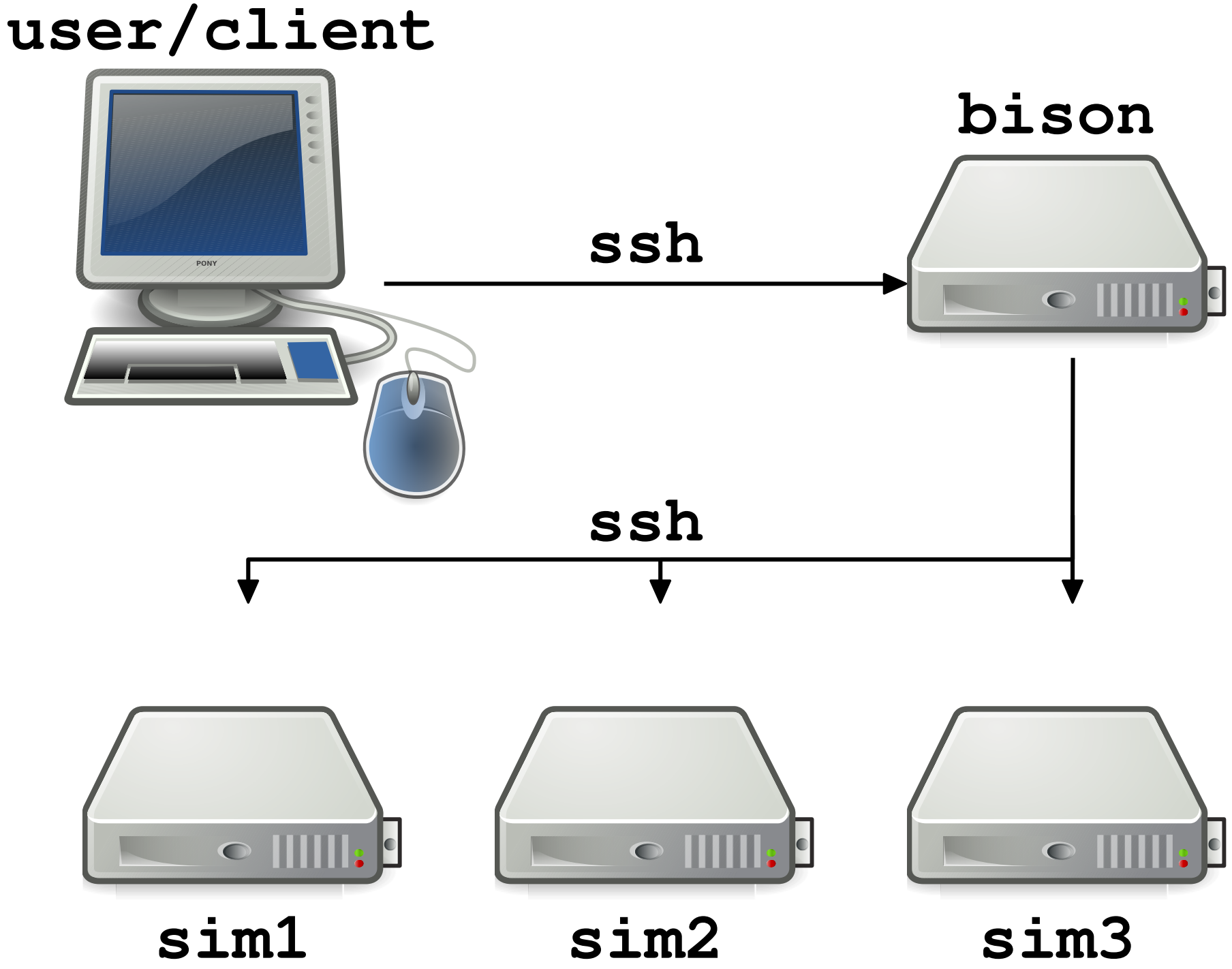
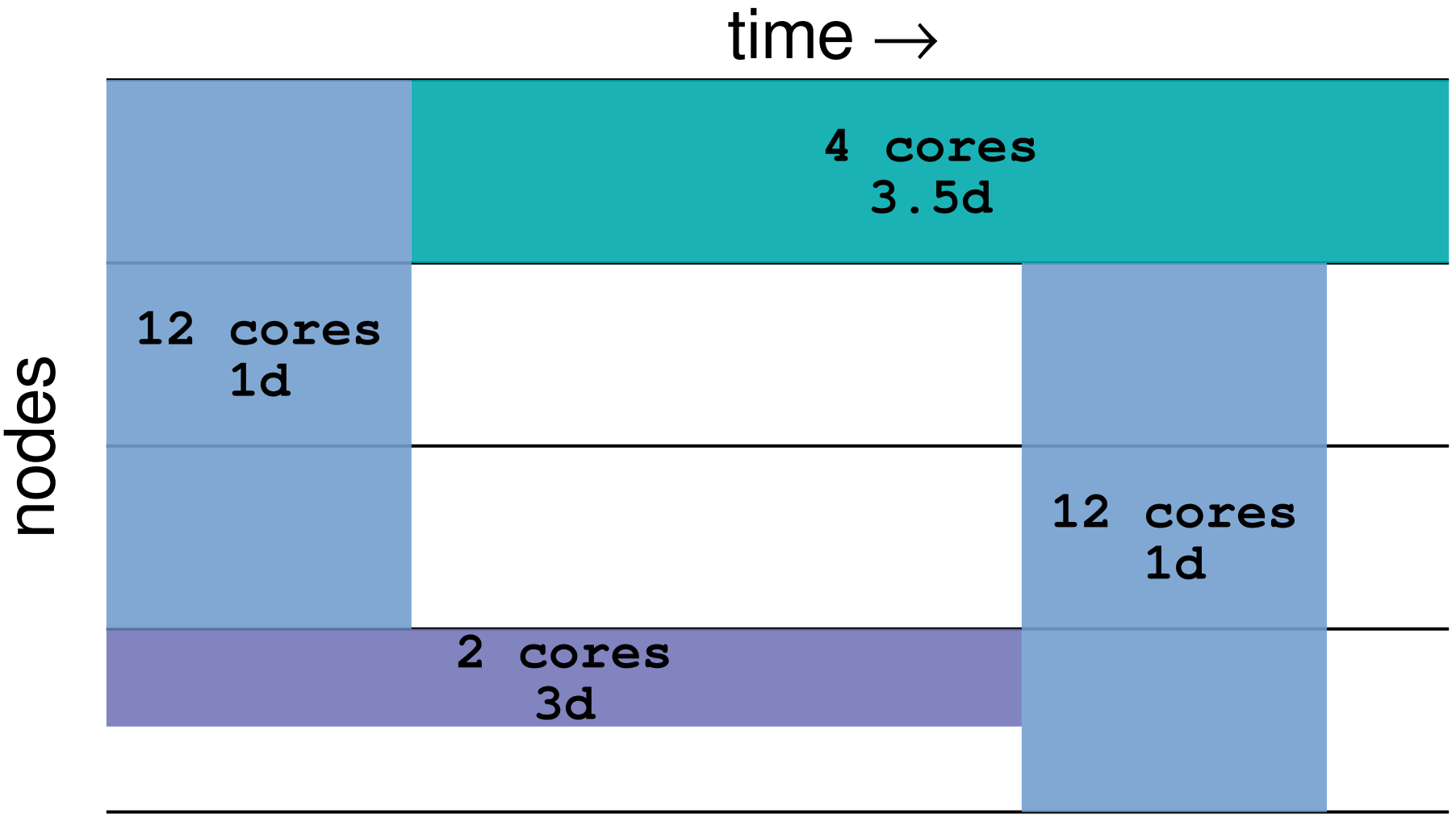
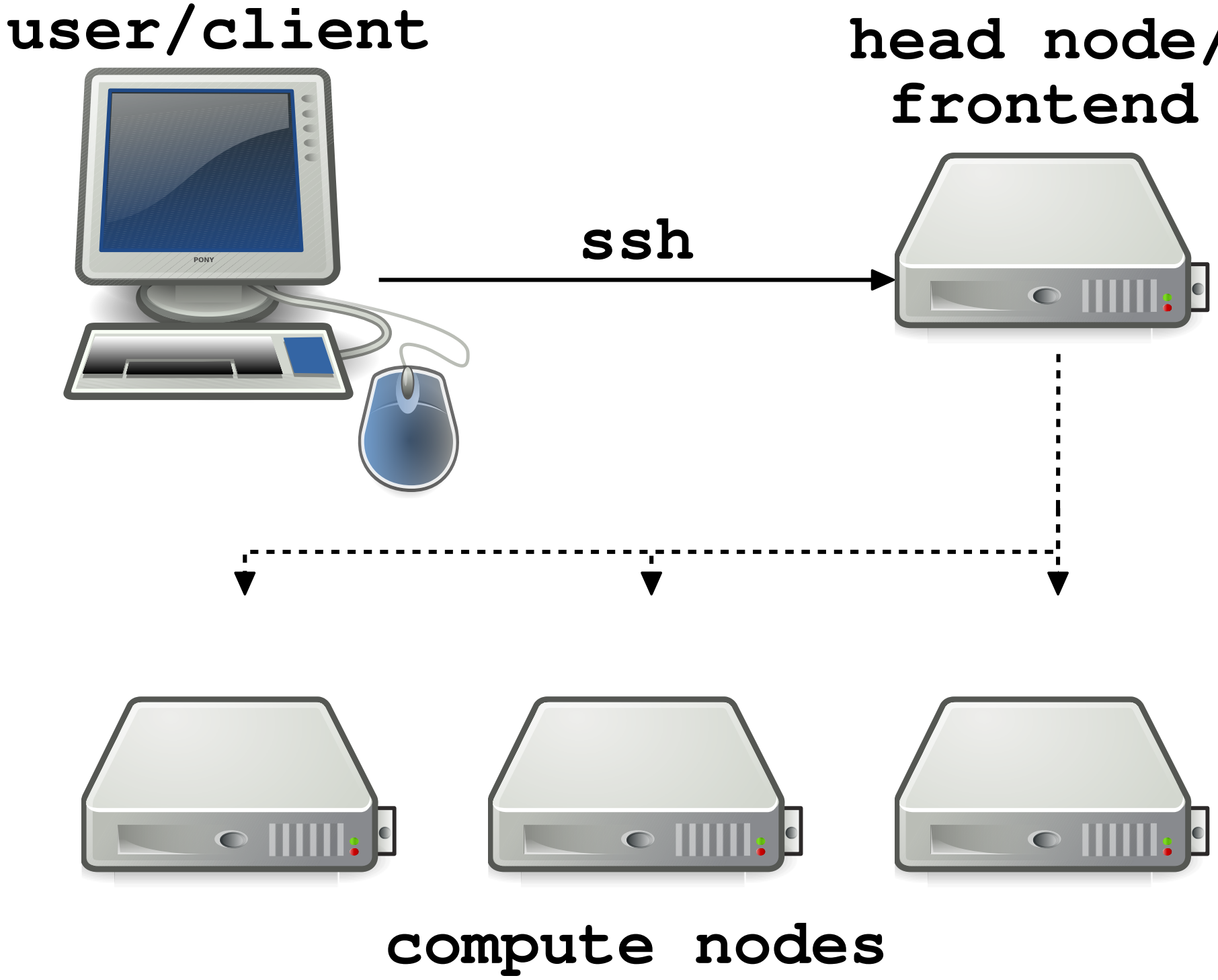
BlueBEAR


user/client
bison
ssh
ssh
sim1
sim2
sim3

Scheduling




user/client
head node/
frontend
ssh
compute nodes

Job scripts

- To run a program, you prepare a shell script that
  - runs your program and
  - tells the scheduler what the program needs

BlueBEAR basics

- Documentation: http://www.birmingham.ac.uk/bear
- Log in (via ADF BiSON if outside Uni network):

```
ssh <username>@bluebear.bham.ac.uk
```

- Your BlueBEAR projects: **`my_bluebear`**
- Your disk quotas: **`my_quota`**

- RDS folders are mounted at:

```
/rds/projects/.../<owner>-<project>/
```

An example script

```
#!/usr/bin/env bash

#SBATCH --nodes 1
#SBATCH --ntasks 1
#SBATCH --qos bbshort
#SBATCH --time 00:05:00
#SBATCH --account=ballwh-sse-learning-bluebear

module purge; module load bluebear
echo "2^2^22" | time bc
```

SLURM commands

- Submit: **`sbatch <script name>`**
- View queue: **`squeue`**
- Cancel job: **`scancel <job_id>`**

Loading software with **`module`**

- See what's loaded: **`module list`**
- Load a module: **`module load <module>`**
- Unload a module: **`module unload <module>`**
- Unload all modules: **`module purge`**
- See what's available: **`module avail`**

Tips for **`module`**

- **`module avail`** is slow, so save the output with e.g.

  `module avail 2> ~/modules.txt`

- Load the highest-level module you need
- If you **`purge`**, reload defaults with

  `module load bluebear`

- List of modules also maintained online:

  https://bear-apps.bham.ac.uk/

Accessing **`$HOME`** with **`sshfs`**

- Make a local folder (the “mount point”) e.g.

```
mkdir -p ~/mnt/bluebear
```

- Mount it with **`sshfs`** e.g.

```
sshfs \
ballwh@bluebear.bham.ac.uk:/rds/homes/b/ballwh \
~/mnt/bluebear
```

Accessing RDS

- You shouldn't mount it with **`sshfs`** e.g.

```
sshfs \
ballwh@bluebear.bham.ac.uk:/rds/ ~/mnt/rds/
```

- Use the official method

```
sudo mount -t cifs -o vers=3.0 \
-o domain=ADF -o username=ballwh \
//its-rds.bham.ac.uk/2018 rds/2018/
```

https://intranet.birmingham.ac.uk/it/teams/infrastructure/research/bear/HowTo/HowToRDS.aspx

Tips

- Estimate job needs as accurately as you can
- Lots of disk I/O? Consider using compute node hard drives and copying everything at the end
- Be patient!
  - Jobs won't usually start immediately
  - RDS data isn't synced immediately
- Easier to deploy code with version control (e.g. **`git`**)

Resources

- Documentation: http://www.birmingham.ac.uk/bear
- Search for a “cheat sheet”. e.g.

  https://slurm.schedmd.com/pdfs/summary.pdf
- BEAR Drop-in sessions
- Online console: https://bearadmin.bham.ac.uk/