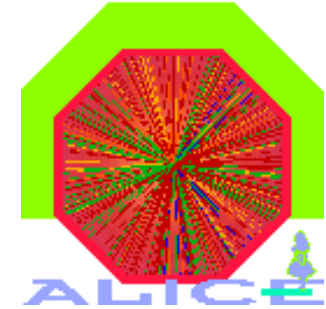




ALICE - USA Collaboration:

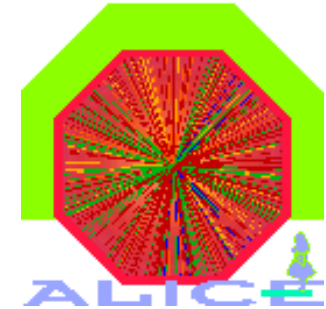


ALICE-USA T0/T1 Networking Plans

Larry Pinsky—University of Houston
For ALICE-USA



ALICE - USA Collaboration:



ALICE-USA Institutions

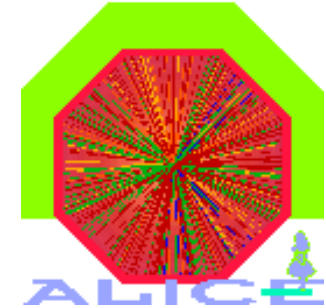
Major Computing Sites

- 1 Creighton University
- 2 Kent State University
- 3 **LBL (Berkeley) & LLNL (Livermore ?)**
- 4 Michigan State University
- 5 Oak Ridge National Laboratory
- 6 The Ohio State University
- 7 **The Ohio Supercomputing Center**
- 8 Purdue University
- 9 University of California, Berkeley
- 10 University of California, Davis
- 11 University of California, Los Angeles
- 12 **University of Houston**
- 13 University of Tennessee
- 14 University of Texas at Austin
- 15 Vanderbilt University
- 16 Wayne State University

Already Official Members of ALICE



ALICE - USA Collaboration:



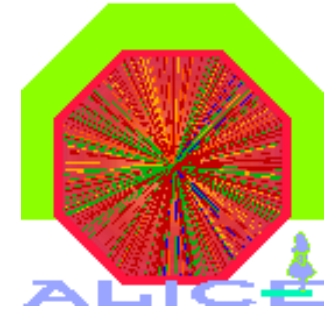
Status of ALICE-USA

- ALICE-USA has made progress in obtaining formal DOE approval and funding to build the proposed EMCAL addition to the ALICE detector, *and* to allow all of its members to formally apply for membership in the ALICE Collaboration.
- The present situation is *encouraging!* However, ALL COMMITMENTS are still, at this time, contingent upon the receipt of pending funding agency approvals (and, of course, upon the actual funding levels received).
- ...Therefore, because of the LHC timeline, the members of ALICE-USA are participating to the extent that they can in all relevant LHC activities in order to keep all options open at the present time...
- It is in that spirit that ALICE-USA is participating here...



ALICE - USA Collaboration:

Nominal ALICE-USA Computing Plan

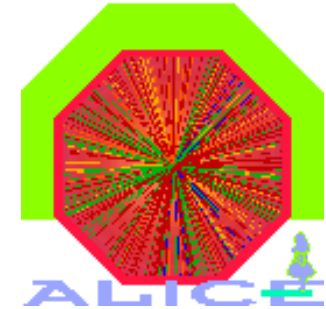


- For the moment, we have identified 3 major centers (**NERSC/LLNL[?]**, **OSC** & **Houston**) that offer T1/T2 capabilities (if appropriately funded). All of these centers are and have been participating in the various Data and Service Challenges.
- For now, we adopt the **CLOUD MODEL**, wherein each of the 3 centers is nominally equivalent in capability, and the sum of all 3 will equal the total share allocated to each National T1/T2 collection within the ALICE Computing Model
- This report will attempt to report on the planned networking connectivity for each of these sites as being a potential T1-level participant...



ALICE - USA Collaboration:

ALICE-USA Target



One Full External T1 with Full Share of Supporting T2 Capabilities—Net in the US [Based on 6 External T1s]

	year	2008	2009	2010
	% total	20	40	100
ALICE-USA sum (KSI2K)	CPU	460	920	2,293
ALICE-USA sum (TB)	Disk	167	340	840
ALICE-USA sum (PB/yr)	Perm. St.	0.1	0.3	0.6
ALICE-USA sum (Gbps)	Network	10.0	10.0	10.0
Each Major US site (1/3 ALICE-USA sum)	CPU	155	305	765
	Disk	56	115	280
	Perm. St.	0.03	0.1	0.2
	Network - Gbps	10.0	10.0	10.0

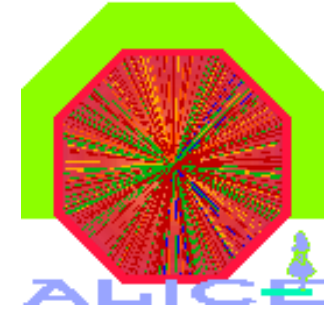
Note OSC is a Member of ALICE and has made this Commitment **Now...**

July 19, 2005-LHC GDB T0/T1 Networking

L. Pinsky--ALICE-USA



ALICE - USA Collaboration:



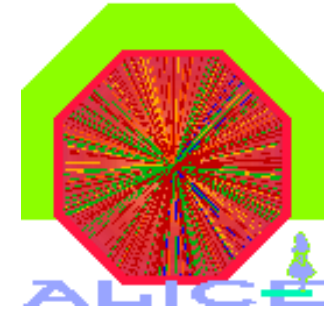
OSC Networking Plans

- 1Gb OC48 to Indianapolis Abiline to Chicago NAP—(Lambda-capable dark fiber to Chicago NAP also potentially available)
- OSC/OPN TFN w/Cisco 15454 Routers
 - Traffic routing to I1,2 via Juniper router
 - MPLS Source Tags determine bandwidth
 - All endpoints are on ring topologies
 - Network prefixes: 192.148.248/24 & 192.157.5/24
- Monitoring is 24/7 NOC w/Nagios software



ALICE - USA Collaboration:

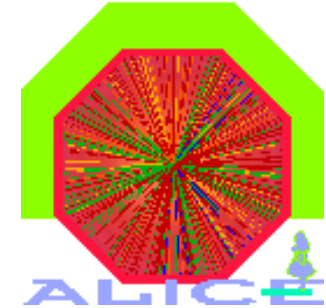
NERSC (LBL) & LLNL(?) Networking Plans



- NERSC is has a direct connection to ESN Net Backbone via the Bay Area MAN.
- Direct connections to CERN could proceed like CMS and ATLAS via STARLIGHT in Chicago (a la CMS) or MAN LAN in New York (a la ATLAS)...



ALICE - USA Collaboration:

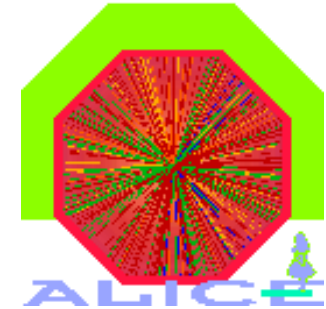


Houston Networking Plans

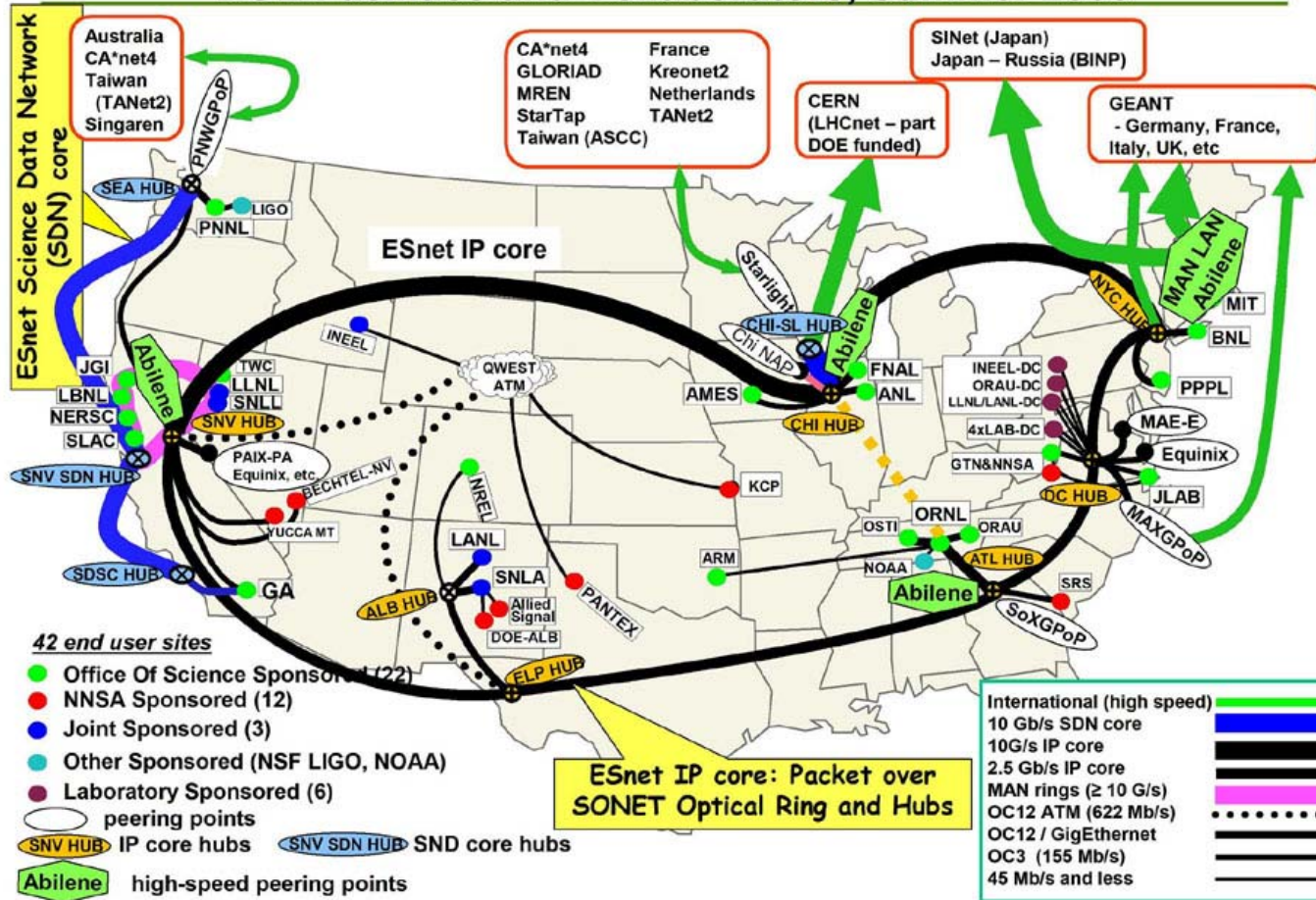
- Dense Wavelength Multiplexed Equipment
 - ITU Direct Channels
 - 3 miles from NLR Houston Hub with Dark Fiber to MAN Local Handoff.
 - Non-Routed—Direct 10 Gbps pipe from NLR via ITU Channel Handoff to UH OPN to disk possible via Chicago from CERN...
- Redundancy would be ESNet either direct in Houston, or via LEARN (Lonestar Education and Research Network in Texas from Houston to El Paso depending on the ESNet option deployed.
- 24/7 NOC monitoring of every active element...



ALICE - USA Collaboration:

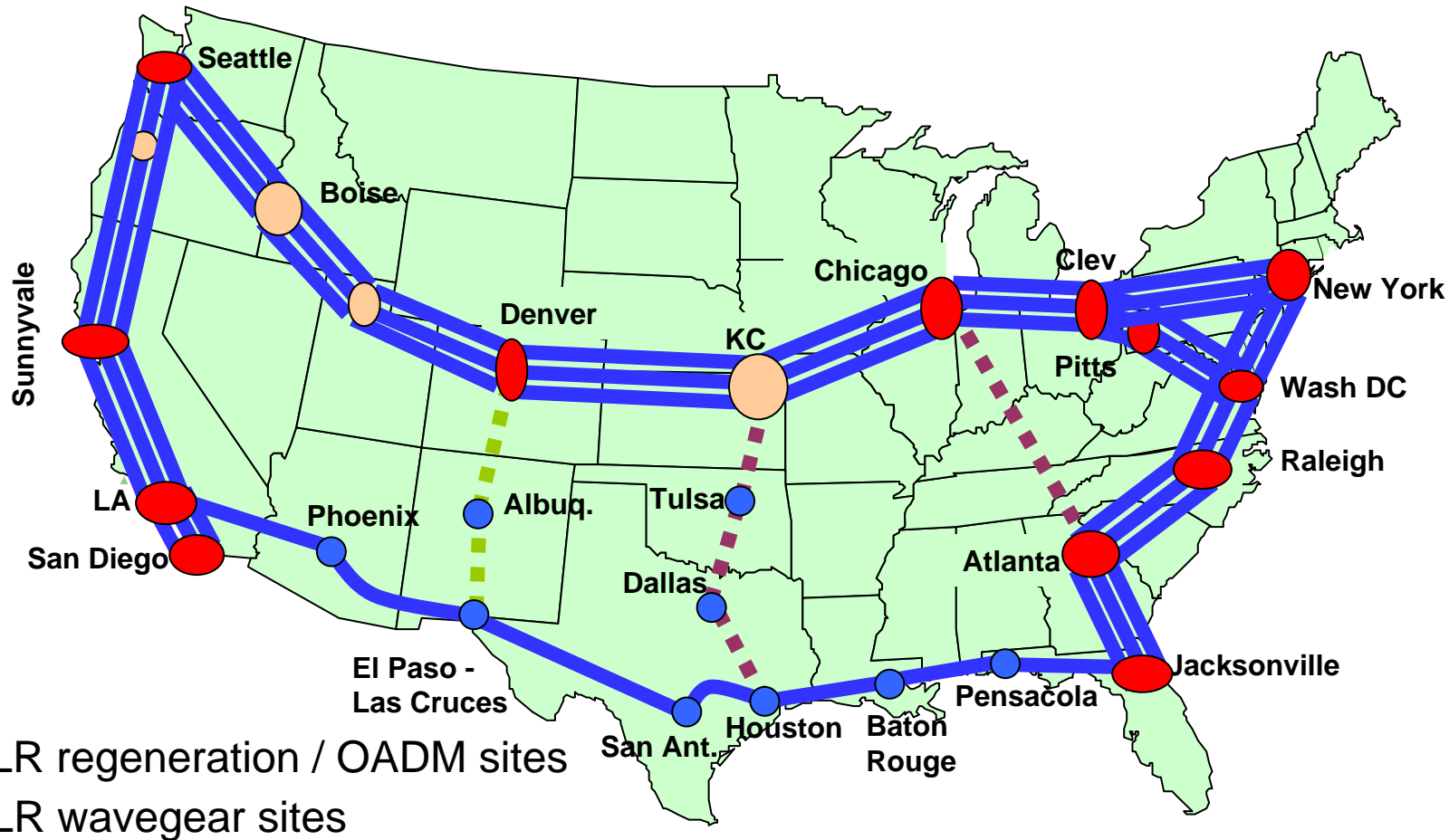
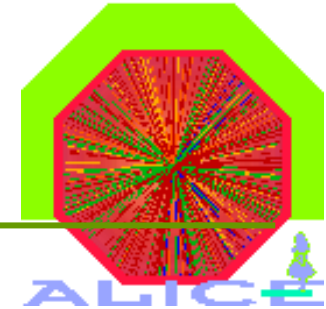


ESnet High-Speed Physical Connectivity to DOE Facilities and Collaborators, Summer 2005





ALICE - USA Collaboration: Proposed ESnet-Lambda Infrastructure Based on National Lambda Rail – FY08

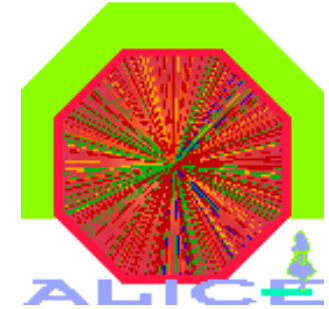


July 19, 2005-LHC GDB
T0/T1 Networking

L. Pinsky--ALICE-USA



ALICE - USA Collaboration:



ALICE-USA Commitments

- OSC is in the process now of seeking NSF funding to Acquire this Level of Support.
- LBL (NERSC) & UH are DOE funded and Committed to supplying these resources contingent upon DOE's approval of the ALICE-USA EMCAL project.
- All three institutions CONTINUE TO SUPPORT THE DATA & SERVICE CHALLENGES...