Acronym soup

- University Corporation for Atmospheric Research (UCAR; http://www.ucar.edu)
- National Center for Atmospheric Research (NCAR)
- Front Range Giga PoP (FRGP)
- UCAR Point of Presence (UPoP)

Questions and discussions throughout please – and as for acronym soup ingredients, please ask if I miss one or check a decoder page at http://bit.ly/acronym-soup
Reviews and updates

- Front Range GigaPoP (FRGP)
- UCAR Point of Presence (UPoP)
- National networking highlights
  - The Quilt, Inc.
  - Internet2
  - NTIA BTOP/stimulus
  - FCC NBP
  - Others/misc
- CTN
Front Range GigaPoP

- FRGP
  - Covers Colorado/Wyoming
  - Regional IP aggregation for non-profit members
  - Access to national R&E Networks, IPv6 connectivity
  - Collective purchasing of commodity transit

- 10 years of operation by UCAR Network Engineering and Telecommunications Section (NETS)

- 14 Members
  - Large Universities & Gov’t labs
  - Fairly static membership

- [http://www.frgp.net](http://www.frgp.net)

- Cost recovery billing model
Front Range GigaPoP (FRGP)

* Providers and Peers
  * Transit: Qwest, Level3, and TeliaSonera International Carrier (TSIC)
  * National commercial peering: TransitRail (TR) and Internet2 Commercial Peering Service (CPS)
* Research and Education
  * Internet2 Network (I2)
  * National Lambda Rail (NLR)
  * Energy Sciences Network (ESnet)
  * California Research & Education Network (CalREN)
* Regional Peering
  * Comcast
  * Rocky Mountain Internet Exchange (RMIX)
FRGP members

- Colorado School of Mines
- Colorado State University System
- Ithaka
- National Oceanic and Atmospheric Administration (NOAA-Boulder)
- State of Colorado
- United States Antarctic Program
- University Corporation for Atmospheric Research
- University NAVSTAR Consortium (UNAVCO)
- University of Colorado Boulder
- University of Colorado Colorado Springs
- University of Colorado Denver
- University of Denver
- University of Northern Colorado
- University of Wyoming
Western Regional Network

- FRGP and Utah Education Network (UEN) SUMMIT agreement ended June 2010
- Western Regional Network (WRN): a multi-state partnership to ensure robust, advanced, high-speed networking availability for research, education, and related uses through the sharing of network services
- Expansion and sharing of network services in support of advanced research and operations
- Support of academic, economic development, and inter-regional services
WRN Membership

- Pacific Northwest GigaPop (PNWGP)
- Front Range GigaPoP (FRGP)
- The University of New Mexico (on behalf of the State of New Mexico)
- Corporation for Education Network Initiatives in California (CENIC)
- [http://westernregional.net/](http://westernregional.net/)
WRN Footprint

Increased potential for shared applications among communities across the west—e.g., networking services to the following states:

- Alaska
- Arizona
- California
- Colorado
- Nevada
- New Mexico
- Washington
- Wyoming
WRN for FRGP

- Intra-region peering (Ca IREN)
- NLR and Internet2 services shared and backed-up
- Back each other up (provide diverse layer 2 and 3 to cover on-net failures)
- Large-scale and cost-effective commodity Internet
- Not limited to non-profits. Place to land for-profits from CTN, EagleNET, US-UCAN, others?
WRN services vs. FRGP services
proposed 2010-10-22, Pete Siemsen

1. Protects FRGP against a failure of WRN switch 1 or 2 in Denver
2. Saves money on Level 3 by sharing with UNM
3. Allows WRN transit VLANs through WRN switches without touching FRGP gear
4. Allows potential commercial traffic to transit WRN without touching FRGP infrastructure
UPoP

- UCAR Point of Presence
- [http://upop.ucar.edu](http://upop.ucar.edu)
- 3 years of operation
- 21 members and growing yearly
- Technically similar to FRGP membership
- No representation on Technical and Management Committees
- Standardized service model keeps costs down
- Cost recovery billing model
UPoP members

- Auraria Higher Education Center
- Colorado Association of Research Libraries
- Centennial Board of Cooperative Educational Services
- City of Boulder
- City and County of Denver
- Colorado Community College System
- Colorado Telehealth Network (not active yet)
- Community College of Denver
- Colorado Department of Higher Education
- Colorado Mountain College
- Deproduction
- Denver Health and Hospital Authority
- DIA
- EDUCAUSE
UPoP members

- Fort Lewis College
- Front Range Internet, Inc. (two school districts)
- Metropolitan State College of Denver
- St. Mary's Academy
- Science and Technology in Atmospheric Research (STAR) Institute
- UCD Educational Support Services
  - San Luis
  - Montrose-AHEC
  - Greeley-AHEC
  - Western-AHEC
  - Craig Memorial-AHEC
- SW Health Hospital
- Pueblo CC
- University of Colorado Hospital (not active yet)
EAGLE-Net

- Educational Access Gateway Learning Environment Network
  - [http://www.co-eaglenet.net/](http://www.co-eaglenet.net/)

- BTOP round 2 award received

- Intergovernmental Agency (IGA)
  - rolling out from CBOCES
  - Board in place
  - Technical Advisory Board being formed
Internet2

- [http://www.internet2.edu](http://www.internet2.edu)
- A high performance IPv4/IPv6 backbone, optical waves, and MPLS services for the R&E sector
- SEG P: intended to allow expanded access to the Internet2 network for regional education networks
  - through sponsorship by Internet2 university members
  - State and regional networks connect K-20 educational institutions
  - The program began in early 2001 and, as of July 2009, there are 39 SEGPs
- RHCPP – separate Internet2 fee (not included in SEG P)
National LambdaRail (NLR)

- [http://www.nlr.net](http://www.nlr.net)
- Similarities to Internet2
  - Only a subset of FRGP membership has routed access
  - Layer 2 service supports TransitRail peering
  - UPoP members do not have direct NLR access
  - Can get to Telepresence gateway via Internet2 connection
**FCC National Broadband Plan**


- Implied acknowledgement that non-profit networking works?
  - It meets the needs of a select groups of customers that perhaps the commercial marketplace hasn't historically served well enough?

- Legitimizes public and R&E networking?

- [http://www.nlr.net/nationalbroadband.php](http://www.nlr.net/nationalbroadband.php)
US UCAN

- Internet2 BTOP proposal (~$97M) - NLR declined to participate
- United States Unified Community Anchor Network (US UCAN)
  - hopes to provide essential national infrastructure
  - complement and link together regional community anchor networks
- Open search for US UCAN director
- Optical vendor chosen
- Regular calls with RONs on design, schedule, impacts
The Quilt, Inc.

- [http://www.thequilt.net](http://www.thequilt.net)

- 28 members currently:
  - [http://www.thequilt.net/participants.html](http://www.thequilt.net/participants.html)

- Non-profit regional network aggregators providing advanced network services in support of research and education

- Several work groups, lots of tracking, coordination and strategic planning efforts
Discussion

- Any follow up questions or feedback on items covered?
- Other items?

Thank you!