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CARME

An Open-Source Framework for Multi-User,
Interactive Jobs on Distributed GPU-Systems

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Bringing AI Development / Education and HPC Systems Together
The CARME Way

Carme – an open-source framework to manage resources for multiple users running interactive jobs on an HPC Clusters

HPC Systems

+

CARME

AI and Data Science Tools

- Code-Server
- JupyterLab
- Anaconda Environments (mambaforge/miniconda)

HPC Tools

- SLURM
- LDAP
- Singularity
- BeeGFS
- Zabbix

Open-Source Tools

enables

AI Development

- develop code
- schedule & track experiments
- debug model performance

AI Education

- hands-on sessions
- slides & homework
- easy Q&A

https://carmeteam.github.io/Carme/

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Useability
Easy and Reliable

easy to use

- **access** via **web interface** and **2FA** (OS independent)
- **interactive** development **tools** (e.g., Code-Server or JupyterLab)
- direct **GPU access**
- distributed **multi-node/-GPU usage**
- fully **separated jobs** with **custom resources**

easy maintainable

- **seamless integration** in clusters
- **singularity**[4] **containers** in the background
- **different libs** for **specific user** groups
- use **anaconda**[5] **environments**

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Security Concept
Our Security Idea

- everything can run **behind your firewall**

- we utilize our **own proxy** and **frontend**
  (both are separated singularity containers)

- **secure connection** between frontend and backend

- access **requires authentication** and **2FA**

- define what is **mounted inside** a **job**

- fully **integrate** the **limitations** of your **scheduler** and
  additional limitations in CARME
  (e.g., resource limits, running jobs and singularity images)

- everything **inside** a **job** runs in its **own namespace**
  (no chance to use other resources)

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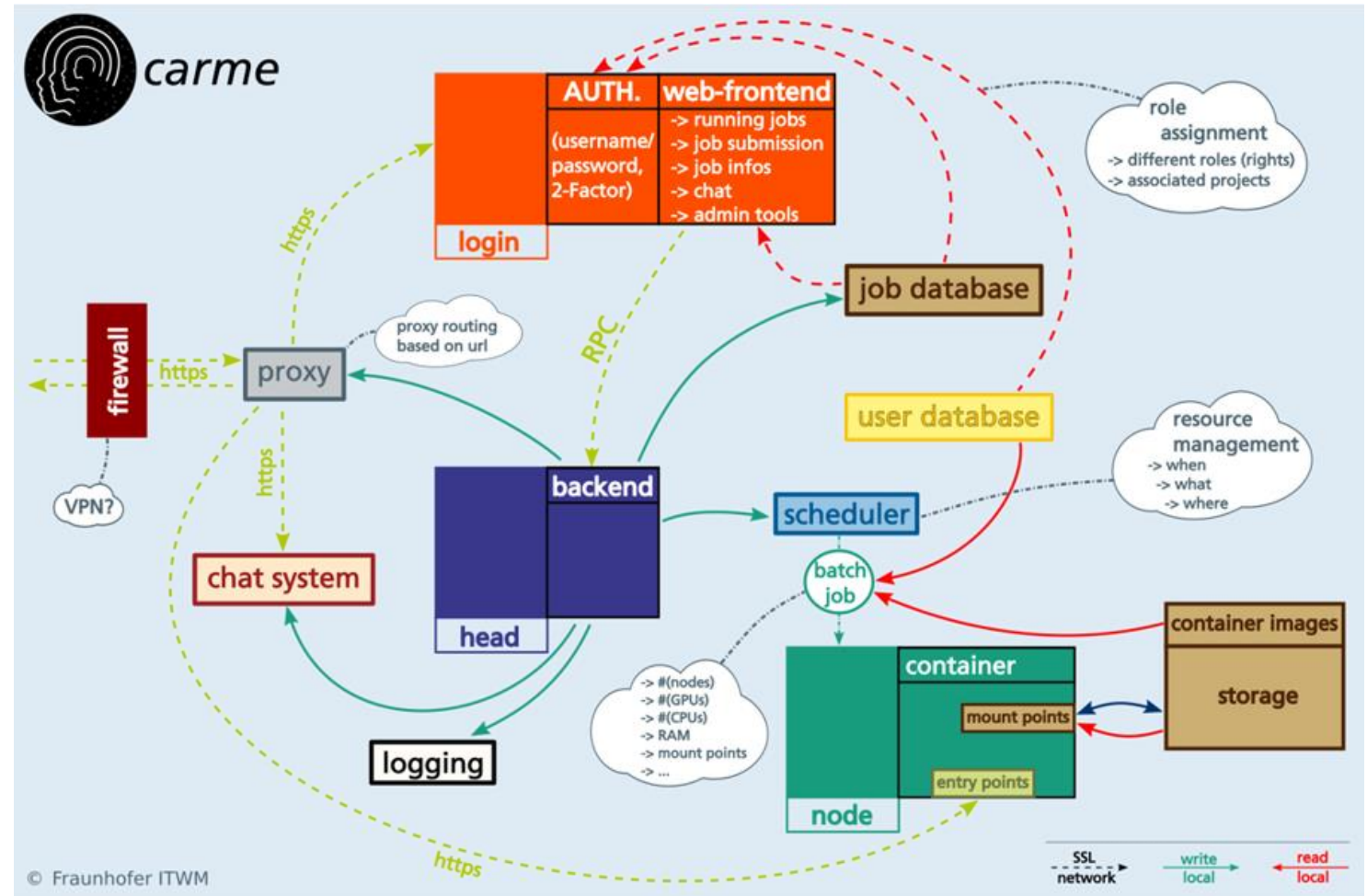
Contact

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