



**To:** Networking Research Community  
**From:** National LambdaRail and Internet2  
**Date:** January 11, 2006  
**Subject:** Support for NSF NeTS Submissions

As you are likely aware, the National Science Foundation recently announced the Networking Technology and Systems (NeTS) solicitation. Responses are due on March 2, 2006.

National LambdaRail (NLR) and Internet2 have facilities in place that may be of interest to the networking research community. Consequently we would like to offer our support to researchers planning responses to this solicitation.

NLR is a nationwide network infrastructure built on multiple optical channels interconnected at several points of presence (POPs) ([www.nlr.net](http://www.nlr.net)). NLR has a unique and rich set of facilities, capabilities and services that support a set of multiple, distinct, experimental and production networks. On NLR, different networks exist side-by-side in the same fiber-optic cable pair, but are physically and operationally independent of each other as each network is supported by its own lightwave or lambda. This infrastructure provides the basis for the core set of basic service offered by NLR. NLR's WaveNet service offers point-to-point, high-capacity 10-gigabit Ethernet LAN-PHY or OC-192 lambdas between any two nodes on the NLR infrastructure. Its FrameNet Ethernet-based transport services supports point-to-point or multipoint Ethernet transport at subgigabit, gigabit and multigigabit data rates over the nationwide NLR footprint. The NLR PacketNet service provides nationwide IP-based AUP-free routed service. Additional services, including co-location services, are also available. Detailed descriptions of the services can be found at: <http://www.nlr.net/services/>. Descriptions of current projects using NLR and the services they use can be found at: <http://www.nlr.net/supported.html>. Researchers can place their own equipment at the NLR POPs and build their own networks, using the NLR service appropriate to their project. This flexibility is intended to offer a large range of research possibilities, from experiments with new optical equipment, to building networks customized for a particular application.

Internet2 operates the Abilene Network (<http://abilene.internet2.edu/>), primarily for the U.S. university community. There are several ways in which this resource can be used by network researchers. For example, MPLS tunnels can be created across Abilene to provide a wide area Ethernet facility, and equipment can be collocated within the Abilene router nodes as part of the Abilene Observatory effort (<http://abilene.internet2.edu/observatory>). The PlanetLab project, for example, currently co-locates equipment in Abilene sites. In addition, the Observatory makes a wide array of real-time network measurements available to the network research community. Another Internet2 project of potential interest is the HOPI testbed (<http://hopi.internet2.edu>), which uses Internet2 and National LambdaRail resources to explore hybrid networks and dynamic provisioning strategies. Ethernet paths will be provisioned across the HOPI testbed, and HOPI paths also can also traverse the Abilene network.

NLR and Internet2 each places a high priority on supporting network research and are happy to participate in any research activity that seems likely to lead to innovation in data networking. NLR is best suited to research where there is a clear need for dedicated bandwidth or where the experimentation is so close to the research edge, that failures will be common, and thus keeping the experiments isolated from operational networks is desirable. Internet2 can provide support, through either the use of existing infrastructure, facilities, and data or the active engagement of staff members who support researcher needs.

NLR and Internet2 do not intend to submit their own responses to this solicitation, but rather are offering their support to the network research community.

If you are interested in discussing NLR or Internet2 support for a NeTS research proposal, please contact Wendy Huntoon, NLR Director of Operations ([Huntoon@nlr.net](mailto:Huntoon@nlr.net) or (412) 268-6354), Dave Farber, Chair NLR Network Research Committee ([Dave@farber.net](mailto:Dave@farber.net)) or Rick Summerhill, Internet2 Director, Network Research Architecture and Technology ([rrsum@internet2.edu](mailto:rrsum@internet2.edu) or 734-352-4952). Based on these discussions, you may be asked to submit additional material such as a description of proposed research and of required resources.

Requests for collaboration or for letters of support for NeTS proposals will be evaluated by NLR and Internet2 staff together with Internet2 NRLC and NLR NNRC members who are not submitting proposals to the NeTS program and who have no other conflicts.

Sincerely,

Dave Farber, Chair, NLR Network Research Committee  
Larry Landweber, Chair, Internet2 Network Research Liaison Council