Globus Usage at University of Nebraska Campuses

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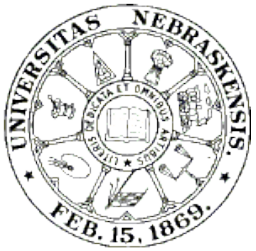
University of Nebraska



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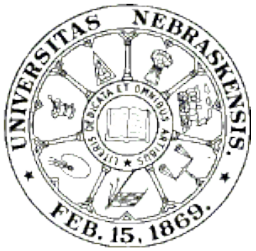
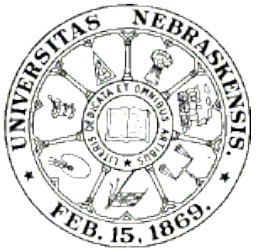
Outline

- HCC Environment
- Data Transfer Tools pre-Globus Online
- Globus Online Initial Steps
- Coming Soon
- Wish List



“Our main theme this year is Setting Up a Campus Data Service”



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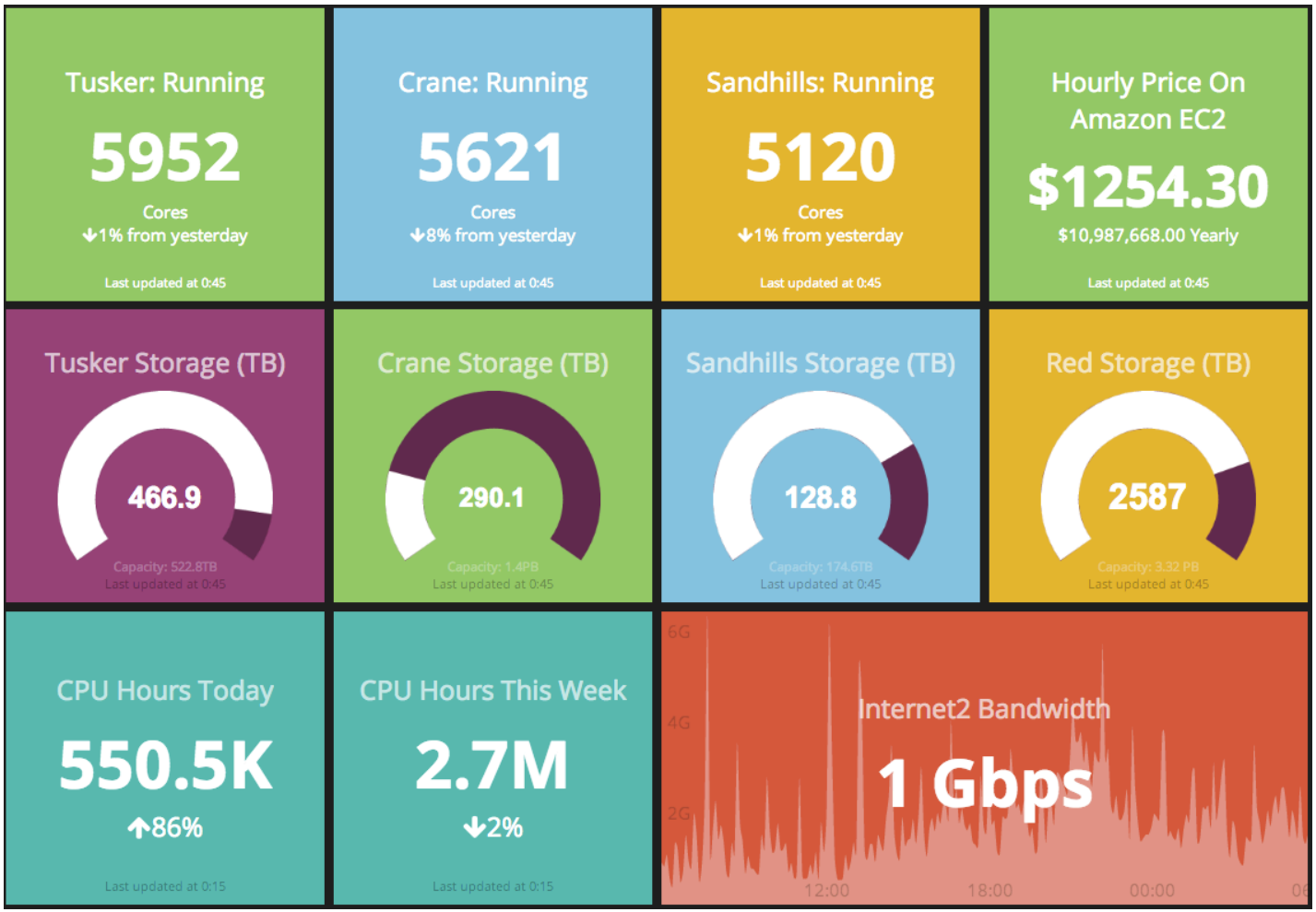

on-demand c3.xlarge

https://github.com/djw8605/HCCDashboard

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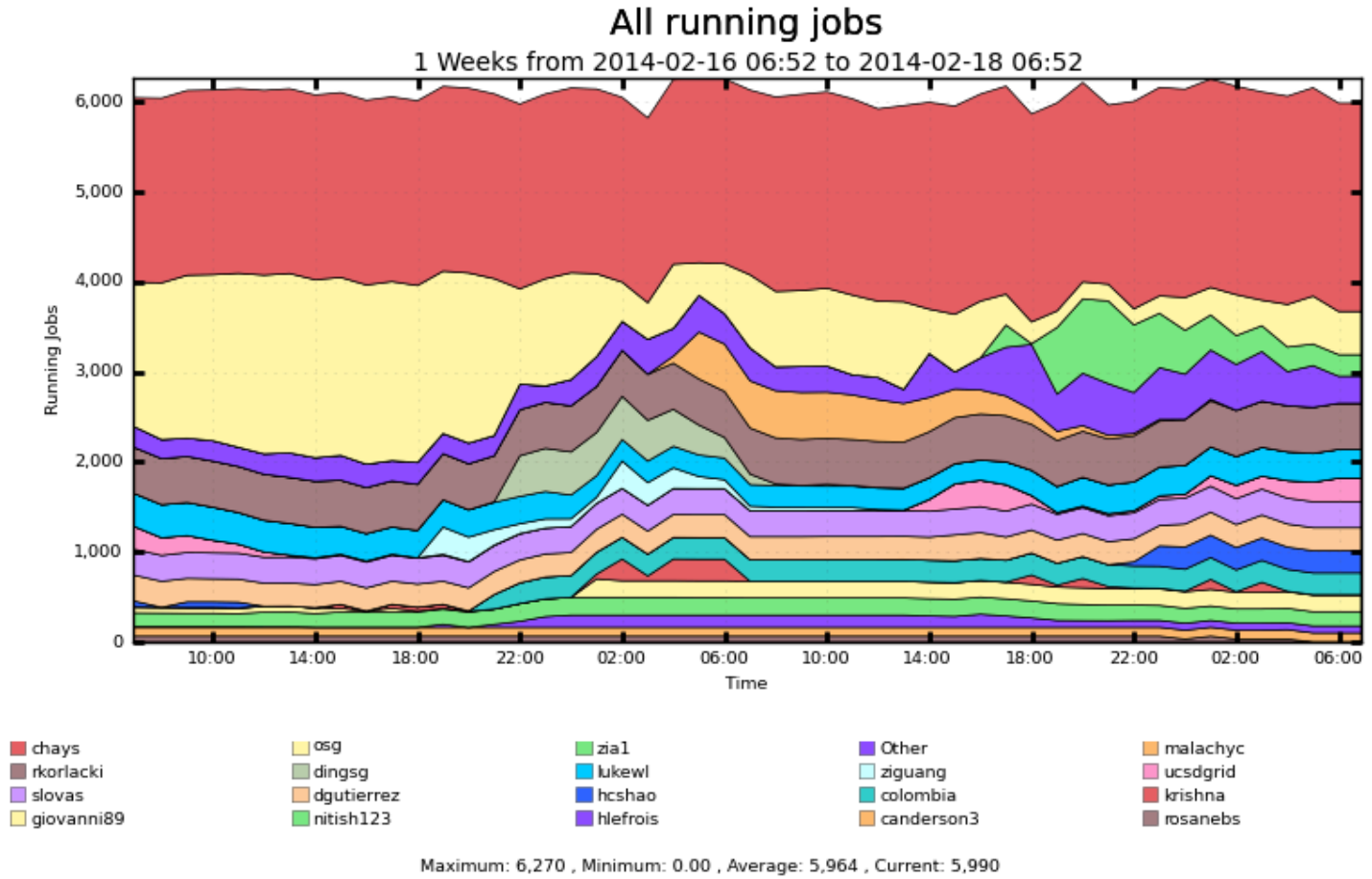

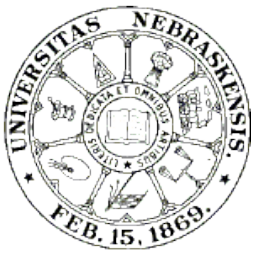

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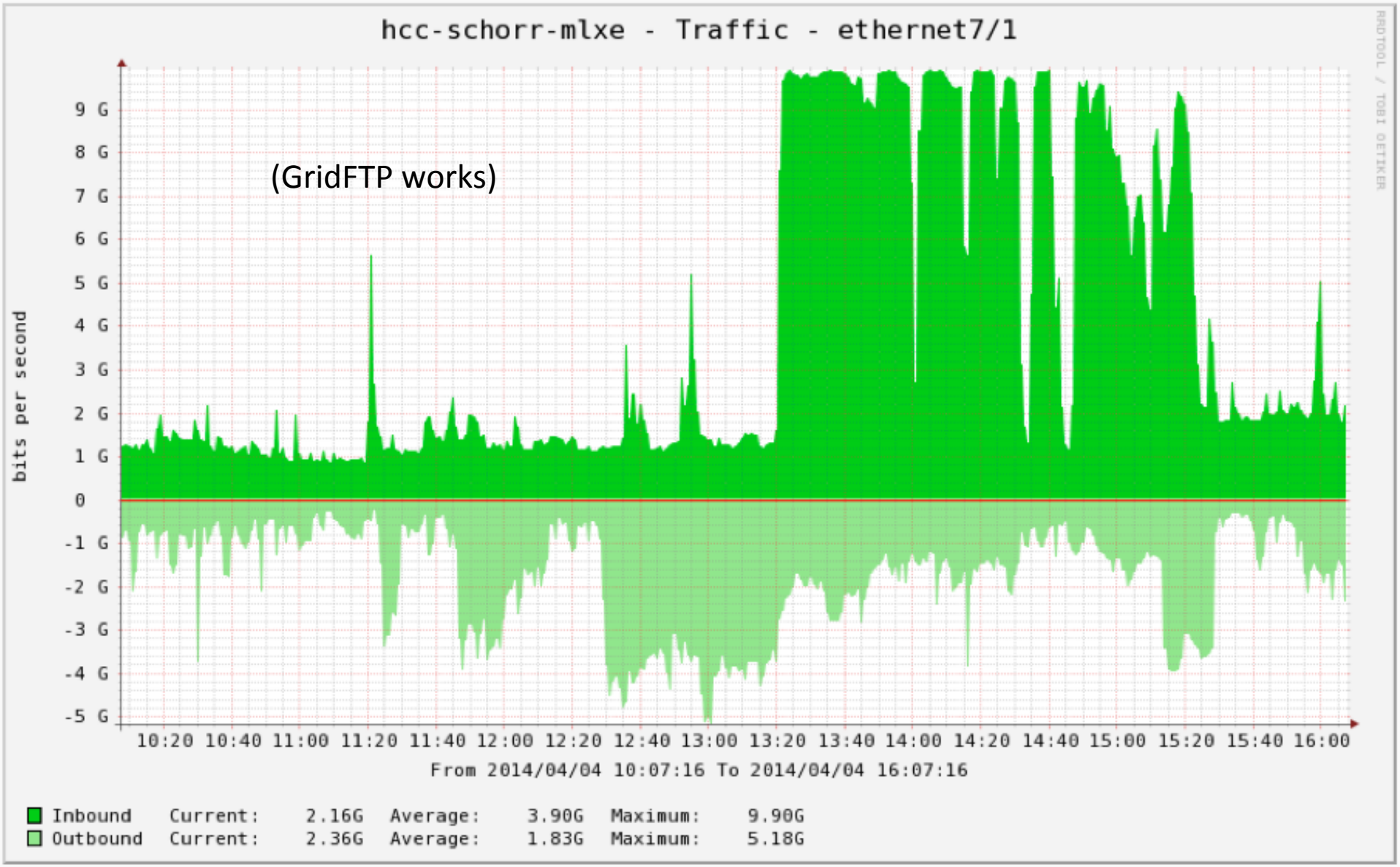
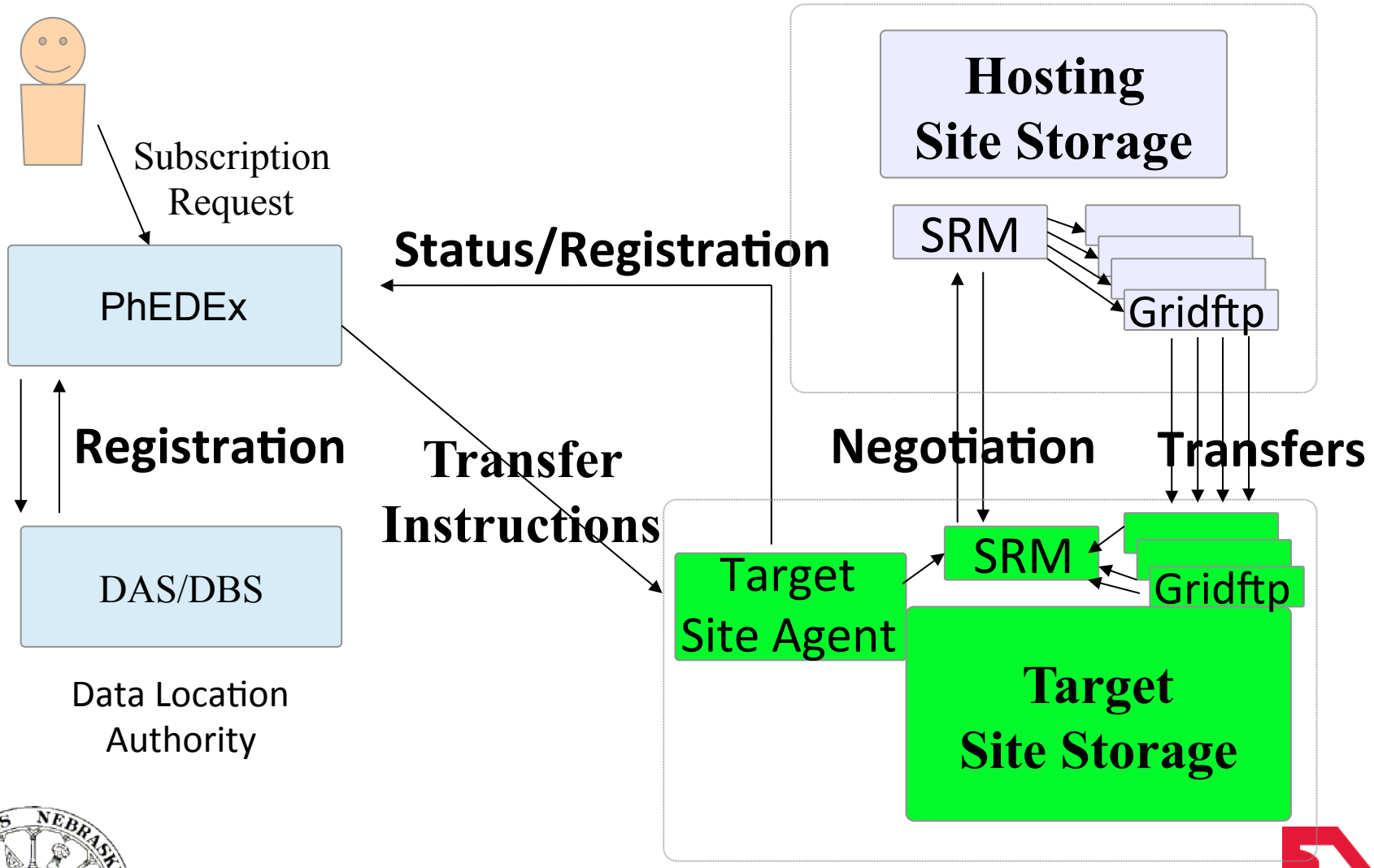

hcc-schorr-mlxe - Traffic - ethernet7/1
(GridFTP works)
bits per second
9 G
8 G
7 G
6 G
5 G
4 G
3 G
2 G
1 G
0
-1 G
-2 G
-3 G
-4 G
-5 G
10:20 10:40 11:00 11:20 11:40 12:00 12:20 12:40 13:00 13:20 13:40 14:00 14:20 14:40 15:00 15:20 15:40 16:00
From 2014/04/04 10:07:16 To 2014/04/04 16:07:16
Inbound Current: 2.16G Average: 3.90G Maximum: 9.90G
Outbound Current: 2.36G Average: 1.83G Maximum: 5.18G
RRDTOOL / TOBI OETIKER

Data Movement in CMS



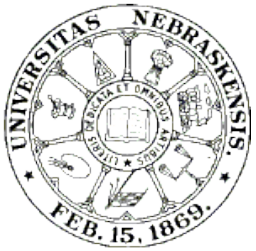
Data Transfer Options, OSG

- Batch Transfers

< 100 MB	Condor File Transfer	[UWisc]
< 500 MB	http caching (squid)	
< 2 GB	GridFTP	[Globus]

- Streaming Transfers

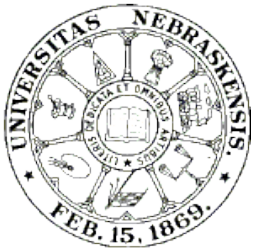
“small”, generic	Parrot/Chirp	[CCTools, ND]
“big”, HEP	xrootd	[SLAC]

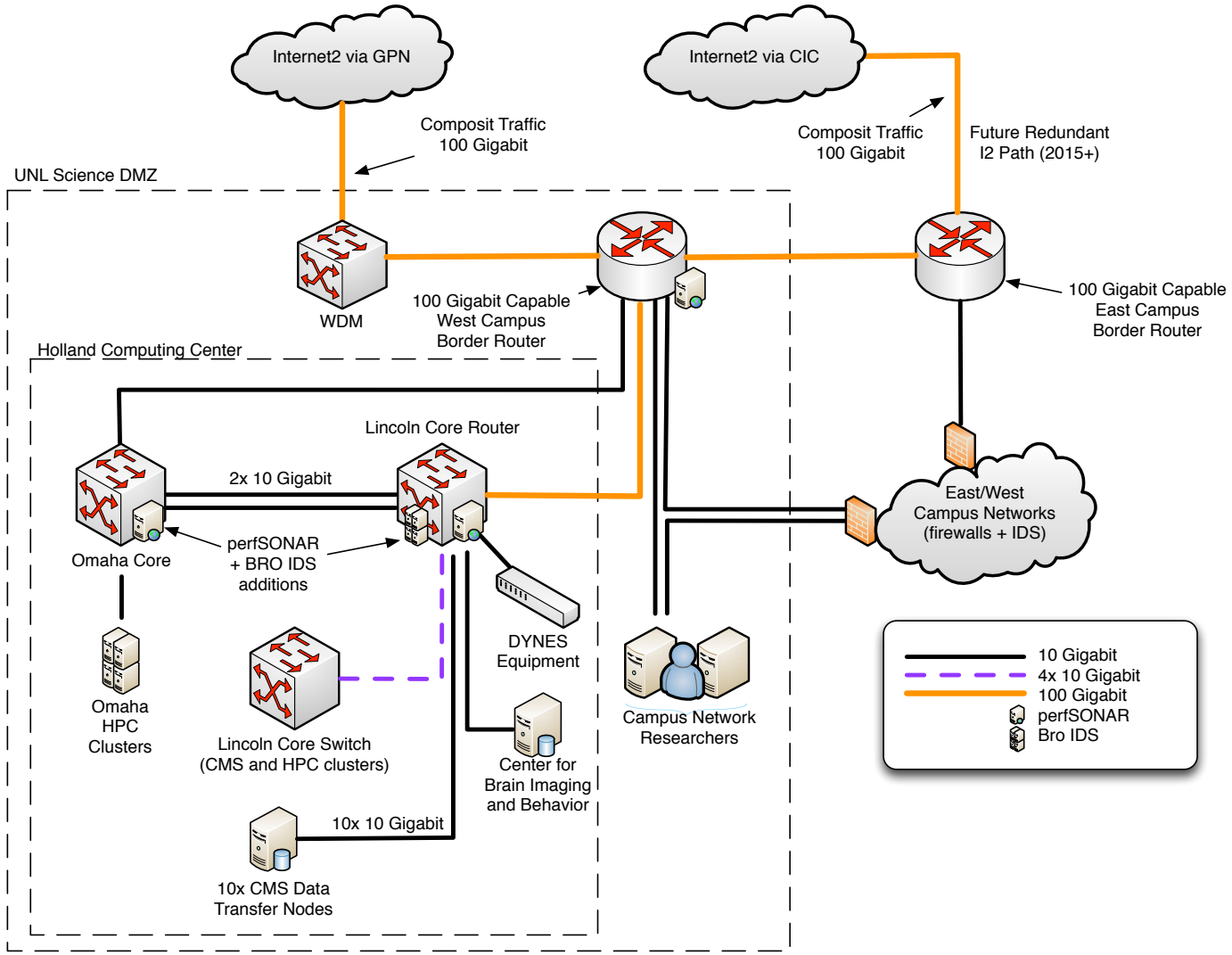


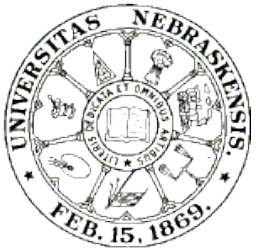
HEP … and the rest of campus

- GridFTP … FTW!
  - requires considerable admin intervention

- The rest use: winSCP or Filezilla or CyberDuck







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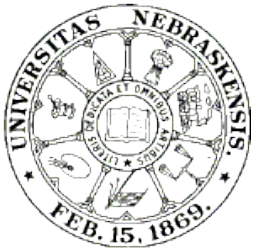
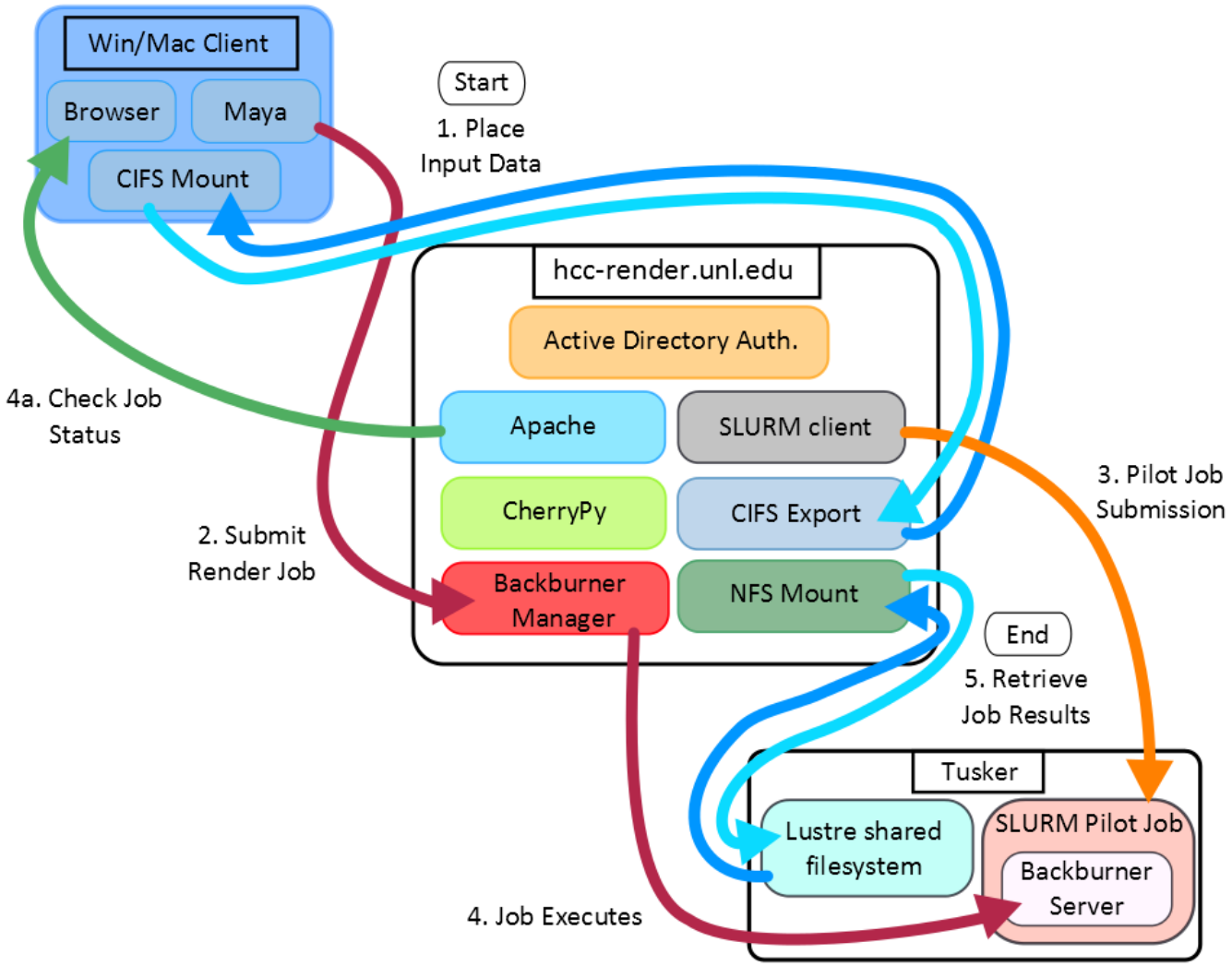
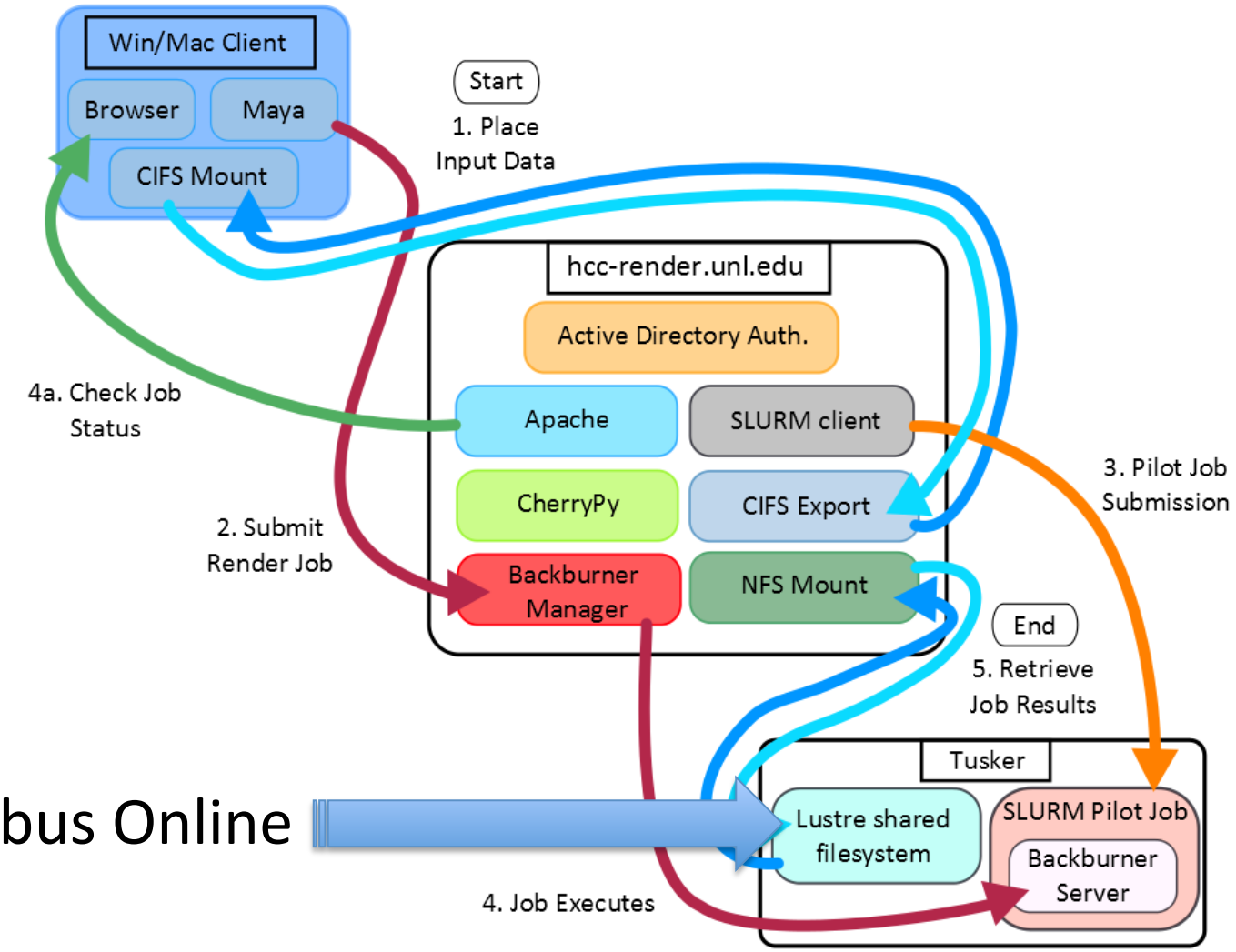
Storage Options

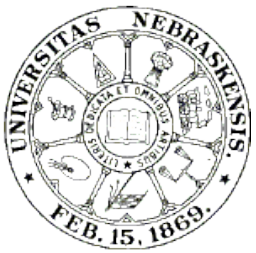
- /home ZFS, small, quotas, backed up
- /work Lustre, “large,”no quota, purged
- /shared ZFS, not (always) backed up
  Privately owned
- HDFS (CMS only)
- Library custodial storage
- Offsite Tape increased security, per year




Win/Mac Client
Browser
Maya
CIFS Mount
Start
1. Place
Input Data
hcc-render.unl.edu
Active Directory Auth.
Apache
SLURM client
CherryPy
CIFS Export
Backburner
Manager
NFS Mount
4a. Check Job
Status
2. Submit
Render Job
3. Pilot Job
Submission
End
5. Retrieve
Job Results
Tusker
Lustre shared
filesystem
SLURM Pilot Job
Backburner
Server
4. Job Executes



Globus Online



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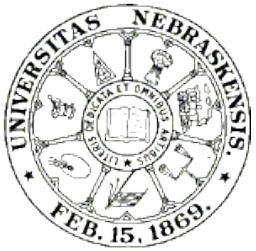
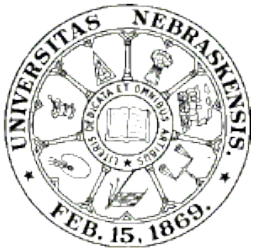
Globus implementation

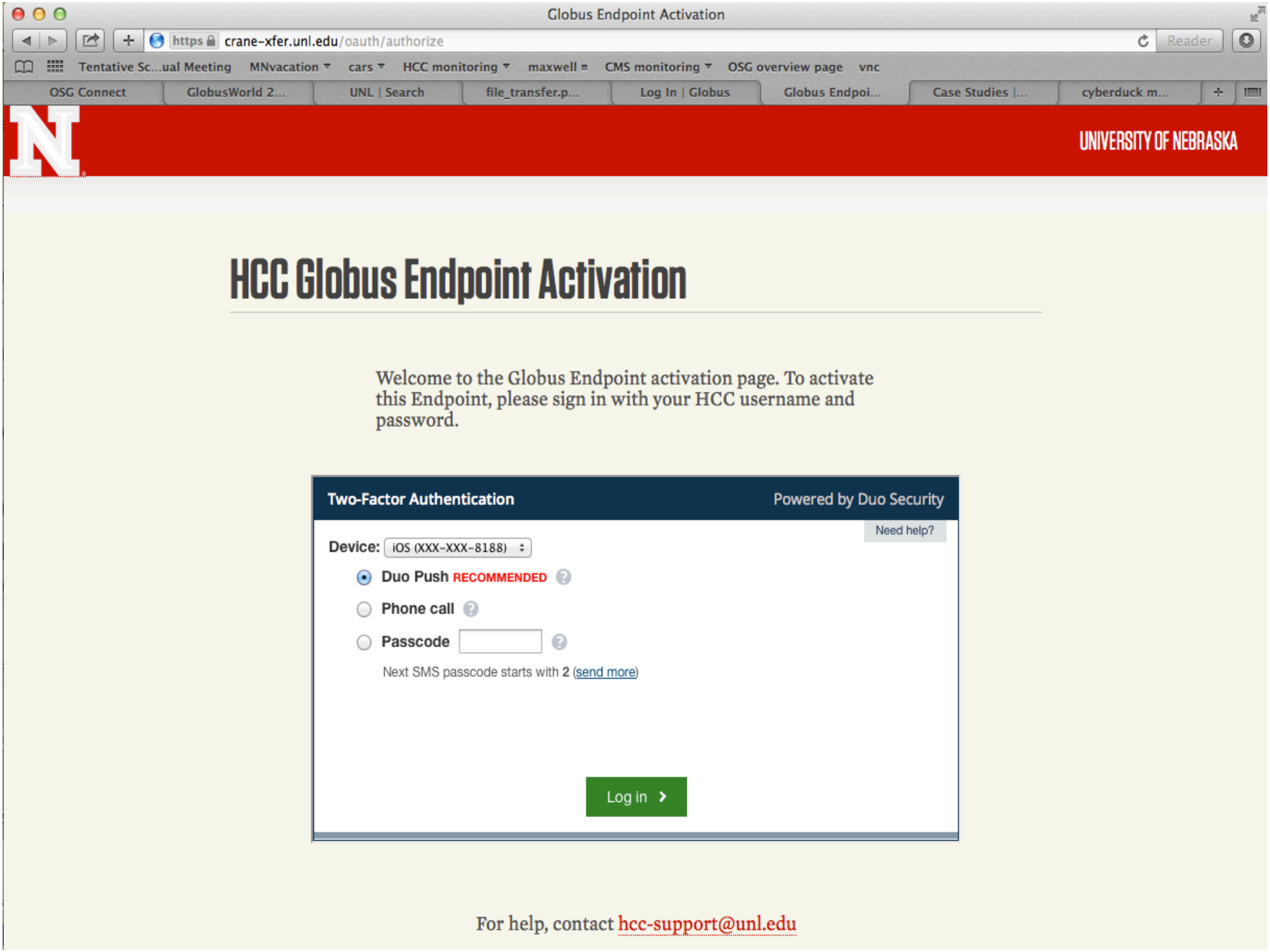
- Created 2 Globus Connect Server (endpoints)
- on transfer servers
- Dedicated to largest clusters
- Mounts lustre natively (IB)
  - Also other Filesystems
- No login shell, SCP only initially
- Use Duo Authentication



Two-Factor Authentication

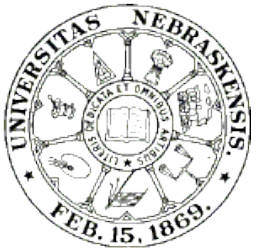
- Duo Authentication now used at HCC
- Affects only end-point activation
- modified default login handler to call Duo web API
- also modified look and feel of default activation page




Globus Endpoint Activation
https crane-xfer.unl.edu/oauth/authorize
Reader
Tentative Sc...ual Meeting
MNvacation
cars
HCC monitoring
maxwell
CMS monitoring
OSG overview page
vnc
OSG Connect
GlobusWorld 2...
UNL | Search
file_transfer.p...
Log In | Globus
Globus Endpoi...
Case Studies |...
cyberduck m...
UNIVERSITY OF NEBRASKA
HCC Globus Endpoint Activation
Welcome to the Globus Endpoint activation page. To activate this Endpoint, please sign in with your HCC username and password.
Two-Factor Authentication
Powered by Duo Security
Need help?
Device: iOS (XXX-XXX-8188)
Duo Push RECOMMENDED
Phone call
Passcode
Next SMS passcode starts with 2 (send more)
Log in
For help, contact hcc-support@unl.edu

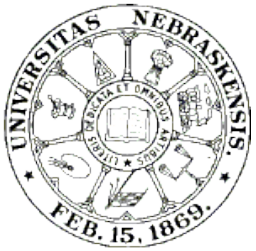
Globus Advantages

- Integrated, simple interface for all resources
  - Planning to add further endpoints this month
- Third party transfers (no login shell required)
- PLUS accounts will allow users to control sharing to external users – popular with user base
- High Performance in a simple interface



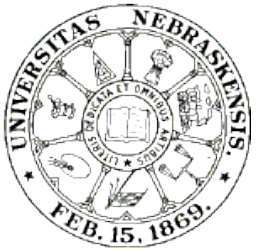
Wish List

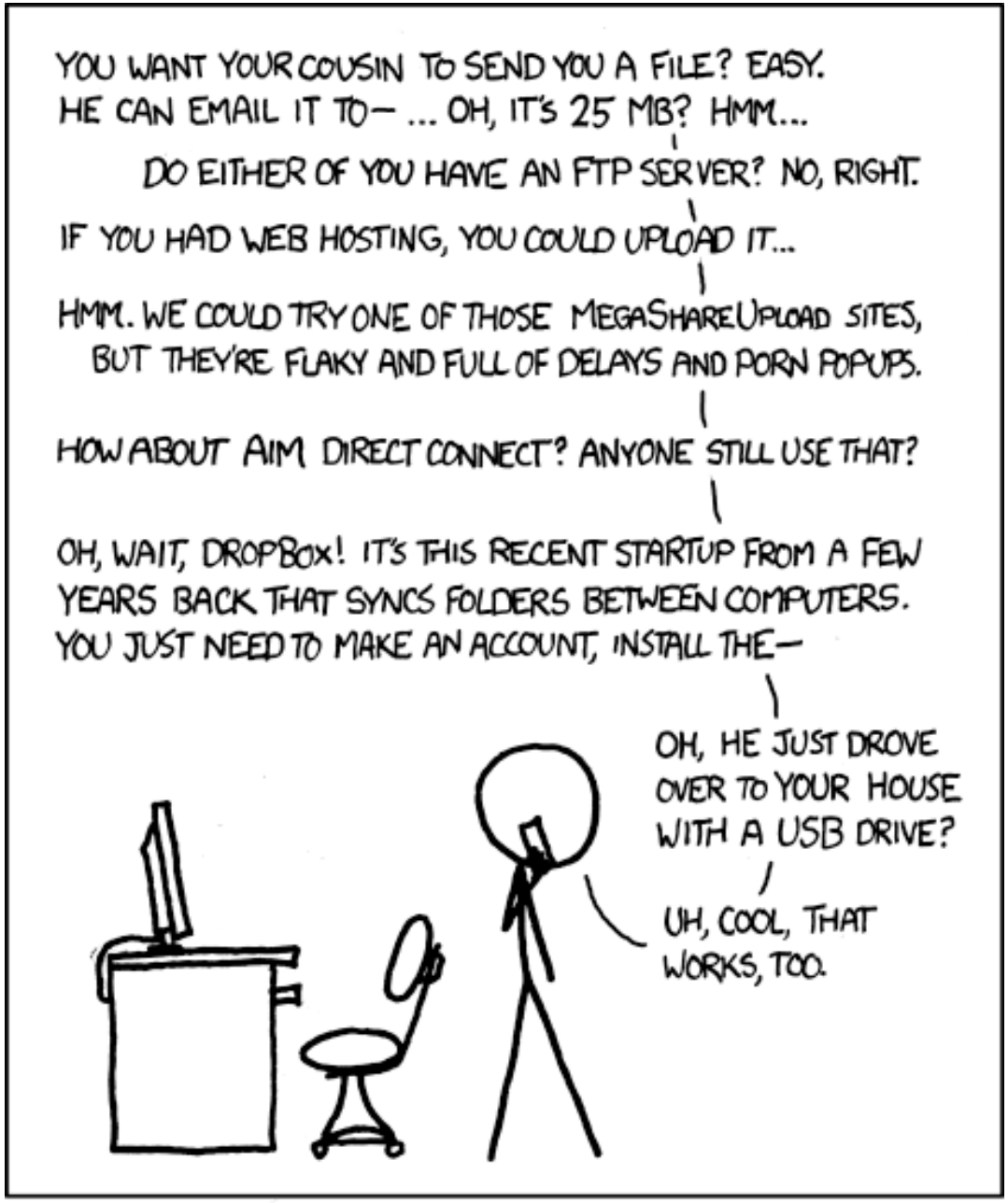
- Finer grained access/sharing controls
  - User/group quotas?
  - Eliminate sharing of files I don't own
    - (trusts user to understand file permissions…)
- Even friendlier web interface
  - Error reporting
  - Read only warnings
- HIPAA compliance (??)



Credit Due

- Vas Vasiliadis
- Emelie Harstad, Adam Caprez, Josh Samuelson
- UW-Madison, ND, Globus, CFPA
- NSF (CC-NIE, CMS, OSG)
- Brian Bockelman, Derek Weitzel, Garhan Attebury
- NU Administration, NRI, Holland Foundation





I LIKE HOW WE'VE HAD THE INTERNET FOR DECADES, YET "SENDING FILES" IS SOMETHING EARLY ADOPTERS ARE STILL FIGURING OUT HOW TO DO.

http://imgs.xkcd.com/comics/file_transfer.png