



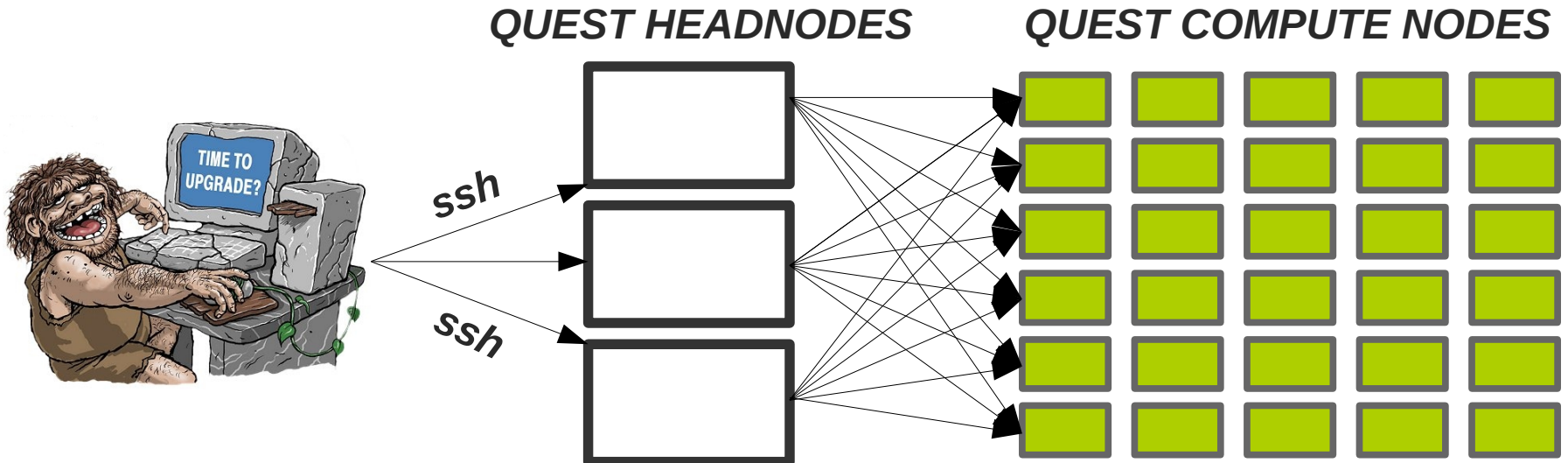
# Day 4: QUEST and GIT

# Logging in to QUEST

**SSH** (Destination Address) – connect a *secure shell* to *Destination Address*

```
brandon@brandon-P34 ~ $ ssh bbm617@quest.it.northwestern.edu  
bbm617@quest.it.northwestern.edu's password: █
```

The first time you log into QUEST there will be some minor additional hoops to jump through – simply follow the steps and say yes to everything. They are no more than some loose ends in the security system



# QUEST - Interface

```
brandon@brandon-P34 ~ $ ssh bbm617@quest.it.northwestern.edu
bbm617@quest.it.northwestern.edu's password:
Last login: Wed Jun 15 11:36:38 2016 from 10.104.228.10
We would like to remind you to update your msub submission scripts or the
scripts that generate those to reflect the change in hardware and partitions
available for computing.
```

```
Quest 2 was replaced by Quest 5. As a result, directives that specify
the partition (#MSUB -l partition=quest2) no longer work. Please replace
in your scripts references to the partition from the list of available ones,
keeping in mind the different number of available cores for each node.
There are 3 partitions on Quest; please see below for instructions and
information for each partition:
```

## Quest 3

- For short queue Basic Access jobs and buy-in allocations
- Nodes are Intel Sandybridge, 16 cores per node, 64GB per node

## Quest 4

- For short queue Basic Access jobs and buy-in allocations
- Nodes are Intel Ivybridge, 20 cores per node, 128GB per node

## Quest 5

- For short queue Basic Access jobs and buy-in allocations
- Nodes are Intel Haswell, 24 cores per node, 128GB per node

```
The partition called 'quest2' has been replaced by 'quest5' and the feature
'westmere' has been replaced by the feature 'haswell'.
```

```
NUIT Quest Support Team
<quest-help@northwestern.edu>
[bbm617@quser12 ~]$
```

You will land at one of the  
QUEST HEADNODES

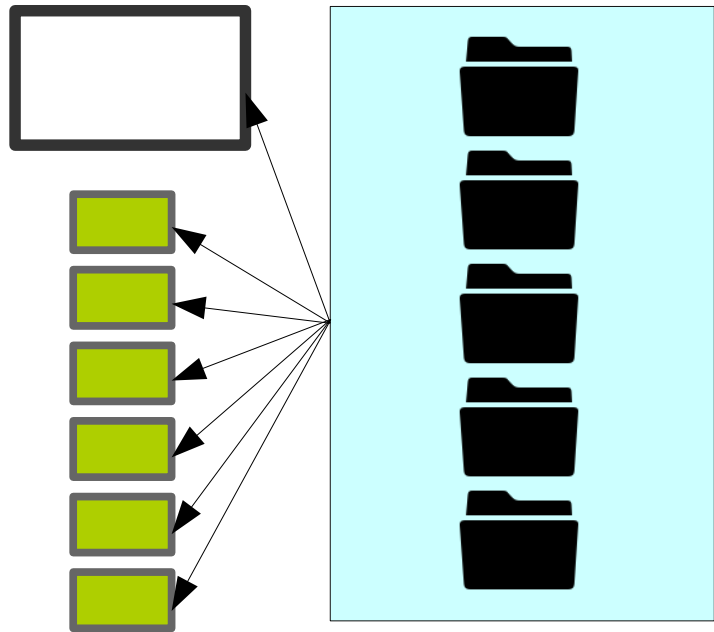


# QUEST - Interface

```
[bbm617@quser12 ~]$ pwd  
/home/bbm617  
[bbm617@quser12 ~]$
```

## NODES

## FILESYSTEM



For all intents and purposes any node may navigate to and interact with any folders and files on QUEST

*A Workload Scheduling* program manages which nodes and resources are working on what tasks

The scheduler is called **MOAB**

# Dude, where's my Job?

```
[bbm617@quser12 scripts]$ ls  
myscript.sh  
[bbm617@quser12 scripts]$ cat myscript.sh  
echo "test"  
[bbm617@quser12 scripts]$ source myscript.sh  
test  
[bbm617@quser12 scripts]$
```

*This is run on the headnode!*

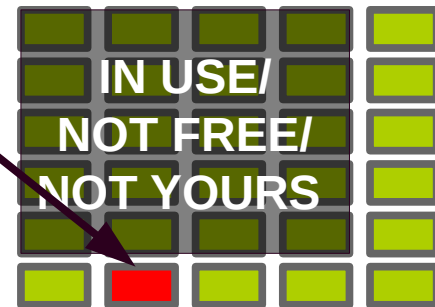
**YOU, ON A HEADNODE**



```
1. TRY, HOPKINS DAY  
  
Hopkins (1992), down a creek in the morning. The corridor of a  
happily. The light is good and just only a little bright in coming in  
through the window. A big deer jumps into a room which can be easily ping-pong  
room and having around at the end that is the most often the patients  
and usually the nurse are standing around, standing in the patients hall  
and usually the nurse are standing around, standing in the patients hall  
above the door is a picture, "Happily Hopk". Mr. Hopk.  
  
Two stethoscope nurses come along the corridor on their stethoscope line on old  
nurse when standing over again to be updated. The old nurse tells the  
nurse not get down the stethoscope while they repeat their breath. They are  
already also with your stethoscope. They are their friends.  
  
A nurse-party nurse old, back-to-back, partial-nurse in the de-  
very, moving from behind the nurse. The nurse of the old nurse and the stethoscope  
nurses with a glass representing this is clearly a nurse. The nurse hang their  
heads already changed.  
  
[Continuing on the old nurse, recognizing her]  
Again! (20 sec)  
Just what do you want us to do with her?  
  
THE NURSE  
I told you: the grandmother next.  
[Singing her own lullaby]  
That's what's wrong with her.  
  
THE NURSE  
They say there's nothing the mother will her.  
  
THE NURSE  
Well, then send her home.  
  
The old nurse looks herself up a little, she has a hunched expression.  
  
THE NURSE  
[In an old-fashioned manner]  
I'm blind.  
  
THE NURSE  
[Singing and singing with a laugh]  
My poor mother, I wish I could see as well as you.  
[In the stethoscope nurses]  
Dr. Nurse cannot see anything! all the nurses are blind.  
  
The nurse has done on the stethoscope stethoscope nurses. The 1st stethoscope  
nurse's name on the door. The nurse comes in, Dr. Nurse.
```

**Special wrapper containing extra  
commands that MOAB needs to  
Schedule your job**

**MOAB**



**Standard commands you would  
normally use to run your program**

# QUEST – Submit Scripts

```
#!/bin/bash
#MSUB -N myJob
#MSUB -A b1011
#MSUB -q ligo
#MSUB -l walltime=00:00:02:00
#MSUB -l nodes=1:ppn=16
#MSUB -j oe
cd $PBS_0_WORKDIR;

source myscript.sh
~
~
```

← Name of job in queue  
← Accounting tag  
← Requested queue  
← Killtime  
← Resource request  
← Output format

***msub*** (*filename*) submits the job to the scheduler

```
[bbm617@quser12 scripts]$ ls
myscript.sh submit
[bbm617@quser12 scripts]$ msub submit

17547989
[bbm617@quser12 scripts]$ qstat
Job ID              Name          User          Time Use S Queue
-----
17547975.qsched02    myJob         bbm617        00:00:00 C short
17547989.qsched02    myJob         bbm617        0 Q short
[bbm617@quser12 scripts]$ ls
myscript.sh submit
[bbm617@quser12 scripts]$ ls
myJob.o17547989 myscript.sh submit
[bbm617@quser12 scripts]$
```

The output of your code will produce a log file you may log out and let the job run on a compute node without fear of missing the results that would normally print to the terminal

# QUEST - Logfiles

```
-----
PBS: Begin PBS Prologue Thu Jun 16 09:47:40 CDT 2016 1466088460
PBS: Job ID:      17547989.qsched02.quest.it.northwestern.edu
PBS: Username:    bbm617
PBS: Group:       bbm617
PBS: Executing queue:  short
PBS: Job name:     myJob
PBS: Account:      a9009
-----
```

```
    The following variables are not
    guaranteed to be the same in
    prologue and the job run script
-----
```

```
PBS: Temporary Dir($TMPDIR):    /tmp/17547989.qsched02.quest.it.northwestern.edu
PBS: Master Node($PBS_MSHOST):   qnode5056
PBS: node file($PBS_NODEFILE):  /hpc/opt/torque/nodes/qnode5056/aux//17547989.qsched02.quest.it.northwestern.edu
PBS: PATH (in prologue) : /bin:/usr/bin
PBS: WORKDIR ($PBS_O_WORKDIR) is: /home/bbm617/simulations/scripts
-----
```

```
PBS: End PBS Prologue Thu Jun 16 09:47:40 CDT 2016 1466088460
hello!
```

```
-----
PBS job ended
Begin PBS Epilogue Thu Jun 16 09:47:45 CDT 2016 1466088465
JobID: 17547989.qsched02.quest.it.northwestern.edu
Session ID:      23633
Resources Used:   cput=00:00:00,mem=0kb,vmem=0kb,walltime=00:00:00
Job exit value:   0
-----
```

# Moving files to/from QUEST

**scp (-r) login@address.of.host:/path/to/file/at/host/file (destination)**

The -r option is for directories - “recursive” (get all contents)

```
brandon@brandon-P34 ~/Desktop/example $ ls
brandon@brandon-P34 ~/Desktop/example $ scp bbm617@quest.it.northwestern.edu:/home/b
bbm617/simulations/scripts/myscript.sh .
bbm617@quest.it.northwestern.edu's password:
myscript.sh                                100% 14    0.0KB/s  00:00
brandon@brandon-P34 ~/Desktop/example $ echo pwd >> myscript.sh
brandon@brandon-P34 ~/Desktop/example $ scp myscript.sh bbm617@quest.it.northwestern
.edu:/home/bbm617/simulations/scripts/
bbm617@quest.it.northwestern.edu's password:
myscript.sh                                100% 18    0.0KB/s  00:00
brandon@brandon-P34 ~/Desktop/example $
```

```
[bbm617@quser13 scripts]$ ls
myJob.o17547989  myscript.sh  submit
[bbm617@quser13 scripts]$ cat myscript.sh
echo "hello!"
[bbm617@quser13 scripts]$ cat myscript.sh
echo "hello!"
pwd
[bbm617@quser13 scripts]$
```