

OSG AHM Tier-2 Workshop -- Nebraska Site Report

March 23, 2015

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Lundstedt, presented by Ken Bloom

Quick Outline

- Current deployment
- Networking
- Site upgrade plans
- Recent issues
- Campus / HCC activities
- Run II Readiness

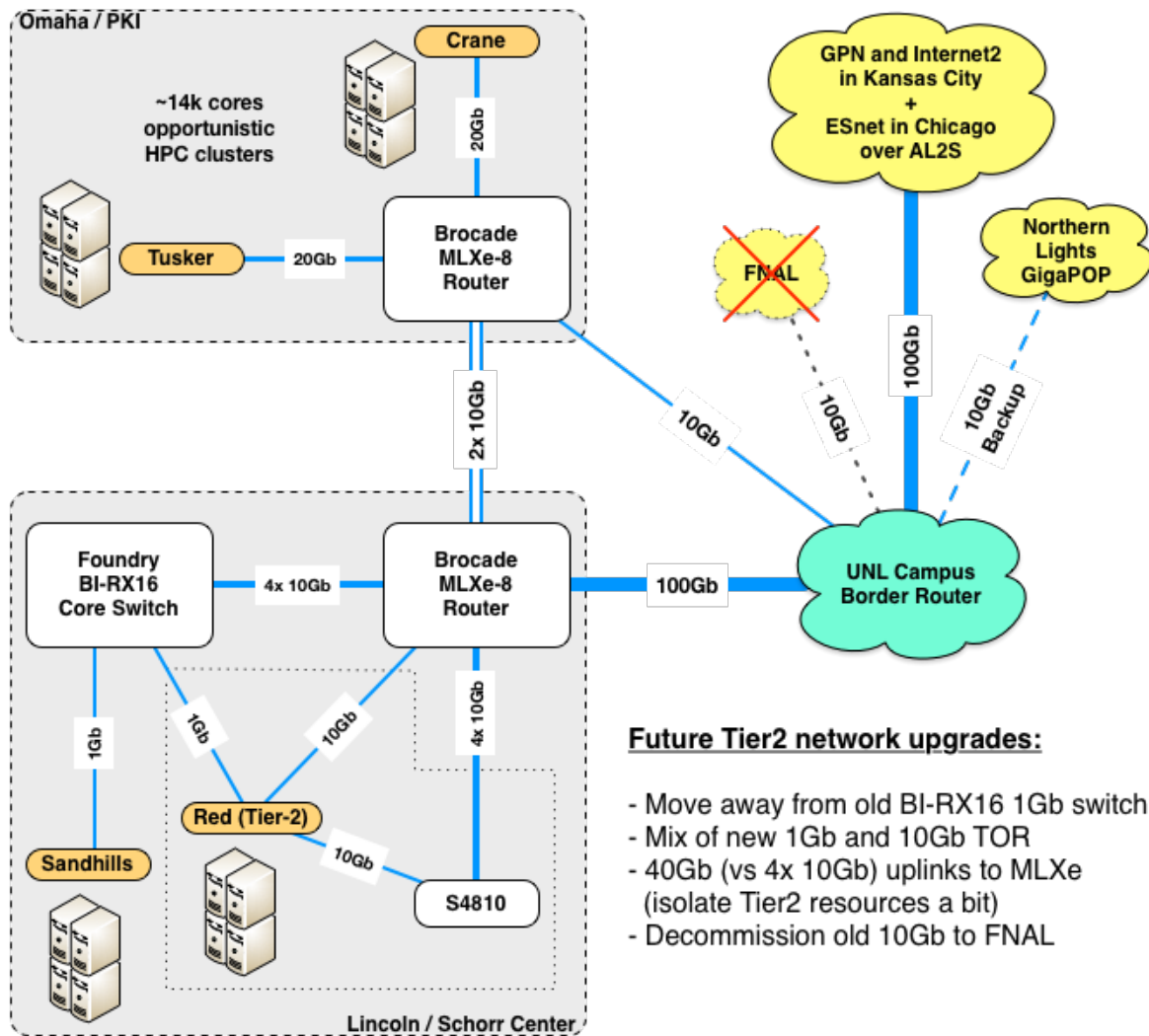
T2_US_Nebraska CE/SE Hardware

Qty	Type	CPU	RAM	Net	Job Slots	HDFS
16	Dell R730xd	E5-2640v3	128GB	10Gb	32	43.5TB
28	Huawei RH1288 V2	E5-2650v2	128GB	1Gb	32	-
48	Dell R720xd	E5-2660	128GB	10Gb	32	43.5TB
36	Dell R410	X5650	64GB	1Gb	24	9.8TB
60	Dell R510	E5620	32GB	1Gb	16	21.7TB
12	Dell R410	E5520	24GB	1Gb	12	6.9TB
20	Dell R710	E5520	24GB	1Gb	12	10.5TB
30	Sun X2200	Opteron 2354	24GB	1Gb	8	-
250					5,392 slots	4.7PB (raw)

- 2+ replication in HDFS means ~2.2PB usable is a reasonable estimate
- Out of warranty: ~34% storage, ~29% slots, ~23% HS06
- Estimated 57.7k HS06

Other hardware / services

- 9x 10Gb transfer servers (GridFTP + xrootd)
 - 3x also act as OSG squid caches
- 4x old R710 + 3x new R730 VM hosts
 - Hosts gatekeepers, GUMS, SRM, xrootd.unl.edu, hcc-crabserver.unl.edu, development nodes, etc...
- ~20x other physical boxes
 - LVS redirectors, CMS specific squid, HDFS, ELK stack, Tier3 login/NFS, hcc-cvmfs.unl.edu, etc...



Future Tier2 network upgrades:

- Move away from old BI-RX16 1Gb switch
- Mix of new 1Gb and 10Gb TOR
- 40Gb (vs 4x 10Gb) uplinks to MLXe (isolate Tier2 resources a bit)
- Decommission old 10Gb to FNAL

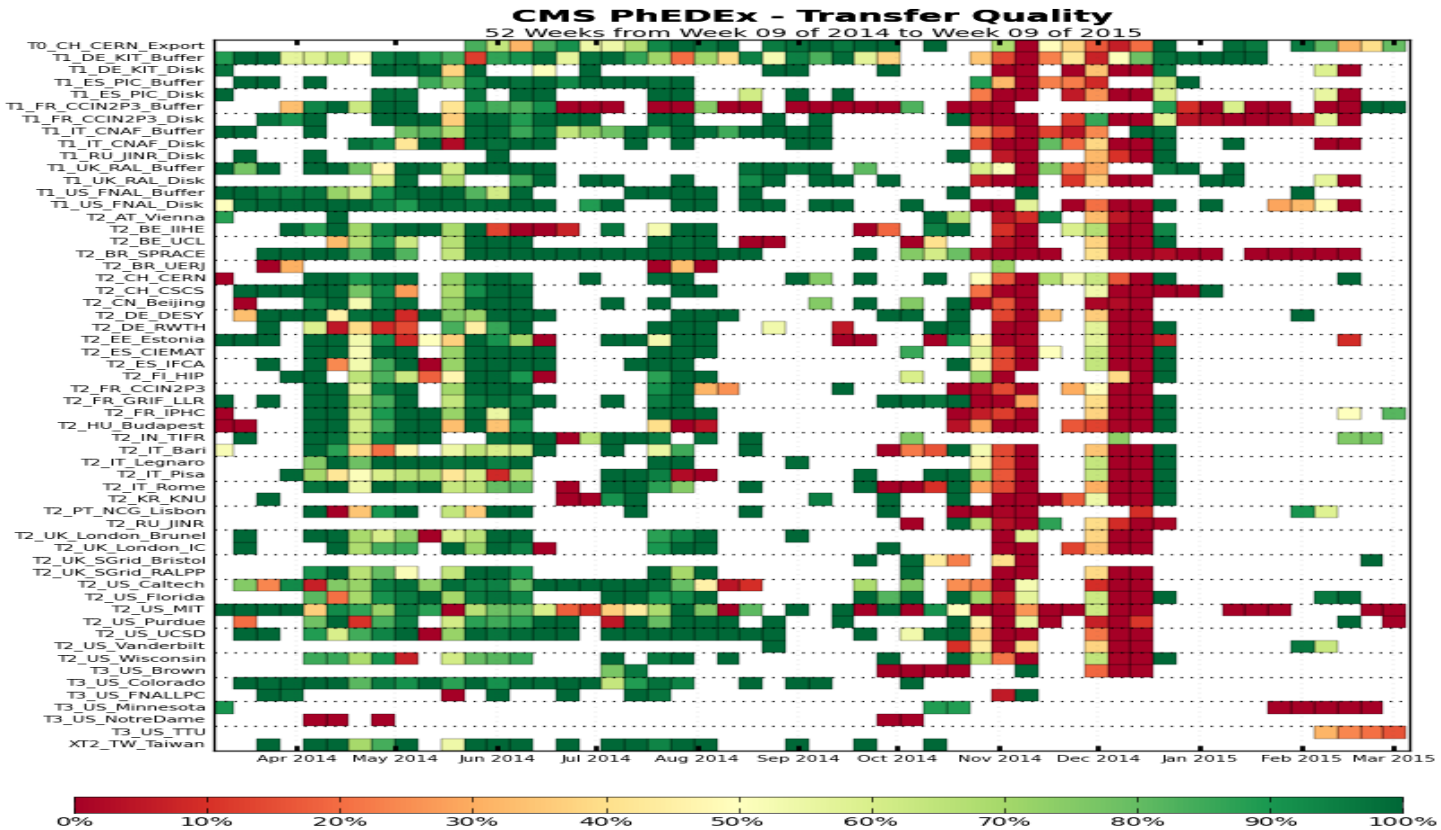
Site evolution / upgrade plans

- Nebraska facilities are still available for expansion. Space/cooling not yet an issue.
- Some deployed hardware out of warranty, and some more approaching obsolescence.
- T2 networking is mid-transition away from an old core switch. Not critical, but room for upgrades.
- Shouldn't have problem maintaining pledge levels with the reduced funding.

Production Stage Out Issues

- Starting in November. Production files get written to storage, registered for transfer and then get deleted before staging out.
- Site gets tossed into waiting room and our readiness is basically zero. (Due to link errors)
- Hasn't been seen in about 4 weeks
 - We don't think it is our problem! Have raised this with CompOps but gotten ~no traction
 - (Sigh -- Nebraska had worst site readiness of 7 US T2 sites in 2014 in part because of this....)

Tell-Tale Fingerprint of production Problems



Other activities at HCC

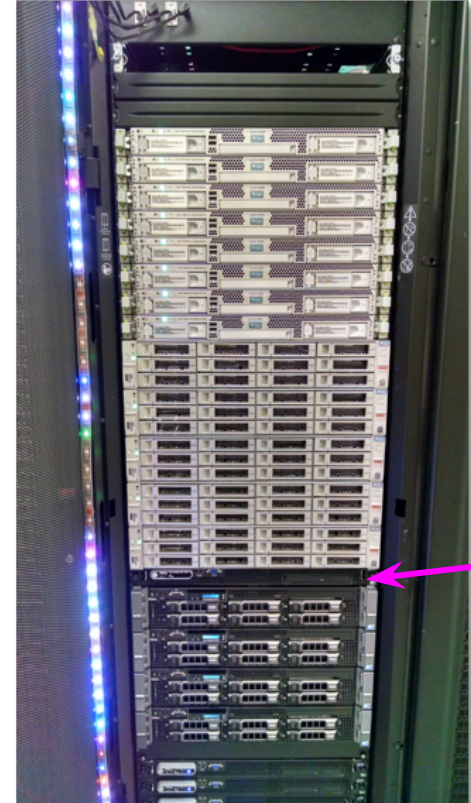
- LARK project
- Tusker/Crane resource usage now counts towards the Tier-2 as management of grid components is done by Tier-2 admins
- Still trying to create an outreach arm to local colleges and high schools -- encountering inertia

OpenStack

Some testing with this small 'stack' →

... and suddenly a \$600k grant means we have to actually build one now!

Can foresee part/all of the Tier2 falling under this umbrella in the future (maybe)



snowmass xrootd

Run II Readiness

- Nebraska fully ready for Run II in terms of pledge.
- We need some improvements to site readiness.
- Healthy, non-zero T3 usage. Strong physics involvement.