFLOPS (FP32)

32 GB memory

High Performance Computing

Other GPU-Nodes

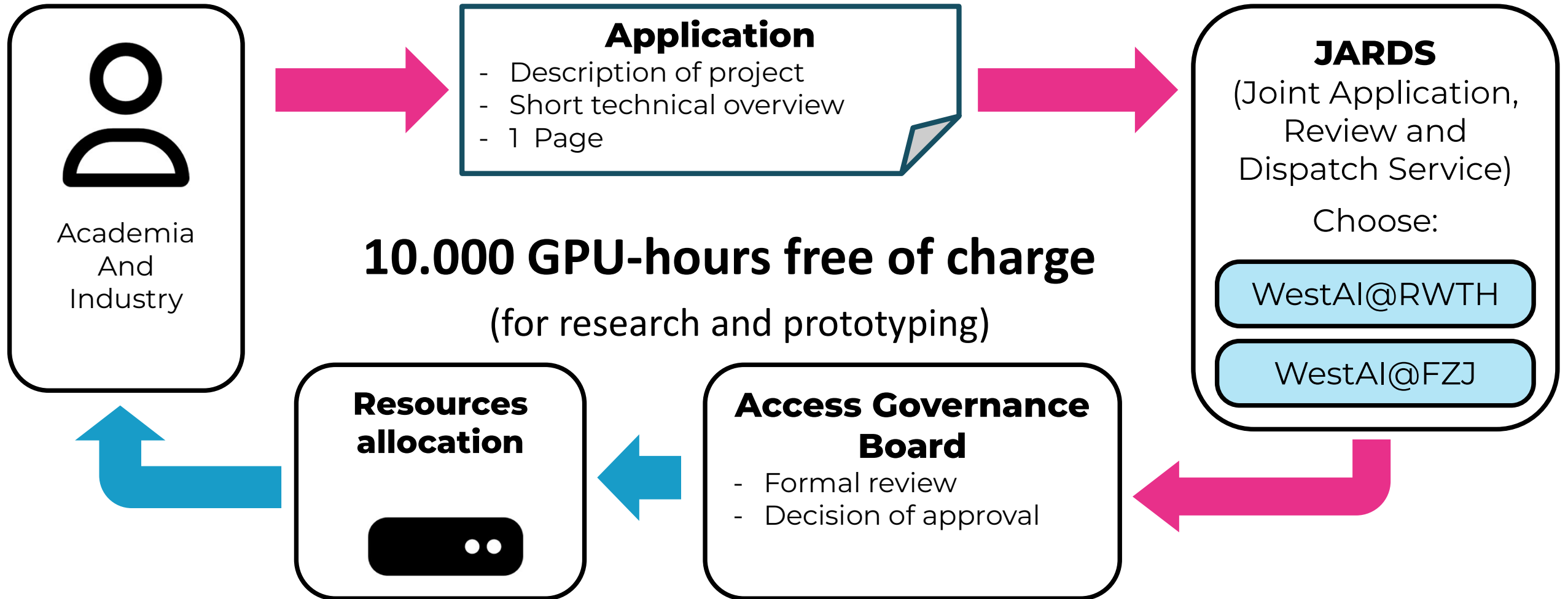


Performance results from parallelism

Hardware Offer

10.000 GPU-hours free of charge
(for research and prototyping)

Application Process



Discussion

- What work are you doing currently?
- What hardware resources are you using?
- What are limiting factors?

Access and Software @ RWTH



Batch Mode

Login via SSH
SLURM

Apptainer (Singularity)
Module System



Interactive Mode

Jupyter Hub / Lab
Web Interface

Predefined Containers



JupyterHub @ RWTH

- Easy access to HPC-Resources via the web browser
- Bring your own Jupyter Notebooks and start working right away
- All usual ML-Frameworks are available (Pytorch, Tensorflow, Keras, Scikit-Learn)

JupyterLab Server: Main

JupyterLab Profile: ?

Enable User PKGs? (No support!) ?

TensorFlow 2.14 for Claix 2023 GPUs.

Billing Project: ?

Partitions: ?

Available core-hours: 308.37k ?

Available disk space (/home): 8.73 GB ?

Advanced Settings: ?

Simple:

Max duration: ?

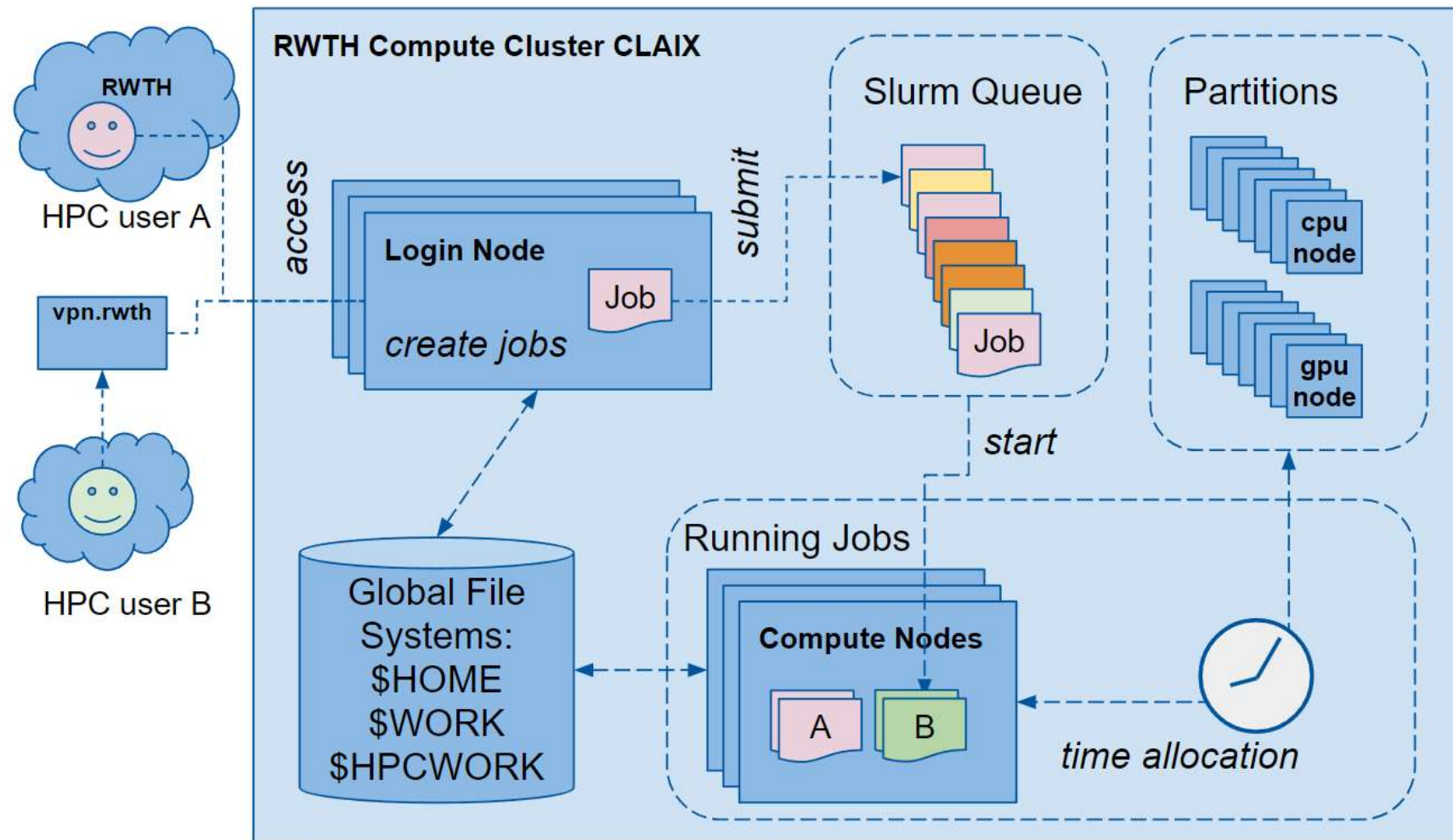
Number of Cores: ?

Node Memory: ?

Number of GPUs: ?

?

Batch-System

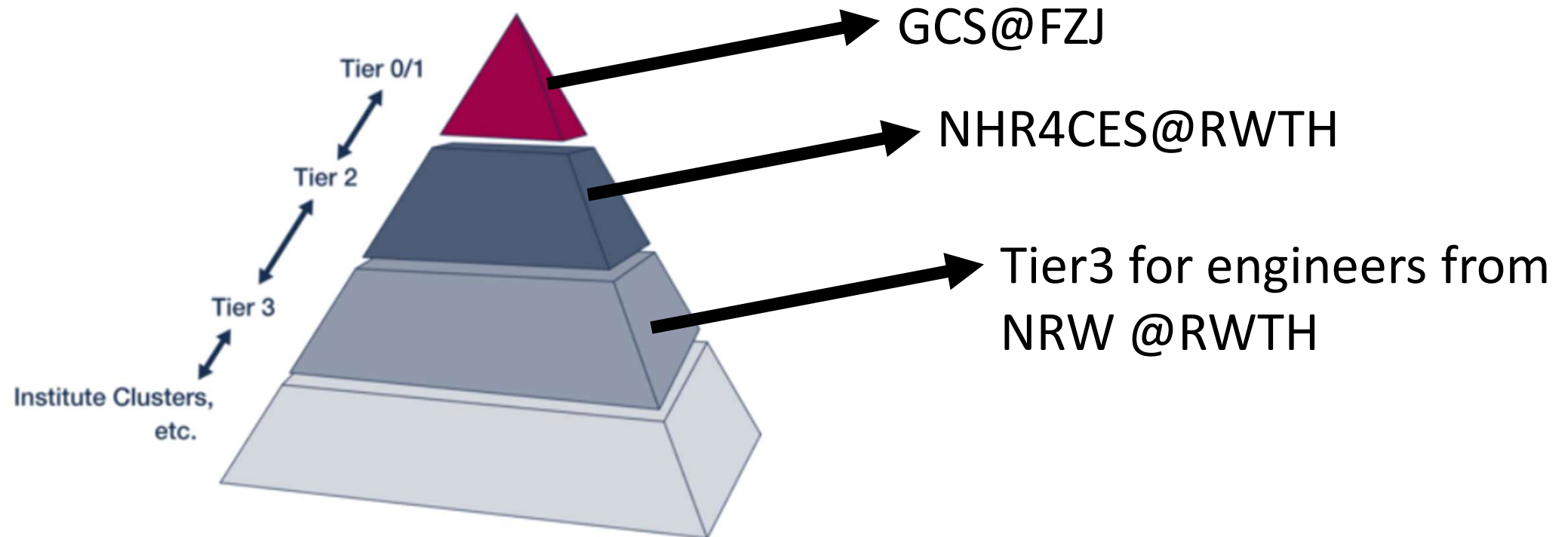


AI Service Centers



Other Initiatives

- **Tier-0** PRACE und EuroHPC
- **Tier-1** Gauss Center for Supercomputing (GCS, JSC, HLRS, LRZ)
- **Tier-2** Verbund für Nationales Hochleistungsrechnen (NHR) und weitere Tier-2 Zentren
- **Tier-3** lokale HPC-Zentren der Hochschulen



<https://hpc.dh.nrw/en/hpc-access/hpc-performance-pyramid>

Additional Resources

- <https://westai.de>
- <https://www.hpc.itc.rwth-aachen.de/>
- <https://help.itc.rwth-aachen.de>
- <https://hpc-wiki.info>
- <https://www.nhr4ces.de/hpc-access/>
- <https://www.fz-juelich.de/en/ias/jsc/systems/supercomputers/apply-for-computing-time>



Thanks for listening!

If you have any questions:

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