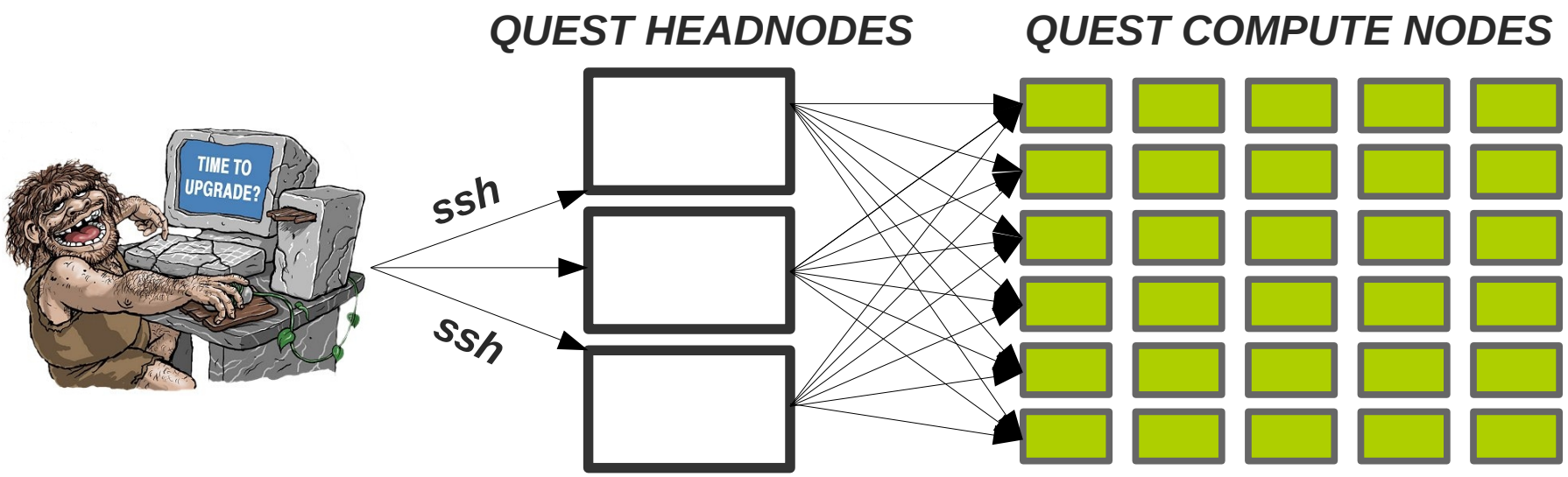
Day 4: QUEST and GIT

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:
```

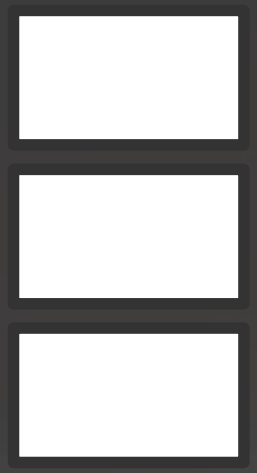
The first time you log into QUEST there will be some minor additional hoops to jump through – simply follow the steps and say *yes* to everything. They are no more then some loose ends in the security system



QUEST - Interface

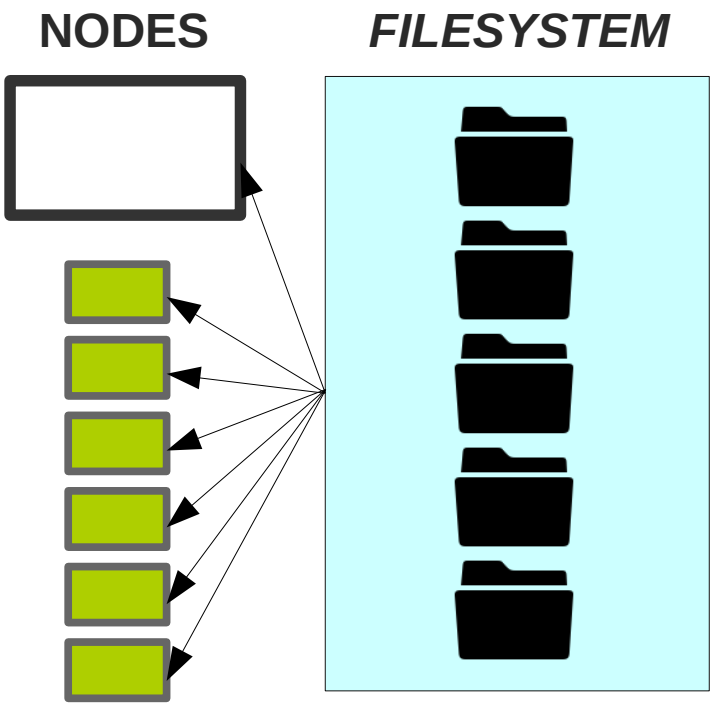
```
brandon@brandon-P34 ~ $ ssh bbm617@quest.it.northwestern.edu
bbm617@quest.it.northwestern.edu's password:
Last login: Wed Jun 15 11:36:38 2016 from 10.104.228.10
We would like to remind you to update your msub submission scripts or the
scripts that generate those to reflect the change in hardware 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The partition called ‘quest2’ has been replaced by ‘quest5’ and the feature
‘westmere’ has been replaced by the feature ‘haswell’.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 ~]$
```



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

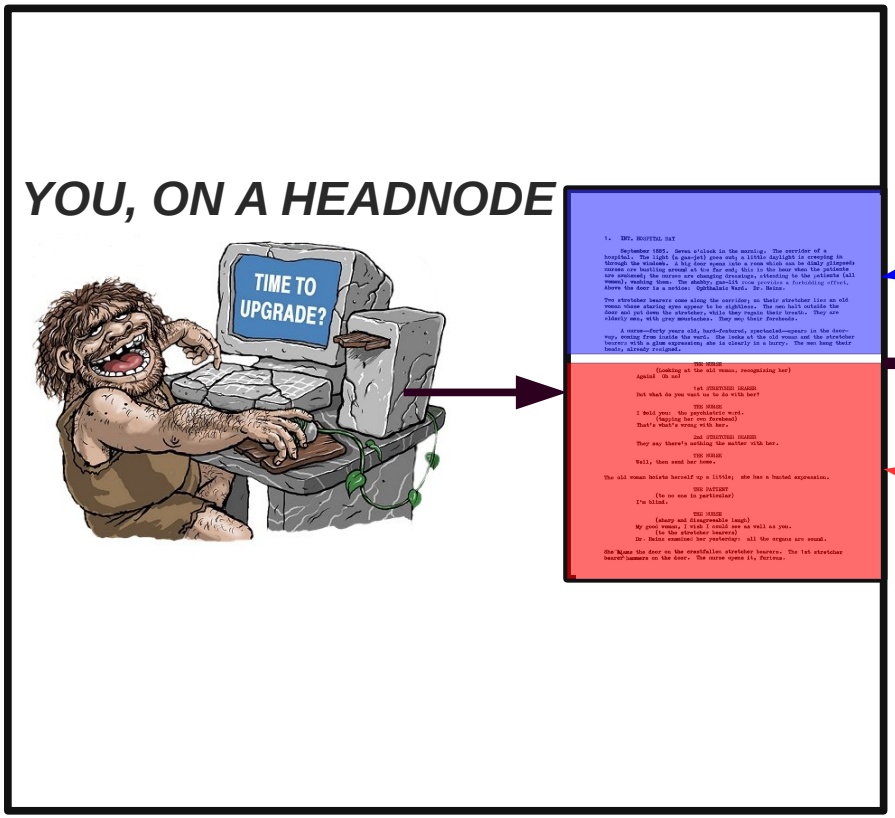
A *Workload Scheduling* program manages which nodes and resources are working on what tasks

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!



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

MOAB

IN USE/ NOT FREE/ NOT YOURS

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_O_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
bm617/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]$
```