

INTERNET<sup>2</sup>  
2016  
GLOBAL  
SUMMIT  
MAY 15-18  
CHICAGO



***INTERNET2 PERSPECTIVES ON NETWORK PERFORMANCE TROUBLESHOOTING***

John Hicks  
Network Research Engineer  
Internet2 Research Engagement and Development  
[jhicks@internet2.edu](mailto:jhicks@internet2.edu)  
16 May 2016

[www.Internet2.edu](http://www.Internet2.edu)

# Problem statement

Transferring and sharing large data sets is becoming an essential part of the research and scientific workflow. A typical research data transfer between two U.S. institutions will involve a minimum of 5 different networks as shown in the figure below. Network issues that impact these data transfers can occur in any one of these administrative domains. What can nation backbone networks do to help solve?



# List of specific problems

- end-users/researchers have no performance expectations so don't know when there is a problem
- campus network groups don't routinely test WAN performance
- usually no dialog between network folks and researchers
- same as above for researchers-RON folks, and to a lesser degree, between campus network and RON folks
- campus and RON both do not have good connections with national backbone NOC personnel for problem reporting and resolution.
- problems go undetected, unreported, undiagnosed and not fixed, impeding research

# What is needed

- create clear expectations with campus researchers about WAN performance in terms that matter to them
- build awareness in campus network groups and RON staff about a campus' research activities and requirements
- establish clear end-to-end problem detection and resolution processes across researchers, campus, RON, and national backbone networks

# Need working groups that include representatives from all of these groups to build these processes

- RON-campus
- RON-RON (mediated by The Quilt?)
- RONs-Internet2 (mediated by I2 and/or the Quilt)
- RONs-ESNet (mediated by ESNet and/or the Quilt)

**THANK YOU!**

Questions?

[jhicks@internet2.edu](mailto:jhicks@internet2.edu)

INTERNET<sup>2</sup>  
2016  
GLOBAL  
SUMMIT  
MAY 15-18  
CHICAGO



***INTERNET2 PERSPECTIVES ON NETWORK PERFORMANCE TROUBLESHOOTING***

John Hicks  
Network Research Engineer  
Internet2 Research Engagement and Development  
[jhicks@internet2.edu](mailto:jhicks@internet2.edu)  
16 May 2016

[www.Internet2.edu](http://www.Internet2.edu)