

**ACC**RE  
Advanced Computing Center  
for Research & Education



# Vanderbilt University Site Report 2015 OSG All Hands Meeting

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for the Vanderbilt Team  
March 23rd, 2015

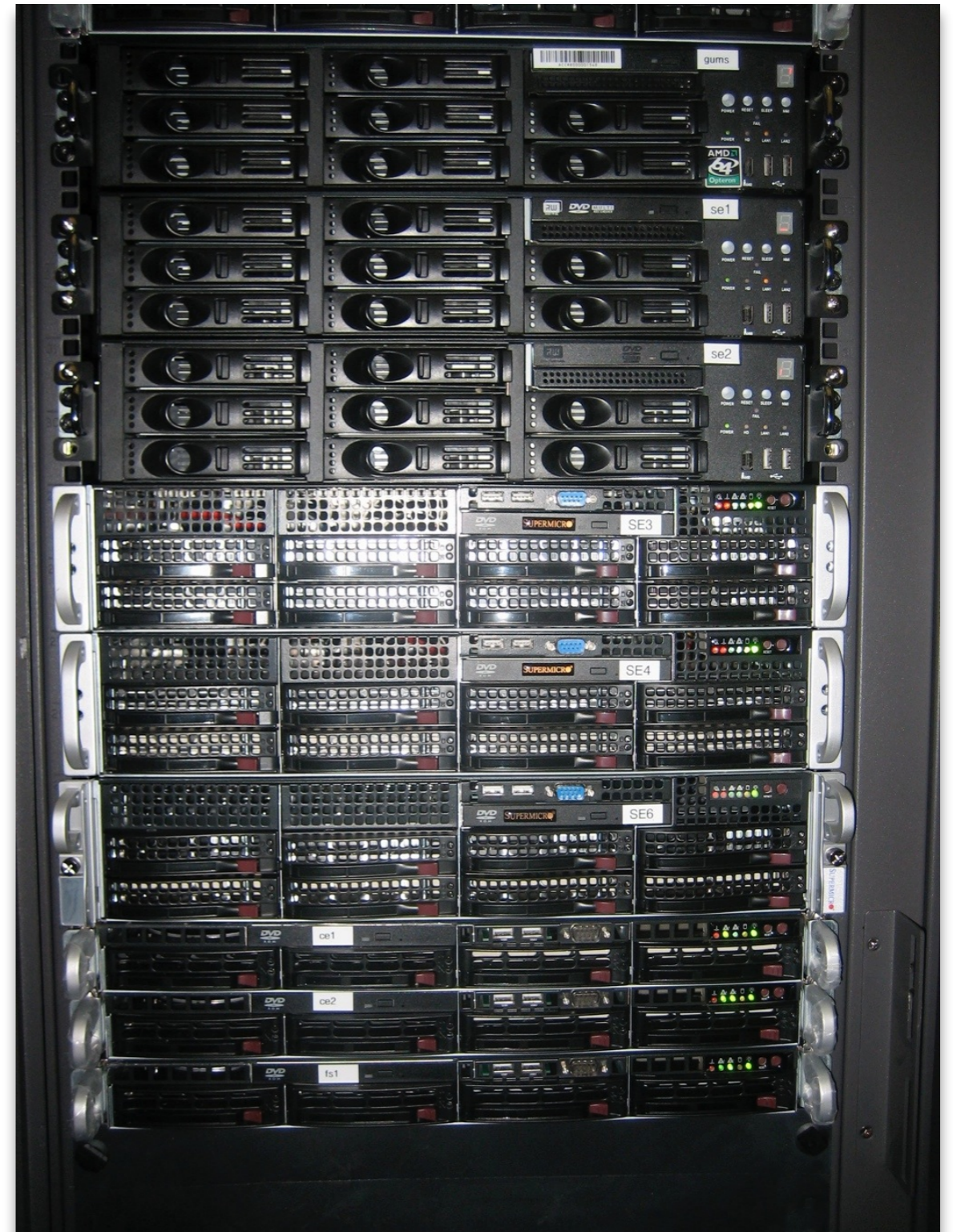
- The ACCRE cluster is a shared resource used by more than 700 researchers from 30 campus departments and four schools.
- The cluster currently has approximately 700 nodes and 6,600 processor cores.
- Each node has between 3 and 12 GB of RAM per core.
- Home directories and scratch space are stored on filesystems utilizing IBM's GPFS with a total usable capacity of 587 TB and a peak bandwidth of 13 GB/second.
- ACCRE Technical Staff include 10 support personnel with more than 60 years of combined experience.
- ACCRE is staffed Monday - Friday from 7:30 AM - 6 PM Central with evening / weekend support for critical issues.



# Review of Grid Infrastructure



- Two Compute Elements
- One Storage Element
- Six GridFTP Servers
- One GUMS Server
- Two Frontier / Squid Servers
- 44 Storage Depots with 2.1 PB usable space for CMS data
- Nagios is used to monitor our status on the OSG RSV Tests and the CERN SAM tests, as well as our PhEDEx transfer rates

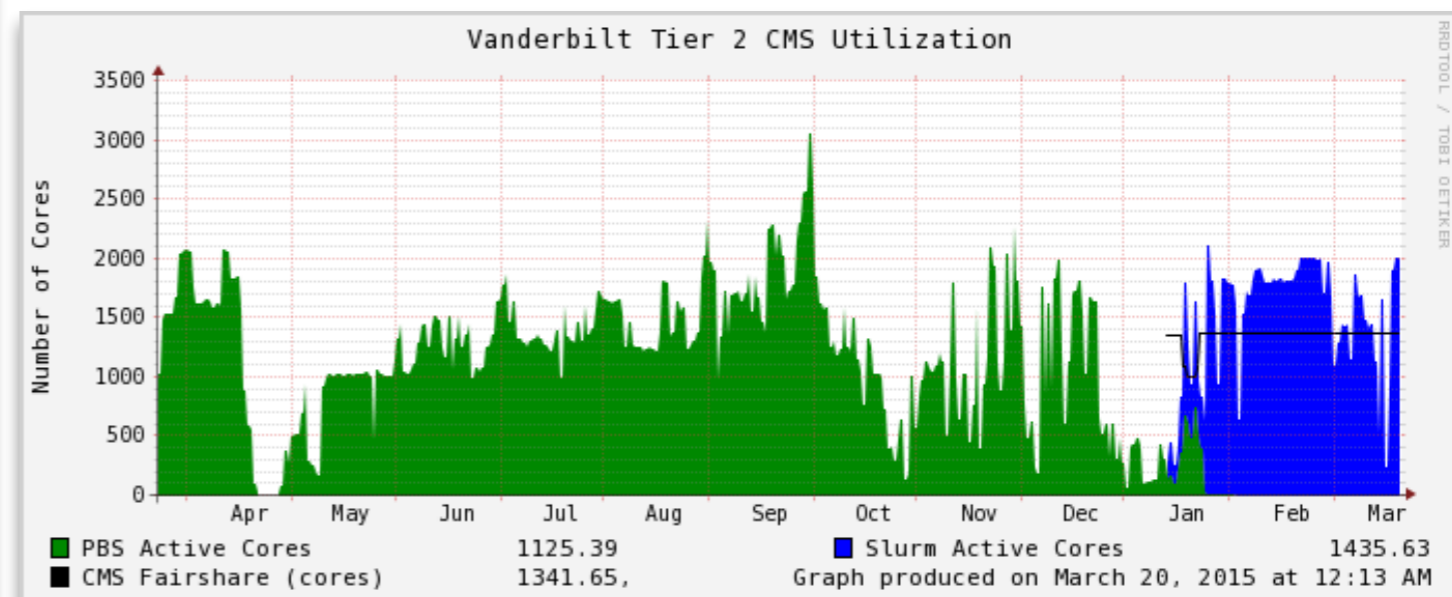




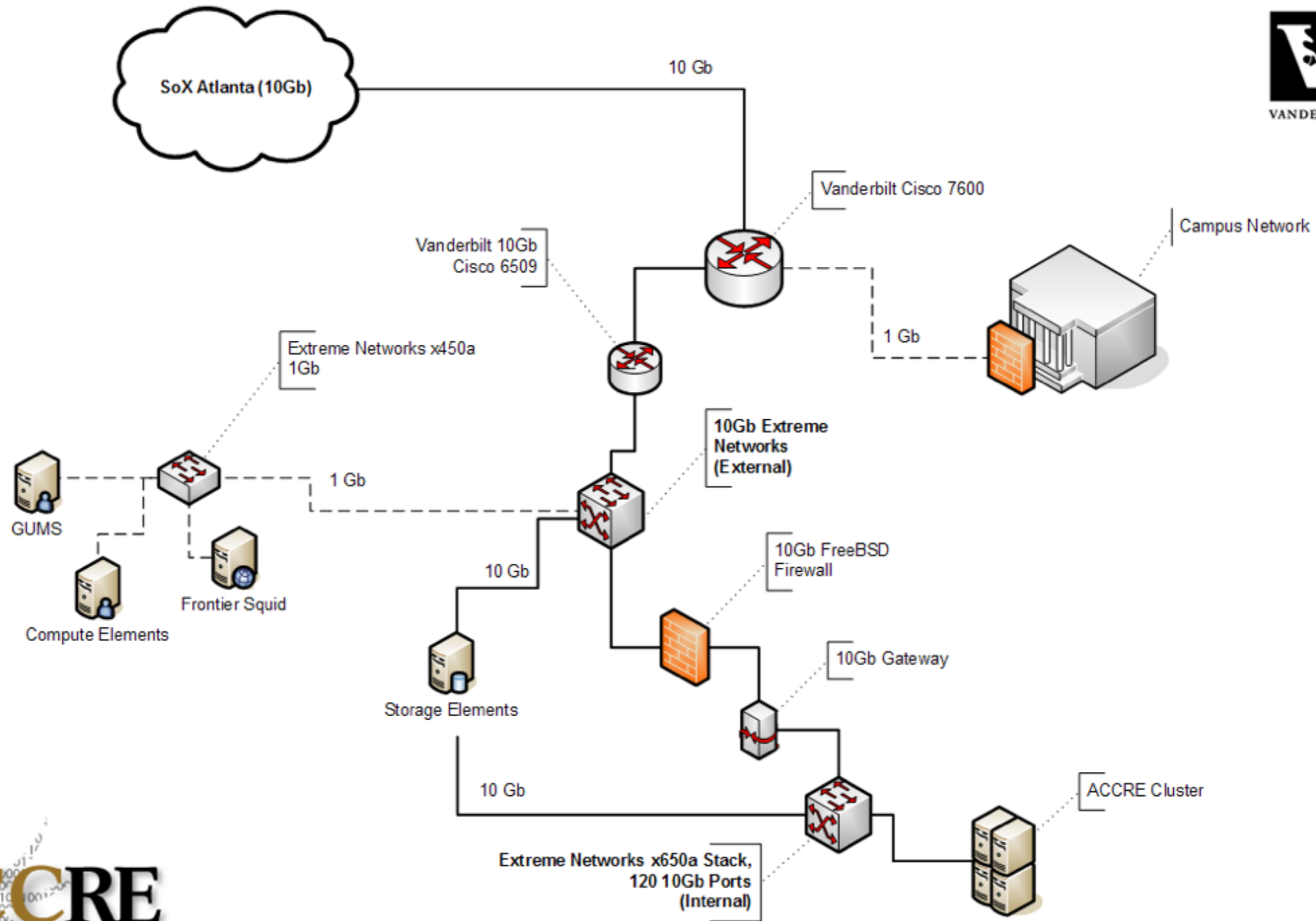
# Review of Compute Nodes



- ACCRE cluster contains ~6,600 cores.
- 1368 cores purchased by / for CMS Heavy Ion (20% of the current cluster).
- CMS can currently “burst” up to 2,000 cores.







# With that review out of the way...

- On to our main focus ...  
how are we preparing for  
the future?
- "Prediction is difficult,  
especially about the  
future."
- A quote attributed to  
everyone from Neils Bohr  
to Yogi Berra!



# But seriously, about this whole prediction thing...

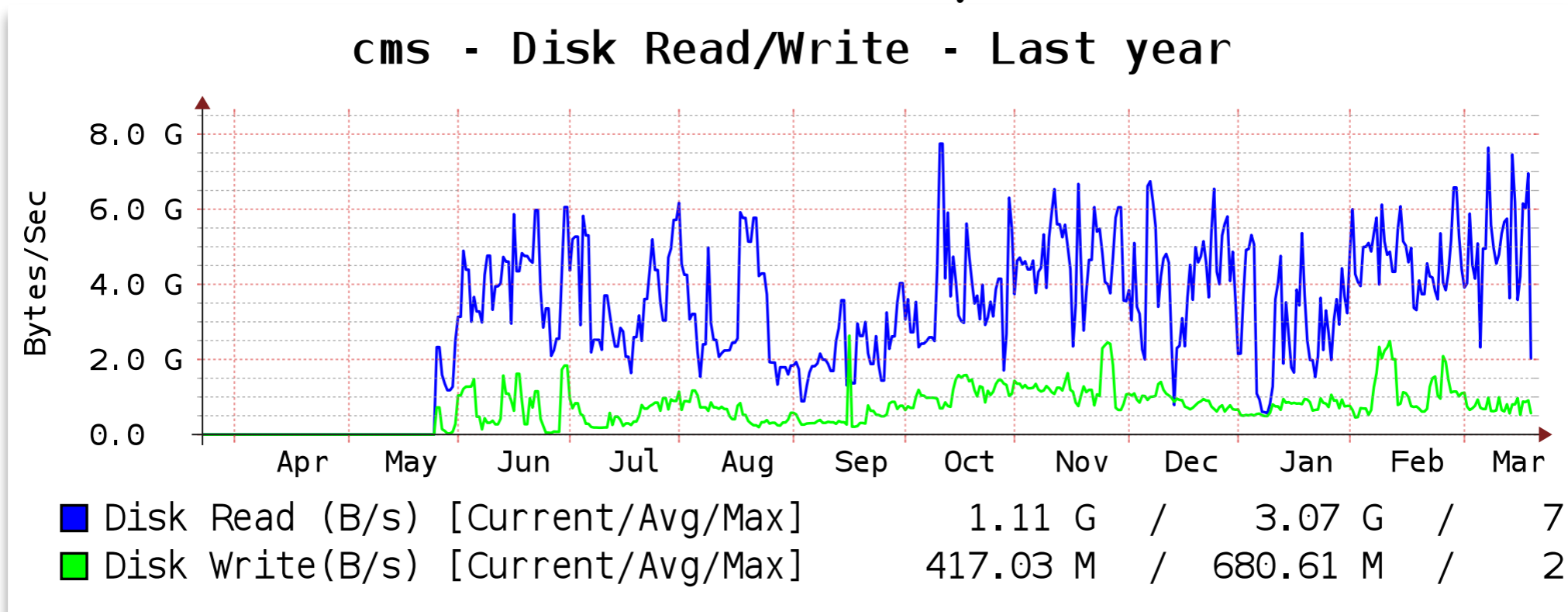


- 📌 James asked each of us to address our upgrade plans and visions for the future.
- 📌 However, at last years' OSG meeting:
  - 📌 We implied that we were close to getting a 40 or 100 Gb link (and we really thought we were) ... the reality is that a 100 Gb link is still more than a year away (more on that later).
  - 📌 We didn't say a word about changing the job scheduler for the cluster ... but in January and February of this year we transitioned from PBS/Moab to SLURM.
- 📌 If I was good at predictions I would've bought enough Apple stock 15 years ago that someone else would be giving this talk!

# We are planning to purchase hardware



- 📌 24 compute nodes on order... Dell R430's with:
- 📌 2 hex-core processors, 128 GB RAM, 1 TB local disk
- 📌 1 storage depot purchased; plan to order 10 more:
- 📌 7 of the 11 depots are to replace older hardware, 4 are expansion.
- 📌 Total of 384 TB of additional usable storage space being added to the 2.1 PB we already have.

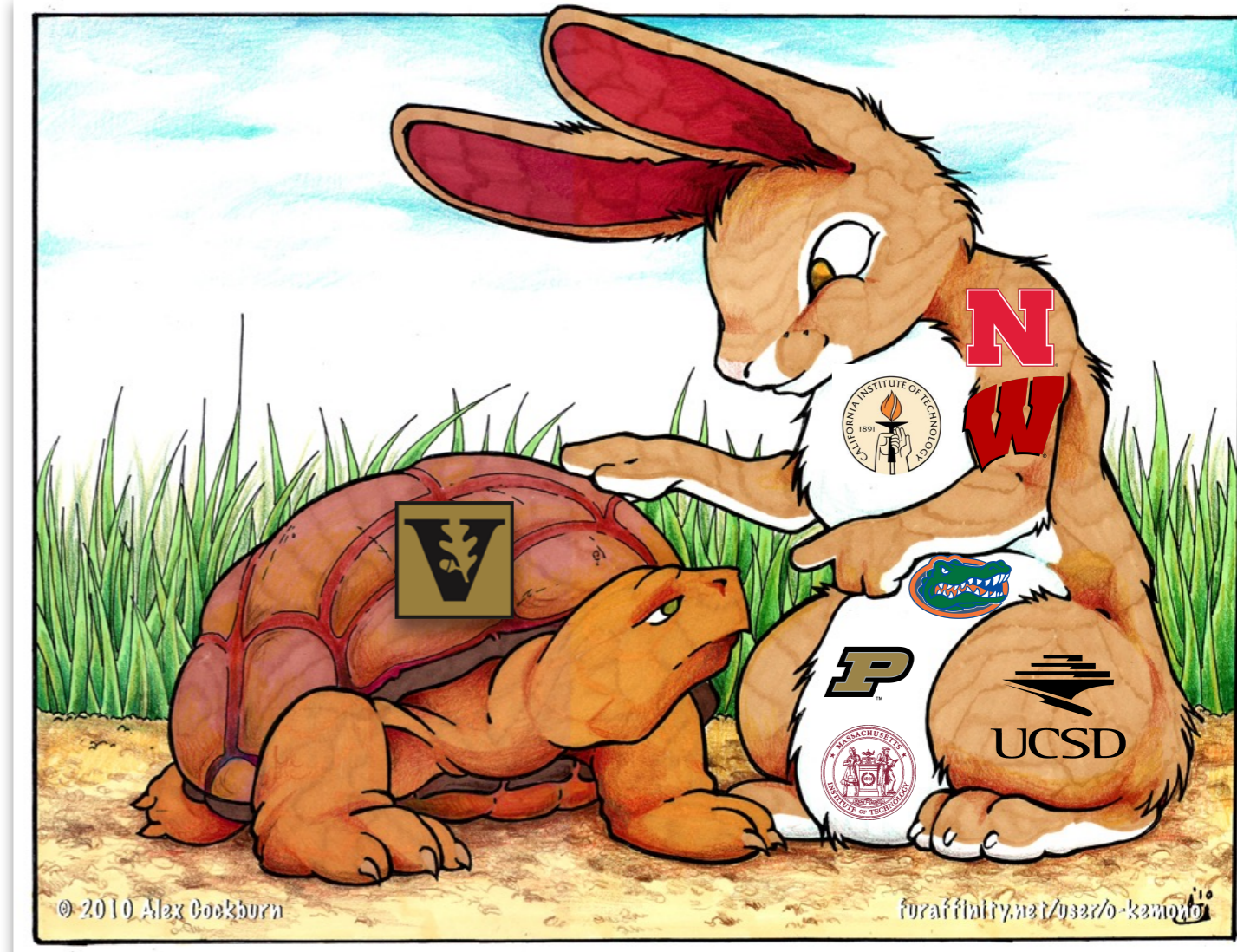




# Now about that 100 Gbps link...



- Everything we said last year was true at the time.
- However, Vanderbilt has a new vice-chancellor for IT and he had different priorities.
- We are working on a proposal with the University for a 100 Gbps link.
- However, it won't be in place before summer 2016 even if it's approved.





# Are we ready for the start of Run II?





# Questions?

