

# NTNC General Committee Meeting Minutes

## June 12-14, 2013

### Laramie, WY

---

States represented:

SD, MT, WI, IA, WY, ND, AK, MN, WA

Agenda - see attached document

1. Wyoming Welcome (R. Aylward)
2. Agenda overview and Introductions (M. Adelaine)
3. Internet2 Update (Rob Vietzke, Internet2)
  - a. 100G (U.S.CAN) Status of NTN segment:
    - i. Spring 2013 – NTIA approved change request for the route between Chicago and Seattle via contract with Zayo. Internet2 wants to continue in discussion/updates with NTNC.
    - ii. Zayo is considered a sub-recipient of the grant; they are required to sell services to their customers. Internet2 is just the financing tool. Internet2 is basically a customer of Zayo at a reduced rate for the waves. The waves are out there and available however Internet2 will not promote the availability of those waves, instead will focus primarily on meeting the BTOP requirements. From a public perception we want the waves to be made available as a result of the joint collaboration between Internet2 and NTNC. Internet2 does not want them to be competitive with the wave capabilities that are otherwise available. Internet2 does not need to have access to those waves.
    - iii. Working with MT and PNWGP to set up some scenarios; questions from PNWGP to see if contract can be extended beyond the contract with ZAYO.
    - iv. Contract: New Layer 2 path from Chicago to Seattle for a total of 440G available. Layer 2 access node to be located in Mpls will enhance Net+ services. Current contract is for 5 years plus three one-year extensions. NTIA is willing to go to 8 years. NTIA states ZAYO must go to 8 years if we want them to. *The question is:* in 8 years - is \$100k a good deal for a wave or not.
    - v. Details above are to be included in the contract with Zayo. NTNC to request completed contract from Internet2 when available.
  - b. Transpacific/Transatlantic waves update:
    - i. Global architecture for R&E is robust and diverse and has been in place for several years. - Parts of the globe - certain continents- were not built based on an economic / business plan. As a result, a team of NREN reps are meeting regularly to do some planning. The R&E fabric right now works, but it's due largely to the good will of the members - this R&E team is working to define the investment and business strategy. For example - look to light a wavelength with transponders we own. Vendors perceive R&E to be good options for investments in new builds they are planning - without having to go to a competitor for that funding assistance.
  - c. NTN North/South path planning; talking with Boreas about a redundant wave between Mpls and Kansas City.
  - d. Alaska: talking about cable build running from Japan to west coast of U.S. - would stop in Alaska. Interested in a shared fiber pair that would provide interesting capacity for AK.
  - e. Net+ Services: question about whether it's actually cheaper to go with a Net+ vendor, or just to go straight to the vendor for the service and ask for a cost reduction.
    - i. right now more vendors are in pilot/SV stage vs. in actual full availability phase.
  - f. President's announcement for E-rate and K12: do we want to influence the way this is molded?
4. Meeting Agenda (Mike)
  - a. Grand Challenges discussion: defined; includes identifying potential partners (CANARIE, east coast, trans-oceanic, etc.)
  - b. NTNC Website updates
    - i. Website sitting on Internet2's server; Gordy Pace U-MT is web master and will continue under contract with NTNC.

- ii. Consortium map: next steps - Dave F. and Rob V. to update and forward to Gordy. Each state outline will be a live link and each state will need to provide the link information to Gordy to program.
    - iii. Rob to talk to Internet2 staff to determine process for allowing additional login access by NTNC member states for purposes of updating documents, news, etc.
      - 1. SAML and InCommon could eliminate these problems.
    - iv. Site Content:
      - 1. Still need network contacts for each state: state contact/rep; technical rep; administrative; photos of recent activities
  - c. International/North-South collaborations
    - i. CANARIE: Rob provided update on interest from Canada, Mike Hrybyk (BCNET) collaborates with PNWGP for bandwidth connections on a regular basis.
      - 1. Potential collaborations: if available, it might be better to fund the collaboration out of the NTNC rather than by individual participants or institutions. Include further discussion on in the grand challenges discussion
    - ii. Consensus: while it's good to work on the large organizational collaborations, the isolated one-to-one connections are also of value so don't dismiss either option -
  - d. Executive actions brought to the general membership:
    - i. Dues to remain at \$1200 per year billed late fall by Internet2.
    - ii. Account balance as of June 19, 2013 is \$106,722.00
    - iii. Charter/Mission discussion and updates: no changes to the charter at this time
    - iv. Scholarship designated to support technical training for staff at member institutions has been tabled at this time.
    - v. Election of officers / Member representative updates: once those updates are in place, new officers to be selected (Steve Fleagle, IA will serve as new president elect)
5. State Reports
- a. Michigan: MiLR Michigan Lambda Rail; Merit Core Network; BTOP project close to completion; 184 new connections to CAI's as a result of the BTOP build - biggest positive impact in northern MI - easiest group to connect since they had fewer options; new Merit services listed; Merit is part of the Internet2 Regional Net+ Pilot project; MI Cyber Range: have secured two private businesses as investors because they see the value for their own employees and the value to offer training to the general public. PA is interested in offering coursework.
  - b. Wisconsin/WiscNet: BOREAS-Net and OmniPoP 100GE Upgrades; collaborations with Merit and U-MN; BTOP grant project completion activities; paid transit is evolving to be seen as backup to reduce costs; exponential traffic growth over the last few years
    - i. WI Legislative action and it's impact on WiscNet's relationship with Boreas: WiscNet was awarded the contract to serve the UW system: however, the award is under two legal actions at the moment (generated by teleco's).
    - ii. Research Data Storage: Working with individual researchers to facilitate a move of their research storage on their personal machines to centralized or cloud storage.
    - iii. Facilitate K12 services: WiscNet is a service integrator, so they work with K12's to identify their needs, work with them to find the best, efficient, effective options, then run the WiscNet services over their network. WiscNet does not compete but rather facilitates.
  - c. Montana: MT SU/Bozeman - lost DeWitt so are regrouping; U MT/Missoula- working to collaborate across the system and building research computing community on campus.
  - d. South Dakota (includes GPN): REED is a complete 10G network in operation since 2009; SURF (previously DUSEL) is funded by DOE for operations; funded by NSF for experiments. SURF is interested in another connection via WY to the FRGP (Front Range GigaPop); EROS recently deployed Landsat 8 controlled by SDSU (can zoom in to within 1 meter)- much higher resolution resulting in much larger files and data transfer needs. EROS needs a back-up path to Google (to Seattle - need NTN to provide). EPSCoR and HPC: will award grants directly to researchers; with some \$\$ available for HPC improvement; specific chemistry and physics needs surface frequently - they tend to use a lot of commercial software - could the SDBoR run system purchases? Looking for "domain experts" - the one they have hired almost singlehandedly tripled

the use of the network; GPN - update on recent annual conference [www.greatplains.net](http://www.greatplains.net); Currently two peering sites for GPN (Tulsa and KC).

- e. North Dakota: NDSU converged fiber channel over Ethernet; will be getting rid of most traditional switches; more storage for researchers and faculty - (approx. 150 Tb added). UND is completing build of new data center. Grants nearing completion: NTN-ND and NTN-SD link and PNWGP NW upgrade. North Dakota upgraded state network to 10G ring in 2012. 50% of inbound traffic to NDSU is IPv6 (Google, Facebook, Netflix)
  - f. Minnesota: Northeast service cooperative (RUS award) focused on upgrades in the Arrowhead region and includes the Soudan mine underground lab. Moving a lot of Duluth connections to fiber (outlying from Duluth) Core sites are Duluth and Hibbing. Mayo is now connected to UMN at 10Gb. Other items include changes as a result of new U-MN CIO, Internet2 fee increases and impact on NLGP; New nodes by NLGP and Internet2 are in colocation site; working with Internet2 and Starlight to upgrade colocation site in Chicago. This work is the result of planning forward for quick growth over the next 10 years or so (16-18 100 Gb waves- with half of those to be installed asap).
  - g. Washington: upgrade to WA state network (K20 backbone) has been a huge endeavor to bring it up to 40G backbone> The Ocean observing initiative (NSF) may be a 20 year project - PNWGP is providing the cyber infrastructure for the underwater network. Data sensing is already happening in the Strait of Juan de Fuca. UW will be main storage site of the data and is ramping up Chicago presence quickly in order to provide connection capacity for this project at that location. No remote deep sea sensing until the 1990's - no way to discover shipwrecks or other losses other than through actual human touch so once the video and pictures come back there will be a bump in network activity.
  - h. Alaska: 17 campuses for Univ of Alaska (Fairbanks, Anchorage, Juneau) plus multiple small community satellites across the state - both on road and off road: AK EPSCoR 5 year grant was successful; Terra Long Term Vision - stimulus grant with focus to get southwest AK connected on terrestrial fiber network. Building London to Tokyo route through the NW passage to include five landing spots: Prudhoe Bay, Barrow, Wainwright, Kotzebue, and Nome. Nothing in other hub communities due to river drainages at this point. If they are added in it could give AK another provider to keep costs down and provide multiple paths for redundancy. UARCTIC is a consortium of universities in the Arctic; they would like to see this evolve to an Arctic Research network. ROTACS is the eastern Russia to China loop. Fiber on the Tundra update - the fiber actually has not sunk into tundra as anticipated.
6. Grand Challenges discussion
- a. Original NTNC goals were to "build" something: "what capabilities do we have now that we didn't have 5 years ago?"
    - i. Shear amount of bandwidth that didn't exist before
    - ii. Ability to deploy that bandwidth via agreements, relationships, peering,
    - iii. Recognition of an entity, a line on the map, and being able to sustain that recognition
    - iv. The network is no longer the excuse
    - v. Currently not running these networks at full capacity - a marketing challenge
    - vi. Define ...what is "full" capacity?
    - vii. How to determine what the data is that is generating the traffic? Where it's coming from and what the collaborations are that are resulting in the data transfer?
    - viii. Suggestion: discipline-based group to identify use cases
    - ix. Reference GPN model to identify researchers, what they are doing, what they need
    - x. When is the right time for the goal of 100Gb for everyone? Campuses will arrive at this need faster than others -
    - xi. Begin planning for savings and prep time needed for fiber refresh that's looming within the next 10 years.
    - xii. International connections that can expand and increase?
  - b. Miscellaneous:
    - i. NW brochure: still edits to be made; submit statements/testimony from researchers who use those resources to Kim Owen; Bob Stovall and subcommittee to finish the editing and

get the doc into final format so it can be posted and be available for campuses to customize as needed;

- ii. NTNC Web Site updates: page on the site to house downloadable marketing docs, best use cases, could also post state specific presentations – should it have public or private access?
- iii. Grant activity impacts and update examples that could be featured: EROS servers are housing USFS research data - are they peering? (Matt to check on that); in SD, two federally connected labs: SURF (Dept. of Energy), EROS (Dept. of Interior), AK stories, NE Peter Kiewit Institute.

c. In Summary –

- i. Emphasize international collaborations: could NTN be part of the trans-U.S. transport for Internet2 and it's international connections?
- ii. Huge opportunity re: storage, computation, and research computation. How can we engage in these? Can or do we provide circuits?

7. ZAYO presentation (Matt Erickson and Brian Proffit)

- a. Top 1000 consumers of bandwidth include Verizon and ATT in the top 5, followed by banks, Amazons, eBay's, etc. Higher ed comes in about middle in the ranking,
- b. Zayo is one of the top 3 networks in the U.S. at this time. Zayo covers the entire density of the Mpls metro area; building out new fiber; the drivers for this work are fiber to tower, and content companies are looking for new regional routes,
- c. NTN is a challenge for Zayo: had routes and assets complimentary to Internet2's route and had plans for a national backbone updated to native 100G but business case was difficult to develop across the NT without a partner,
- d. Zayo's route in ND does actually follow I-94 - not farther north as originally thought. Long haul add/drop sites are proposed for Bozeman, Missoula, Billings, Fargo and Mpls. Fiber to tower long haul service is to be used by cellular service providers. New long haul fiber routes through the NT are rare - but questions are surfacing. Zayo is interested in partnering with our RENs to build these out. Interested parties along this route include: Verizon, ATT, Microsoft, Comcast
- e. Alternate routes to Internet2: Zayo is interested in replicating the Internet2 network across the country with a complimentary 100G backbone. More consolidation of long hauls is likely, but not sure of timeline.
- f. Question: what is Zayo's commitment to the 100Gb build across the NT? 50/50 at this point, estimated completion at 2017 is approximate. A build right along Canadian border is not likely, not enough population and not enough demand.
- g. President's initiative on K12/K20 – commitment to broadband for K-12 remains to be seen how things play out (<http://www.cablinginstall.com/articles/2014/01/sotu-k12-erate.html> ) ([http://blogs.edweek.org/edweek/DigitalEducation/2014/02/fcc\\_will\\_double\\_broadband\\_funding.html](http://blogs.edweek.org/edweek/DigitalEducation/2014/02/fcc_will_double_broadband_funding.html) )

8. Technical Committee met briefly aside from general membership

9. Wrap-up discussion:

- a. Transition to new leadership – Steve
- b. 2014 annual meeting location? Michigan - Ann Arbor (Bob to develop draft)
- c. Steering committee meeting to be scheduled mid-winter
- d. Continue grand challenges discussion via emails; consider launching survey
- e. Thanks to Mike and Amanda for their service

10. Tours provided by host University of WY:

- a. Energy Engineering Center/ 3D Lab Cave on Univ WY campus
- b. NCAR –Wyoming Supercomputing Center, Cheyenne, WY: lots of dark fiber going through WY so the state has been working to get more fiber stopping points throughout WY and neighboring states. Thus the NWSC is a huge partnership. WY invested huge amount to bring the NCAR site to Cheyenne. Originally planned for Boulder (which still has a site) but they were running out of electrical power to support the additional needs. Cheyenne wasn't originally on the radar, but WY pushed forward with incentives that convinced them to locate. WY can provide 3 cents/kwh - very cheap power due to proximity to coal; Because of the states' investment in NCAR site; UW gets 20% of the time on the cluster.

NTNC General Committee Meeting  
June 12-14, 2013  
Laramie, WY  
*(All times are in Mountain Standard Time -- MST)*

**Video Conferencing Bridge:  
Video Conferencing - 129.72.9.67 and "NTNC Conference" (#60620)**

**Wednesday, June 12, 2013**

Mike Adelaide lands at the Laramie airport at 4:35pm – so anyone else flying in at the time can get a ride from him to the hotel. If arriving at a different time – there is a taxi service available:

- *Laramie Taxi Cab*  
307-745-9999  
*Fee from airport to hotel - \$10.00/per trip*

***\*Note: For those of you with your own transportation – we will have parking passes available to you to use on campus throughout the conference.***

6:00pm – Hampton Inn guests – meet in lobby for transportation to restaurant

6:15pm – Holiday Inn guests – meet in lobby for transportation to restaurant

6:30pm – Altitude Chophouse and Brewery

- Supper
  - Altitude Chophouse and Brewery  
320 S. 2<sup>nd</sup> Street  
Laramie, WY  
*(reservation under "NTNC Group" w/ Jessica Morger as the main contact for the reservation)*

**Thursday, June 13, 2013**

8:00am – Hampton Inn guests – meet in lobby for transportation to University

8:15am – Holiday Inn guests – meet in lobby for transportation to University

8:00am – College of Business, Atrium of room 21

- Breakfast

9:00am – College of Business, Room 21

- Wyoming Welcome (R. Aylward)

9:15am – College of Business, Room 21

- Executive Report (M. Adelaide)
  - Dues
  - Officers
  - State Reps
  - Budget

10:00am – College of Business, Room 21

- General (M. Adelaide)
  - Website/Maps
  - Northern Wave
  - Canada Discussion
  - US UCAN

11:00am – College of Business, Atrium

- Lunch (when done eating – walk to 3D Data Visualization Center)

12:00pm – 3D Data Visualization Center, University of Wyoming

- Tour 3D Lab

1:10pm – College of Business, Room 21

- State reports (*please be prepared to share what your state has been doing on the network, what research you've used the network for, and any other information you'd like to share with the group*)
  - NE State Report (R. Golden – via conference line @ 1:10pm MST)
  - All other states after NE (Rick Golden) is done.

3:00pm – College of Business, Room 21

- Grand Challenge (M. Adelaine)

4:00pm – College of Business, Room 21

- Brochure (B. Stovall)
- CIO Meeting
- New Members Discussion

5:00pm – Shuttle guests back to hotel for an hour of 'down-time'

6:00pm – Hampton Inn guests – meet in lobby for transportation to UW Conference Center

6:15pm – Holiday Inn guests – meet in lobby for transportation to UW Conference Center

6:30pm – UW Conference Center

- Social/Supper

### **Friday, June 14, 2013**

8:00am – Hampton Inn guests – meet in lobby for transportation to University

8:15am – Holiday Inn guests – meet in lobby for transportation to University

8:00am – College of Business, Atrium of room 21

- Breakfast

9:00am – College of Business, Room 21

- State reports (carryover from previous day, if needed)
- NOAA Presentation/Discussion (rep from NOAA)

9:30am – College of Business, Room 21

- I2 Update (G. Loftus)

10:00am – College of Business, Room 21

- Zayo (M. Erickson)

11:00-12:00pm Breakout Sessions:

- Grand Challenge (*room 21*)
- Tech Discussion (*room 121*)

12:00pm – College of Business, Atrium

- Incoming President Presentation ☺ (S. Fleagle) ☺
- Lunch

1:00pm –

- Board Charter bus to drive (about 45-minutes) to NCAR-Wyoming Supercomputing Center in Cheyenne, WY.

2:00pm – NCAR –Wyoming Supercomputing Center

- Tour data center

4:00pm – Terry Bison Ranch – Cheyenne, WY

- Social/Supper

7:00pm –

- Board charter bus and drive back to Laramie, WY