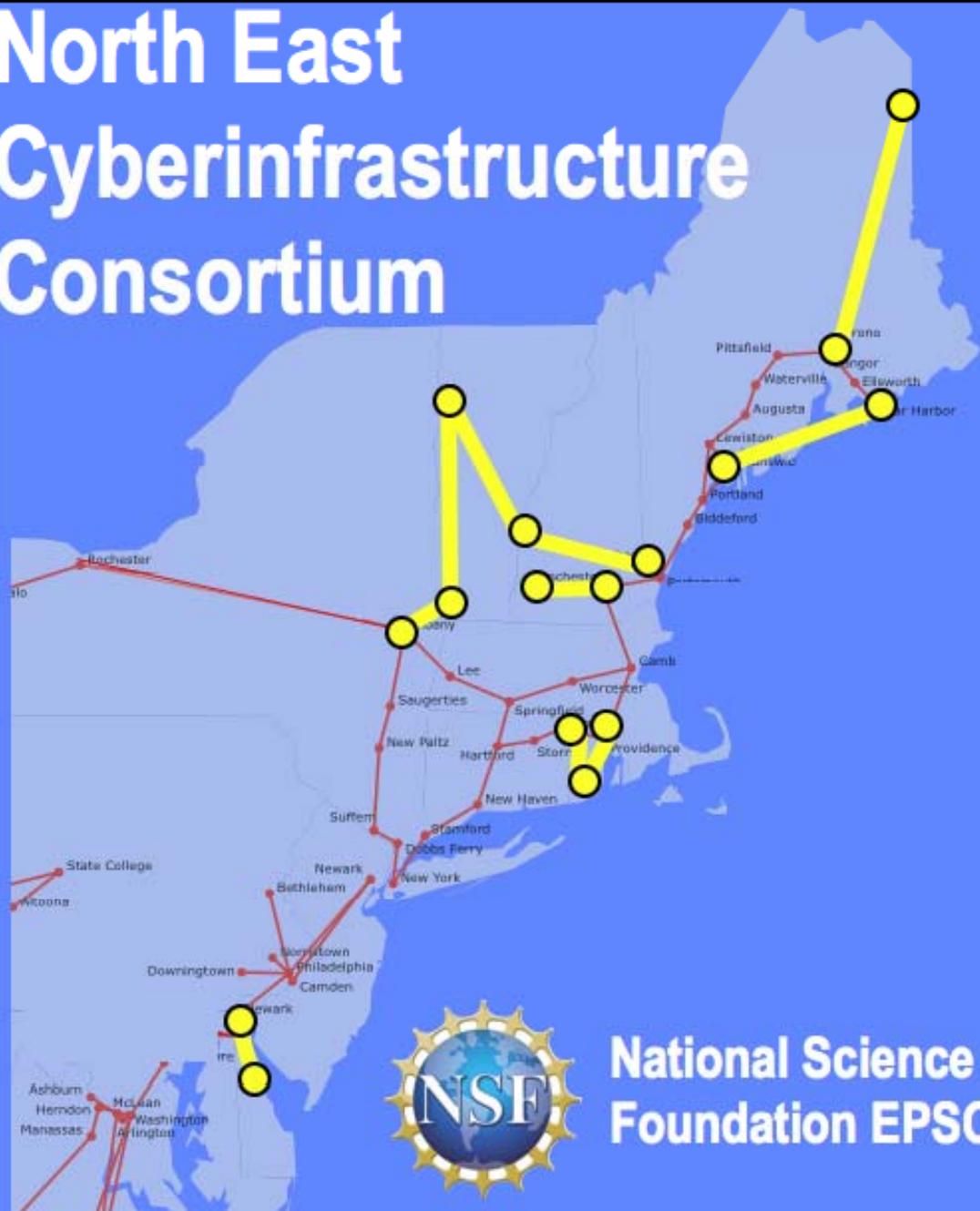


North East Cyberinfrastructure Consortium



National Science
Foundation EPSCoR

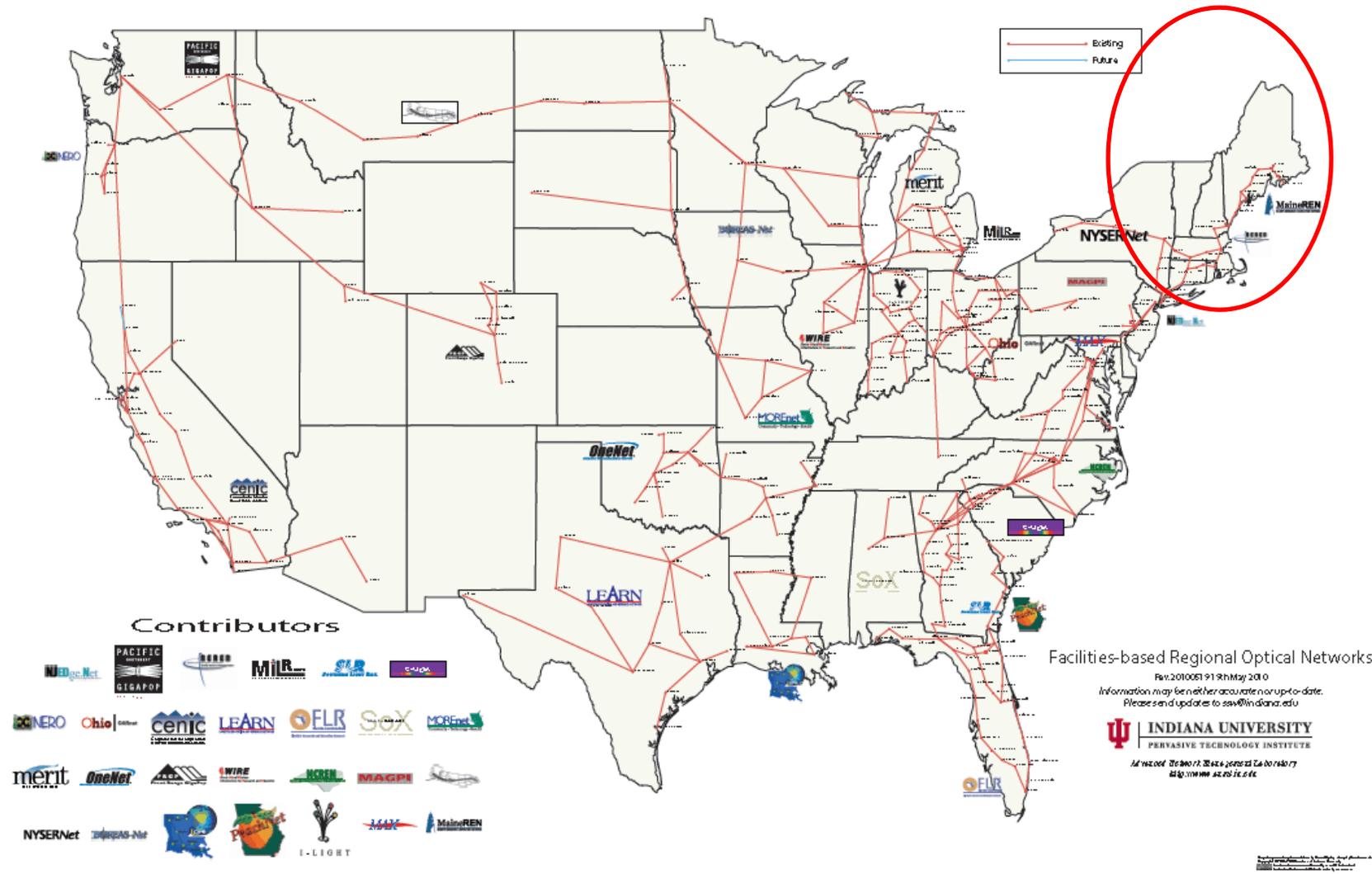
North
East
Cyberinfrastructure
Consortium



- Delaware
- Maine
- New Hampshire
- Rhode Island
- Vermont

2006-2011

Higher Education Broadband Networks



Before there were funding opportunities on the horizon, we recognized that

- NE needed Cyberinfrastructure
- Only pooled funds could build the redundant fiber network
- Collaboration would provide critical mass for research and education:
Alone we are small, but together we have the bench strength to rival large research universities
- Funding through Collaborative Proposals:
 - Collaborative* NSF EPSCoR Track-2, submitted Jan. 2009: (\$6M)
 - Multiple* NIH-NCRR awards spring 2009: \$8.4M
 - Multiple* NSF EPSCoR C2 awards to DE, RI, ME and VT: \$4.3M

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Job 1: Install Fiber!

Interstate Fiber in the Northern Tier, Intrastate in
Rhode Island and Delaware



What bandwidth have we achieved?

E.g. Vermont went from 450 Mb Max capacity to 120 Gb through an 20 year Indefeasible Right of Use

What research needs this kind of bandwidth?

Next generation sequencing that creates data at the rate of 2 terabytes per day

Mega – Giga – Peta – Tera

Job 2: Cyberbased Communication and Collaboration on Research and Education Projects



Collaborative Research of Economic Importance: Metagenome of Algal Blooms



- Algal blooms in lakes
 - Endangers \$5.5B in lake-related income to VT, ME, NH
- Only possible through a network
- Distributed scientists, **data accessed in centers** in two states
- Data are huge
 - Samples from blooms **across the NECC region** sent to **VT**
 - Sequencing for metagenomes done in **DE**
 - Data stored in the data centers in **ME, DE**
 - Distributed genomics work on the sequencing data by **all 5 states**





Theme of **Leveraging** and **Synergies** with Other ARRA Funding

Synergies and Leveraging (in Millions)						
		Delaware	Maine	New Hampshire	Rhode Island	Vermont
NTIA	BTOP	\$10.90	\$25.4	\$65.9	\$21.70	\$47.10
USDA	RUS		\$1.30			\$116.0
Other					\$12.30	

Rhode Island and Maine NECC networks





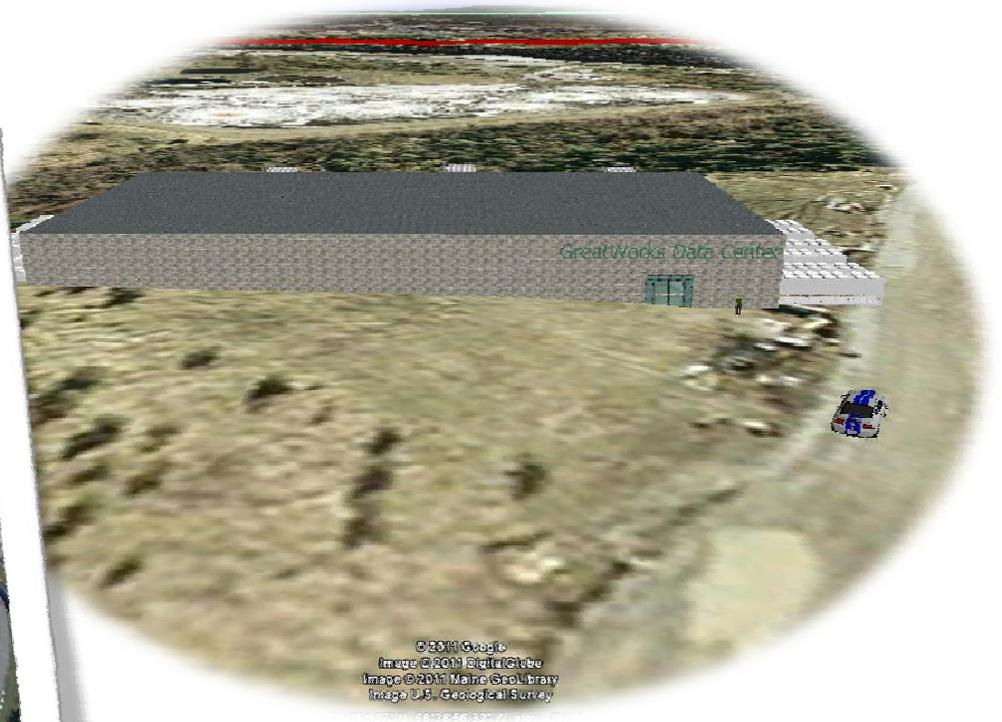
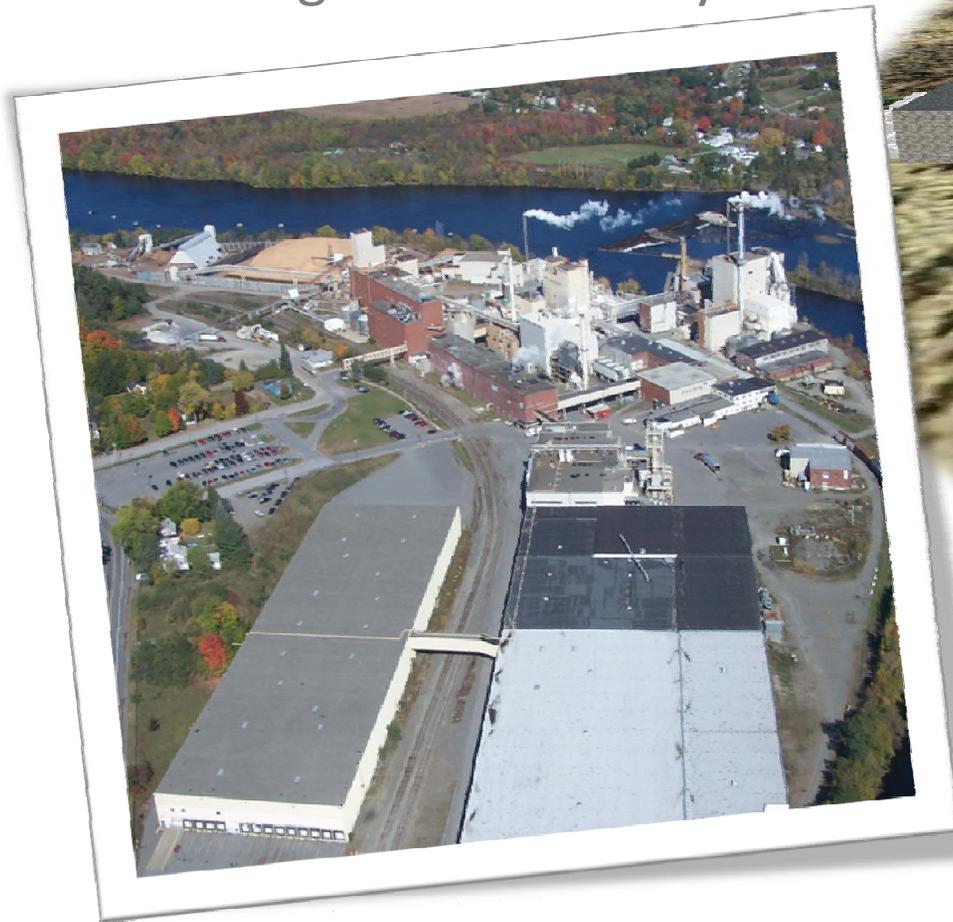
It is now possible to develop -



Maine Supercomputer Center

www.northeastcyberinfrastructure.org/cescc

Design Data Mills for the Maine High Tech Industry



© 2011 Google
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Image © 2011 Maine GeoLibrary
Image U.S. Geological Survey



MCD26LA062

Develop a Digital Literacy Program for Workforce Development

- Digital Literacy Program in libraries and community housing centers
- Bridges the digital divide
- Skills and knowledge to be citizens of the 21st century



Provide real-time broad band access to the sensors distributed across the State of Delaware.

Real-time access to key data in the approach of Hurricane Irene allowed managers to plan evacuations and emergency operations.





Connect NECC to Middle and Last Mile in Vermont

- Fred the Fiber Horse and Claude Demarais pull fiber in East Burke VT



Middle and Last Mile Broadband Network to
Schools, Libraries, Museums, Health Centers
Connects to the NECC Fiber - allows Access to
Internet2



VT EPSCoR pays Internet2 dues for all these
connected institutions

“Nothing would be off limits. Caves, national
parks, coral reefs, and remote archeological
sites would all be accessible.” *John Korb*

*Through real time videoconferencing and
access to research equipment.*





Impact the Private Sector:

The Vendor in Vermont developed 240 Gb excess capacity

Within less than one year, 20 companies use the fiber network.

Allowed vendor to connect with large telecom carriers in NYC, reducing costs for all Vermont customers.

More Dealers Choose Dealer.com

One Solution. One Login. One Platform.



Next Steps:

Sustain our Advances

Innovate through Collaboration
for Cutting Edge Research and
Education

CI for Workforce Development
and Diversity



Fiber in Interstate 89 Median Strip