Dealing with real resources
Wednesday Afternoon, 3:00 pm

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What have we seen?

- If you do a condor_status on submit:

```
glidein_18928@red- LINUX      X86_64 Unclaimed Benchmar 0.880  7933  0+00:00:04
monitor_15002@red- LINUX      X86_64 Owner     Idle     0.880   793  0+00:01:06
monitor_18449@red- LINUX      X86_64 Owner     Idle     0.880   793  0+00:00:04
monitor_18928@red- LINUX      X86_64 Owner     Idle     0.880   793  0+00:00:04
                     Total Owner Claimed Unclaimed Matched Preempting Backfill

        INTEL/LINUX    15     8       0         7       0          0        0
      X86_64/LINUX     27    14       2        11       0          0        0

               Total    42    22       2        18       0          0        0
```

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                     Total Owner Claimed Unclaimed Matched Preempting Backfill

        INTEL/LINUX     15     8       0         7       0          0        0
      X86_64/LINUX      27    14       2        11       0          0        0

               Total    42    22       2        18       0          0        0
```

What have we seen?

INTEL/LINUX	15	8	0	7	0	0	0
X86_64/LINUX	27	14	2	11	0	0	0

- What does this mean?

- 15 nodes what are 32bit
- 27 nodes that are 64bit

Different Architectures

- OSG computers come in 2 major architectures:
  - X86_64 – Dominant, 64 bit platform
  - 32bit – Very few, but

- Executables have problems on the different architectures.

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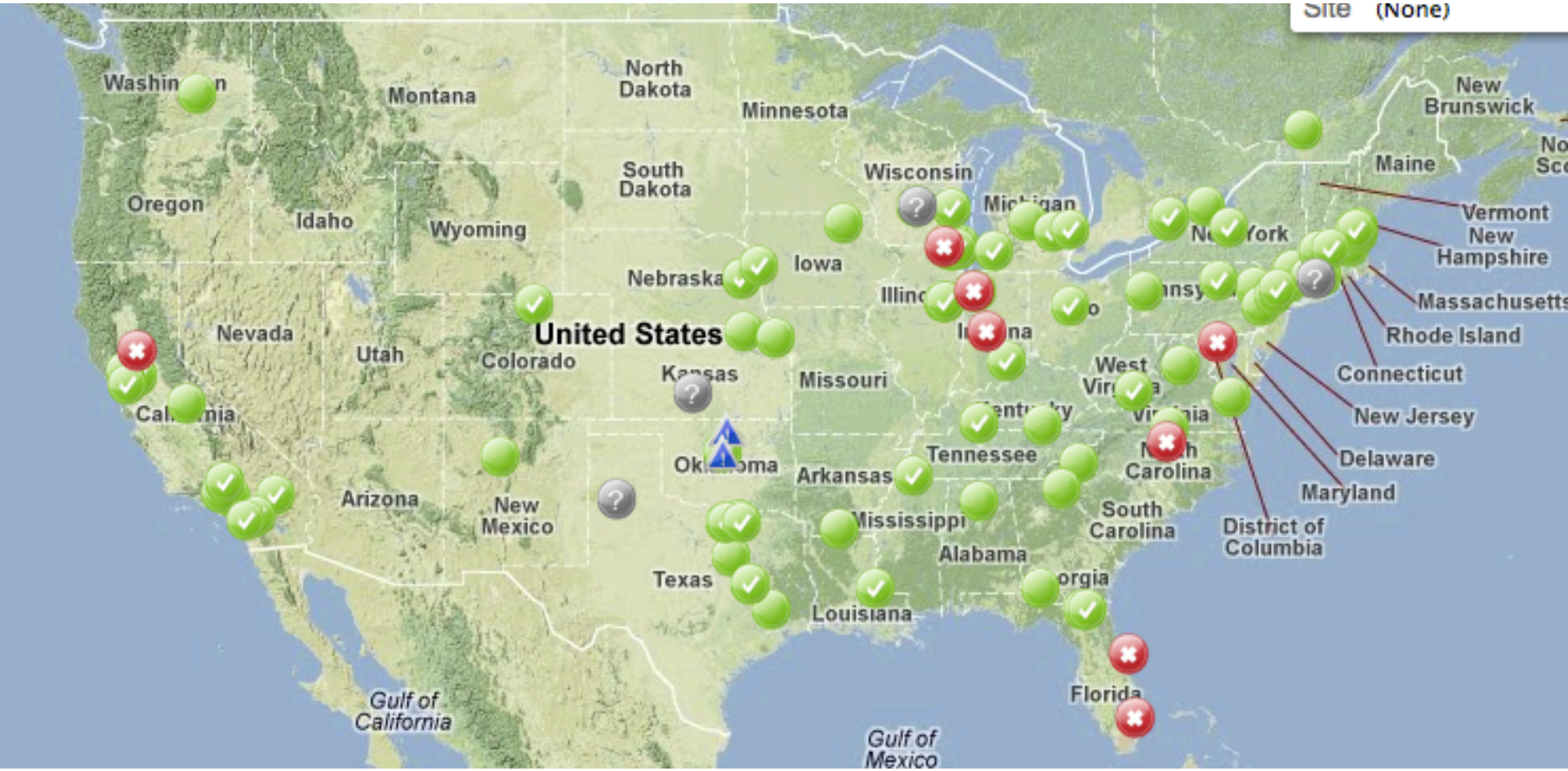
Different Architectures

- ✓32bit application -> 32 bit architecture
- ✓32bit application -> 64 bit architecture
- ✓64bit application -> 64 bit architecture
- **64bit application -> 32 bit architecture**

- Be smart when you compile and run executables (more in exercise)

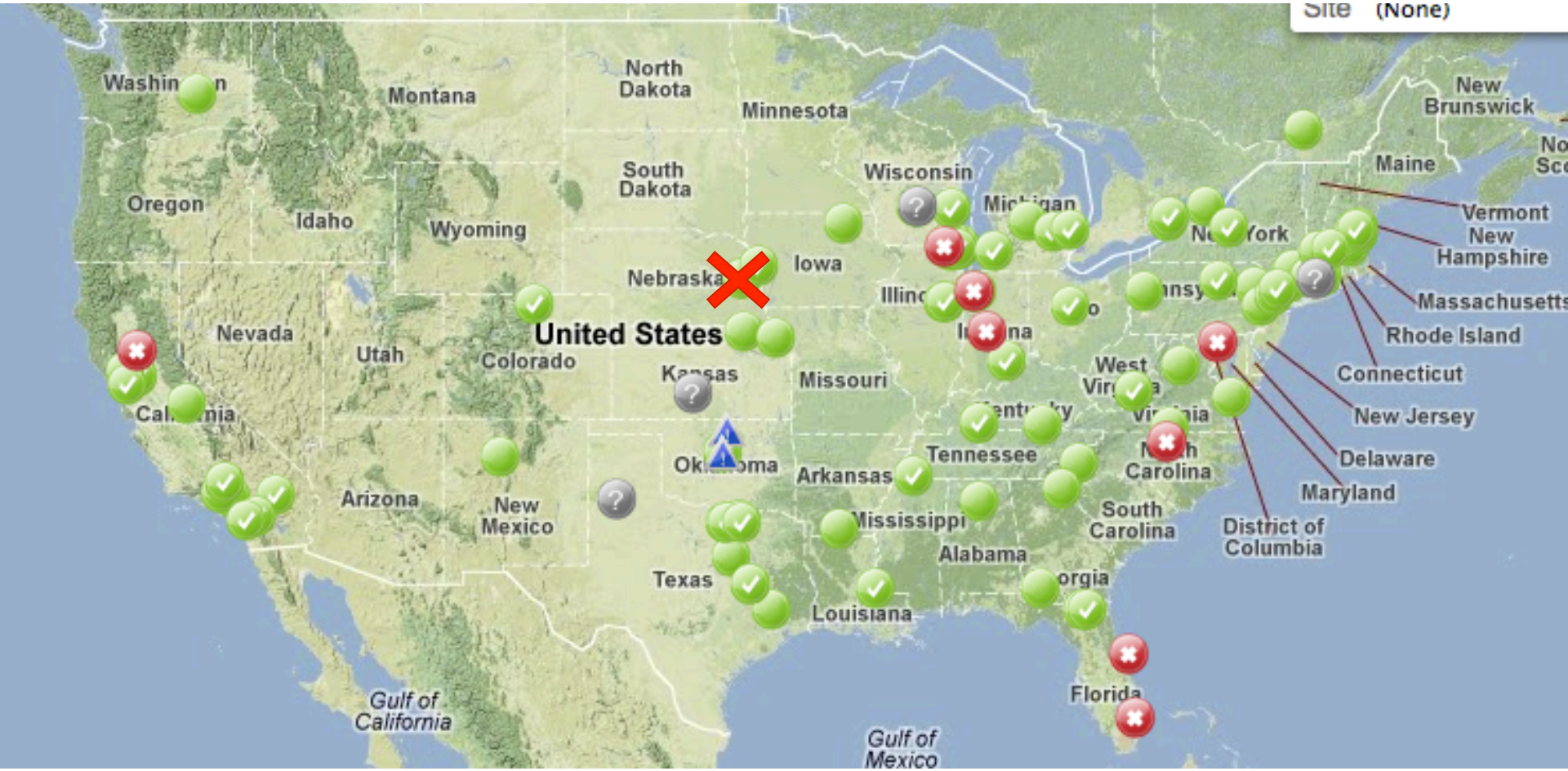
Sites that preempt

- Remember we had all these sites



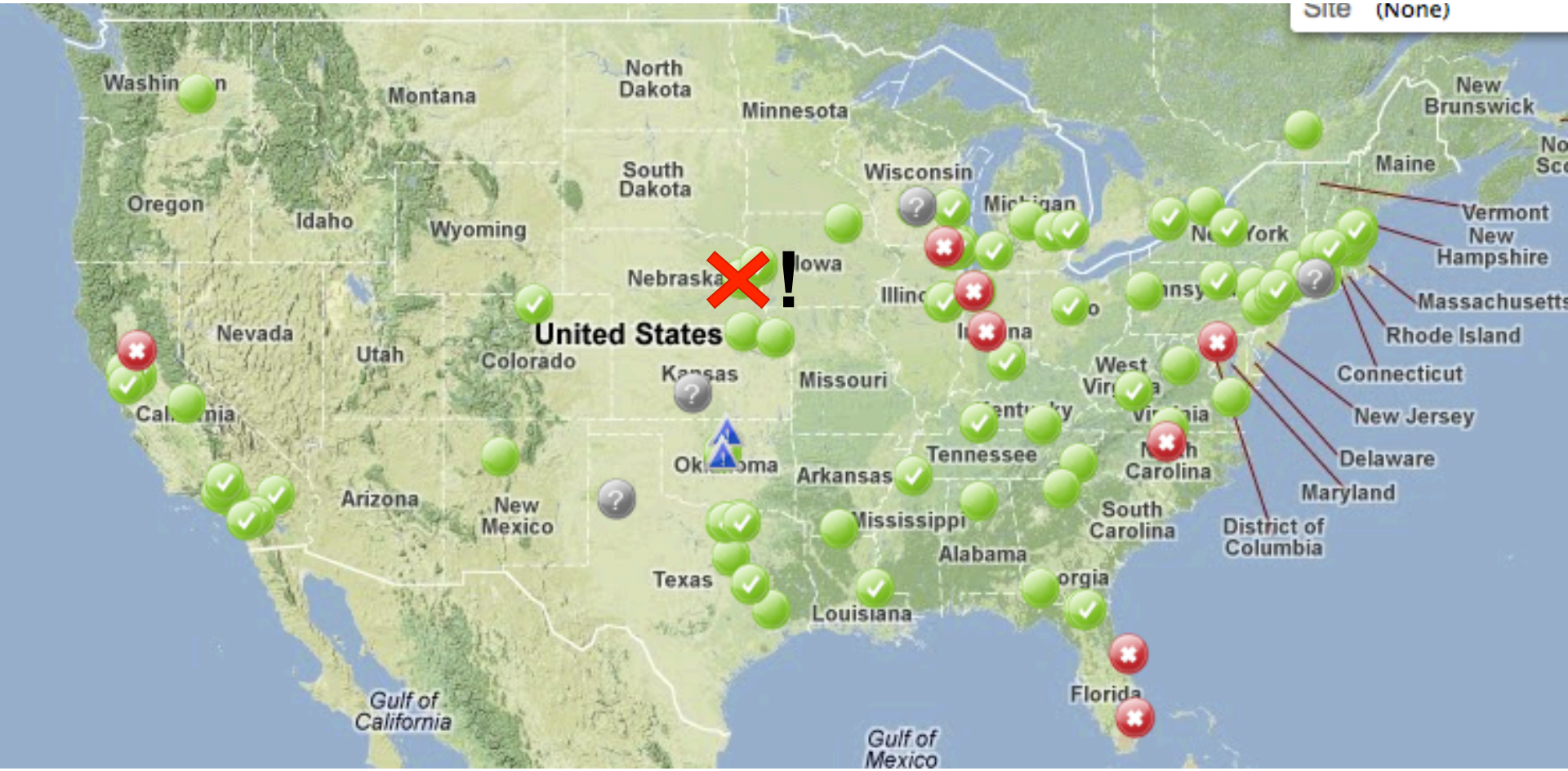
Sites that preempt

- What happens if 1 kills your job?



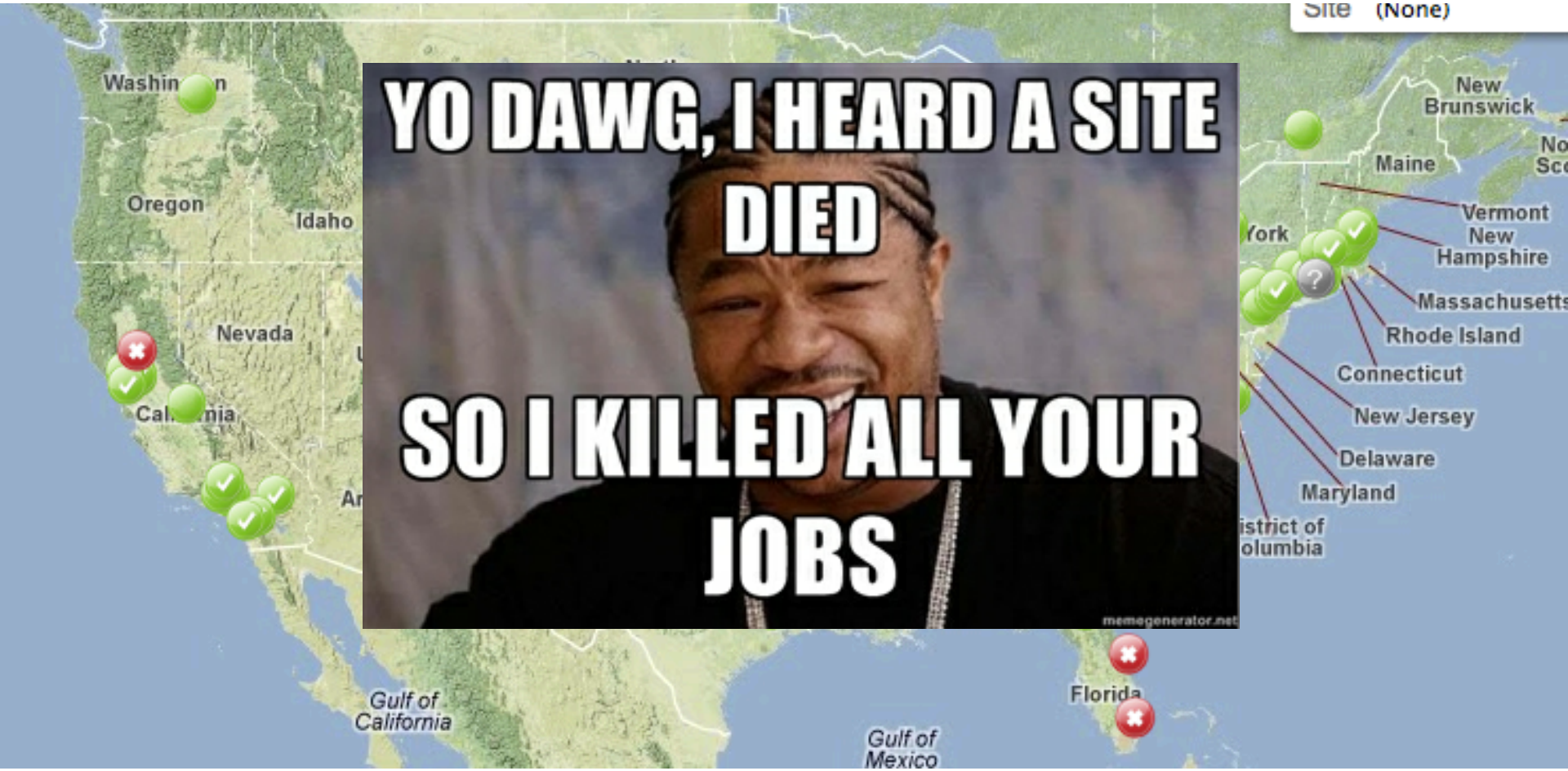
Sites that preempt

- What if a site goes away?



Sites that preempt

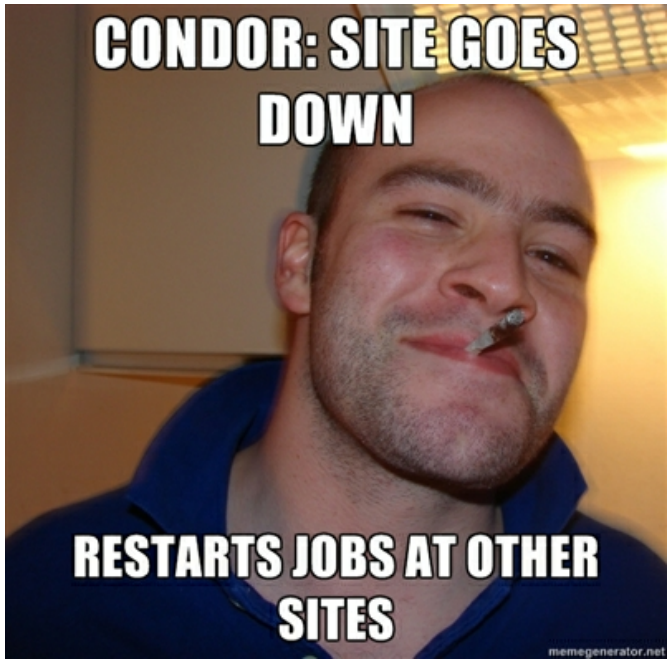
- What if a site goes away?



What happens in GlideinWMS?

- With GlideinWMS, the jobs stick around.
- Condor will send the jobs to other remaining sites.
- GGC

  (Good Guy Condor?)



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Troubleshooting Resources

Wednesday Afternoon, 4:00 pm

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From Previous

- Did your jobs run?

```
4700.0   albrecht      6/26 15:14   0+00:00:02 H  0   0.7  simple
4701.0   huda          6/26 15:14   0+00:00:02 H  0   0.7  simple 4 10
4702.0   schaen        6/26 15:14   0+00:00:02 H  0   0.7  simple 4 10
4703.0   armbrust      6/26 15:15   0+00:00:02 H  0   0.7  simple 4 10
4704.0   blin          6/26 15:15   0+00:00:00 I  0   0.7  simple 4 10
```

From Previous

- Did your jobs run?

```
4700.0   albrecht        6/26 15:14   0+00:00:02 H  0   0.7  simple
4701.0   huda            6/26 15:14   0+00:00:02 H  0   0.7  simple 4 10
4702.0   schaen          6/26 15:14   0+00:00:02 H  0   0.7  simple 4 10
4703.0   armbrust        6/26 15:15   0+00:00:02 H  0   0.7  simple 4 10
4704.0   blin            6/26 15:15   0+00:00:00 I  0   0.7  simple 4 10
```

From Previous

- Did your jobs run?

```
[dweitzel@osg-ss-submit ~]$ condor_q -hold 4703


-- Submitter: osg-ss-submit.chtc.wisc.edu : <128.104.100.55:9618?sock=3994_72ac_3> : osg-ss-
submit.chtc.wisc.edu
 ID      OWNER          HELD_SINCE  HOLD_REASON
4703.0   armbrust        6/26 15:16 Error from slot1@glow-c015.cs.wisc.edu: Failed to execute
'/var/lib/condor/execute/slot1/dir_1698/condor_exec.exe' with arguments 4 10:
(errno=8: 'Exec format error')
```

From Previous

- Did your jobs run?

```
[dweitzel@osg-ss-submit ~]$ condor_q -hold 4703


-- Submitter: osg-ss-submit.chtc.wisc.edu : <128.104.100.55:9618?sock=3994_72ac_3> : osg-ss-
submit.chtc.wisc.edu
 ID      OWNER           HELD_SINCE  HOLD_REASON
4703.0   armbrust         6/26 15:16 Error from slot1@glow-c015.cs.wisc.edu: Failed to execute
'/var/lib/condor/execute/slot1/dir_1698/condor_exec.exe' with arguments 4 10:
(errno=8: 'Exec format error')
```

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Goals

- For this section, I want to cover some common troubleshooting techniques
- These techniques are widely used by grid users and administrators.

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What has happened?

- Jobs stay idle?
- Jobs go on hold?
- Jobs fail on worker nodes?

Jobs on Idle

- There are some tools to help with finding why jobs are not running.

- First, check if any available resources are available:

```
$ condor_status
```

Jobs on Idle

- There are some tools to help with finding why jobs are not running.

- Next, check if the condor knows why your job isn't running

```
$ condor_q –better-analyze 10.0
```

Jobs on Idle

- There are some tools to help with finding why jobs are not running.
- Hum… so your jobs should run, ok now what?
- Look in the job's log file, has it ran already? Failing?

Jobs on Hold

- You see your job on hold in the queue

```
$ condor_q


-- Submitter: osg-ss-glidein.chtc.wisc.edu : <128.104.100.57:53209> : osg-ss-
glidein.chtc.wisc.edu
 ID      OWNER            SUBMITTED     RUN_TIME ST PRI SIZE CMD
 347.0   mhaytmyr        6/26 11:01   0+00:00:06 H  0   0.0  run-blast.sh yeast
 404.0   wliu            6/26 13:32   0+00:00:36 I  0   0.0  blast.sh

2 jobs; 1 idle, 0 running, 1 held
```

Jobs on Hold

- What is the hold reason?

```
$ condor_q 347 -hold
Error from glidein_8812@iut2-c159.iu.edu: STARTER at 149.165.225.159 failed to
receive file /var/lib/condor/execute/dir_7087/glide_fZ7141/execute/dir_18801/
query1: FILETRANSFER:1:No plugin table defined (request was https://
twiki.grid.iu.edu/twiki/bin/viewfile/Education/OSGSS2012CondorBLAST/query1)
```

Jobs on Hold

- Each case is different

```
$ condor_q 347 -hold
Error from glidein_8812@iut2-c159.iu.edu: STARTER at 149.165.225.159 failed to
receive file /var/lib/condor/execute/dir_7087/glide_fZ7141/execute/dir_18801/
query1: FILETRANSFER:1:No plugin table defined (request was https://
twiki.grid.iu.edu/twiki/bin/viewfile/Education/OSGSS2012CondorBLAST/query1)
```

- In this case, the user put in their submit file:

```
transfer_input_files = https://twiki.grid.iu.edu/twiki/bin/viewfile/Education/
OSGSS2012CondorBLAST/query1
```

- The Glidein at IU cannot download from http

Jobs failing on Worker Nodes

- How to find jobs are failing on worker nodes?
  - If the output does not match what you expect.
  - If the jobs seem to be running ‘too fast’

Jobs failing on Worker Nodes

- First, can you see anything useful in the output/error:

```
universe = vanilla
...
output = out
error = err
...
queue
```

- Next, we have to try some further debugging

Jobs failing on Worker Nodes

- If you are running a wrapper script, can force output on every step

```
#!/bin/sh
```

```
#!/bin/sh -x
```

- It then outputs every step to the stderr, or ‘error’ in your submit file.

Jobs failing on Worker Nodes

- Condor can also send you to the worker node using `condor_ssh_to_job`
- **HUGE!!!!**
- Will see in exercises

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Questions?

- Questions? Comments?
  - Feel free to ask me questions later:

    Derek Weitzel <dweitzel@cse.unl.edu>
- Upcoming sessions
  - 4:30 – 5:00
    - Hands-on exercises
  - 5:00 – 7:00
    - Dinner
  - 7:00 – 9:00
    - Optional Evening Session