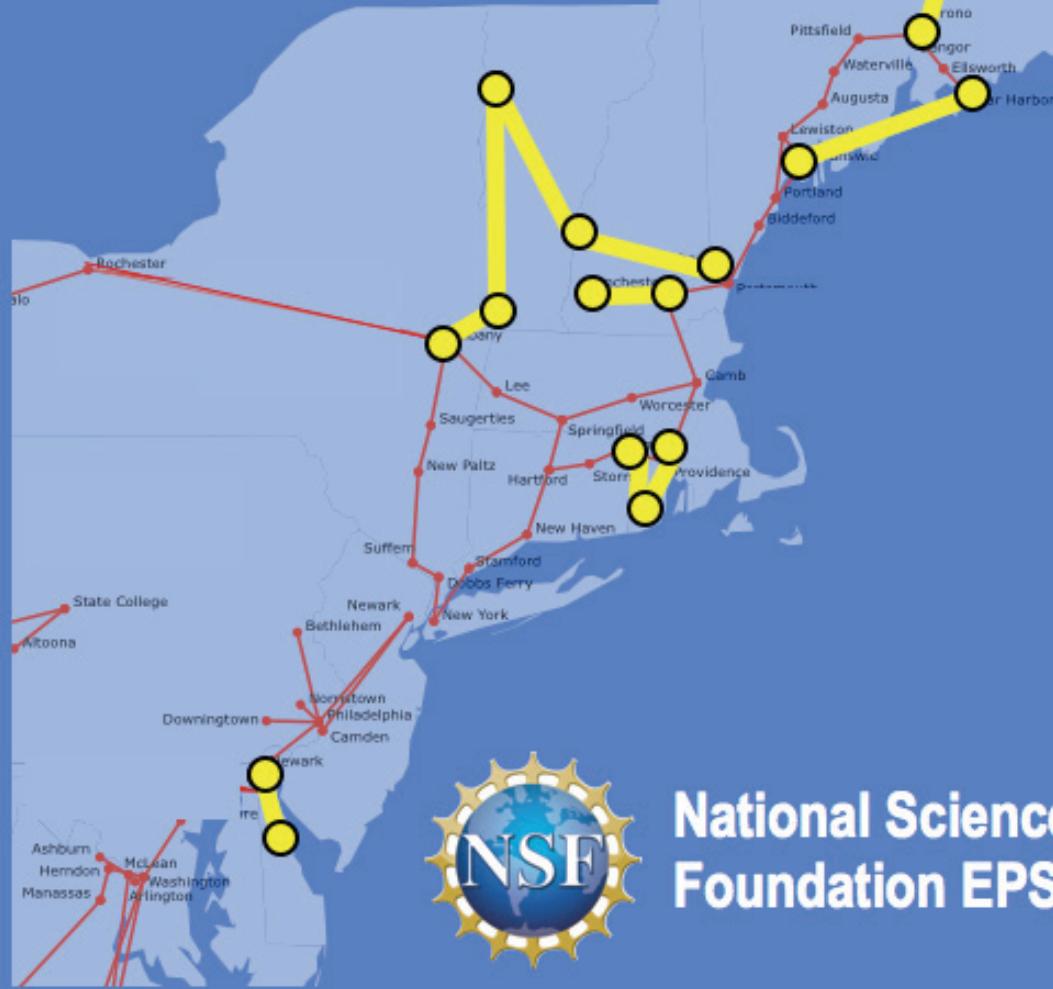


North East Cyberinfrastructure Consortium



North
East
Cyberinfrastructure
Consortium



Delaware
Maine
New Hampshire
Rhode Island
Vermont

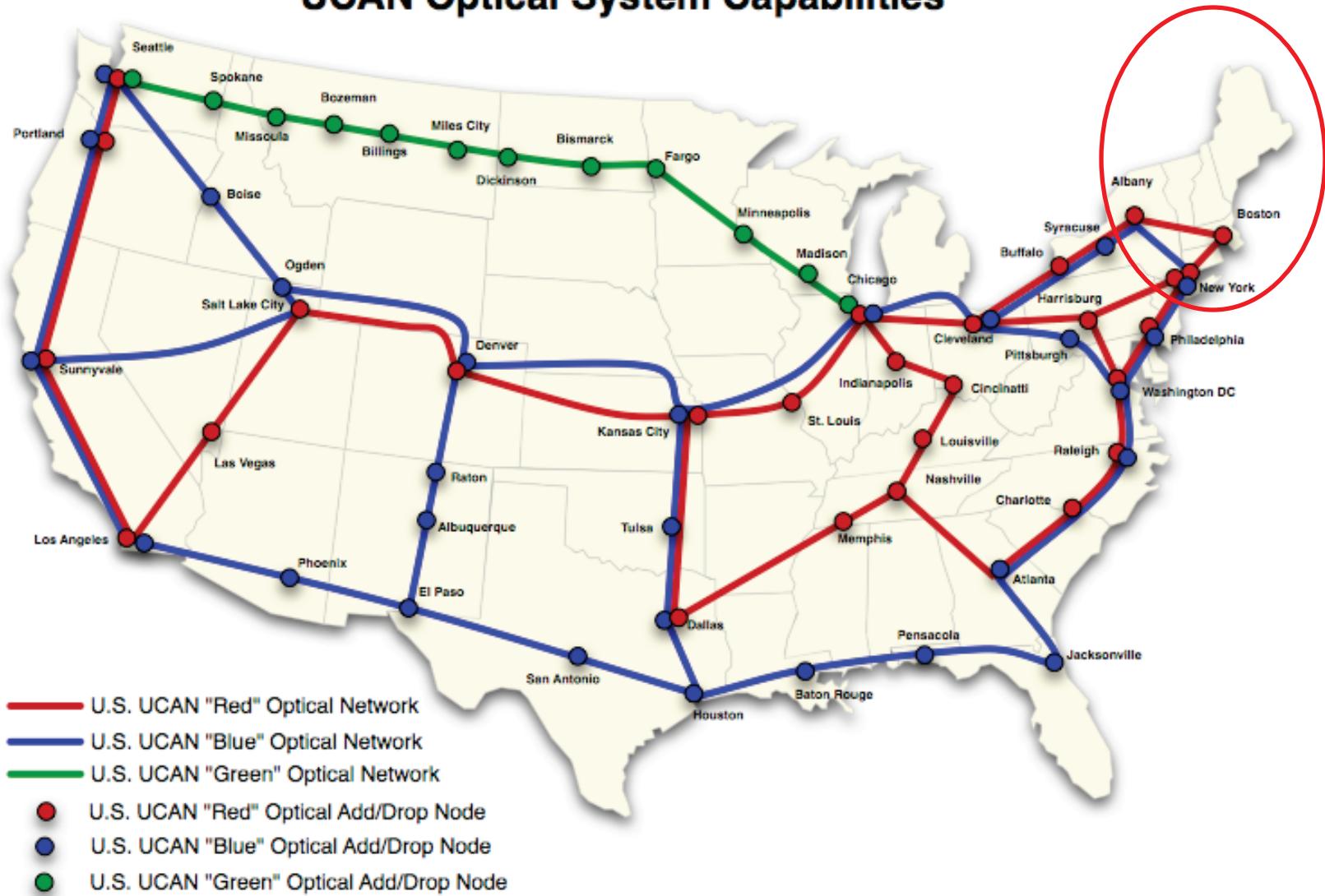
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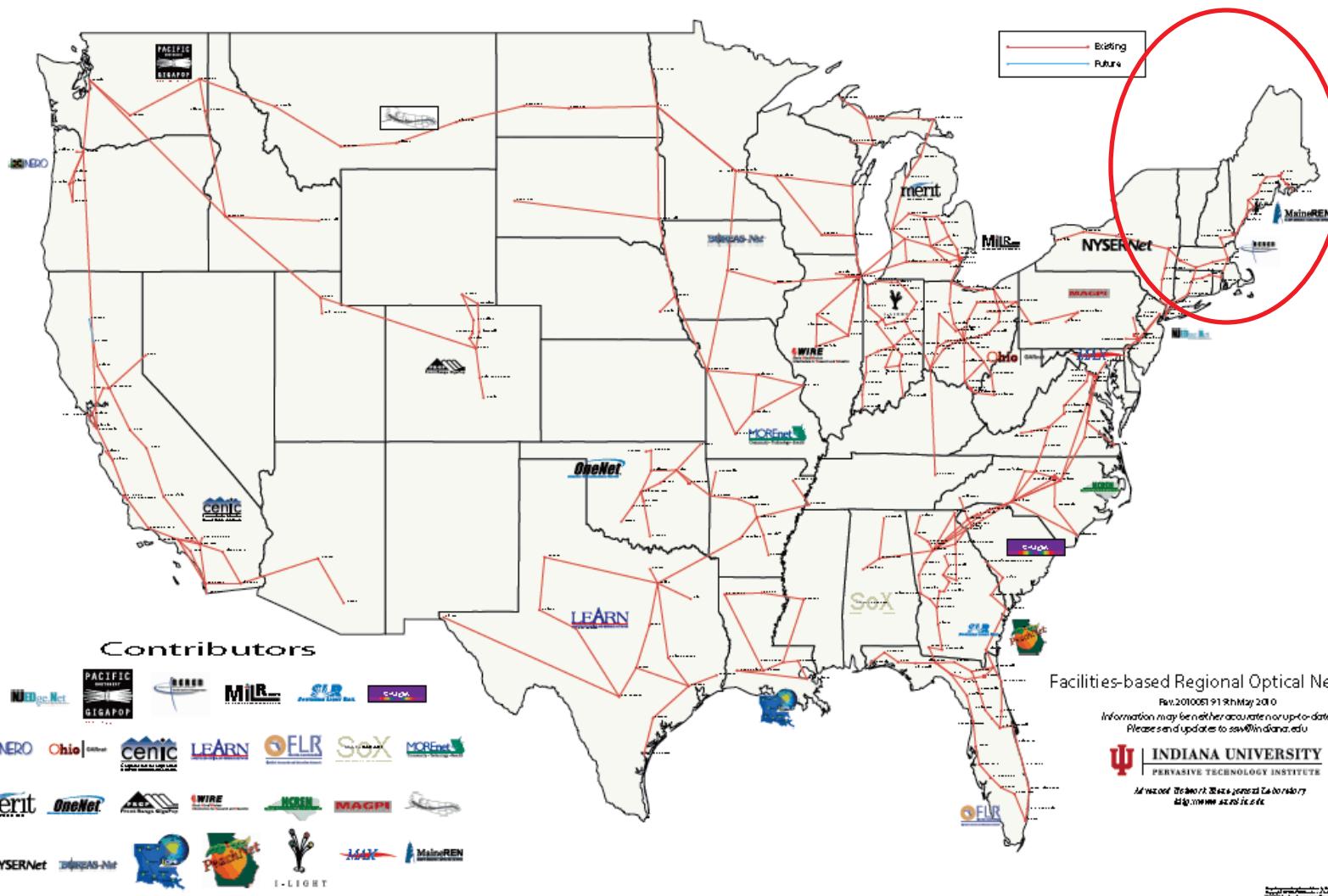
National Science
Foundation EPSCoR

Northern New England Missed by Unified Community Anchor Network

UCAN Optical System Capabilities



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





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

North
East
Cyberinfrastructure
Consortium



- 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**



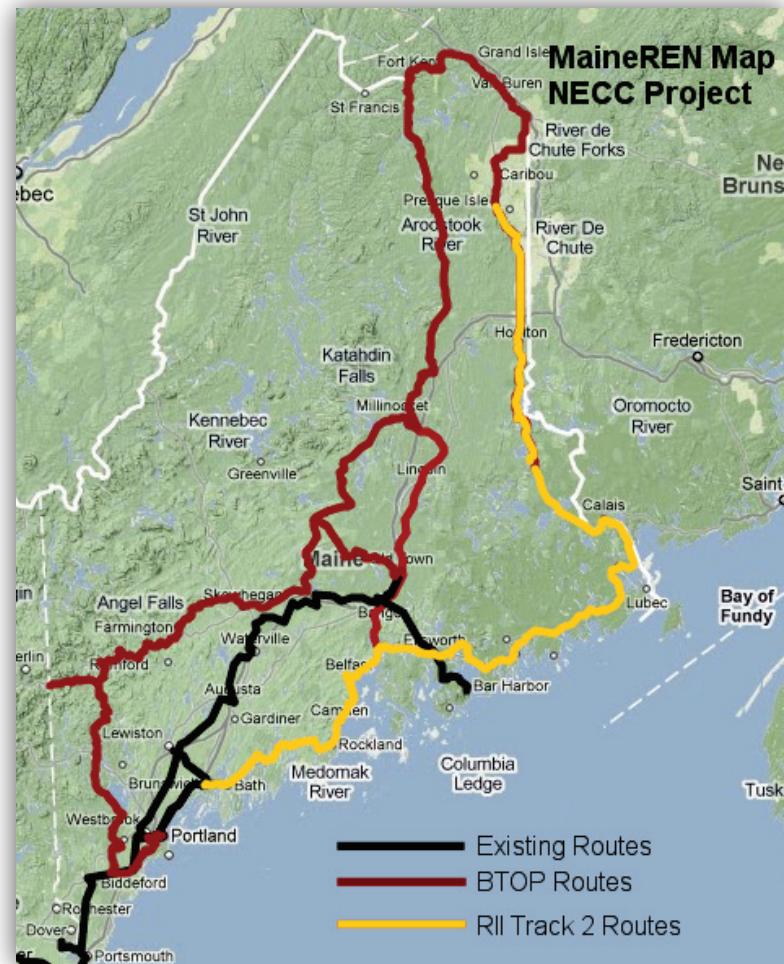


Theme of Leveraging and Synergies with Other ARRA Funding

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



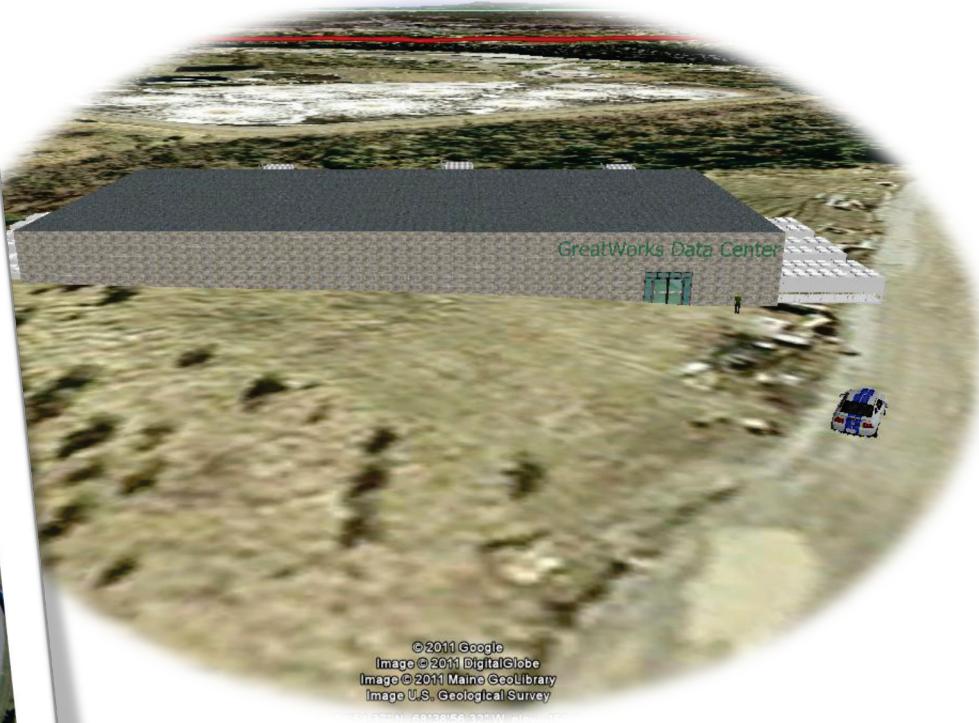


It is now possible to develop -



Maine Supercomputer Center

Design Data Mills for the Maine High Tech Industry

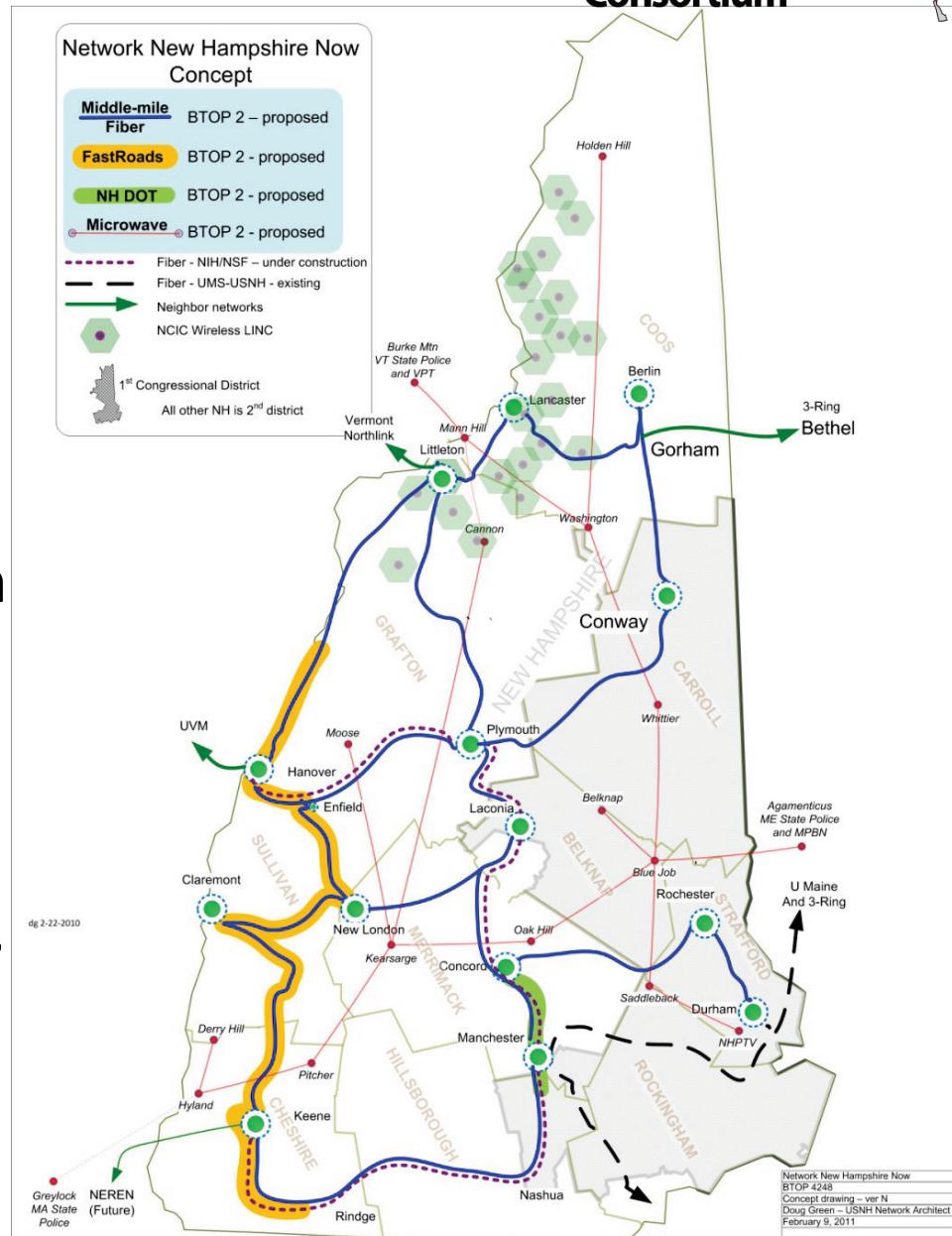


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Image U.S. Geological Survey



Construct an Inclusive Network in NH

- Research and Education Optical Network between UMaine System, University System of New Hampshire, Community College System and Dartmouth College
- Establish statewide collaborations to address complex needs in teaching, research and economic development.



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



National Science Foundation
WHERE DISCOVERIES BEGIN