Research & Education Networks and The Quilt

Presentation to New Mexico Legislative Education
Study Committee

September 23, 2020

THE QUILT

Presentation Road Map

- The Quilt
- Our Members
- UNM/Albuquerque GigaPoP
- Research and Education (R&E) Networking Profiles
- Introduction to Two R&E Networking Centers of Excellence
  - Utah Education and Telehealth Network – Ray Timothy, Executive Director
  - CENIC - Louis Fox, President and CEO

THE QUILT

The Quilt: A Collaboration of U.S. Research and Education Networks

"In a sense, we are engaged in crafting a quilt. Each patch reflects the diversity and the particulars of the institutions and regions we serve. Yet all the regional patches must be sewn together seamlessly, coherently, and interoperably to serve a larger purpose and community…The whole cloth should be substantially more useful and valuable than the sum of the parts."

BY THE NUMBERS

38
R&E Networks Nationwide

10
Affiliates

900+
Our Members Connect
Higher Education
Institutions

10,000s
Our Members Connect
Community Anchor
Institutions

Through **The Quilt,** U.S. non-profit regional research and education networks collaborate to develop, deploy and operate advanced cyberinfrastructure that enables innovation in research and education.

THE QUILT

Quilt Strategic Visions

Underpin the missions of regional R&E Networks as critical infrastructure to advance our country's scientific discovery, education, cultural knowledge, healthcare, and public service

Deliver a collaborative environment for regional network member engagement.

Advocate nationally for the role of R&E Networks in our country's broadband ecosystem to further our public service missions

THE QUILT

Today's Research and Education Networks:
Enabling Breakthrough Innovations that Power the Greater Good

Research and Education networks provide secure, high-capacity, high-performance network infrastructure and related technical and operational support.

Research Centers

Healthcare

Higher-Ed

State / Local / Federal Government

K-12

Public Safety

Libraries

Cultural Institutions

Regional Research and Education Networks in the United States

Albuquerque GigaPoP (ABQG)

- Non-profit initiative owned and operated by UNM
- Provides advance scientific applications to enhance networking services enabling a new generation of NM innovators prompting new jobs and economic growth
- Allows for greater capacity and network performance connecting to learning environments in research and education
- Leverages technical assets to develop partnerships and push broadband access to rural points
- Strategic partnerships with other western state R&E networks
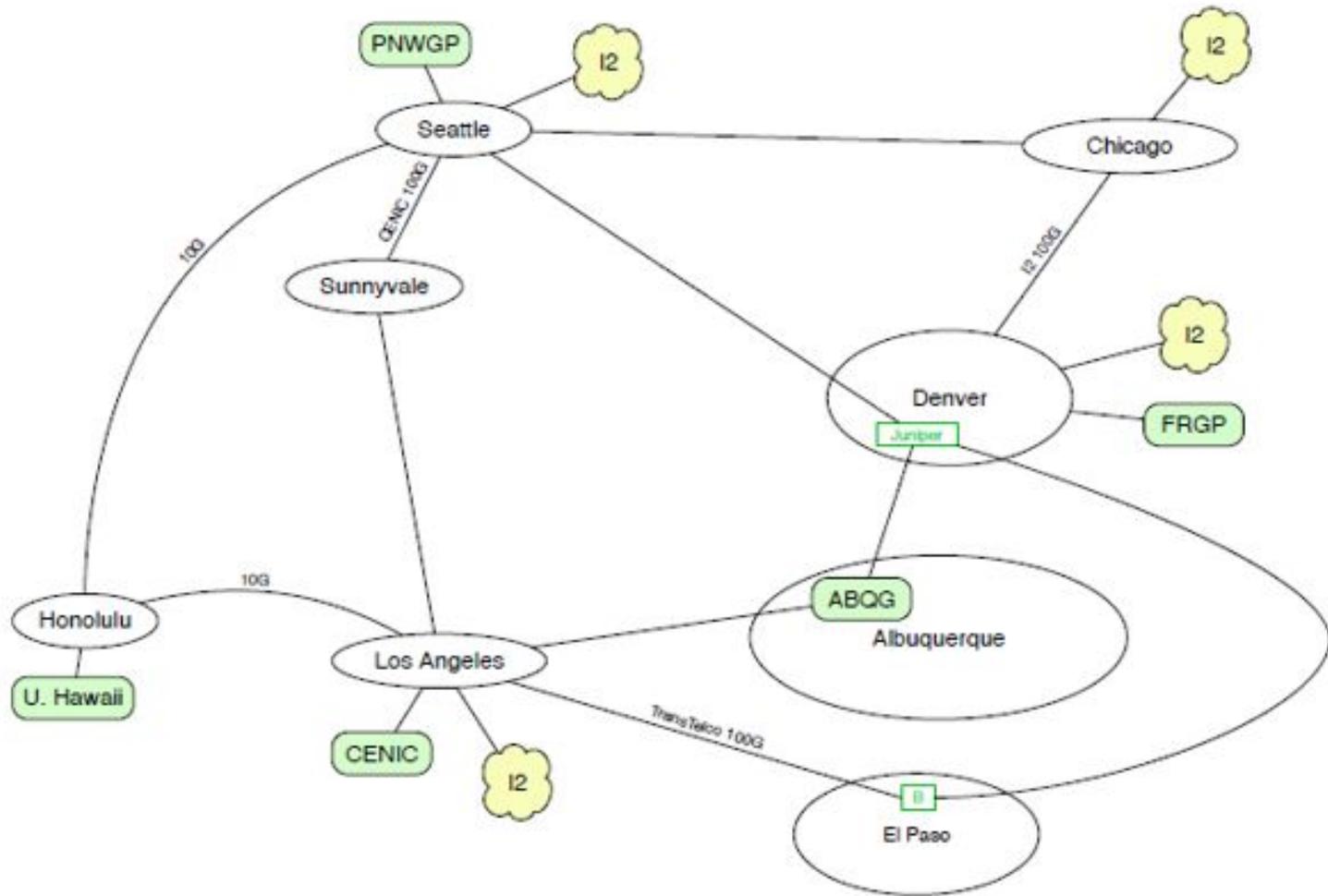

THE QUILT

Albuquerque GigaPoP (ABQG) Service Footprint
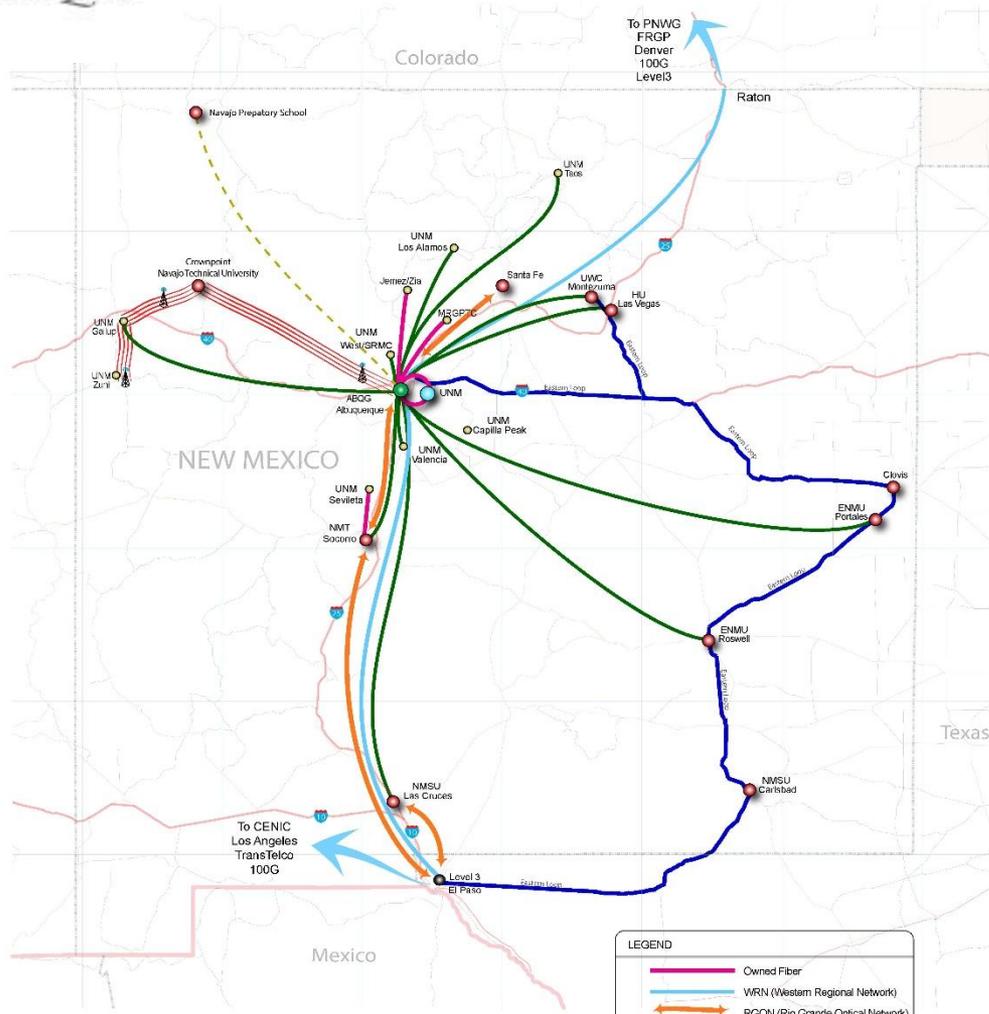
LEGEND

Owned Fiber	
WRN (Western Regional Network)	
RGON (Rio Grande Optical Network)	
CenturyLink WAVE	
Eastern Loop Fiber	
PNM Owned Fiber	
ABQG (Albuquerque GigaPoP)	
UNM (University of New Mexico)	
Collaborator	
UNM Branches & Site Locations	
Microwave Service	

November 2018
University of New Mexico
Information Technologies DNG (HV)
Albuquerque GigaPoP (ABQG)

WRN 2019 plan Pete Siemsen, Jonah Keogh 2019-11-04

Quilt Members In Action

https://issuu.com/noahredman1/docs/thequiltcircle_2020_5-29-20_withcover

THE QUILT

Jen Leasure, President
jen@thequilt.net
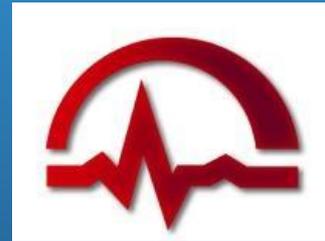www.thequilt.net

Slide 11
September 23, 2020

Research and Education Network Profiles

Each research and education network (REN) is unique reflecting the diversity in state and local communities each serve

- Business Structures

- Member Institutions

- Governance Models

- Funding Sources

- Partnerships

UETN – Who Are We?

- https://le.utah.gov/xcode/Title53B/Chapter17/C53B-17_1800010118000101.pdf

Whom do we serve?

UETN Infrastructure Map
Connecting 1600+ locations throughout Utah

Funding Source/Allocation

As of June 30, 2019

UETN SERVICES	TOTAL	STATE APPROP	KUEN GRANT	FEDERAL E-RATE	OTHER FUNDING*
NETWORKING SERVICES	**$32,610,564**	**$18,499,128**	**$23,376**	**$13,264,416**	**$823,644**
External Network Support	887,012	488,893	–	–	398,119
Internal Network Support	2,923,399	2,923,399	–	–	–
Wide Area Network	28,800,153	15,086,836	23,376	13,264,416	425,525
APPLICATION SERVICES	**$9,545,112**	**$9,027,020**	**$254,626**	**–**	**$263,466**
Interactive Video Conferencing (IVC)	3,190,924	3,190,924	–	–	–
Learning Management System (LMS)	3,006,406	2,967,508	38,898	–	–
Teaching and Learning Tools	2,741,985	2,325,225	201,013	–	215,747
Utah's Online Library	605,797	543,363	14,715	–	47,719
SUPPORT SERVICES	**$2,129,334**	**$1,864,153**	**$246,760**	**–**	**$18,421**
Training	1,138,564	1,089,373	30,770	–	18,421
Regional Support	487,662	487,662	–	–	–
E-Rate Support	503,108	287,118	215,990	–	–
BROADCAST SERVICES	**$2,227,625**	**$170,484**	**$2,022,671**	**–**	**$34,470**
Broadcast Services	2,227,625	170,484	2,022,671	–	34,470
OPERATIONAL SERVICES	**$3,781,033**	**$2,454,396**	**$1,280,391**	**–**	**$46,246**
Operational Services	3,781,033	2,454,396	1,280,391	–	46,246
TELEHEALTH SERVICES	**$2,573,491**	**$707,633**	**$219,512**	**–**	**$1,646,346**
Interactive Video Conferencing (IVC)	2,573,491	707,633	219,512	–	1,646,346
TOTAL	**$52,867,159**	**$32,722,814**	**$4,047,336**	**$13,264,416**	**$2,832,593**
PERCENTAGE OF TOTAL REVENUE	100.00%	61.90%	7.70%	25.10%	5.30%

*Note: "Other Funding" is comprised of miscellaneous grants and reimbursements from Public Ed, Higher Ed and Dept. of Technology Services.

UETN Services by Customer

As of June 30, 2019

| UETN SERVICES	TOTAL	PUBLIC EDUCATION	HIGHER EDUCATION	OTHER CUSTOMERS
NETWORKING SERVICES	**$32,610,564**	**$22,096,587**	**$6,990,042**	**$3,523,935**
External Network Support	887,012	584,872	152,244	149,896
Internal Network Support	2,923,399	1,927,611	501,764	494,024
Wide Area Network	28,800,153	19,584,104	6,336,034	2,880,015
APPLICATION SERVICES	**$9,545,112**	**$4,030,676**	**$5,216,776**	**$297,660**
Interactive Video Conferencing (IVC)	3,190,924	670,094	2,425,102	95,728
Learning Management System (LMS)	3,006,406	992,114	2,014,292	–
Teaching and Learning Tools	2,741,985	2,166,536	575,449	–
Utah's Online Library	605,797	201,932	201,933	201,932
SUPPORT SERVICES	**$2,129,334**	**$1,626,771**	**$273,255**	**$229,308**
Training	1,138,564	796,995	273,255	68,314
Regional Support	487,662	487,662	–	–
E-Rate Support	503,108	342,114	–	160,994
BROADCAST SERVICES	**$2,227,625**	**$623,735**	**$311,868**	**$1,292,022**
Broadcast Services	2,227,625	623,735	311,868	1,292,022
OPERATIONAL SERVICES	**$3,781,033**	**$2,344,241**	**$1,058,689**	**$378,103**
Operational Services	3,781,033	2,344,241	1,058,689	378,103
TELEHEALTH SERVICES	**$2,573,491**	**–**	**–**	**$2,573,491**
Interactive Video Conferencing (IVC)	2,573,491	–	–	2,573,491
TOTAL	**$52,867,159**	**$30,722,010**	**$13,850,630**	**$8,294,519**
PERCENTAGE OF TOTAL EXPENSES	100.00%	58.10%	26.20%	15.70%

UETN Budget by service

Wide Area Network	$28,800,153	54.50%
Operational Services	$3,781,033	7.20%
Interactive Video Conferencing (IVC)	$3,190,924	6.00%
Learning Management System (LMS)	$3,006,406	5.70%
Internal Network Support	$2,923,399	5.50%
Teaching and Learning Tools	$2,741,985	5.20%
Telehealth Services	$2,573,491	4.90%
Broadcast Services	$2,227,625	4.20%
Training	$1,138,564	2.10%
External Network Support	$887,012	1.70%
Utah's Online Library	$605,797	1.10%
E-Rate Support	$503,108	1.00%
Regional Support	$487,662	0.90%
TOTAL	**$52,867,159**	**100%**
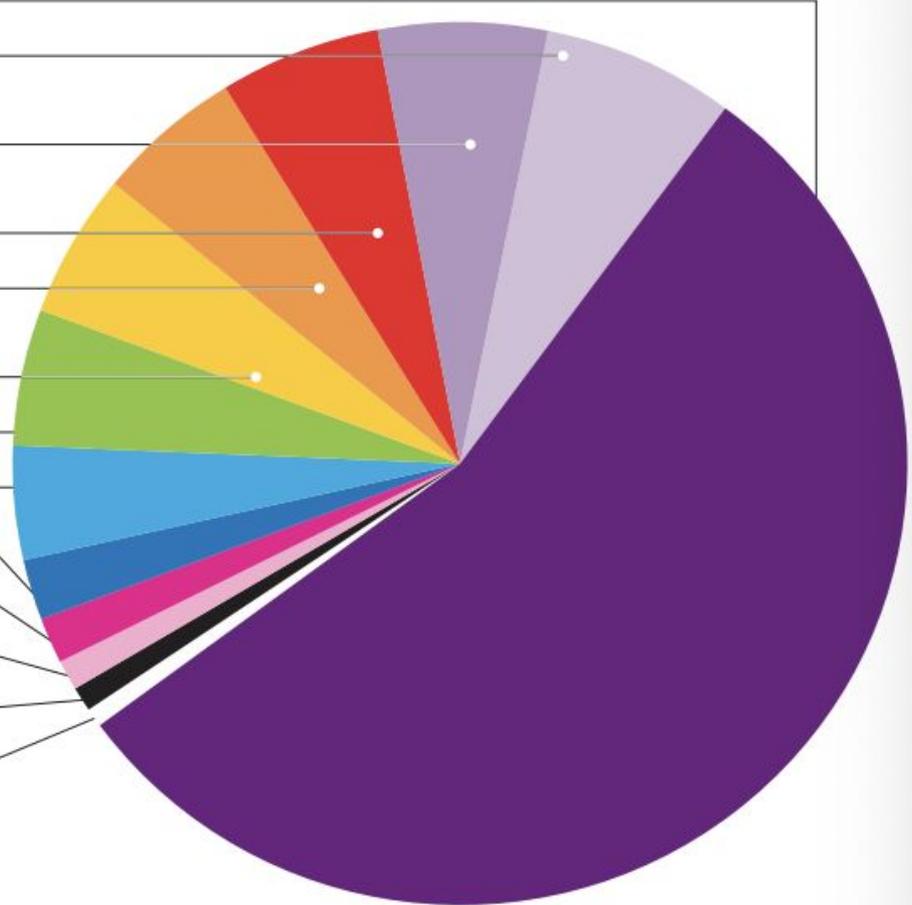
UETN Budget by Customer

Public Education	$30,722,010	58.10%
Higher Education	$13,850,630	26.20%
Telehealth	$2,573,491	4.90%
Libraries	$1,907,009	3.60%
Other	$1,072,693	2.00%
Technical Colleges	$786,641	1.50%
State Government	$595,941	1.10%
General Public	$476,752	0.90%
Community Learning Centers	$476,752	0.90%
Private Schools	$405,240	0.80%
TOTAL	**$52,867,159**	**100%**

Estimates as of June 30, 2019
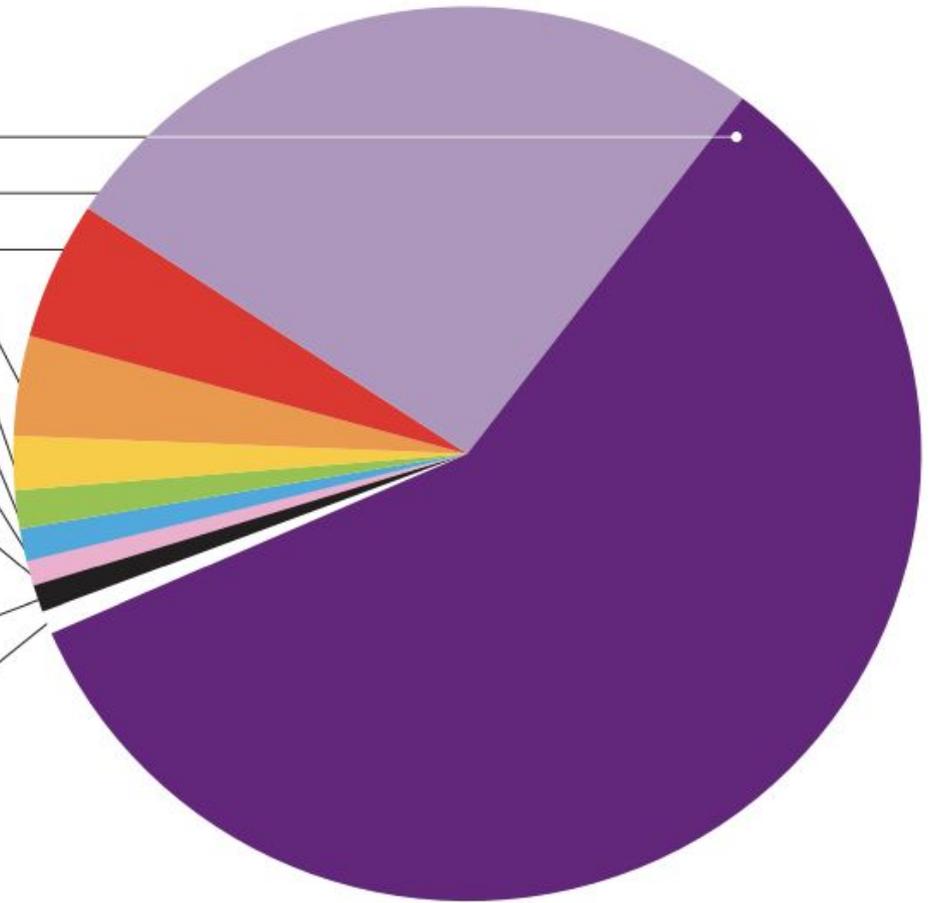
UETN Infrastructure Map
Connecting 1600+ locations throughout Utah
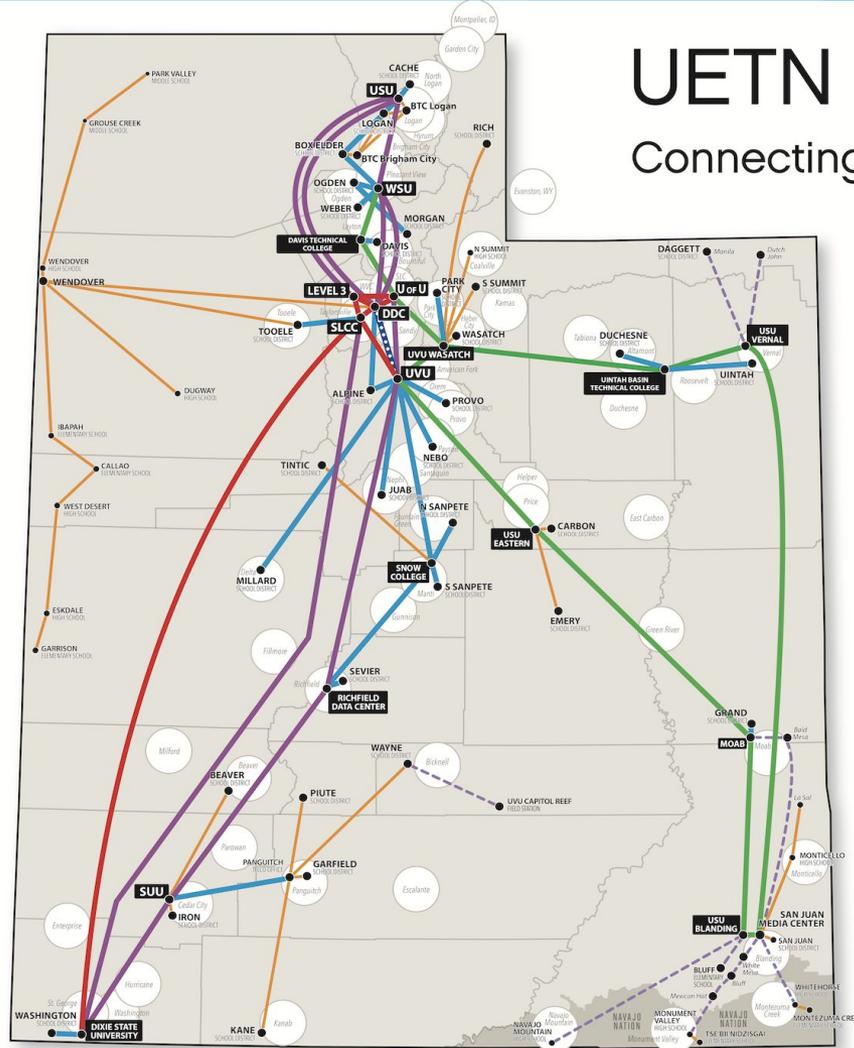
COMMUNITIES SERVED BY UTAH TELEHEALTH NETWORK (UTN)

— **100 GIGABITS/SECOND BACKBONE**

— **40 GIGABITS/SECOND BACKBONE**

— **20 GIGABITS/SECOND BACKBONE**

— **10 GIGABITS/SECOND BACKBONE**

— **10 GIGABITS/SECOND ETHERNET**

— **1 GIGABIT/SECOND ETHERNET**

---- **200 MEGABITS/SECOND ETHERNET MICROWAVE**

NAME — **POINT OF PRESENCE (POP)**

Daggett Project

4 Corners Project

San Juan County Proposed Fiber
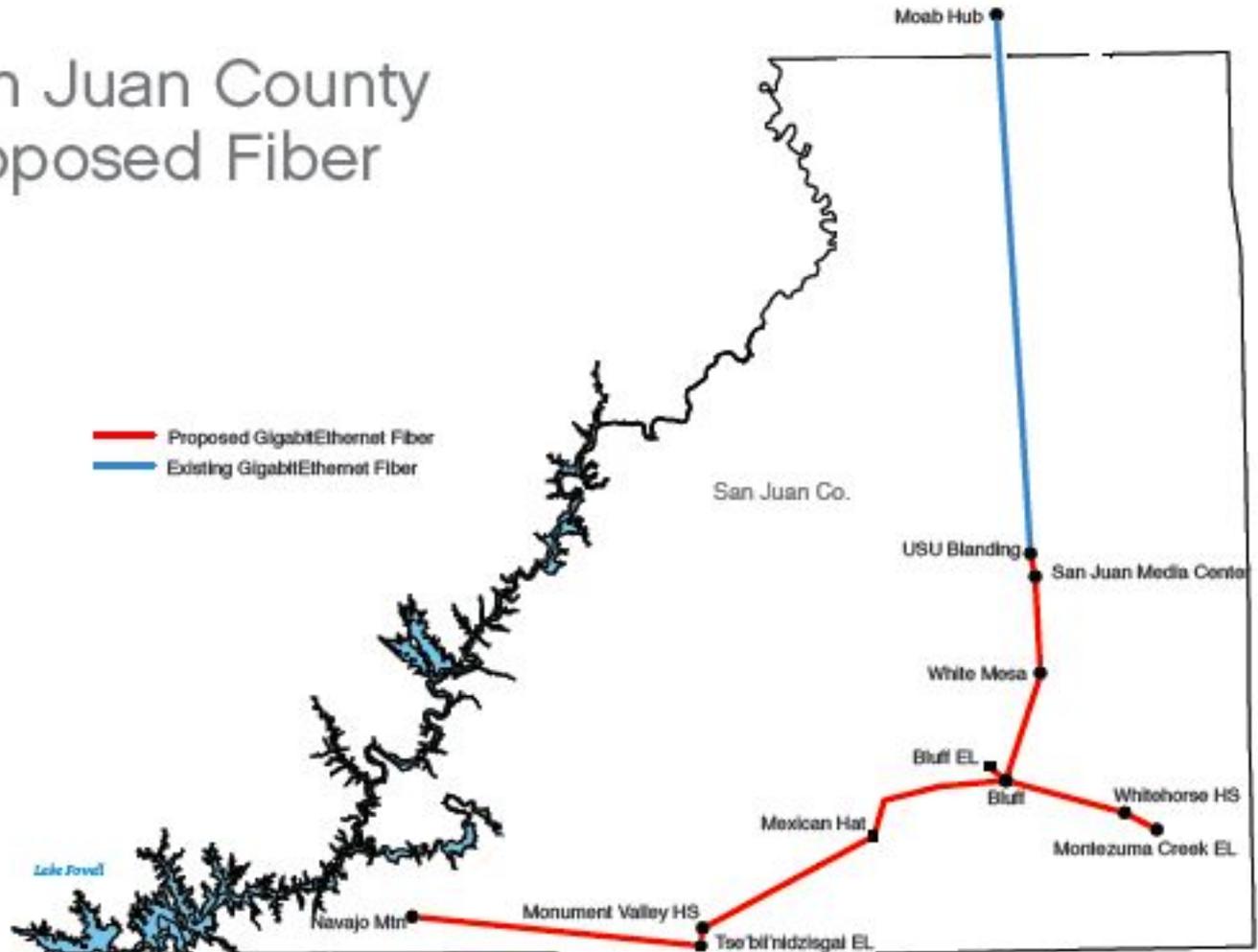
Questions?

Ray Timothy, Ph.D.

CEO/Executive Director

Utah Education & Telehealth Network

rtimothy@uen.org

435-731-0219 Cell