

 Western Consortium of Idaho, Nevada, and New Mexico

Connectivity

Fred Harris, Component Lead

Connectivity Goal and Objectives

(as per proposal)

Increase connectivity and bandwidth

Significant effort will focus on promoting communication and collaboration by improving connectivity infrastructure within the Consortium.

Proposed and future Consortium efforts related to improving research competitiveness, STEM education, and economic development rely on this basic infrastructure.

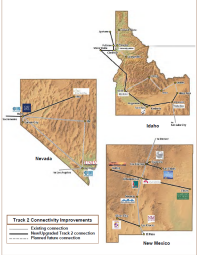





Figure 2. Proposed Track 2 improvements in connectivity and bandwidth, which will promote communication and collaboration within the Western Consortium, in addition to serving the major research, educational, and state colleges. These improvements will also help connect community colleges, state colleges, and research serving institutions in geographically disadvantaged areas.

 Western Consortium of Idaho, Nevada, and New Mexico

Activities

Activities (as per proposal)

The high speed networking connectivity activities in Track 2 will focus on improving communication and connectivity within and between the states.

Each state in the Consortium is in a different phase of CI development and requires different CI to achieve Consortium goals.

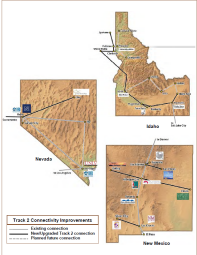





Figure 2. Proposed Track 2 improvements in connectivity and bandwidth, which will promote communication and collaboration within the Western Consortium, in addition to serving the major research, educational, and state colleges. These improvements will also help connect community colleges, state colleges, and research serving institutions in geographically disadvantaged areas.

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Activities: Idaho

Activities (as per proposal)

Idaho: Idaho will upgrade infrastructure to deliver improved network connections to key university researchers' labs and desktops. Idaho will also work to connect difficult-to-access sites within Idaho by adding to, enhancing, and using the Idaho regional Optical Network (IRON).



ID-Upgrade connectivity to key labs and desktops

ID-Add IRON POP in Southern Idaho



Activities: Nevada

Activities (as per proposal)

Nevada: The initial focus in Nevada is to increase the connectivity into the state network. The next step will be to improve connectivity within the state through several networking and video conferencing upgrades, as well as networking monitoring tools across the state



NV-Increase connectivity into the state

NV-Increase connectivity within the state



Activities: New Mexico

Activities (as per proposal)

New Mexico: New Mexico activities will enhance connectivity to academic institutions by establishing a distributed computing and collaboration infrastructure that consists of compute nodes at portals or gateways at Tribal colleges and Hispanic-Serving Institutions throughout the state.



NM-Establish portals at college campuses (44 currently planned)

NM-Increase portal connectivity



Major Activities: Summary

Activities (as per proposal)
ID-Upgrade connectivity to key labs and desktops
ID-Add IRON POP in Southern Idaho
NV-Increase connectivity into the state
NV-Increase connectivity within the state
NM-Establish portals at college campuses (44 currently planned)
NM-Increase portal connectivity

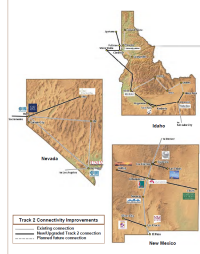


Figure 1 Proposed Track 2 improvements in connectivity and bandwidth, which will provide researchers and students within the Western Consortium an ability to utilize the major research universities and their campus. These improvements will also help connect community colleges, local airports, and research areas scattered in geographically disadvantaged areas.



Connectivity Outputs: Idaho

Activity	Output Resulting from Activity
ID - Formalize a plan for the UI to utilize IRON to access university facilities in southern Idaho.	Plan/strategy for connectivity
ID - Purchase and install networking equipment at state universities for LAN upgrades and building uplinks that provide 1 to 10Gb/s service to several key research buildings.	Equipment Upgraded
ID - Purchase and install an aggregation switch (Point of Presence) on IRON. Aggregate traffic onto IRON's backbone in Twin Falls to include sites in Hagerman and Kimberly.	Equipment Upgraded

An **Output** is an immediately observable product resulting from an activity
 Examples: fiber connectivity installed



Connectivity Outputs: Nevada

Activity	Output Resulting from Activity
NV - Purchase and install switch upgrades for network connectivity upgrades: from NevadaNet in the north to CENIC in Sacramento, as well as NevadaNet connectivity to Elko and other parts of the state.	Equipment Upgraded
NV - Purchase and install networking monitoring and security software and hardware.	Equipment Upgraded
NV - Purchase and install video conferencing hardware in the north and south.	Equipment Upgraded

An **Output** is an immediately observable product resulting from an activity
 Examples: fiber connectivity installed



Connectivity Outputs: New Mexico

Activity	Output Resulting from Activity
NM - Purchase and install gateways at the three large research campuses and connect them to six Hispanic-serving and Native American-serving campuses in New Mexico.	Equipment Upgraded
NM - Purchase and install software for integrating all components of the gateway systems into a single, user-friendly system along with data compression software to minimize the amount of bandwidth needed for connectivity between the sites.	Software Upgraded

An **Output** is an immediately observable product resulting from an activity
 Examples: fiber connectivity installed



Connectivity Outcomes

Activity	Outcome Resulting from Activity
ID-Upgrade connectivity to key labs and desktops	Increase capability and utilization
ID-Add IRON POP in Southern Idaho	Increased Connectivity to IRON
NV-Increase connectivity into the state	Increase capability and utilization
NV-Increase connectivity within the state	Increase capability and utilization
NM-Establish portals at college campuses (44 currently planned)	Increase access to HPC, Visualization, and other research tools
NM-Increase portal connectivity	Increase capability and utilization

An **Outcome** is an intermediate or long-term result
 Example: facilitate new data-intensive research



Connectivity Outcome Metrics

Activity	Evaluation Metric
ID-Upgrade connectivity to key labs and desktops	1) # of connections at improved speeds 2) Increased Utilization in GB (%)
ID-Add IRON POP in Southern Idaho	3) #connections (sites/machines/people) 4) Increased bandwidth usage of IRON (%)
NV-Increase connectivity into the state	1) Increased Utilization in GB (%)
NV-Increase connectivity within the state	2) Increased Utilization in GB (%)
NM-Establish portals at college campuses (44 currently planned)	1) # of portals installed
NM-Increase portal connectivity	2) Utilization by institution in GB



Year 1 Action Plan

Activity	Task	Who does task	timeline
ID-Upgrade connectivity to key labs and desktops	Formalize a plan for the UI to utilize IRON to access university facilities in southern Idaho	UI and IRON consultant Headed by Dave Lien	Already started Completion goal end of Spring Semester 2010
	Purchase and install networking at state universities	On-Campus IT Group [BSU] [ISU]	Finished by Aug '10
ID-Add IRON POP in Southern Idaho	Planning included with Connectivity	UI and IRON consultant Headed by Dave Lien	Phase 1 Finished by Aug '10
	Collect Baseline Metrics & Begin Collecting new numbers	Campus IT and IRON Dave Lien	Baseline: March 1, 2010 Annual: 9-1-09 to May 15,2010



Year 1 Action Plan

Activity	Task	Who does task	timeline
NV-Increase connectivity into the state	Purchase and Install Networking HW	Nevada Net	By Aug 2010 (RFP Out)
NV-Increase connectivity within the state	Purchase and Install Networking HW	Nevada Net	By Aug 2010 (RFP Out)
	Collect Baseline Metrics (2 yrs) & begin collecting new numbers	Nevada Net	Baseline: March 1, 2010 Annual: 9-1-09 to May 15,2010



Year 1 Action Plan

Activity	Task	Who does task	timeline
NM-Establish portals at college campuses (44 currently planned)	Purchas and Install some (Phase I of III)	NMCAC	By Sept 2010 1/3 already installed. 1/2 are contracted by end of March
NM-Increase portal connectivity		NMCAC	
	Begin collecting bandwidth	NMCAC	Annual: 9-1-09 to May 15,2010



Science/Education/Decision Gateways for New Mexico

Connect New Mexico together in a high-tech network that will:

- Drive Economic Development
- Provide new capabilities for HED
- Support PED STEM Education
- Support distance learning with increased bandwidth



3 Sony Pan/Tilt/Zoom Cameras 2 65" HD DLP 3D Ready TVs

Room Speaker System

Wireless Microphone System 3D glasses 3D LCD Instructor Display Student Desktop computers

Instructor Workstation with microcluster, wireless KB/mouse

New Mexico Gateway Equipment

Equipment provided to the gateway campuses will have the following capabilities:

- Teleconferencing between multiple sites
- High definition (1080p) videoconferencing
- 3-D high definition (1080p) stereo visualization
- Instructor workstation
- Silicon graphics 16-core (3.0 GHz processor) blade server with file storage system
- Up to 35 student workstations
- Integrated graphical user interface
- Blue-Ray DVD player
- Stereo sound system
- Distributed microphones
- High definition video camera
- Document camera
- Printer

The videoconferencing and 3-D stereo visualization will employ (depending on local site layout) one of three systems:

- Overhead front projection system
- Rear projection system
- Dual-display system (DLP, plasma, or LCD)

The gateway systems will also provide software for integrating all components into a single, user-friendly system along with data compression software to minimize the amount of bandwidth needed for connectivity between the sites. In addition, the NMCAC will be working with other New Mexico organizations to provide relevant STEM curricula materials, telehealth instruction and support, and economic and community development materials.

