About the Exploratorium
Museum of Science, Art, and Human Perception

- Over 500 Interactive Exhibits
- Educator Professional Development Programs
- ExNet Museum Partners
- www.exploratorium.edu
Exploratorium on CalREN

CalREN Optical Network

Digital California Node Sites

0
200
100 miles

CalREN OPTICAL BACKBONE

- Intercity Backbone fiber
- Metro Backbone fiber
- CalREN Hub Site
- DCP (K-12) County Node Site

San Jose (SVL)
Soledad
San Francisco
Oakland
Sacramento
Merced
Fresno
Soledad
San Luis Obispo
Bakersfield

Los Angeles
Tustin
San Diego

June 2004

Source: http://www.cenic.org

“Exploratorium.edu on CalREN-2: Experiments and Future Directions”  CENIC Annual Conference  3.07.05
Exploratorium on CalREN

- 100 Mbps connection to CENIC’s CALREN Digital California network

- Connection made possible through the generosity of the National Science Foundation (Award #0228937) and the Corporation for Educational Networks Initiatives in California (CENIC)

- Networked locations: Webcast Studio, library, Microscope Imaging Station, conference rooms, individual workstations

- 5 Web servers: 15,000 pages, over 150 Gigabytes of educational resources

- Internet2 Gateway: www.exploratorium.edu/i2
High Performance Network Activities
High Performance Network Activities

- Webcasting
- Microscope Imaging Station
- Remote Collaboration
- Sharing Digital Collections
Webcasting
Webcasting

- Use CalREN for planning, production and distribution of Webcasts
- Provide high-resolution video in multiple formats: Real, Windows Media, Flash, MPEG2
- 25 live events per year
- High Resolution Webcasts: www.exploratorium.edu/i2
- Next Webcast: Chichen Itza, March 20
Microscope Imaging Station
Microscope Imaging Station

- Research-grade microscopes in a museum setting
- MIS Website provides high-res images & video: www.exploratorium.edu/imaging_station
- Developing Virtual Microscope, Classroom Activities
- Planning Live Demonstrations, Remote Operation
- Supported by a Science Education Partnership Award (SEPA) from the National Center for Research Resources and the David and Lucile Packard Foundation.
Remote Collaboration

• Center for Informal Learning and Schools: Exploratorium, King’s College London & UCSC

• Professional Development: Teacher Institute, Institute for Inquiry

• Project collaboration and public programs connecting museums, universities, research facilities, and schools.
Digital Collections
Digital Collections

• So many resources! How does a teacher make sense of it all?

• **Exploratorium Digital Library for Science Education** will allow educators to search and browse our collections according to subject, grade level, resource type, etc. Resource records provide teaching tips.

• [http://www.exploratorium.edu/partner/library.html](http://www.exploratorium.edu/partner/library.html)
Future Directions
Future Directions

• Study use of Exploratorium resources by schools, universities, museums, libraries, other partners with access to advanced networks

• Explore advanced videoconferencing applications (Access Grid, VRVS) and emerging video standards (HD, H.264/AVC)

• Refine media production and project planning

• Develop new exhibits, Web resources, museum programs that make use of advanced networks
Exploratorium Network Performance Tool

• You can use the Internet2 Detective or traceroute and ping commands to analyze traffic congestion

• Or you can use the Exploratorium’s network performance tool...
Online Drum Circle

http://www.exploratorium.edu/music/exhibits/drum/index.html
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Internet2 Gateway:
http://www.exploratorium.edu/i2