OMNI - Cluster

On-site **M**ultipurpose **N**umber-crunching **I**nfrastructre

acronym

On-site
Multipurpose
Number-crunching
Infrastructre

speaker

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racks

OMNI - Cluster

457 MEGWARE Compute Nodes
914 AMD EPYC™ 7452
24 NVIDIA® Tesla® V100PCIe

2 MEGWARE SMP Nodes
8 Intel® Xeon® Scalable Gold 5218
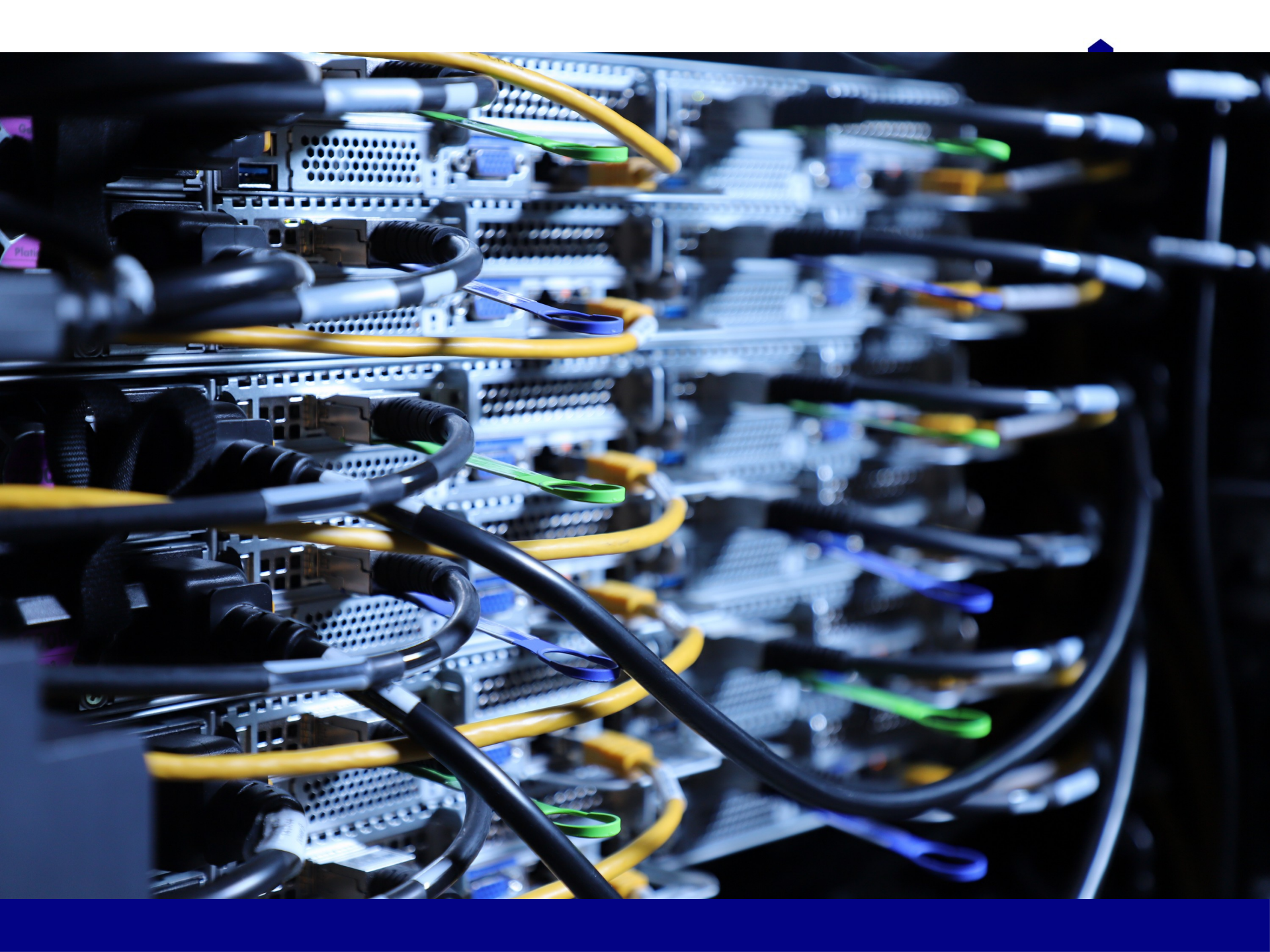
4 MEGWARE Login Nodes

1 MEGWARE Management Node

Mellanox InfiniBand HDR100

IBM Spectrum Scale - 1.15 PB

UNIVERSITÄT SIEGEN

MEGWARE®

hpc partition

434 compute nodes

- chassis: Gigabyte (2 nodes per rack unit)

- CPU: 2x AMD EPYC 7452 32-Core Processor

- RAM: 256 GB (16 x DIMM DDR4-3200 16GB)

- diskless

- node names: hpc-node001..hpc-node434

htc partition

HPE Moonshot 1500

45 blades
41 htc compute nodes
- ProLaint m710x Server Cartridge
- CPU: Intel Skylake (1 x x86)
  Intel(R) Xeon(R) CPU E3-185L v5 @ 3.00 GHz
- RAM: 64 GB (4 x 16 GB)
- node names: htc-node001..htc-node041

HPE Moonshot 1500

HPE Moonshot 1500

login nodes (htc)

```
> ssh omni.zimt.uni-siegen.de
(> ssh hpc.zimt.uni-siegen.de)

> ssh hpc-login01.zimt.uni-siegen.de
> ssh hpc-login02.zimt.uni-siegen.de
> ssh hpc-login03.zimt.uni-siegen.de
> ssh hpc-login04.zimt.uni-siegen.de
```

more login nodes (htc)

```
> ssh htc.zimt.uni-siegen.de

> ssh htc-login01.zimt.uni-siegen.de
> ssh htc-login02.zimt.uni-siegen.de
> ssh htc-login03.zimt.uni-siegen.de
> ssh htc-login04.zimt.uni-siegen.de
```

restriction

- ssh-public-key outside of `141.99.X.X`

getting access (account)

- every member (employee, staff) of the University Siegen

- booking is needed
  https://unisim.zimt.uni-siegen.de/

- accepting the roles is needed

getting access for students

- have to be invited from someone with OMNI account (staff, employee)

- get an email

- follow the link from the email

- accepting the terms is needed

storage

- ## /home

  - disk quota: 100 GB per user

  -
    ```
    > df -h ~
    Filesystem                               Size  Used Avail Use% Mounted on
    hpcnas.zimt.uni-siegen.de:/vol/HPCNAS_homes  100G  29G   72G  29% /home
    ```

- ## /work

  - 1.1 petabyte (10^{15}) from 6 storage server

  - IBM Spectrum Scale

  - temporary limited diskspace by the workspace application

work smb export

```
$ ws_allocate demo 30
Info: creating workspace.
/work/ws-tmp/bond007-demo
remaining extensions  : 3
remaining time in days: 30
$ echo "nurso" > /work/ws-tmp/bond007-demo/alf


# mount -t cifs -o
user=bond007,domain=unisiegen
//141.99.18.8/work/bond007-demo /mnt
# cat /mnt/alf
nurso
```

required package

- cifs-utils

```
> dnf install cifs-utils

> apt install cifs-utils
```

(/sbin/mount.cifs)

syntax for MS Windows

`\\141.99.18.8\work`

`\\omni\work`
`\\omni-storage\work`

Hardware

10 GPU-Knoten
- GPU: 4 x NVIDIA Tesla v100 PCIe 16 GB

Hardware

2 SMP-Knoten

- CPU: 4x Intel® Xeon® Gold 5218 CPU @ 2.3 GHz
- RAM: 1584 GB

5 Kubernetes Knoten

- CPU: 2x AMD EPYC 7452 32-Core Processor
- RAM: 256 GB

8 OpenStack Knoten

- CPU: 2x AMD EPYC 7452 32-Core Processor
- RAM: 256 GB