

**Northern Tier Network Consortium
Annual Meeting
July 21-22, 2015
Ann Arbor, MI**

Our thanks to Merit and their staff for hosting a great meeting in Ann Arbor, MI in 2015.

Pre-meeting activities on Monday afternoon included a tour of Merit offices and a demonstration of Merit's "Capture the Flag" Exercise.

The NTNC 2015 annual meeting began at noon on Tuesday, July 21 with lunch at the Dahlmann Campus Inn on the campus of University of Michigan. Bob Stovall of Merit, and Laura Patterson from the University of Michigan provided a welcome and overview of Merit.

The business meeting of the Northern Tier Network Consortium was called to order by President Marc Wallman. Minutes from the NTNC 2014 annual meeting and the NTNC 2015 Executive Council meeting were read and approved. The financial report was presented and approved. As of March 31, 2015, the NTNC balance is \$167,804. Participants reviewed the current NTNC membership and contact list information, providing updates as needed.

Reports from each of the NTNC membership states and conference guest organizations were given by representatives.

Alaska (absent)

Iowa The Boreas-Net upgrade in Iowa has been completed. Iowa State University and the University of Iowa have transitioned to 100G in the last year. A state level efficiency study focusing on the public institutions has been completed.

Idaho (absent)

Michigan Continuing build of the Michigan Statewide Educational Network (MISEN), the state education network for all K12 schools.

Minnesota Google and Netflix came to Minneapolis in Oct 2014 with big impact on internet services. The Midwest Internet Cooperative Exchange (MICE) continues to grow and is currently at 70 Gbps at its peak. Apple is soon to join, and Charter, as part of their bid to purchase Time Warner Cable has listed Minneapolis as one of their (settlement free) peering points, which will initiate more significant change. The Northern Lights Gigapop (NLGP) continues to upgrade infrastructure and will be connecting to Internet2 at 100G in the next year. All of this activity will trigger needed upgrades (additional 500G or more) to Boreas in the future. State network is getting fiber from Inventis BTOP funds are being used to light a 10G link between University of MN – Twin Cities and University of MN – Duluth. University of MN also anticipates award of a 2015 CC NIE grant that will fund a 100G science DMZ on the Twin Cities campus resulting in 40G connection to about six buildings on campus.

Montana The University of MT has moved their Internet2 connection via Utah Education Network (UEN) to a 100G location in Missoula. Additional changes include securing commodity services from the Pacific Northwest GigaPoP (PNWGP), upgrading affiliate campuses with 10G connections, and transitioned file services to Box through Internet2's Net+ program. These projects have all served to strengthen relationships with telecoms in the state and improve local connectivity, resulting in better connections for the whole campus.

Nebraska Cogent Communications is one of the primary Internet2 providers in Nebraska. The NE Ext service is doing strategic planning for 5-10 years out to determine what kind of technology will be needed and how expanded use of cloud services will impact the amount of bandwidth needed.

North Dakota NTN-ND is developing partnership with the U.S. Geological Survey Earth Resources Observation System (USGS-EROS) in South Dakota and the U.S. Department of Agriculture Agricultural Research Service (USDA/ARS) laboratory located on the north edge of the North Dakota State University main campus. Partnerships with these entities will provide increased secure high bandwidth connections to other research labs around the country. Due to increases in use by EROS and other sites in their state, South Dakota is looking to increase their link to Fargo to 100G. The USDA/ARS partnership leverages Internet2's recent work with USDA to expand connections to the federal labs in the U.S. Relationships with telecoms across the state continues to improve.

South Dakota U.S. Geological Survey Earth Resources Observation System (USGS-EROS) is driving consolidation in preparation for an architecture update of the South Dakota Network (SDN). South Dakota's Research, Education and Economic Development network (REED). The REED network will need refresh soon and is planning for 100G upgrade as part of that process. These upgrades will improve capacity for handling Netflix traffic coming through the Great Plains Network (GPN) and supporting both EROS and the Sanford Underground Research Facility (SURF) in Lead, SD. South Dakota and the REED network are partners with GPN and other regional R&E's on a new NSF ENCITE grant initiative. Project objectives include benchmarking and periodically reassessing progress of campuses in the region toward implementing existing and emerging cyber infrastructure technologies, developing and delivering an online curriculum to improve expertise, creating opportunities for campus participants to learn from leaders in advanced cyber infrastructure and network technologies, providing outreach to campuses and building a community of support and encouragement for the implementation of new technologies.

Washington The Pacific Northwest GigaPop (PNWGP) is now running on 100G from Chicago to Denver. PNWGP serves as a connector with Amazon and others.

Wisconsin Successful separation between UW System and WiscNet has been completed. As a result the K-12's have seen an increase in some costs, and duplication of the network statewide. Requests are coming from healthcare facilities around the state to connect to the state network.

Wyoming Work has been completed on a 100G path from Denver to Laramie. Award of a recent NSF grant for build of a Science DMZ has resulted in addition of another 100G link. Work has begun to upgrade the current NCAR cluster in Cheyenne to next gen services, which will double the current NCAR capacity.

Ohio Academic Resources Network (OARnet) connects 91 colleges and universities, K12 and all public broadcasting sites in Ohio. The end of current IRU's is coming soon and will need to be negotiated.

Canada Serving British Columbia, BCNet is a full service IT organization with centralized services. The Ontario Research & Innovation Optical Network (ORION) provides bulk internet and supports its members through tactical planning to address specific needs.

Great Lakes Regional Optical Network (GL RON) includes partners ORION, OARnet, Merit, UW Wisc and WiscNet. One task going forward involves OARnet's work to create a peering site between Columbus, OH and Minneapolis, MN. GL RON is looking to consolidate and strengthen peering efforts among RONS around the lakes, which may include an opportunity for NTNC in the future. Of primary concern is ongoing support of Chicago as a central peering/exchange for the region.

Review of business previously designated for consideration by the Consortium membership:

- Review of NTNC charter
- Updates have been completed for the NTNC Web site and Consortium map: language, maps and other information edited and updated
- Consortium support/sponsorship of training opportunities for tech staff of Consortium members. Discussion and consensus to table this for now.
- Consideration of whether to maintain current NTNC affiliate membership in the QUILT. Motion passed to resign current NTNC membership. Motion by Bob Stovall, second by Matt Riley.
- Future planning for NTNC owned infrastructure or Internet2 services across NTNC member states. Discussion focused on the benefits of owned infrastructure as a result of BTOP build for NTNC states. Linda Roos, Sr. Director, Service Implementation & Retention for Internet2 provided current status of

no cost/low cost fiber availability across the NTN path. Currently there are few viable options available. Internet2 remains committed to exploring ideas and suggestions in collaboration with the NTNC. Discussion included Internet2's long-term commitment to this path; current status of path from Fargo to Kansas City; and work by the Research VP's at Universities in North Dakota, South Dakota and Minnesota to form a research corridor to support unique research activities going forward. Related to this discussion is the Boreas 100G wave from Minneapolis to Kansas City that is part of the Internet2 ALS backbone.

NTNC Highlighted Use Cases

- EROS/USGS Center, Sioux Falls, SD (<http://eros.usgs.gov>)
Presented by Mia Calla Lee, CISSP
CITT Network Manager, U.S. Geological Survey / EROS Center

- USDA / ARS Partnerships Panel discussion (www.internet2.edu/news/detail/7558/)
Iowa State University, Steve Schallehn
Montana State University, Matt Riley
North Dakota State University, Marc Wallman
South Dakota State University, Mike Adelaine
University of Nebraska, Lincoln, Mike Rurhdanz

Election of officers was held, with motion passed to keep the current executive officers in place for another year: Marc Wallman, President, Matt Riley, Vice-President, Kim Owen, Secretary-Treasurer.

Plans for 2016 NTNC meetings were discussed:

- NTNC Executive meeting to be hosted at the University of Wisconsin, Madison in February 2016.
- NTNC Annual meeting tentatively scheduled for Big Sky, Montana in July 2016.

Meeting adjourned at 11:45 a.m. and closed with box lunch provided to participants.