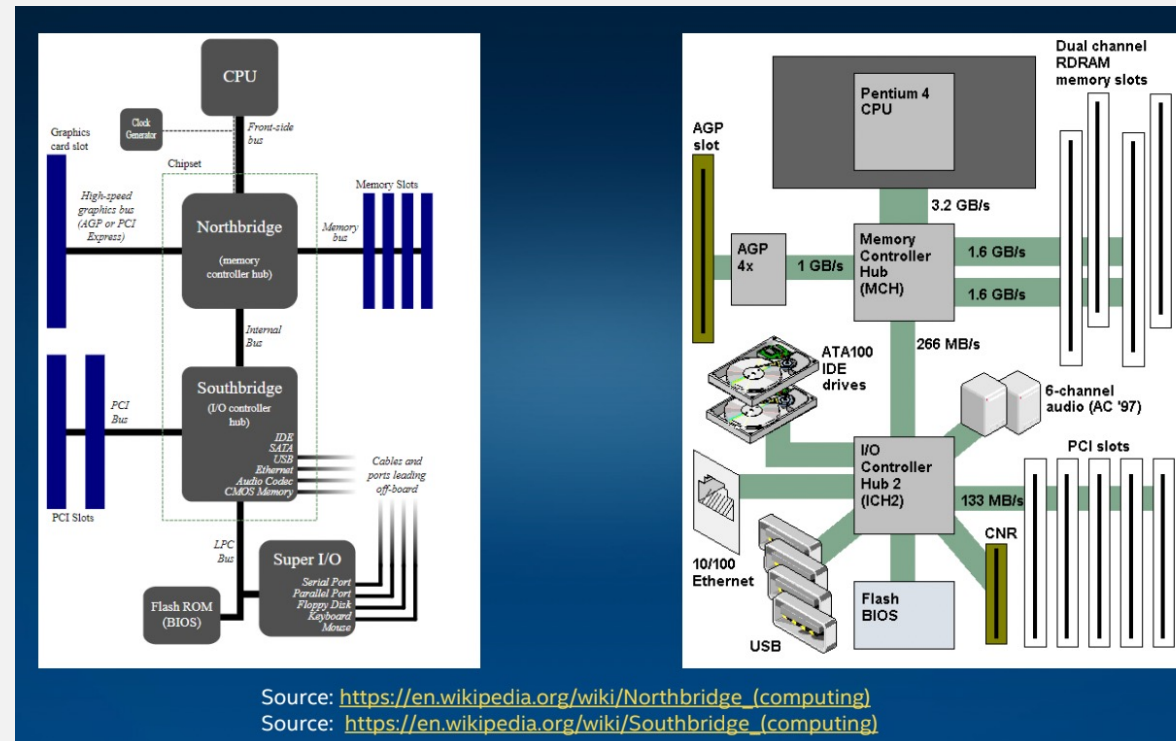# PROJECT PRESENTATION

Hyunjae Kim
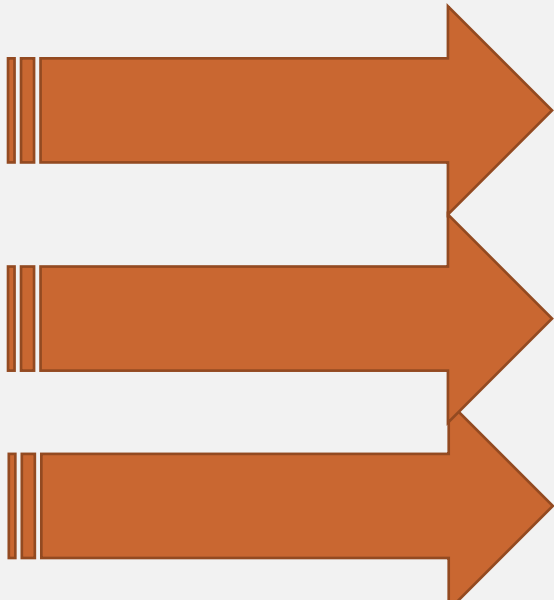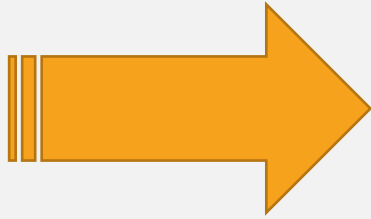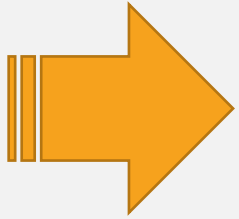
OVERVIEW

- Topic From Shesha's Lecture

- Slurm

- Containers

- Troubles I've had and Lessons learned

COMPUTER ARCHITECTURE

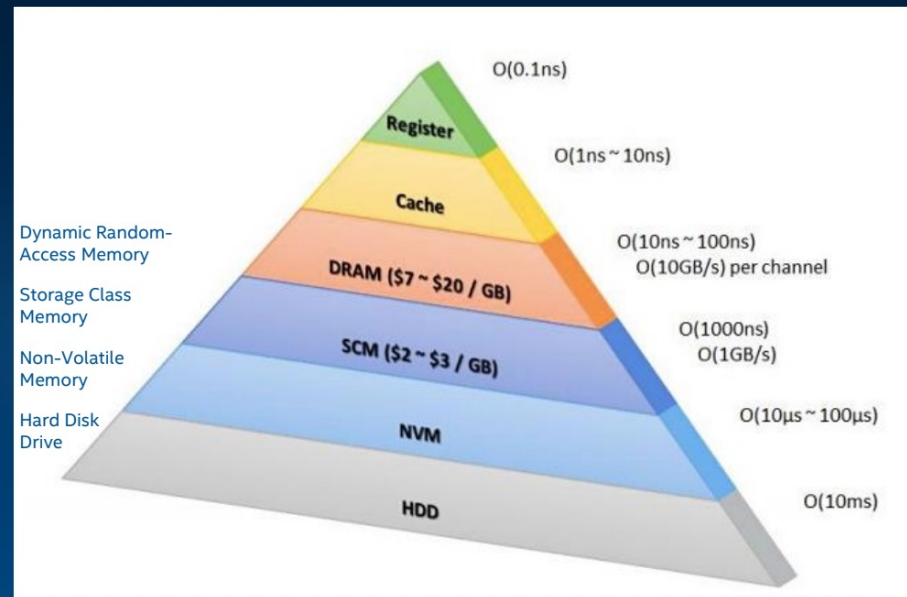Source: https://en.wikipedia.org/wiki/Northbridge_(computing)
Source: https://en.wikipedia.org/wiki/Southbridge_(computing)

LATENCY VS BAND WIDTH

MEMORY HIERARCHY

Source: https://blocksandfiles.com/2018/11/28/2019-the-year-of-storage-class-memory/

SLURM

- Open source cluster management system

- Job scheduling system

For linux cluster

Functions:

- Allocates resources

- Provide framework for job submitted to clusters

- Manage queue pending jobs

```
[davidron@hpcc-cluster-login-external ~]$ nano myscript2
[davidron@hpcc-cluster-login-external ~]$ nano myscript3
[davidron@hpcc-cluster-login-external ~]$ sbatch myscript2
Submitted batch job 57
[davidron@hpcc-cluster-login-external ~]$ sbatch myscript3
Submitted batch job 58
[davidron@hpcc-cluster-login-external ~]$ squeue
        JOBID PARTITION      NAME      USER ST       TIME  NODES NODELIST(REASON)
           56    normal   example  davidron PD       0:00      1 (BeginTime)
           57    normal   example  davidron PD       0:00      1 (BeginTime)
           58    normal  example3  davidron PD       0:00      1 (BeginTime)
```

ADVANTAGE

- Automates the management of jobs submitted to a cluster.

- Modular and has plugins for accounting, resource optimization, time management, power consumption

- Allows administrator to ..

  - provide more resources for certain jobs or users

 - prioritize certain users or jobs

SLURM WORKFLOW
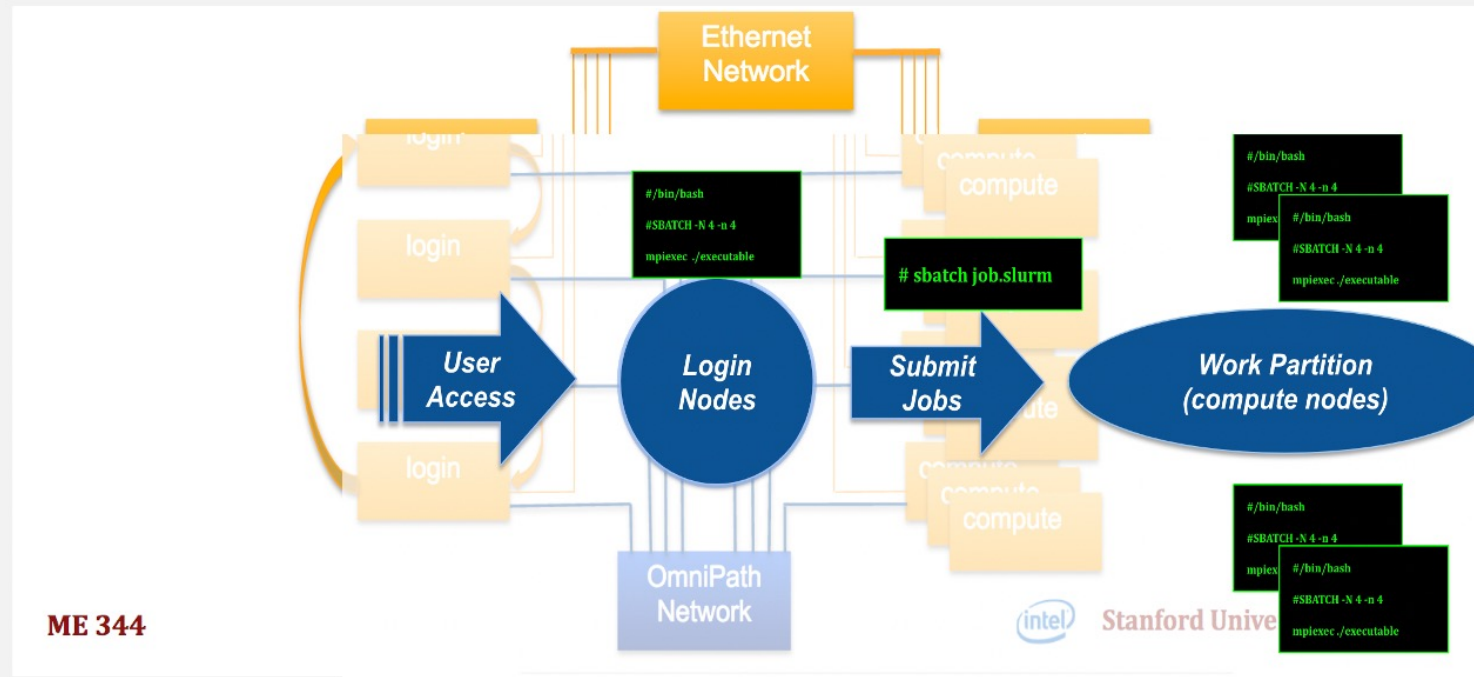
CONTAINER?

- Executable units of software where application code is packaged, along with its libraries and dependencies

- it can be run anywhere, whether it be a desktop, laptop, HPC system, or the cloud

ADVANTAGE OF CONTAINER

- No need to install the whole program for each machine

- Form of Operating System virtualization for OS which features are leveraged to both isolate processes and control the amount of CPU, memory, and disk those processes have access to

TROUBLES IN PROJECT 1

- Logging in to user account fail ← not adding user account

- "mdirun_mpi" did not work ← miss the step of installation

- Localhost not working
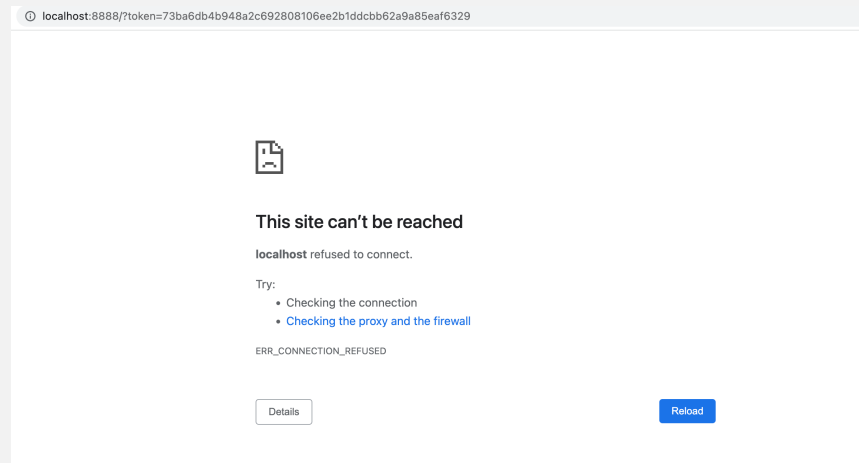
LESSONS FROM TROUBLES

- Read the instruction thoroughly, .

- Always look close to each step.

- Always consider which account logged in to cluster.

- Check the command is connecting to the same domain/area where I logged in ex)CHROOT

- Check the typo before running the script

- Previous commands affects the current state