



NSF vision

How can Optical Networking happen?

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THE PANEL

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NSF does not do research

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- Independent Federal Agency since 1950
 - Promote and advance scientific progress in US by sponsoring selected activities in Science and Engineering
 - NSF administers peer reviewed research programs to meet nations science objectives
 - Secure National Defense
 - Ensure world-class science, engineering and technology workforce for the US



3 nets for research

- Abilene (Internet2)
- 2 new programs
 - Experimental Infrastructure Network (EIN)
 - Network Research Testbeds (NRT)



The vision is

Internet – Lifecycle view	Layer	Comments
Ideas	V	Published Papers
Testbed network for prototypes	IV	New NSF Programs
Experimental net application researchers meet networkers	III	New NSF Programs
Operational advanced network	II	ABILENE/vBNS
Commodity Network	I	Commercial ISPs

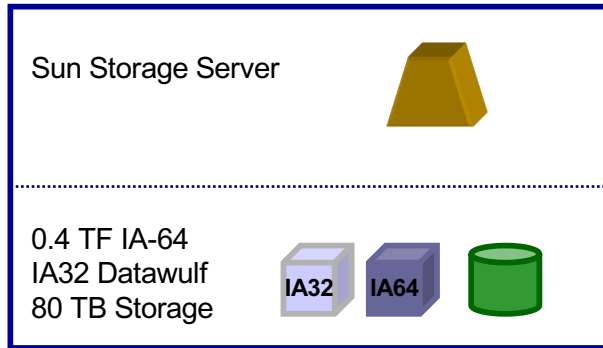


Research continuum

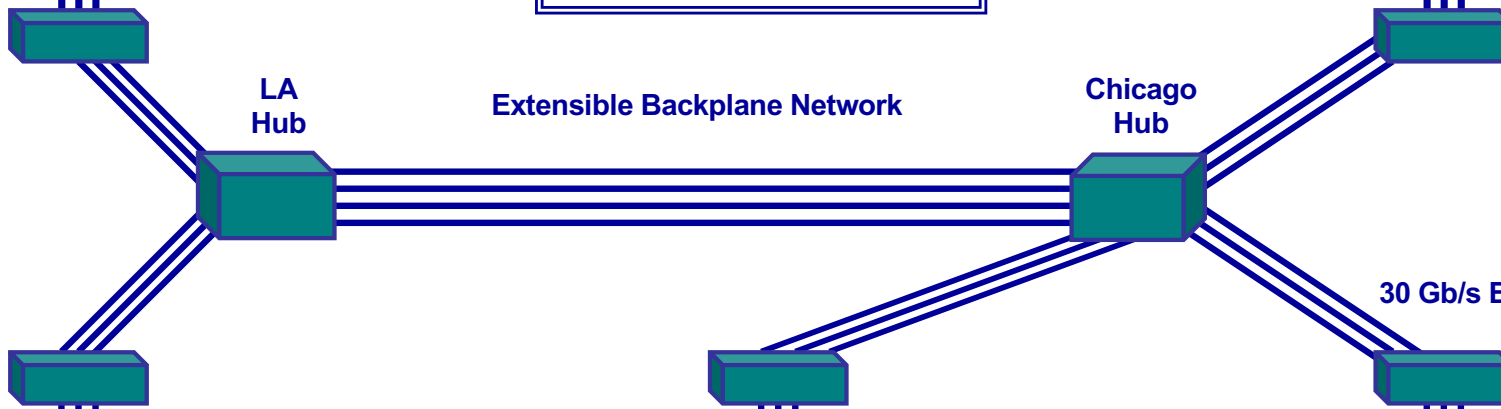
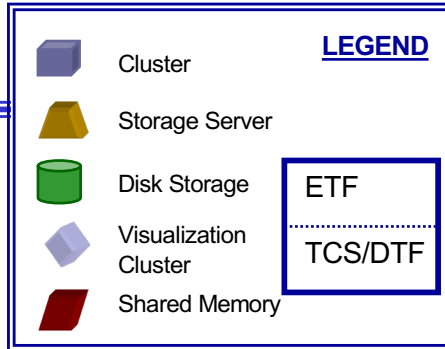
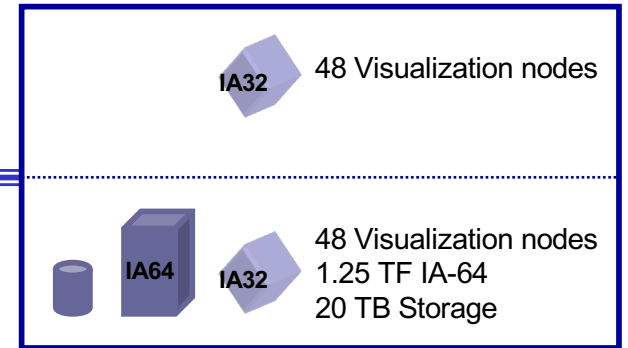
- Long term (5-10 years)
 - Special Projects/Network Research/ITR
 - Network Research Testbeds (speculative)
- Near term (2-5 years)
 - Strategic Technologies for the Internet
 - Experimental Infrastructure Network
- Current Programs (TCP/IP)
 - Extensible Teragrid Facility

Extensible TeraGrid Facility (ETF)

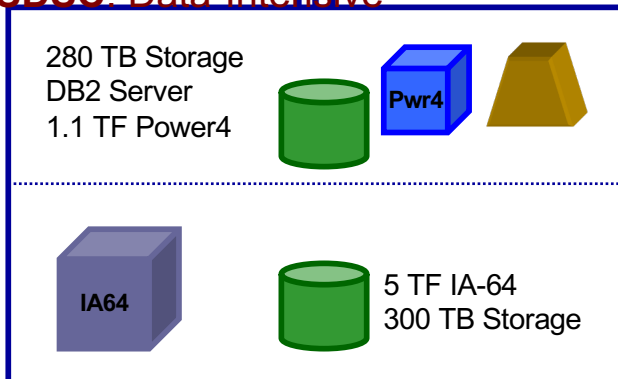
Caltech: Data collection analysis



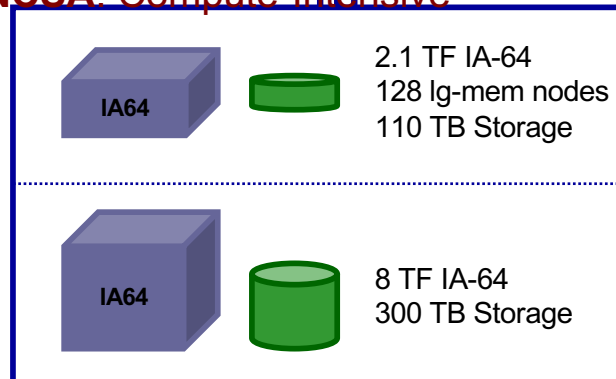
ANL: Visualization



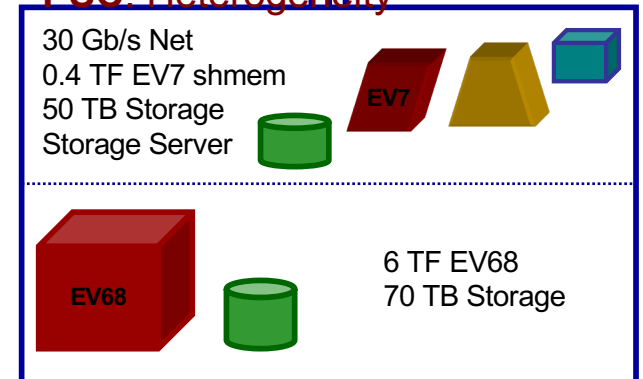
SDSC: Data-Intensive



NCSA: Compute-Intensive



PSC: Heterogeneity



AMPATH™ Workshop



Driver Applications

- Genomics
- National Virtual Observatory
- National Ecological Observatory Network
- National Earthquake Engineering Simulation
- Neuroscience Imaging
- Laser Interferometer Gravitational Wave Observatory



End-to-End factors

- Cross Science Collaboration
- Multiple physical and cultural communities
- Open and new technologies
- Broadly accessible
- Flexible and extensible
- Useful to all scientists and engineers
- Contains a broad verity of technologies



Potential roadblocks

- One voice
- Funding uncertainties
- Limited Funding
- Vision of broader impact



Thank You

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Related links:

<http://www.cise.nsf.gov>

<http://www.cise.nsf.gov/div/anir/index.html>

<http://www.calit2.net/events/2002/nsf/agenda.html>