CBS COPENHAGEN BUSINESS SCHOOL
HANDELSHØJSKOLEN

TRAIN YOUR ML/AI MODEL ON GPUS

New cloud computing possibilities for researchers & students

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Research Data Management Support
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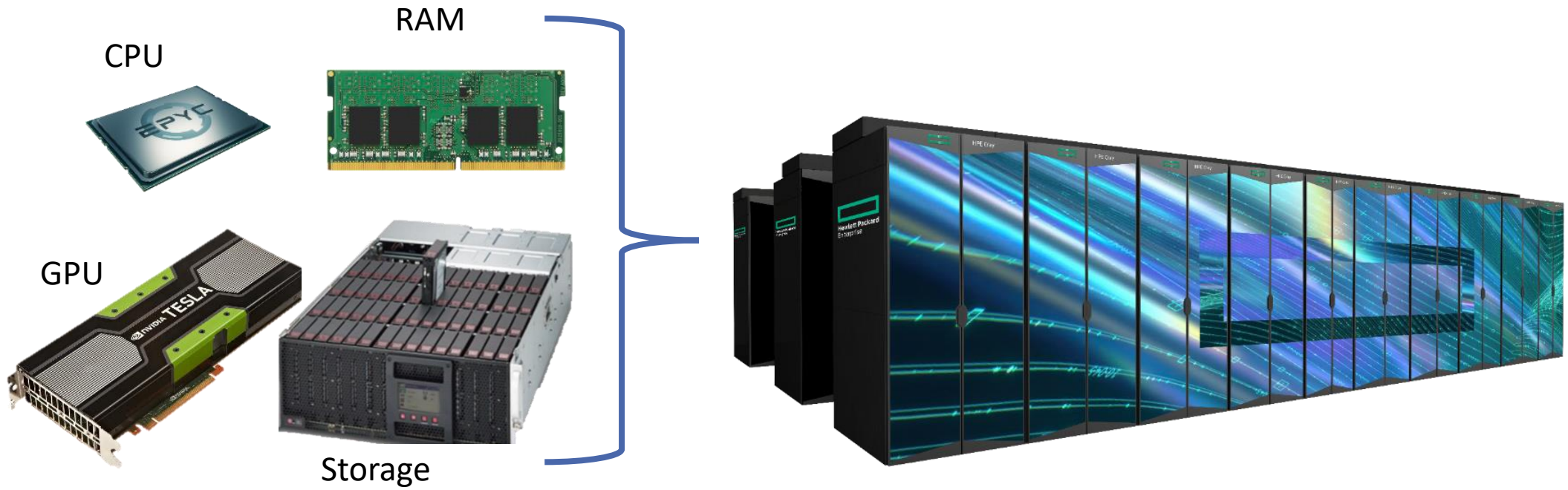
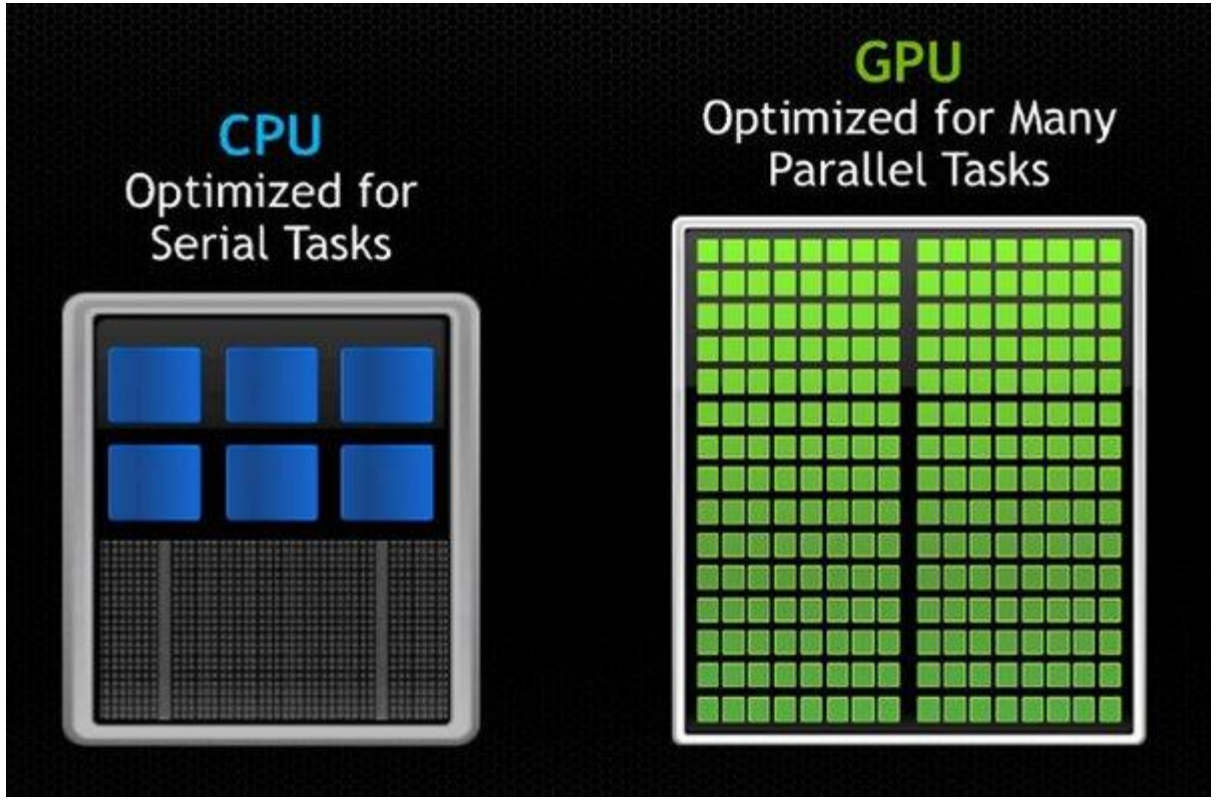
Program Today

- Apply for GPU resources on UCloud.
- Start a GPU based virtual machine (VM) on UCloud.
- Connect to the VM using SSH.
- Transfer data to and from the VM.
- Set up and use Conda for efficient library/package management.
- Open and run a Jupyter notebook from the VM.
- Example of multi-GPU parallelization with popular ML/AI frameworks such as Pytorch, Tensorflow and Scikit-Learn.
- https://cbs-hpc.github.io/

What is High Performance Computing (supercomputer)?



CPU vs GPUs



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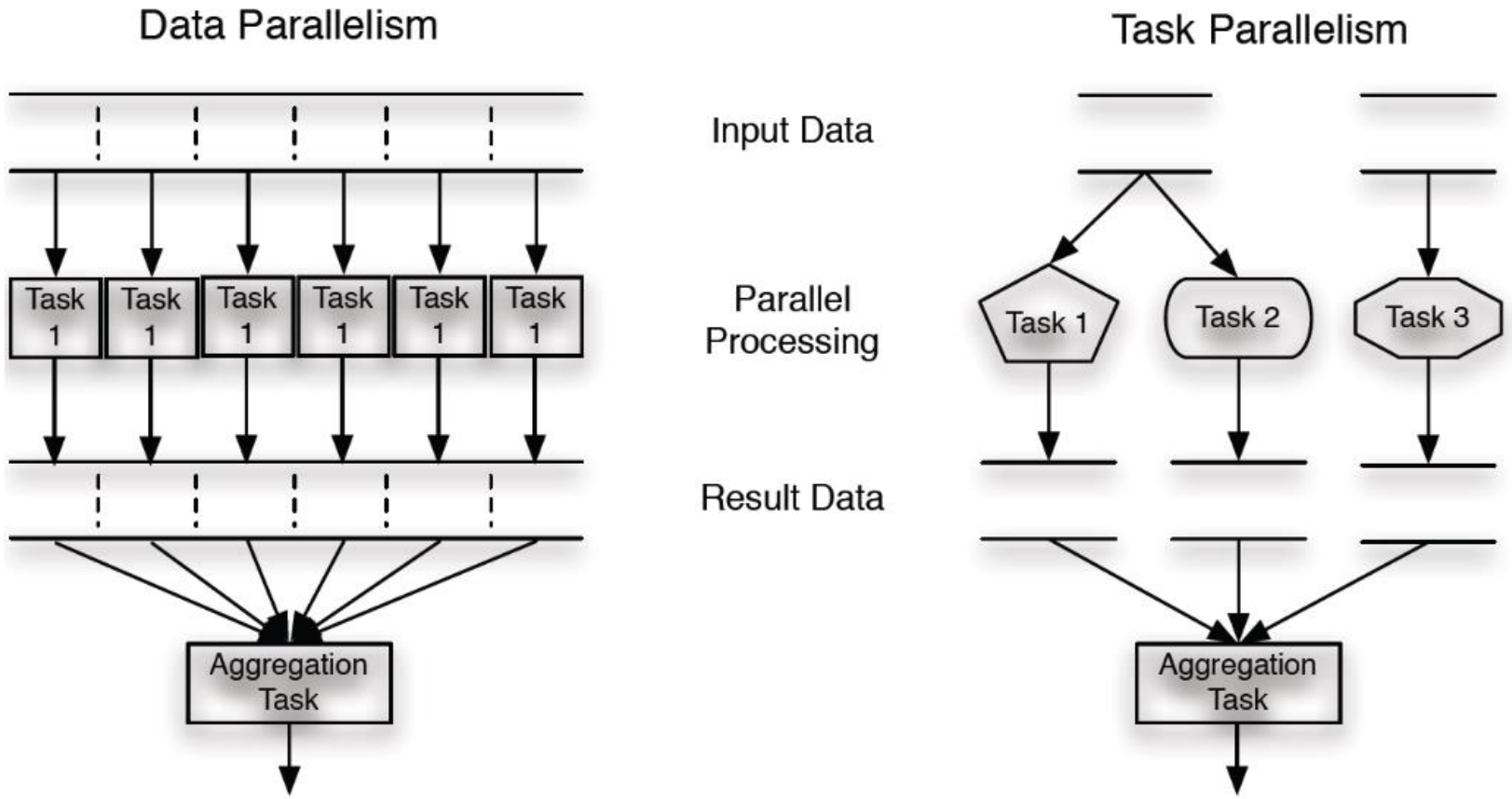
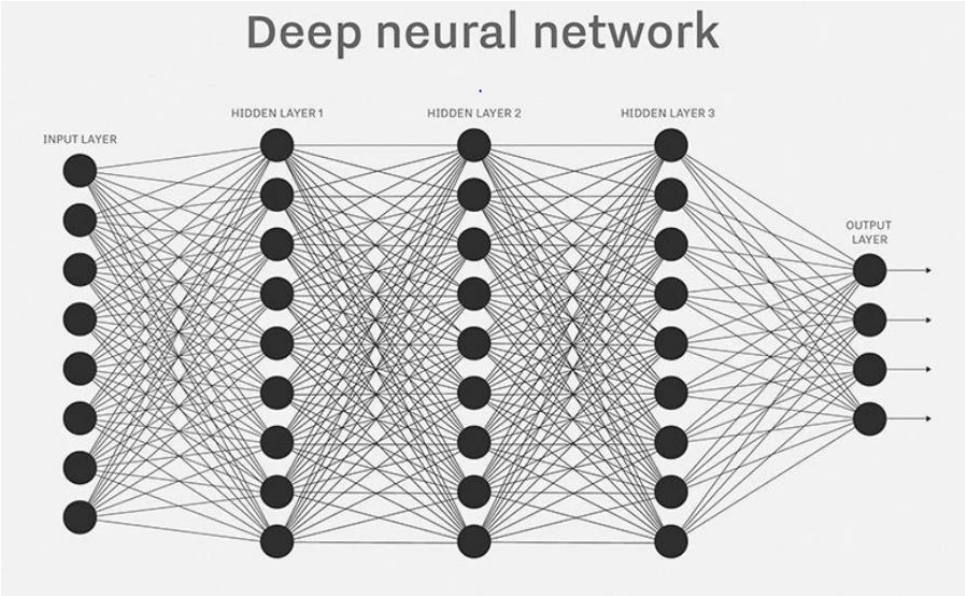
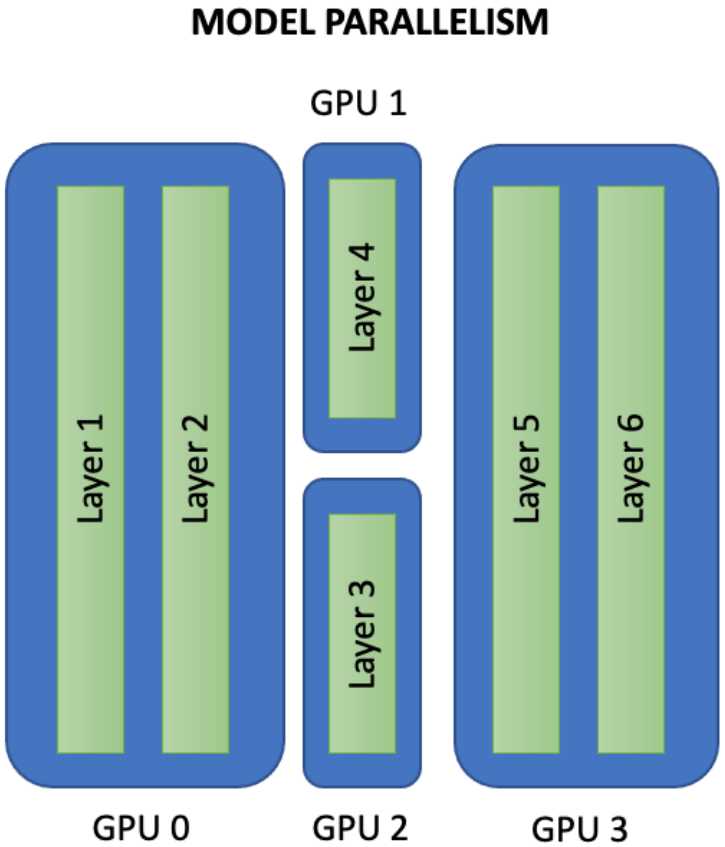
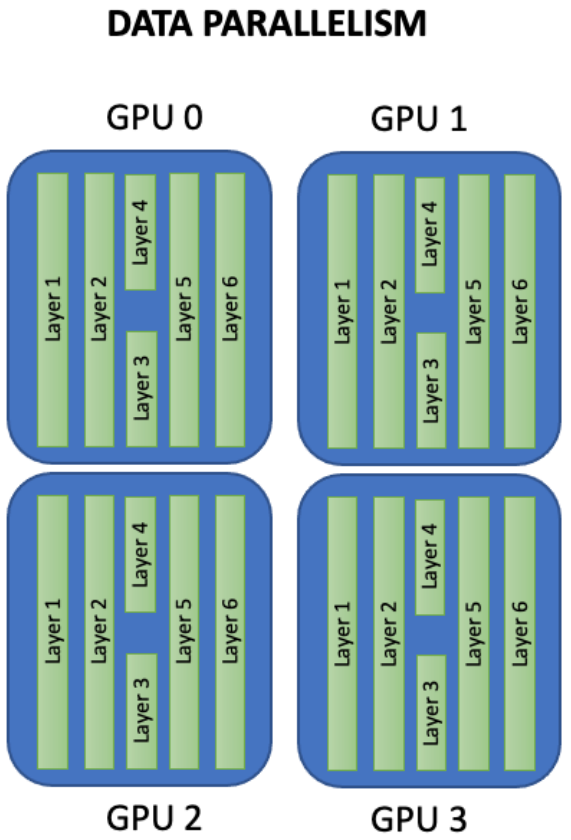
Parallel Programming



Parallel Programming & Deep-Learning







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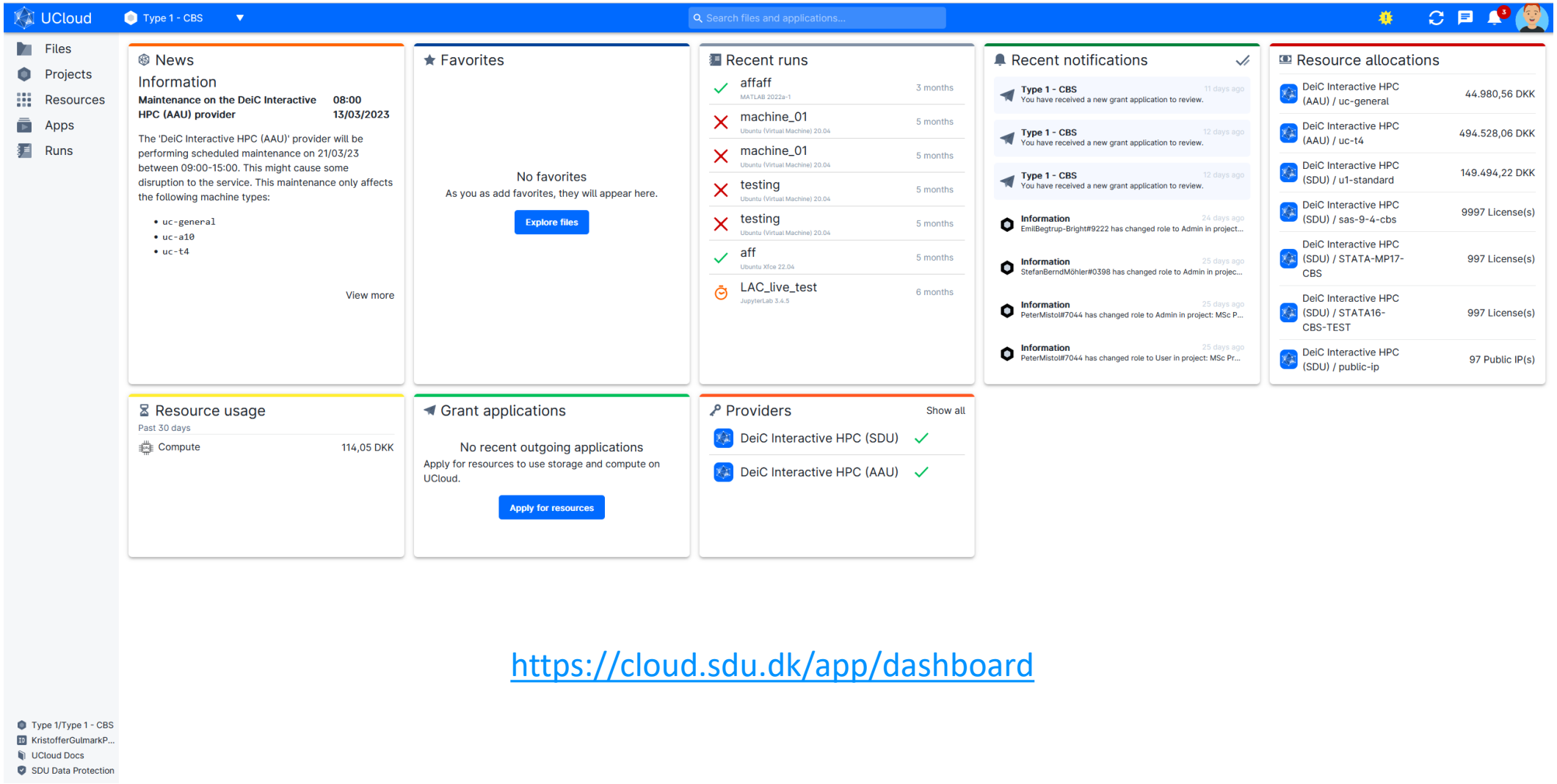
Ucloud GPU resources

- **GPU** resources
- Virtual Machines
- SHH/terminal Access

GPU	Architecture	CUDA Cores	Tensor Cores	Memory	FP16 (Half) TFLOPS	FP32 (Float) TFLOPS	FP64 (Double) GFLOPS
Nvidia T4	Turing	2,56	320	16 GB GDDR6	65.1	8.1	254.4
Nvidia A10	Ampere	6,144	384	24 GB GDDR6	31.2	31.2	976.3
Nvidia A40	Ampere	10,24	320	48 GB GDDR6	37.4	37.4	0.59
Nvidia A100	Ampere	6,912	432	80 GB HBM2	78.0	19.5	9700

UCloud Dashboard



https://cloud.sdu.dk/app/dashboard

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SSH - Secure Shell

- SSH is a network protocol that allows secure access to remote systems over an unsecured network.

SSH Key Authentication

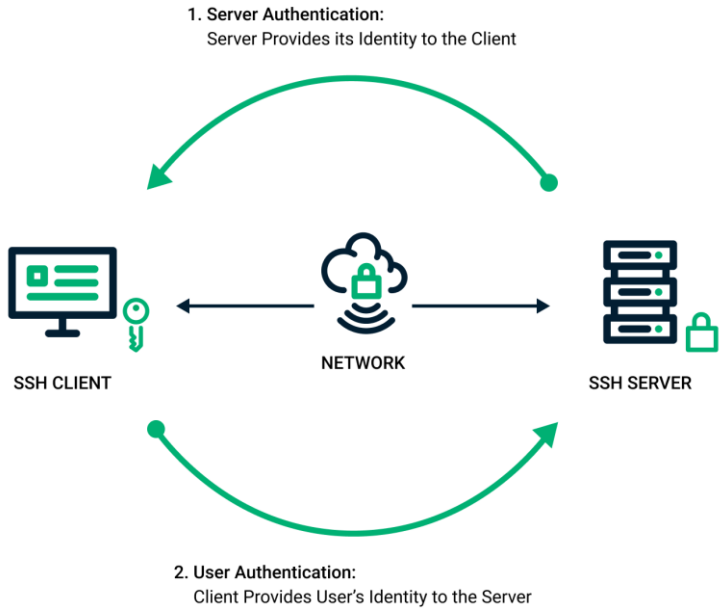
- Users generate a public-private key pair.
- The public key is placed on the remote server, and the private key is kept secure on the user's local machine.
- SSH authenticates the user by matching the keys.

SSH Connection

- Open a terminal.
- Use the `ssh` command followed by the remote server's address and your username.
- Authenticate with your private key or password.

SCP – Secure Copy

- SCP is a command-line utility for securely copying files between local and remote hosts.



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