

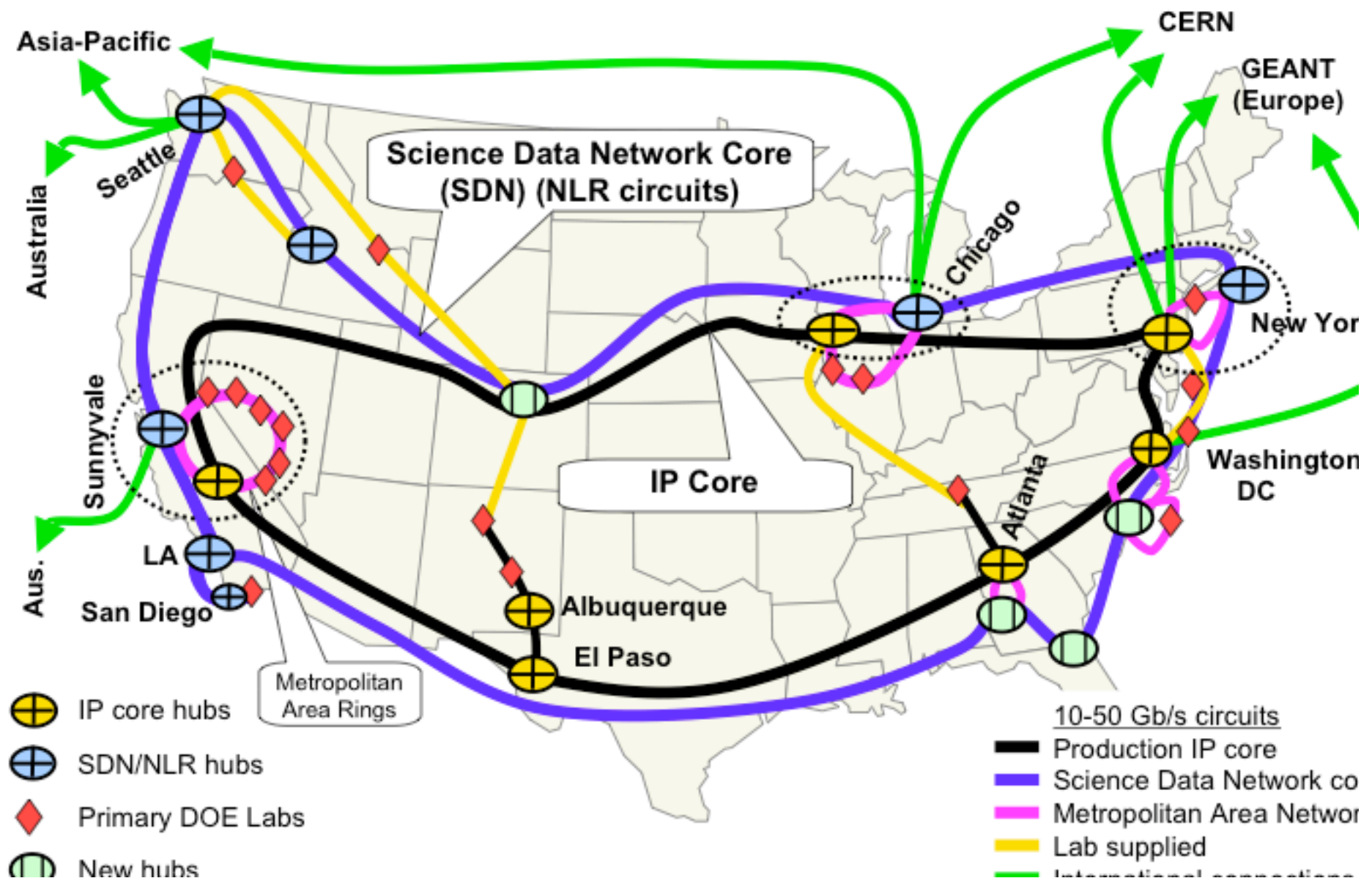
OSG Summary

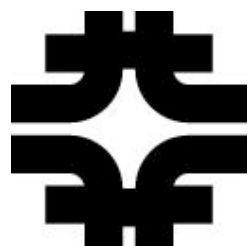
D. Petravick

SRM Collaboration Meeting

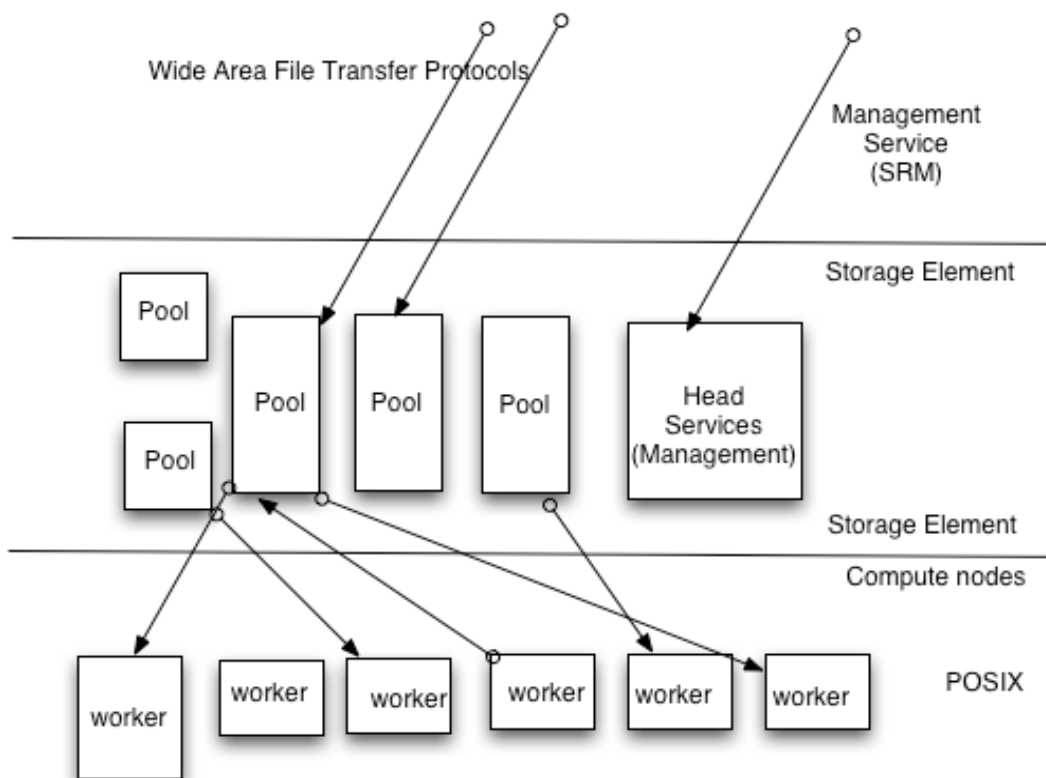
JLAB, August 15, 2005

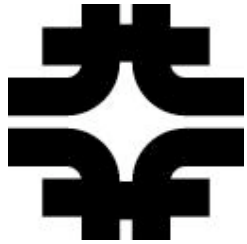
ESnet Target Architecture: IP Core+Science Data Network Core+Metro Area Rings



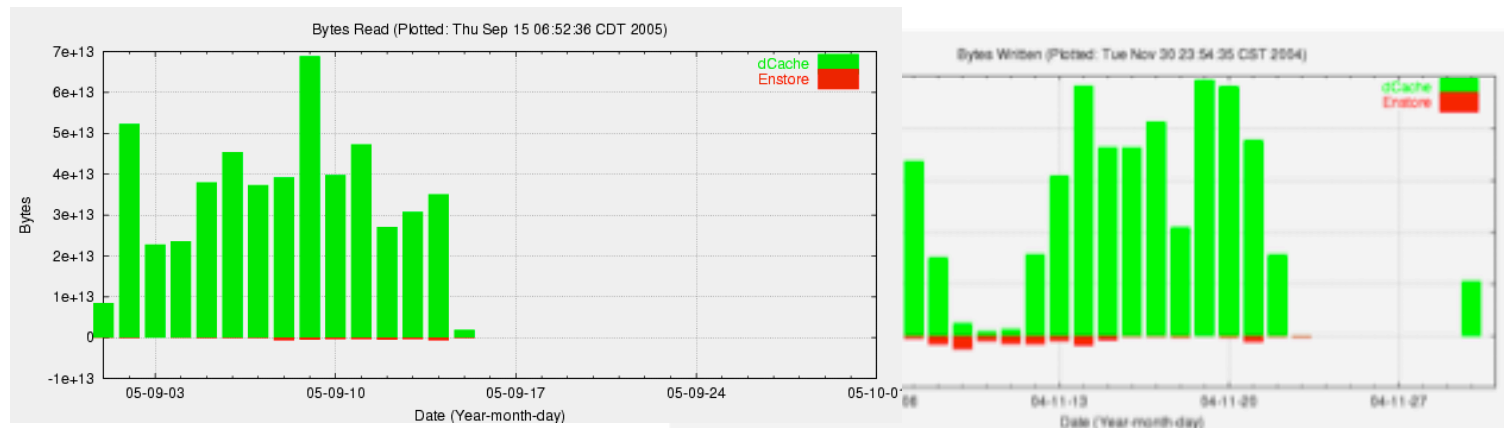


OSG Storage Element





SE and SC's



- Performance on local and grid Sides.
- Ease of use shock (if clusters are large error amplifiers, what are storage clusters)



Site Service Choices

Tier 0/1s

► CERN

- ✱ Storage: Castor-2/SRM
- ✱ Transfers: PhEDEx/SRM (srmcp)
- ✱ File catalogue: POOL LFC Oracle
- ✱ Does CERN participate as T1?

► FNAL

- ✱ Storage: dCache/SRM
- ✱ Transfers: PhEDEx/SRM (srmcp)
- ✱ File catalogue: POOL Globus RLS

► CNAF

- ✱ Storage: Castor-1/SRM
- ✱ Transfer: PhEDEx/SRM (srmcp)
- ✱ File catalogue: POOL LFC Oracle

► RAL

- ✱ Storage: dCache/SRM
- ✱ Transfers: PhEDEx/SRM (srmcp)
- ✱ File catalogue: POOL LFC Oracle

► CCIN2P3

- ✱ Storage: dCache/SRM
- ✱ Transfers: PhEDEx/SRM (srmcp)
- ✱ File catalogue: POOL LFC Oracle

► PIC

- ✱ Storage: Castor-1/SRM
- ✱ Transfers: PhEDEx/SRM (srmcp)
- ✱ File catalogue: POOL LFC MySQL

► FZK

- ✱ Storage: dCache/SRM
- ✱ Transfers: PhEDEx/SRM (srmcp)
- ✱ File catalogue: POOL LFC Oracle

► ASCC

- ✱ Storage: Castor(-1?)/SRM
- ✱ Transfers: PhEDEx/SRM (srmcp)?
- ✱ File catalogue: POOL LFC Oracle



Site Service Choices

Tier 2s

- ▶ **US: Florida, Wisconsin, San Diego, Caltech (+ Purdue, Nebraska, MIT?)**
 - ✱ Storage: dCache/SRM
 - ✱ Transfers: PhEDEx/SRM (srmcp)
 - ✱ File catalogue: POOL MySQL (POOL Globus RLS later at some?)
- ▶ **Italy: Legnaro**
 - ✱ Storage: LCG DPM/SRM
 - ✱ Transfer: PhEDEx/SRM (srmcp)
 - ✱ File catalogue: POOL MySQL
- ▶ **Spain: CIEMAT**
 - ✱ Storage: Castor-1/SRM
 - ✱ Transfer: PhEDEx/SRM (srmcp) (Globus as fallback)
 - ✱ File catalogue: POOL MySQL
- ▶ **UK: Imperial**
 - ✱ Storage: dCache/SRM
 - ✱ Transfer: PhEDEx/SRM (srmcp)
 - ✱ File catalogue: POOL MySQL
- ▶ **Germany: DESY**
 - ✱ Storage: dCache/SRM (+ tape)
 - ✱ Transfer: PhEDEx/SRM (srmcp)
 - ✱ File catalogue: POOL MySQL (?)
- ▶ **France: ?**
- ▶ **Taiwan: ?**



What We Really Used

Tier 0/1s

- ▶ **CERN**
 - Storage: **Castor-1/SRM**
 - Transfers: **None**
 - File catalogue: **textfile + grep**
- ▶ **FNAL**
 - Storage: **dCache/SRM**
 - Transfers: **PhEDEx/SRM (srmcp)**
 - File catalogue: **POOL MySQL**
- ▶ **CNAF**
 - Storage: **Castor-1/SRM / SE**
 - Transfer: **PhEDEx/SRM / globus-url-copy**
 - File catalogue: **POOL MySQL**
- ▶ **RAL**
 - Storage: **dCache/SRM**
 - Transfers: **PhEDEx/SRM (srmcp)**
 - File catalogue: **POOL MySQL**
- ▶ **CCIN2P3**
 - **(No CMS transfers so far)**
- ▶ **PIC**
 - Storage: **Castor-1 (not SRM)**
 - Transfers: **PhEDEx/Globus (globus-url-copy)**
 - File catalogue: **POOL MySQL**
- ▶ **FZK**
 - Storage: **dCache/SRM**
 - Transfers: **PhEDEx/SRM (srmcp)**
 - File catalogue: **POOL MySQL**
- ▶ **ASCC**
 - Storage: **Castor-1/SRM**
 - Transfers: **PhEDEx/Globus (globus-url-copy)**
 - File catalogue: **POOL MySQL**
- ▶ **All**
 - **Production networks**



What We Really Used

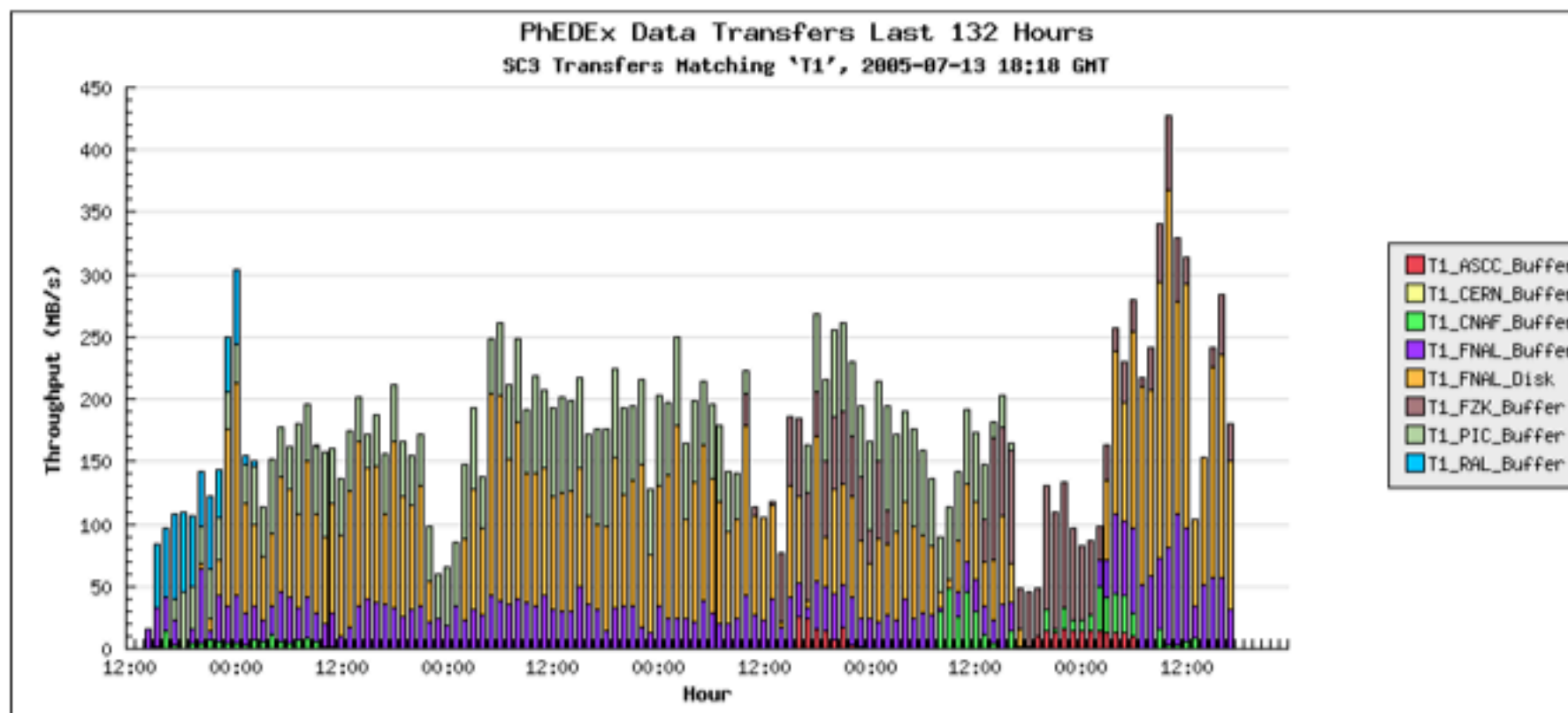
Tier 2s

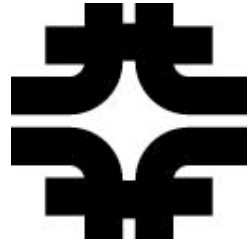
- ▶ **US: Purdue, Nebraska, Wisconsin (Florida, San Diego, Caltech)**
 - ✱ Storage: dCache/SRM
 - ✱ Transfers: PhEDEx/SRM (srmcp)
 - ✱ File catalogue: POOL MySQL (POOL Globus RLS later at some?)
 - ✱ No transfers at FL, UCSD, Caltech
- ▶ **Italy: Legnaro**
 - ✱ Storage: LCG DPM/SRM
 - ✱ Transfer: PhEDEx/Globus
 - ✱ File catalogue: POOL MySQL
 - ✱ Transfers for one day
- ▶ **Spain: CIEMAT / IFCA**
 - ✱ Storage: Castor-1/SRM
 - ✱ Transfer: PhEDEx/SRM (srmcp) (Globus as fallback)
 - ✱ File catalogue: POOL MySQL
- ▶ **UK: Imperial**
 - ✱ Storage: dCache/SRM
 - ✱ Transfer: PhEDEx/SRM (srmcp)
 - ✱ File catalogue: POOL MySQL
- ▶ **Germany: DESY**
 - ✱ Storage: dCache/SRM (+ tape)
 - ✱ Transfer: PhEDEx/SRM (srmcp)
 - ✱ File catalogue: POOL MySQL
- ▶ **France: ?**
- ▶ **Taiwan: ?**



Achievements

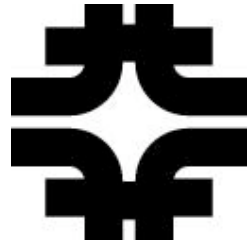
- Drilling down into the better parts (T1)





OSG data areas

- Inherited from Grid 3.
- \$APP, \$WN_TMP, \$TMP, \$DATA.
- Definitions shown did not seem crisp.



OSG data areas (Proposed)

- `$SITE_READ` visible to all WN's, Read only data sets. "posix"
- `$SITE_WRITE` visible to all WN's, read-write data sets "posix"
- `$APP` -- files not installed by a job,
- `$WN_TMP` -- programs and data installed by software distribution mechanisms.



Towards **Storage On-Demand** on Petabyte Grids

A case for:
**Quotas and Reserve-ahead,
Timed Leases and Contracts**

Frank Wuerthwein
UC San Diego

Abhishek Singh Rana
UC San Diego



Case List

Priority 0

- Reserve-ahead: File transfer level (~Implicit Reservation)

Priority 1

- Bulk Quotas: VO level (~Explicit Partitioning)
- Fine Quotas: Individual User level (~generally Oversubscribed)

Priority 2

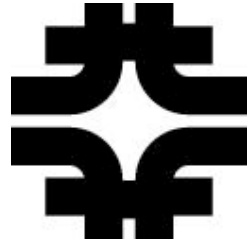
- Reserve-ahead (from a Quota): User level (~Explicit Reservation)
- Reserve-ahead (from a Quota): VO level (~Explicit Reservation)

Priority 3

- Hierarchical and Cumulative Exhaustion of Quotas

Priority 4

- Storage space accrual and Time
- Timed Leases & Contracts: VO/User level
- Timed Leases & Contracts: Grid/Enterprise level



Summary

- OSG has a bottoms up approach
 - Blueprint document.
 - Aware of its differences from EGEE.
- Trying to Emerge as a data-intensive Grid
- Deployment:
 - Successful SE/SRM deployments for CMS, and Atlas.
 - Cannot tell this from gridcat.
 - No success (yet) for the OSG in general.