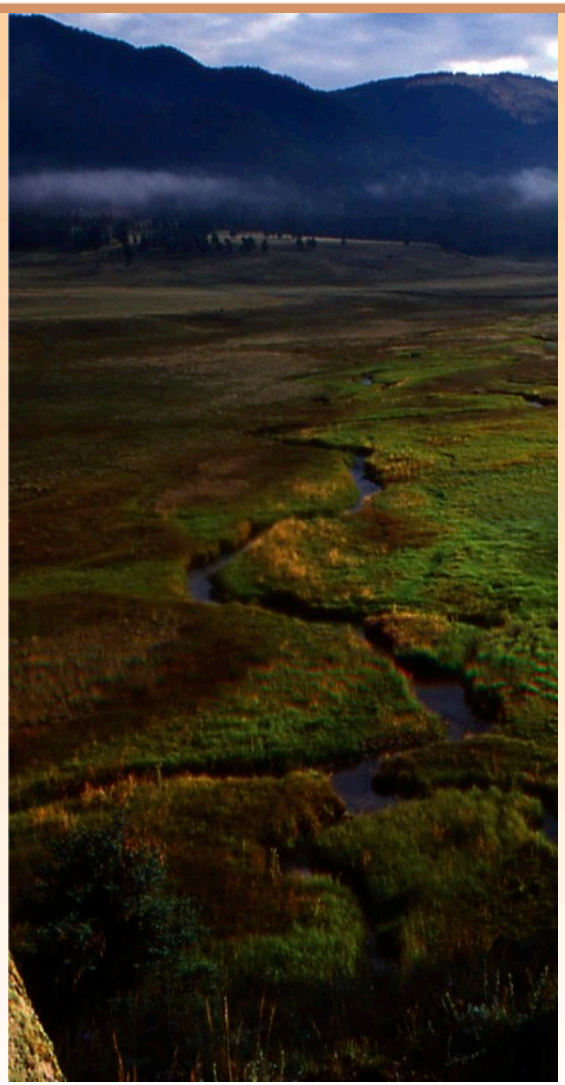
New Mexico EPSCoR



NM EPSCoR State Committee Spring 2012 Meeting

June 8, 2012

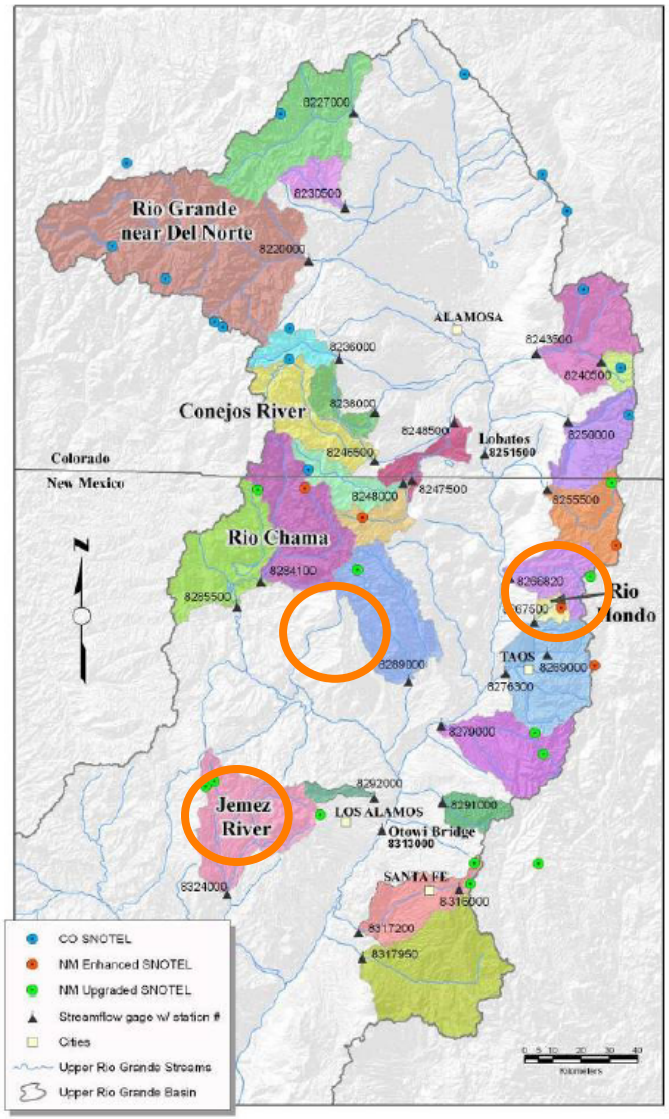
NM EPSCoR Office

Albuquerque, NM

TRACK 1 (RII 3) PROGRESS

Primary Field Sites

- Leverage, improve and extend existing facilities
- Intensive study areas
  - Valles Caldera National Preserve and the Jemez River Basin
    - Also site of a new CZO
    - 1200 km^2
  - Rio Hondo near Taos
    - 96 km^2
  - El Rito
    - 350 km^2



Map of Rio Grande in northern NM and southern Colorado

Objective 1: Enhance climate and hydrology research infrastructure

- Data have been analyzed to identify flow paths and residence times in selected watersheds

Objective 1: Enhance climate and hydrology research infrastructure

- Eight new SCAN stations are prepped for installation in summer 2012
- Models have demonstrated dynamic flows ranging from individual storm events up to seasonal, decadal, and longer time scales

Objective 2: Improve water quality monitoring in high altitude streams

- In collaboration with hydrology group, continued studies of meander site at Valles Caldera National Preserve.
- Completed development of an on-site water quality trailer, which is scheduled for installation in summer 2012.

Objective 2: Improve water quality monitoring in high altitude streams

- Assessed effects of the Las Conchas fire on water quality
- An additional sonde also has been continuously deployed in the Jemez River in Jemez Springs to examine salinity, T, pH, DO and turbidity changes to allow site data to be connected to larger scale systems

Objective 3: Develop interdisciplinary socioeconomics and acequia research capacity

- Initiated a study to determine the water balance for Northern NM acequias
- Monitored riparian health at both the El Rito and Rio Hondo sites

Objective 3: Develop interdisciplinary socioeconomics and acequia research capacity

- Analyzed impact of conservation incentives used by the Albuquerque Bernalillo County Water Utility Authority.

Objective 5: Innovation Working Groups

- *Connecting Communities: Engaging Stakeholders in Research*
  - Caiti Steele, NMSU
- *Designing an Online Professional Development Network for Project GUTS*
  - Irene Lee, SFI
- Climate Change, Agriculture, and Water Policy
  - Denise Fort, UNM School of Law
- *Water, Energy, and Culture Through Time in the San Juan Basin*
  - Coming June 2012

Objective 6: Provide Critical Infrastructure Gap Seed Awards

- Synergistic effects of climate change and invasive species on native fauna in a highland aquatic ecosystem
  - Jesus Rivas, NMHU
- Tracing the Impacts of Prehistoric Climate Change: Eastern New Mexico's Water Resources across the Pleistocene-Holocene Transition
  - J. David Kilby, ENMU
- Bringing Climate Research to UNM Los Alamos: Development and Infrastructure Improvement for the Environmental Science Program
  - Donald Davis, UNM Los Alamos

Objective 8: Diversity – NM STEM Database

- Fully redesigned
- Provides information about STEM resources for NM students, teachers, parents, counselors, and administrators
- www.nmstemed.org

Objective 8: Project GUTS

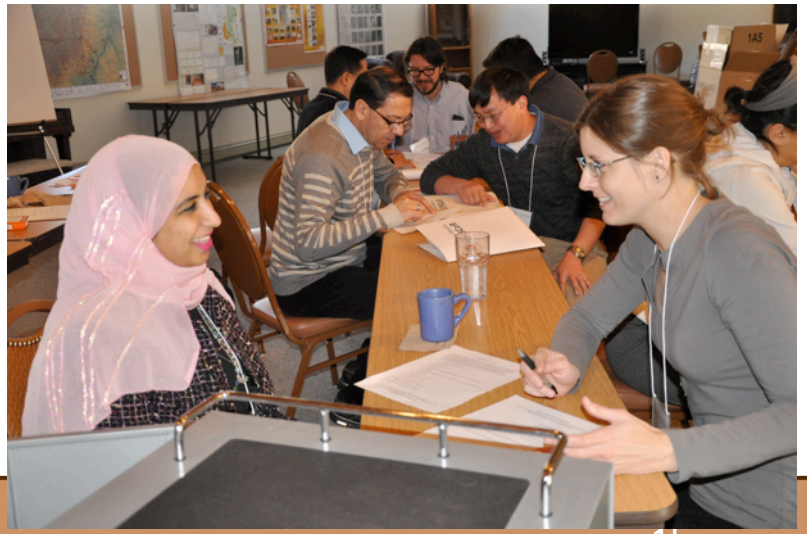
- Growing Up Thinking Scientifically (GUTS)
- After school project part of EPSCoR's goal in training the next generation of scientists & policymakers
- 26 fifth and sixth graders from Clovis, NM are participating
  - Students use computer ecosystem modeling to learn about how a balanced & sustainable ecosystem is created

Objective 13: Junior Faculty Leadership Program

- Intense 3-day program offered annually
- Expanded to include Tri-State partners
- Very highly rated by participants
- Evaluation results used to improve content each year

Junior Faculty Leadership (cont.)

- Time, personnel and project management
  - William Michener, EPSCoR PD
- Communicating science to decision makers
  - Robert Gropp, AIBS
- Writing competitive proposals
  - Scott Collins, Director, Sevilleta LTER
- Leadership styles and facilitation skills
  - Carl Moore, The Community Store
- Communicating Science to the Media
  - Sandra Blakeslee, NY Times Science Writer
- Effective Teaching Strategies
  - Gary Smith, UNM



Objective 14: Public Outreach & Communication – Sandia Mountain Natural History Center

- Tours provide information about climate change impacts on the ecosystem
- 17,000+ students and visitors visit each year
- Funding has been provided to the SMNHC for extra staff to give Ecology Field Programs to school groups

Objective 14: Town Hall on Fire & Water

- June 5-6, 2012
- Two-day town hall where participants:
  - Explored the impact of fire on the region
  - Discussed lessons learned that can be applied in future situations
  - Put forth their best ideas for policy changes

Objective 14: Science: Becoming the Messenger

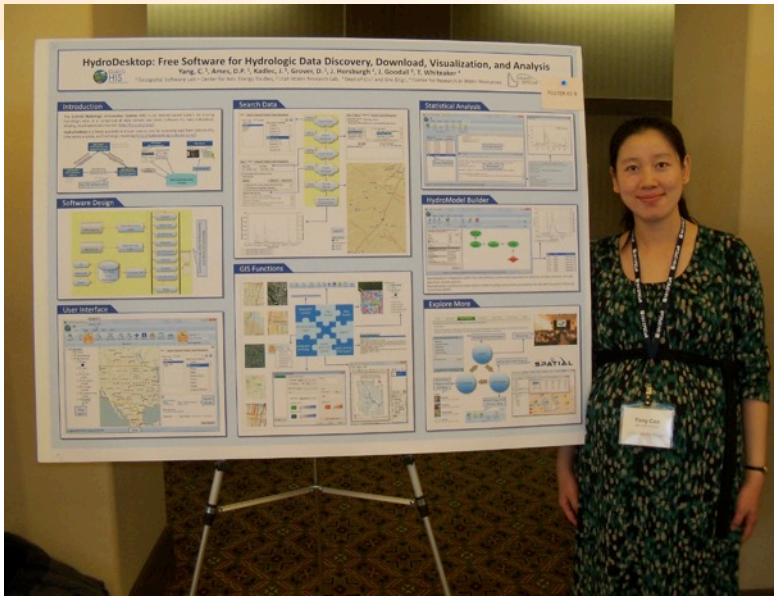
- One day NSF workshop on communicating science to the public, April 18, 2012
- Topics included:
  - How to craft a message & deliver it to a diverse audience
  - Live interview training
  - Develop writing skills
  - Learn about new media & social networking
  - Hone presentation skills & produce video

National EPSCoR Conference

- Themes included Energy, Water and Environment, and Workforce Development; Cyberinfrastructure (CI) was an integrative and pervasive theme throughout
- Provided a forum to exchange ideas on how synergies can be developed to better leverage state investments with federal opportunities

TRACK 2 PROGRESS

Collaboration, Networking and Learning



4th Annual Tri-State Meeting

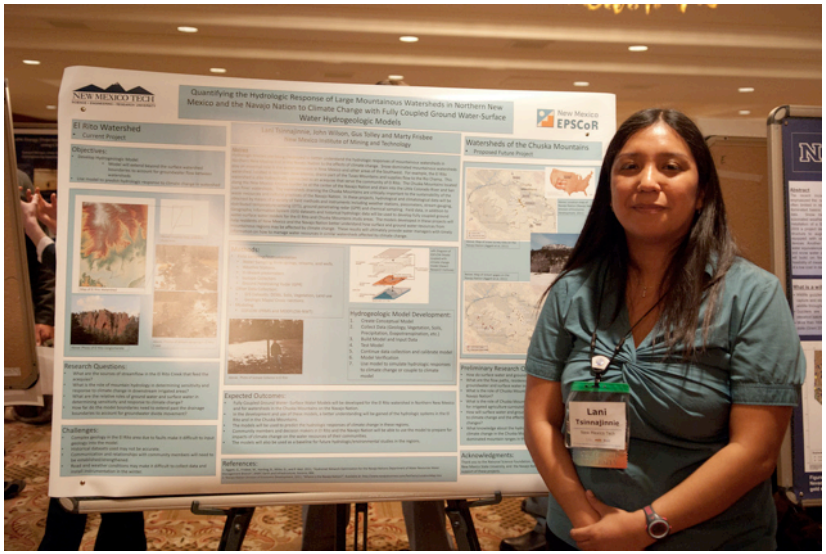
- April 2-5, 2012 in Sun Valley, ID
- Focus on diversity, collaboration, and education & outreach
- 3 out of 4 poster competition awards went to New Mexico students

Poster winners (L) Jesus Gomez (NMT) and (R) Betsy Shafer (UNM) w/ Rick Schumaker. Not pictured: Kenna Jackson (NMT)

4th Annual Tri-State Meeting

- Nearly 200 faculty, students and staff attended

Keynote speaker Lilian Na'ia Alessa of the University of Alaska



NM EPSCoR Student Lani Tsinnajinnie

Cyberlearning Summit

- Focused on key activities in each state and ways to integrate/collaborate
- 26 attendees from all 3 states

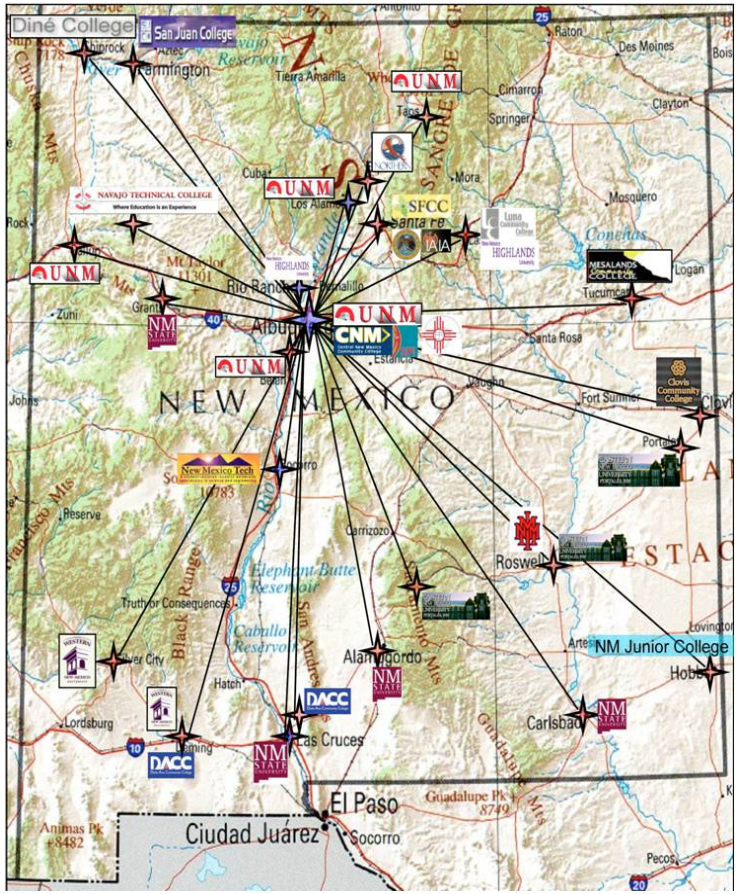
Cyberlearning Summit (cont.)

- Next steps include:
  - Proposal to NSF Cyberlearning
  - Tri-State IWG proposal
  - Sessions at Tri-State Meeting 2012
  - Infuse cyberlearning into next Track 1 proposals
  - Plans to integrate MOSS, NV curriculum model (C4D), agent-based modeling

New Mexico Connectivity Component

- Activity:
  - Education Gateway Portals at 27 NM University and College Campuses:
    - 8 installed - January 2010
    - 13 installed - May 2010
    - 6 installed - June 2011

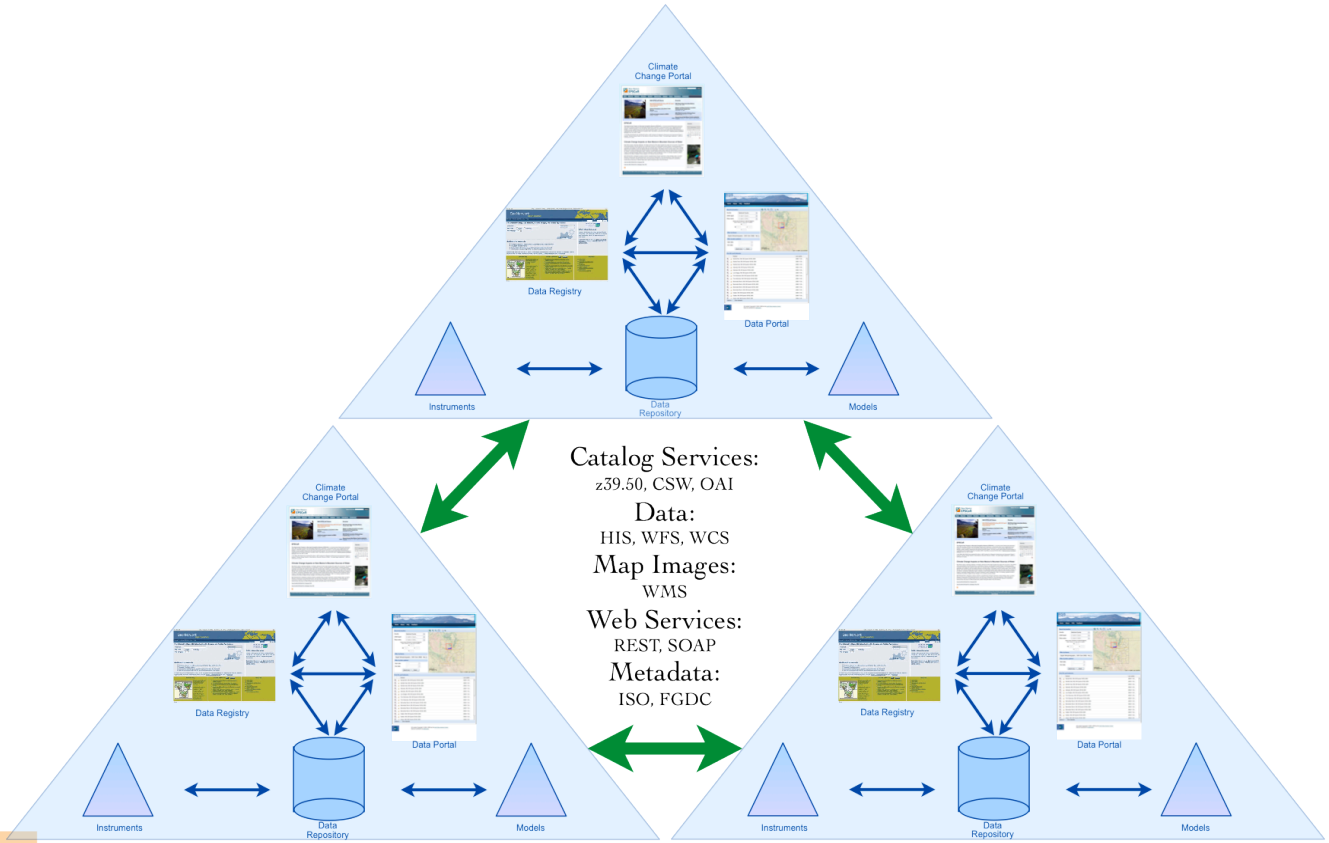
Total New Mexico state investment - $1.4M



IDAHO EPSCoR | EPSCoR | New Mexico EPSCoR

Western Consortium of Idaho, Nevada, and New Mexico

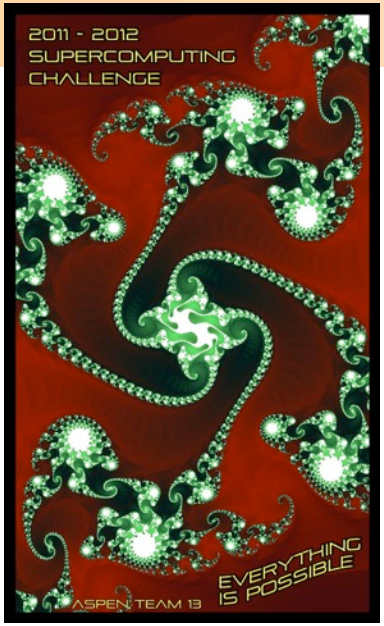
Interoperable Data Portals



FastForward New Mexico (FFNM)

- Trained over 400 partcipants in Ohkay Owingeh Pueblo and the Navajo Nation in Introductory Computer Skills and Using Computers for Small Business
- Collaborated with state libraries
- Provided training in English, Spanish, and Diné (Navajo language)

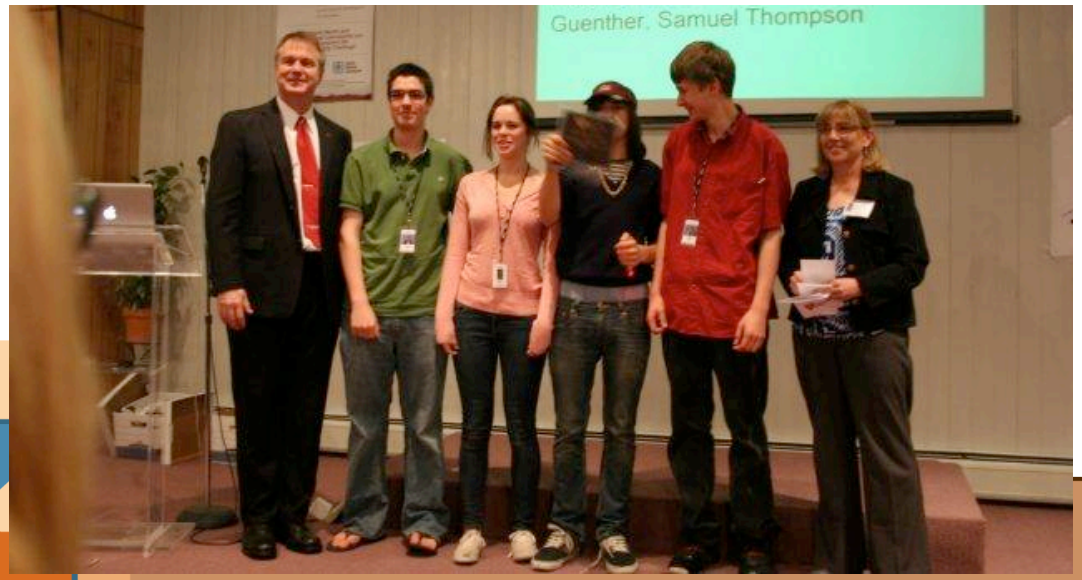
New Mexico Supercomputing Challenge



← April 2012 Finals!
at Los Alamos Nat. Lab.

432 students,
71 teachers

- 39% women
- 1% African American
- 3% Asian
- 24% Hispanic
- 14% Native American

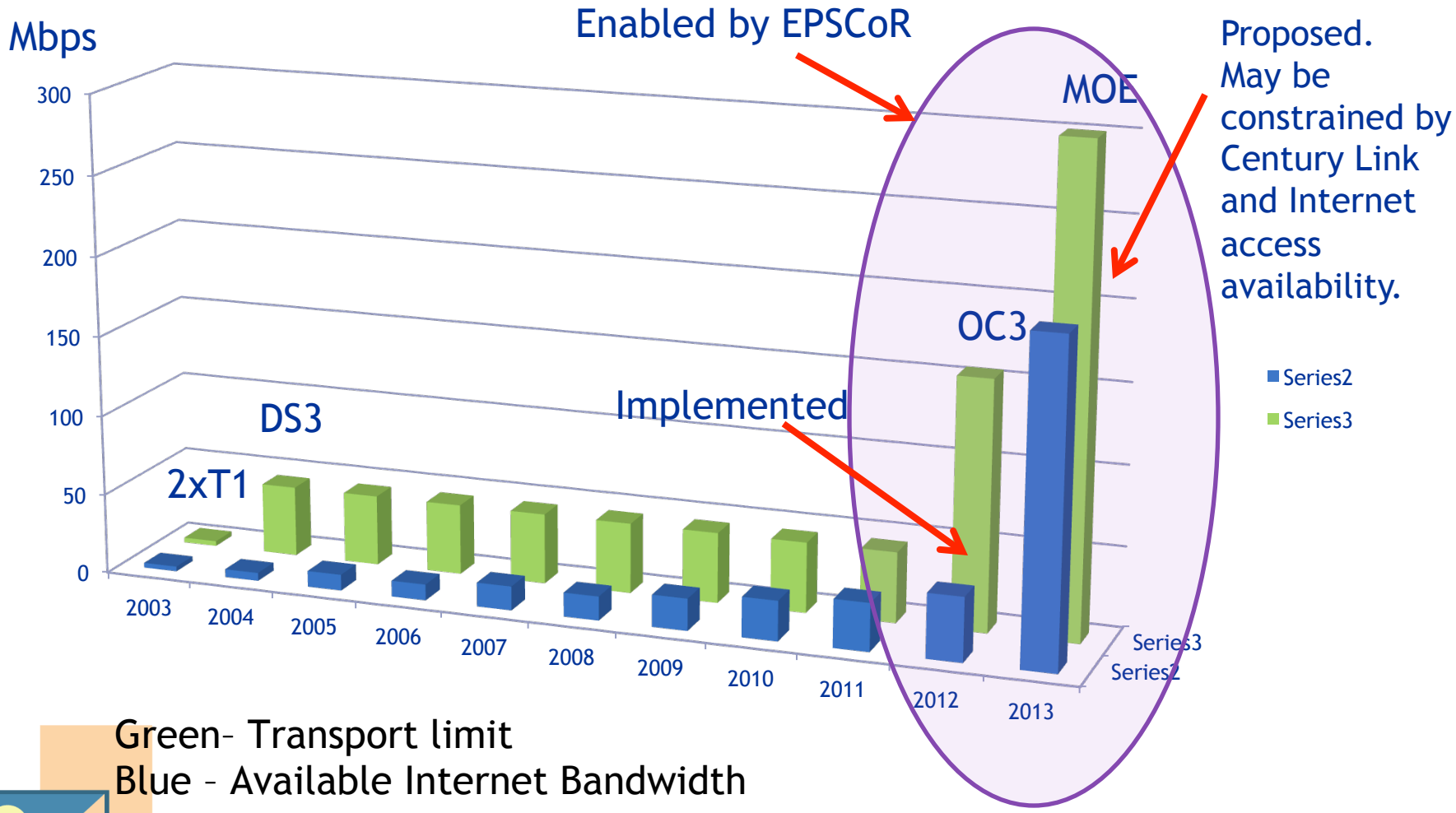


← Climate Change Award winners from NM School for the Arts

http://www.challenge.nm.org/

C2 PROGRESS

WNMU Silver City Campus Bandwidth



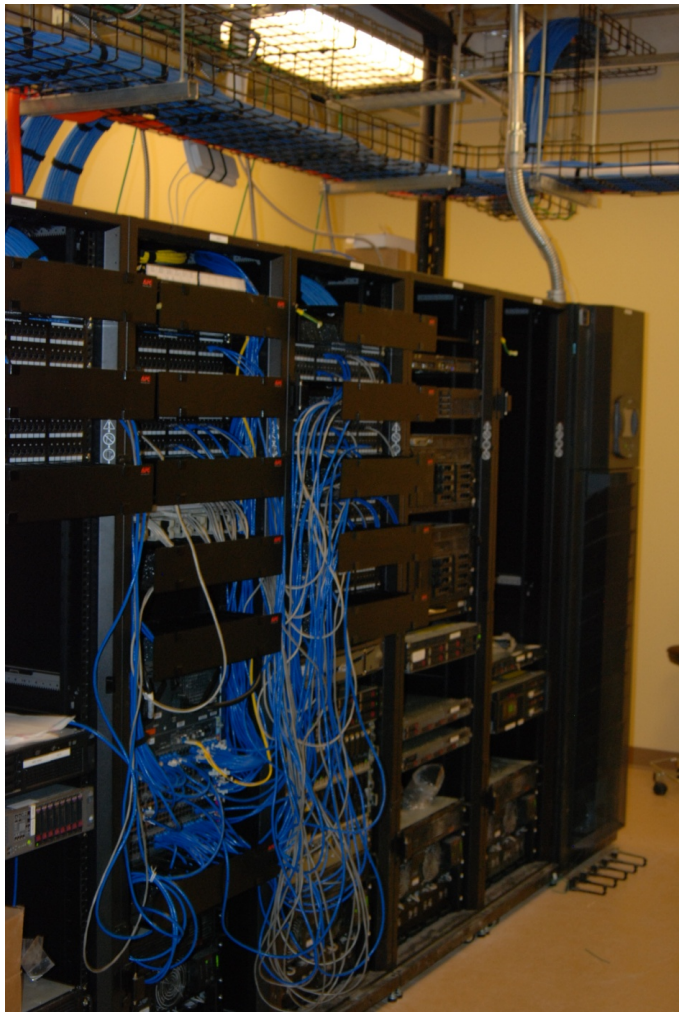
Green- Transport limit
Blue - Available Internet Bandwidth

Some Relevant Changes over the last 18 Months (EPSCoR Enabled)

- Added 9 ITV classrooms
- Added 7 automated lecture classrooms
- Added 5 fiber routes, 2 additional routes planned
- Upgraded connectivity to OC3
- Internet bandwidth increased to 40Mbps
- Campus backbone now 1GHz
- Implemented Exchange & Exchange archive
- Moved to new data center
- Implemented streaming video
- Implemented campus wide desktop video conferencing

Old Server Room

New Server Room



Northern NM College

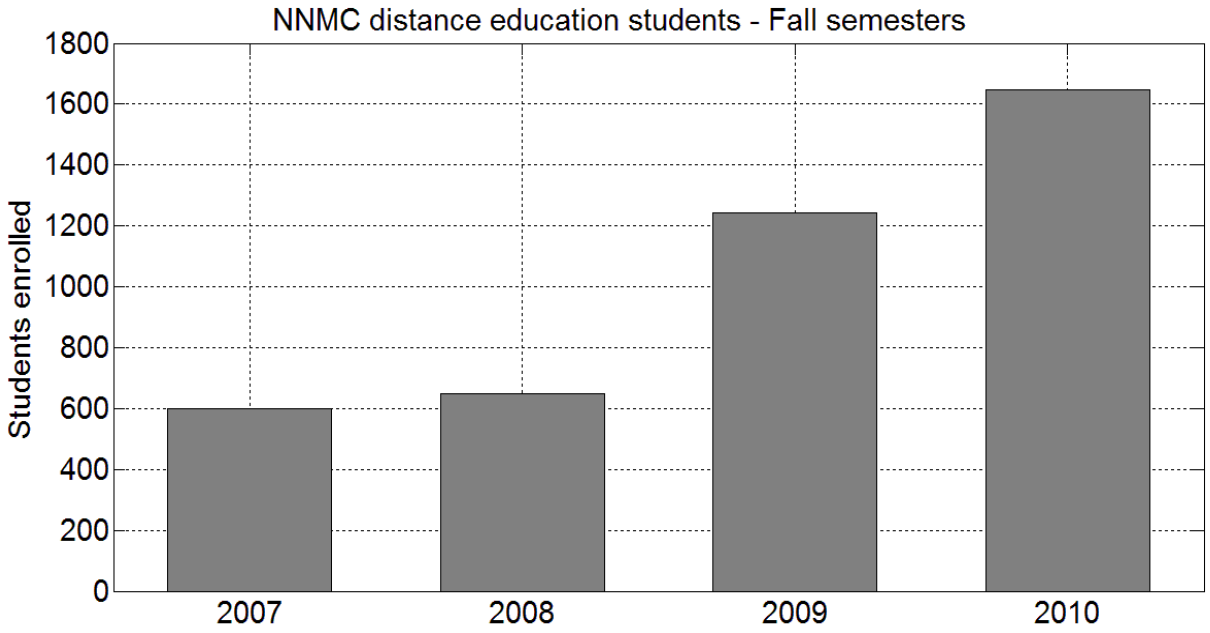
- EPSCoR grant permitted NNMC to update wired and wireless networks
- Updates were fundamental for subsequent activities and engagement of faculty in developing pedagogical material
- Joint development of undergraduate and graduate courses with other institutions enriches NNMC's research capability
- Under the direction of Provost Sena, NNMC has created an IT Council in charge of providing a framework for acquisition and deployment of instructional technologies

Replacement of legacy IT wired network infrastructure

- NNMC finished the replacement of legacy wired network infrastructure in all buildings, and connected the new SERPA building to the rest of the college
- Updates in layer 2 switches on Fine Arts, High Tech, Administration, Library, Gym, General Education, JCI, and SERPA buildings

Faculty use the enhanced capabilities

- Number of students during Fall semesters enrolled in any form of distance education at Northern New Mexico College

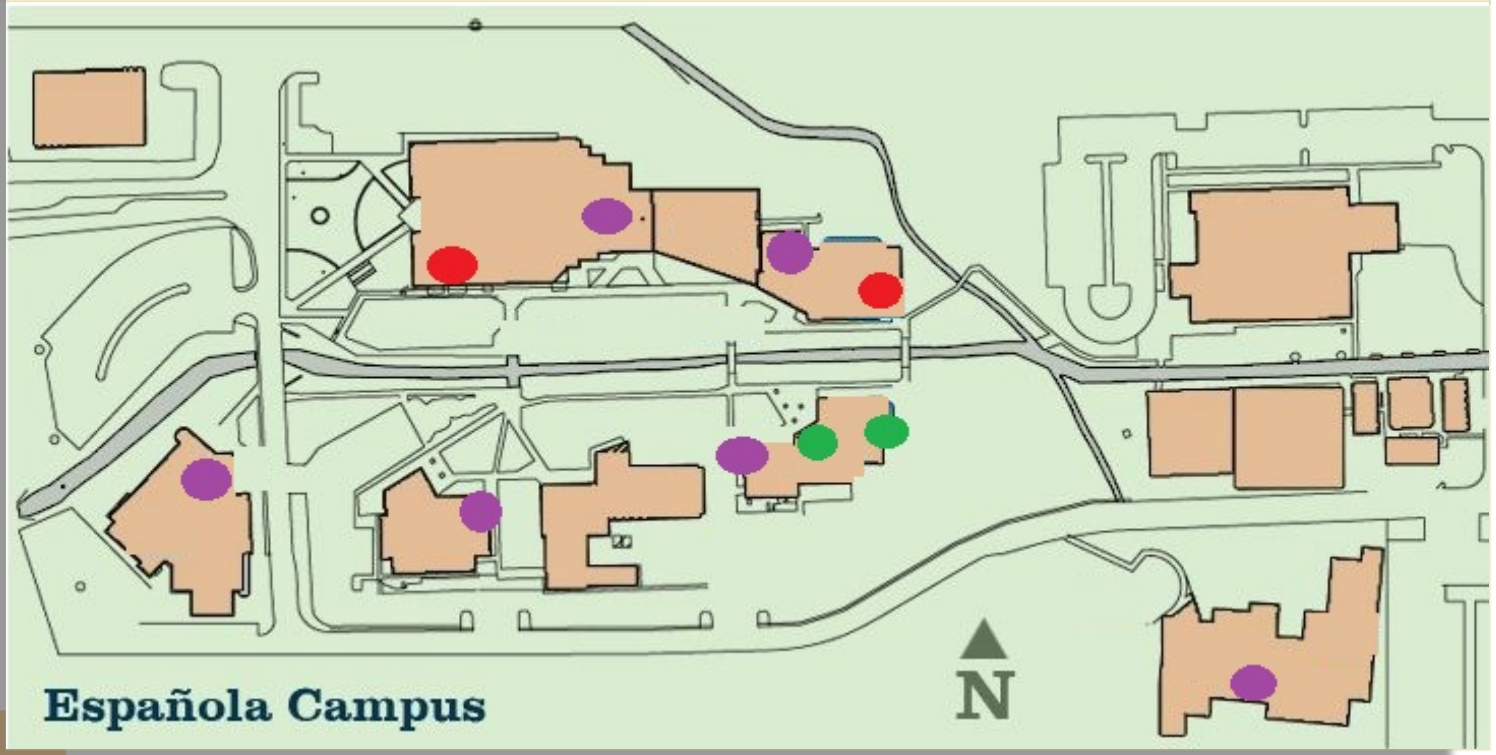


Faculty use the enhanced capabilities

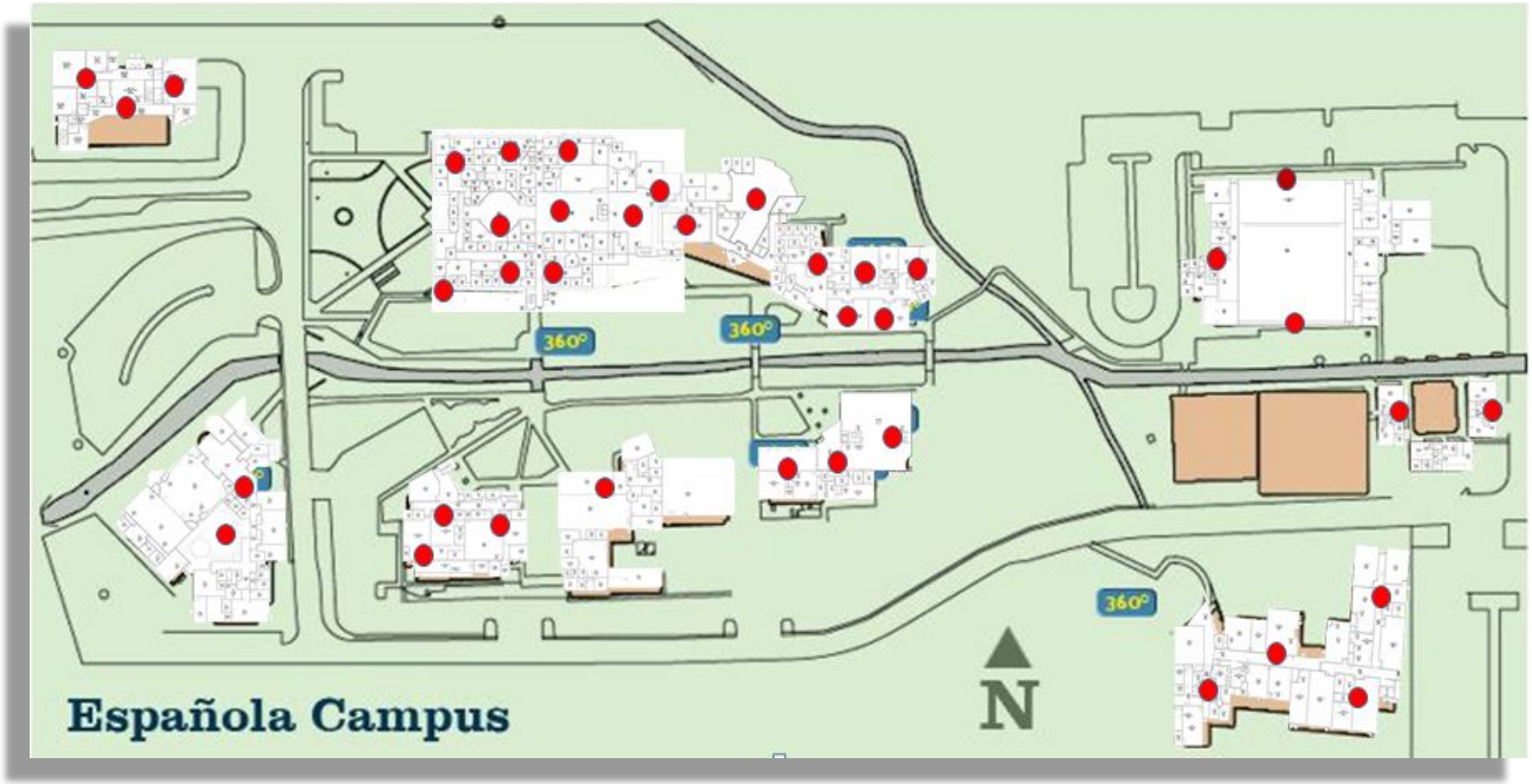
- NNMC and UNM are implementing a pilot project to create on-line instructional materials
- Project started in Spring 2012 with lower-division courses in Engineering
- Courses delivered through network infrastructure in place at these institutions
- In Fall 2012, lower-division courses and a graduate course in Engineering to be delivered

August 2011 Wireless Router Locations

Red: Not Operational
Purple: Significantly Reduced Operation
Green: Good Coverage



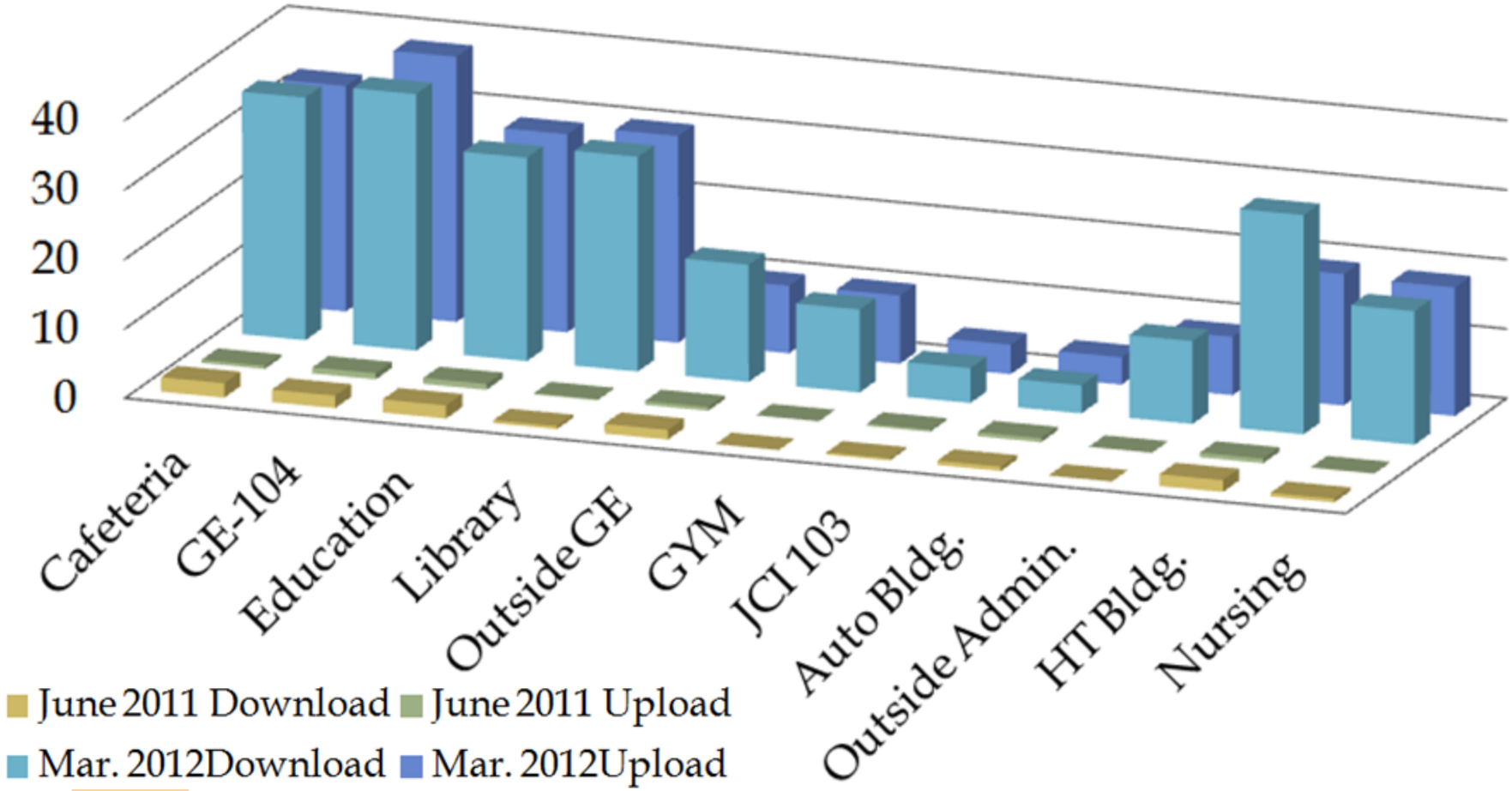
Indoor Access Point Distribution



Upgrade Implementation

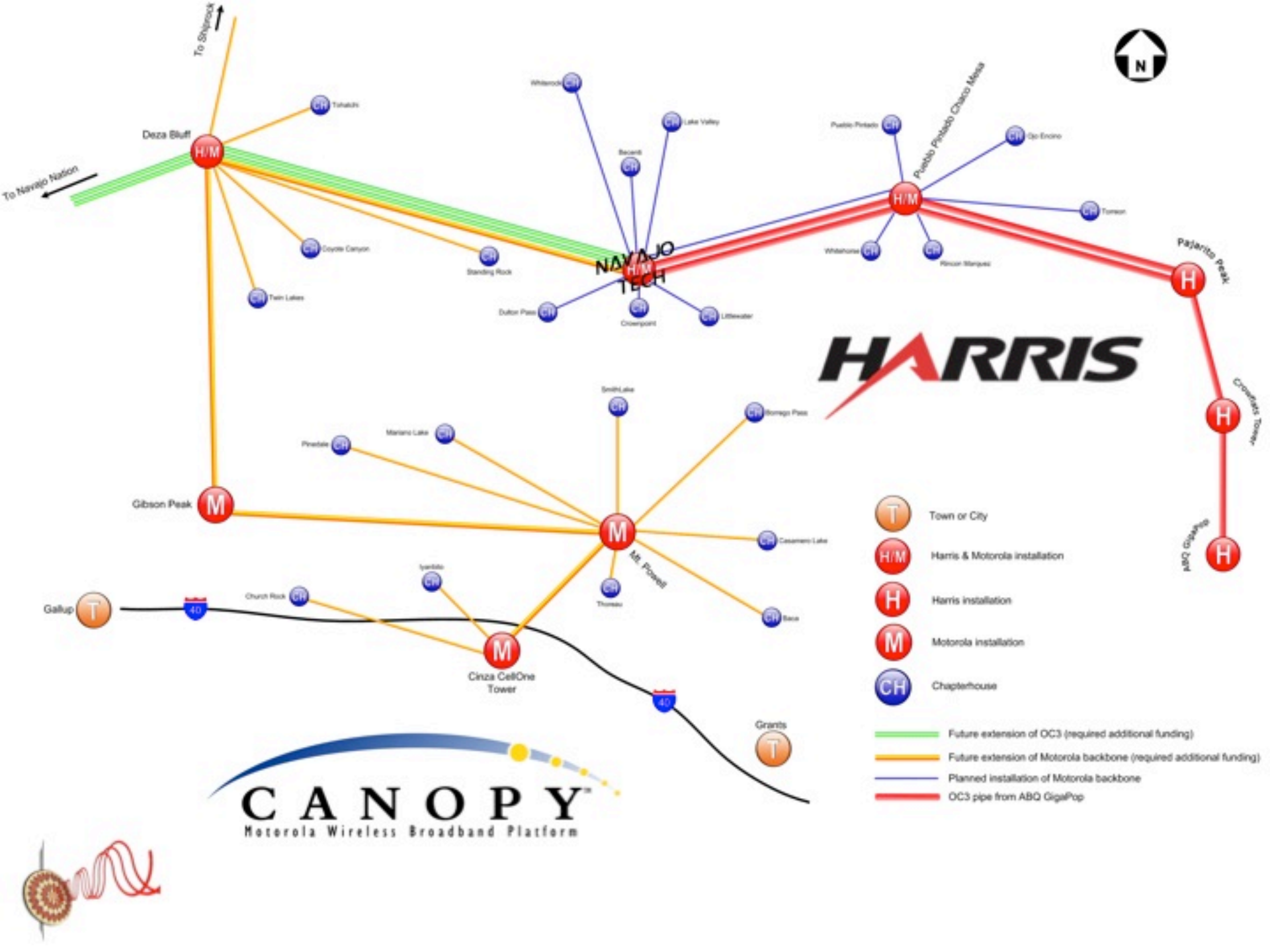
All rooms covered with full bars

Speed Test Before/After Upgrade



Navajo Technical College

- Enhancing Internet to the Hogan initiative
- Connecting NTC with UNM Gallup through 2 remote radio towers (Gibson and Dezza Bluff)
- Final installation and testing will be completed by June 15, 2012


To Shiprock
To Navajo Nation
Deza Bluff
H/M
Tohatchi
Coyote Canyon
Standing Rock
Twin Lakes
Whitehorse
Becenti
Lake Valley
Dulton Pass
Crownpoint
Littlewater
NAVAJO TECH
H/M
Pueblo Pintado
Pueblo Pintado Chaco Mesa
Ojo Encino
Torreon
Whitehorse
Rincon Marquez
Pajarito Peak
H
Crownpoint Tower
Gigapop
SmithLake
Romero Pass
Pinedale
Mariano Lake
Gibson Peak
M
Casamero Lake
Mt. Powell
Thoreau
Baca
Iyanbito
Church Rock
Gallup
T
40
Cinza CellOne Tower
Grants
CANOPY
Motorola Wireless Broadband Platform
N
Town or City
Harris & Motorola installation
Harris installation
Motorola installation
Chapterhouse
Future extension of OC3 (required additional funding)
Future extension of Motorola backbone (required additional funding)
Planned installation of Motorola backbone
OC3 pipe from ABQ GigaPop

Education Activities

- K-12: Support for new Supercomputing Challenge and Project GUTS clubs in schools near WNMU, NNMC and NTC.

- Using CI for Education Program: participants from NMSU Grants, NNMC, ENMU Ruidoso and UNM Taos
  - Developing educational materials that employ the Gateway system and/or Encanto exemplars.

VALLES CALDERA FILM
"VALLES CALDERA: THE SCIENCE"

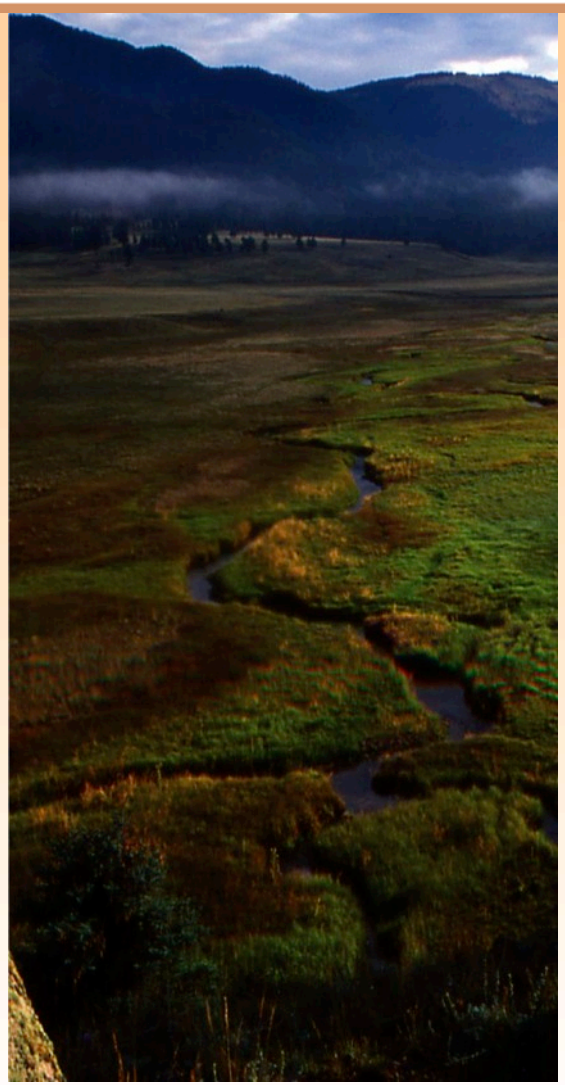
Valles Caldera: The Science

- Part 1 of the Valles Caldera documentary trilogy will cover:
  - Geologic History
  - Current research (includes interviews with NM EPSCoR researchers, students, and partners)
  - Fire impacts

Valles Caldera: The Science

YouTube video clip: Meandering creek

New Mexico EPSCoR



THANK YOU!