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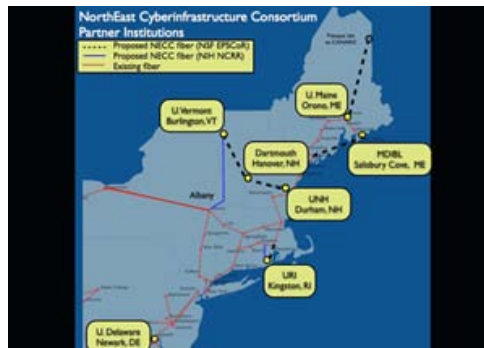
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UNIVERSITY COMMUNICATIONS

UVM wins \$3 Million for Interstate Fiber Optic Network, Lake Research

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The new cyberinfrastructure will provide capacity that has not previously existed for sharing large data sets among the North East Cyberinfrastructure Consortium states: Vermont, Maine, New Hampshire, Rhode Island and Delaware. [See a larger version of the diagram.](#)

and Delaware.

Capable of transmitting 60 gigabits per second, some 35 times faster than the current rate, the network will allow researchers to easily share the multi-terabyte files that have become the norm in biology, engineering, complex systems, medicine and many other research fields.

Senator Patrick Leahy provided key leadership for the new fiber network by supporting research funding at the National Science Foundation and the National Institutes of Health. These two agencies provided multi-year competitive awards for the new fiber network, including \$3 million to the University of Vermont.

Leahy and UVM president Daniel Mark Fogel announced the awards on Thursday, October 28 at the ECHO Lake Aquarium and Science Center at the Leahy Center for Lake Champlain in Burlington.

"This new fiber optic network will give students, researchers and faculty at the University of Vermont the ability to share vast amounts of research and data with other research institutions across the region and across the world at the speed of light," said Leahy.

Insight Into Algae

The first major project to take advantage of the new network will be a large genomic study of algal blooms in Lake Champlain and other lakes. This project will be a regional effort to determine the microbiomes, i.e., the identities and entire sequences of genomes of all the microorganisms in algal blooms in Champlain and four other lakes in the Northeast using cutting-edge, "next generation" genome sequencing.

These data will provide insights into bloom-causing organisms that have never been available before and will help scientists to understand why some blooms form and why some turn toxic.

Judith Van Houten, University Distinguished Professor and Vermont State EPSCoR and IDeA director, will lead the investigation with Kelvin Chu, UVM associate professor of physics and Vermont EPSCoR and Vermont Genetics Network associate director.

"It is fitting that the first data sets to be shared on the network will be aimed at fighting algae blooms on Lake Champlain and in lakes across the Northeast," said Senator Leahy, "This new network is the latest in Vermont's effort to create an unparalleled broadband network that reaches every home, business, educational facility and health care institution across

the state."

Leahy said the consortium project will complement the more than \$171 million in American Recovery and Reinvestment Act broadband funding awarded to broadband providers and organizations earlier this year.

"We salute Senator Leahy's longstanding leadership for the well-being of Lake Champlain and commitment to keeping Vermont at the front edge of advanced cyber-enabled research technologies," said UVM president Daniel Mark Fogel. "Thanks to his vision and effort, these important competitive awards will allow UVM, and all our partners in Vermont-EPSCoR and the Vermont Genetics Network, to reach new heights in science research, workforce development throughout the state, and research innovations for the next generation of scientists."

High-speed connections to the world

Following the completion of the Burlington to Albany leg of the fiber network, the consortium anticipates finishing the Burlington to Hanover, NH, leg in February 2011.

These fiber reaches will provide 60 gigabits per second to Albany and Hanover, completing a redundant fiber optic ring across the Northeast. New Hampshire will connect from Hanover to Maine and Boston. The redundancy of the ring design will minimize disruption, allowing data transmission even if some portion of the network is off-line.

"This very large bandwidth for interstate traffic is necessary if Vermont researchers and educators are to reach global resources and collaborators," said Van Houten.

The NECC project will not only build a dedicated fiber optic network linking UVM to research institutions in the Northeast; it will also be a portal into Internet2, an advanced high-speed networking consortium of more than 200 U.S. universities in cooperation with a group of leading corporations, government agencies, laboratories and international partner organizations.

"The research projects will be the first of their kind in the Northeast corridor enabled by new fiber connecting huge datasets previously unable to be shared due to the lack of bandwidth," Van Houten said, "The resulting collaborations and data under this holistic model will be innovative and set the stage for future scientists to build upon."

"This new fiber will benefit research and education and also allow the fiber vendor to provide service to other customers, especially web-based technology companies," Van Houten said.

"The large-scale projects being pursued by the NECC consortium would be difficult to carry out at an individual institution," she said, "Leveraging our skills and resources as a consortium produces a virtual research organization that is more than the sum of its parts."

The Vermont Experimental Program to Stimulate Competitive Research (EPSCoR) was first funded in 1985 and works to improve the research competitiveness of Vermont scientists and engineers as well as bring National Science Foundation resources to the service of the whole state. There are EPSCoR programs in 29 smaller and rural states, funded by the NSF, Department of Defense, and the Department of Energy.