



On October 29, 2004 the NYSErNet Board of Directors voted unanimously that NYSErNet staff should commence implementation of NYSErNet's newest statewide network. This historic vote, which capped more than a year of planning by NYSErNet staff, NYSErNet Board members, and staff of member institutions - and coming as it does just as NYSErNet is entering its twentieth year - ensures that NYSErNet member institutions will continue to enjoy access to network facilities essential to performing leading edge research. Deployment of the new network, the fifth in a series of increasingly powerful and flexible networks that NYSErNet has built in its twenty year history, was completed on April 8, 2005.

The new network consists of one pair of optical fibers (which NYSErNet acquired from Level(3) Communications under the terms of a twenty-year IRU or Indefeasible Right of Use) that extend 516 miles from Buffalo to New York City. NYSErNet employs Cisco 15454 chassis configured with Cisco ROADMs (Reconfigurable Optical Add/Drop Multiplexers) to light the network. This configuration provides NYSErNet with the basic capability necessary to enable the deployment of 32 independent optical wavelengths, each of which is capable of transporting 10 Gbps. POPs (Points of Presence) in Buffalo, Rochester, Syracuse, Albany and New York City provide affordable connectivity to the network via dark fiber or managed Gigabit Ethernet service.

The first use to which NYSErNet is putting this new transport infrastructure is to replace the underlying transport for NYSErNet 2000, the statewide dedicated research and education (R&E) network that NYSErNet turned-up in 1999. NYSErNet 2000 was built using ATM on leased private lines. The new R&E network is a pure IP network deployed utilizing four of the 32 optical waves presented by the NYSErNet transport network. Like NYSErNet 2000, the new R&E network connects to Internet2's national R&E network in Buffalo and New York City and to Internet2's MAN LAN switch through which the NYSErNet R&E network peers with many of the premier national and international R&E networks, such as: ESnet (the U.S. Department of Energy's Energy Sciences Network), and CA*net 4 (the Canadian national R&E network).

With completion of the network, NYSErNet's member institutions now for the first time control a statewide transport infrastructure, offering access to 32 DWDM lambdas. Around the state, NYSErNet member institutions are building and acquiring metropolitan dark fiber to enable their connections to both the R&E and DWDM networks. They are also working with researchers to discuss how the new networks' capabilities can be used. The capacity and flexibility of this infrastructure enables qualitatively new applications in research and education. The NYSErNet Board, working with NYSErNet staff and key members of their institutions, have engaged in articulating and prioritizing these new opportunities, a process we anticipate will continue for some time to come as we continue to learn how to harness this infrastructure and its capabilities.

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