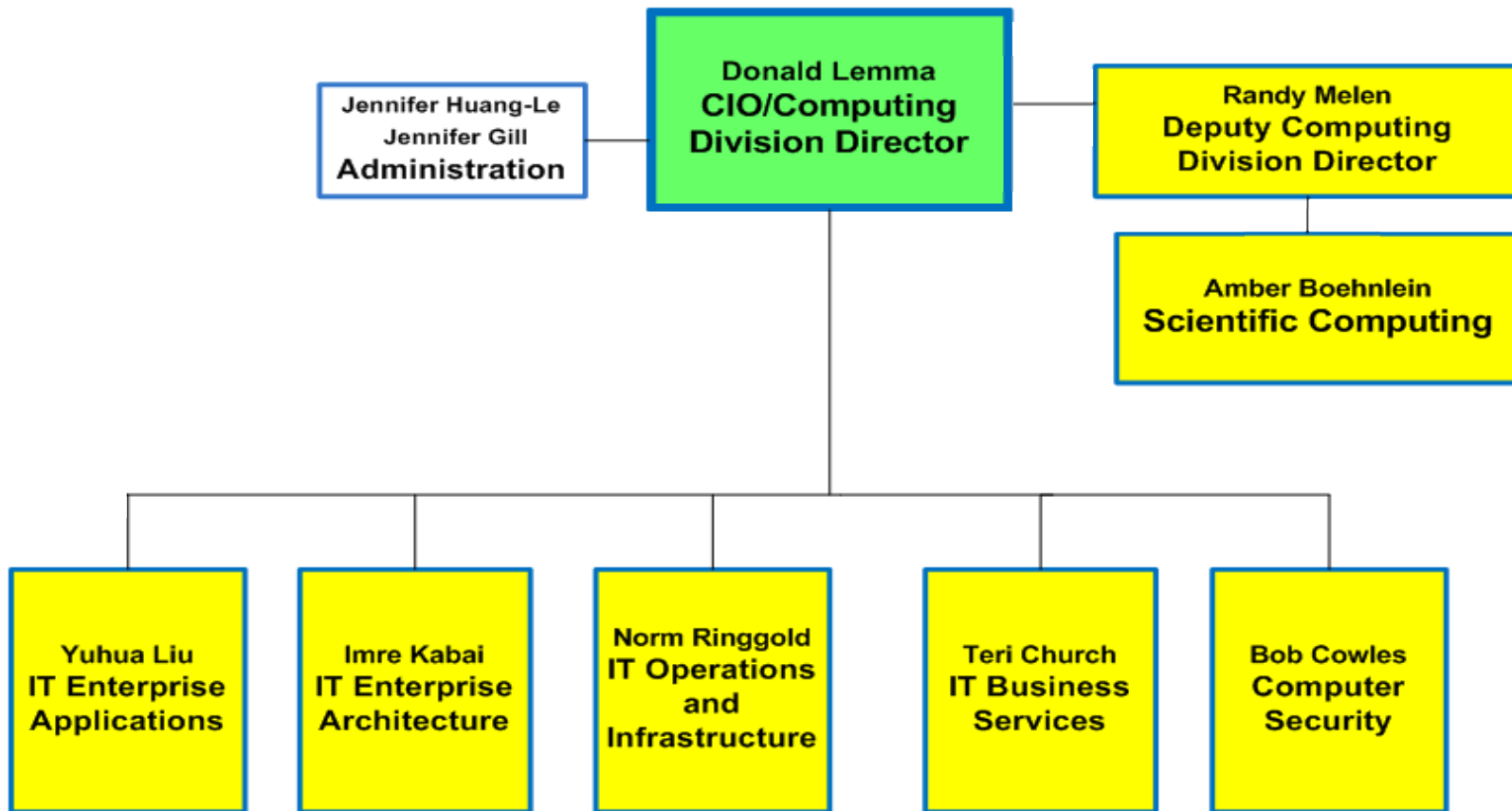

HEPiX Spring 2011 at GSI
SLAC Site Report
May 2, 2011
Randy Melen

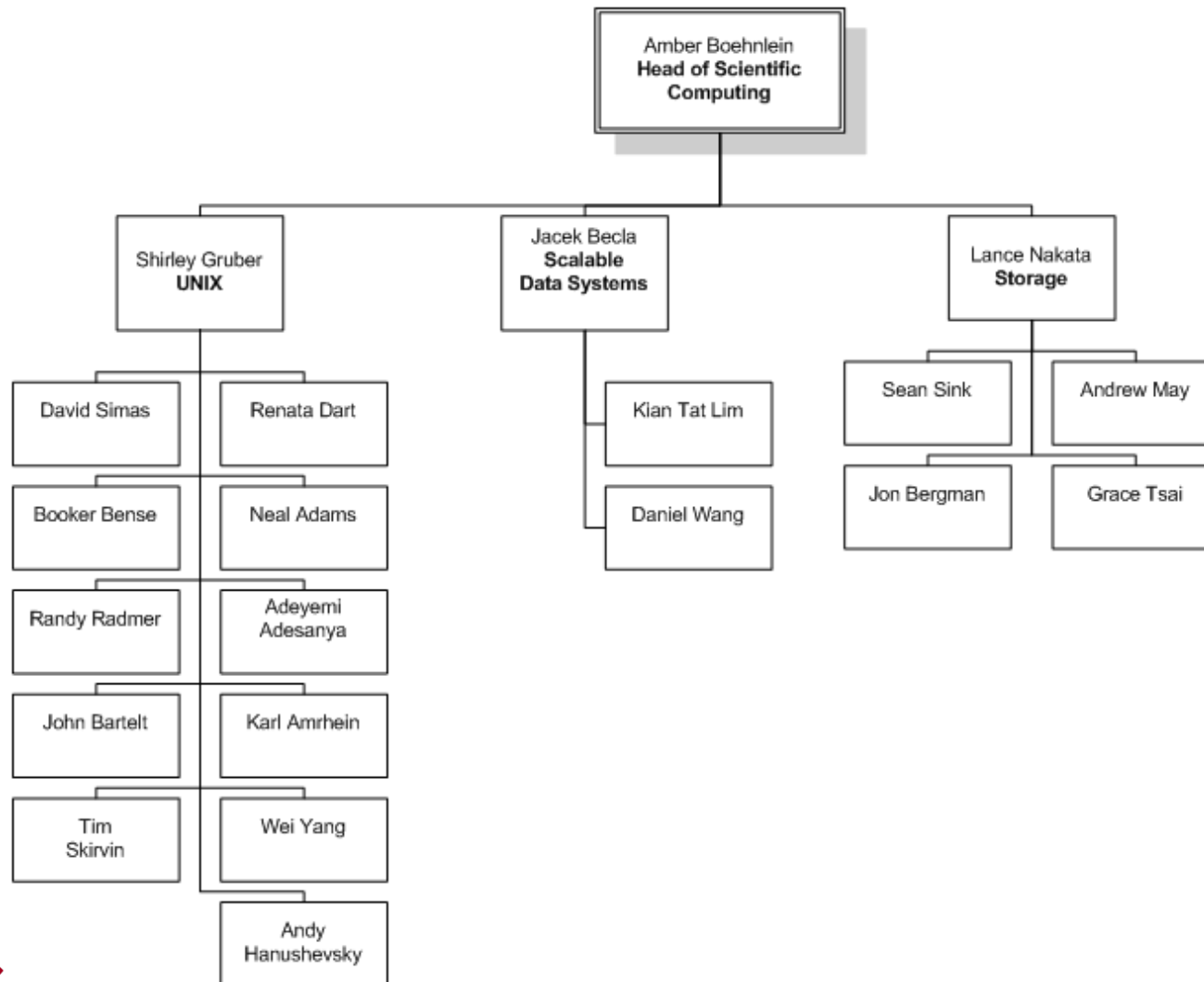
Organizational Changes

- Hired Amber Boehnlein into the new position of Head of Scientific Computing (FNAL physicist from D0, past 3 years on assignment to DOE's Office of Science)
- Manages the UNIX team (11.2 FTE), Storage team (4.0 FTE) and the Scalable Data Systems team (3.0 FTE)

Computing Division and Office of the Chief Information Officer



Computing Division Scientific Computing



Scientific Computing Steering Committee (SCSC)

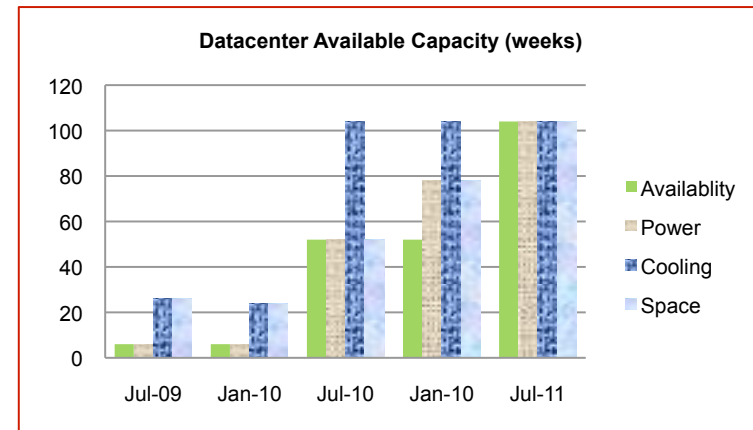
- Collaborative effort to grow and support a SLAC scientific Computing program
- One representative plus a deputy from each of the 5 science directorates:
 - Particle Physics & Astrophysics
 - Photon Science
 - Stanford Synchrotron Radiation Lightsource (SSRL)
 - Linac Coherent LightSource (LCLS)
 - Accelerator Research
- Head of Scientific Computing (Boehnlein) is the interface between SCSC, OCIO and lab directors

SCSC Beginnings

- Organized a monthly SciComp Seminar series of internal and external speakers
- Organizing a SciComp “bootcamp” in June to better understand what various SLAC groups are doing in scientific computing
- Testing “forum” software (FUDforum) for collaborative communication
- Will collaboratively review scientific computing program with Computing Division

Reliable Data Center Availability

- Critical aspects of the Data Center are over 35 years old, unsupported or past end-of-life.
- Have successfully remediated the primary factors limiting datacenter expansion: power, cooling, and floor space.



Data Center Capacity Increases

- Average power load 1.5 MW, peak at 1.7 MW, now expanded capacity to 3.6 MW via two upgraded substations
- Chilled water is 765 GPM/240 tons of A/C; with 51°F return water and another 25% valve capacity, probably conservatively 35% more cooling
- 17,000 sq. ft. of data center space, about 3,300 sq. ft. of that is empty

Removal of Old STK/Sun/Oracle Silos

- Delayed until March 2011



Power Resiliency

- Older UPS is a standalone 3-bank n+1 225 KW unit yielding about 450 KW
- New UPS also has 450 KW capacity and is only 15% used
- New 500 KW Caterpillar diesel generator now online; uses an ATS to provide backup power to core infrastructure within 15 seconds; 490 gallon capacity is > 24 hours

500KW Diesel Generator Now Operational



Exploring Alternatives for Data Center Expansion

- **Stanford Research Computing Facility (SRCF)**
 - Open and transparent dialogue is ongoing with Stanford campus leadership.
 - Preliminary analysis shows that construction of the SRCF offers the most economical solution to high performance computing operations for both the mid and long term.
 - The DOE site office has been informed about our approach and we will continue to keep them informed and engaged.
 - First review will be in June by Stanford's Board of Trustees
 - Hope for final approval late 2011 with occupancy in 2014
- We are working with the Stanford IT group to explore options to have the University host our HR and/or finance systems.
- We will explore other opportunities and partnerships with Stanford, where there would be likely cost savings or operational efficiencies or enhancements.



Other Computing Developments

- BaBar developing prototype Long Term Data Access cluster allowing continued mining of BaBar PB-scale dataset through at least end of 2018; more from Ian Gable on Thursday
- Adding 2 more PB of disk storage with Lustre 1.8 for LCLS CXI instrument in the Far Hall
- IB cluster now operational for LCLS-II design
- Upgraded to HPSS 7.3.2
- Evaluating storage solutions beyond Sun Thor from DDN, LSI, AMAX

Other Computing Developments

- Phased out Solaris 9, RHEL 3, phasing out RHEL 4, preparing for supporting RHEL 6.1
- Brought up a beta version of INSPIRE collaboratively with CERN, DESY, and FNAL
- Creating a Service Portfolio and Service Catalog, precursor to establishing Service Level Objectives/Agreements and metrics dashboard

Other Computing Developments

- SPLUNK log analysis software
- Web proxy appliance from Bluecoat coming
- Citrix XenApp 6 is now live
- Symantec DLP (Data Loss Prevention) software now operational
- New “K:” (for “Konfidential”) drive rolled out
- Windows 7/IE8 migration crossing the 300 machine threshold

Other Computing Developments

- Late 2011: Clustered Systems SBIR grant demonstration prototyping 100KW Blade Server Rack (e.g., 2640 Sandy Bridge cores in one cabinet) with direct plate cooling; partnered with Intel and Liebert

XLDB



XLDB1, SLAC, circa 2007



XLDB4, SLAC, circa 2010

XLDB Events

- 2007 & 2008
 - First two events at SLAC (~50 attendees)
- 2009
 - First international event (Lyon, France)
- 2010
 - First open conference: 150 attendees (sold out)
- 2011
 - First satellite workshop (Edinburgh, June 2011)
 - XLDB5 @SLAC: 250 attendees
- 2012
 - XLDB Asia in 2012