



**Student Access to Technology and the Internet
During COVID-19**

**Partnering with New Mexico's communities to provide quality,
sustainable school facilities for our students and educators.**

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SB 159 (2014) - Education Technology Infrastructure

SB 64 (2017) – Public School Capital Outlay Time Periods

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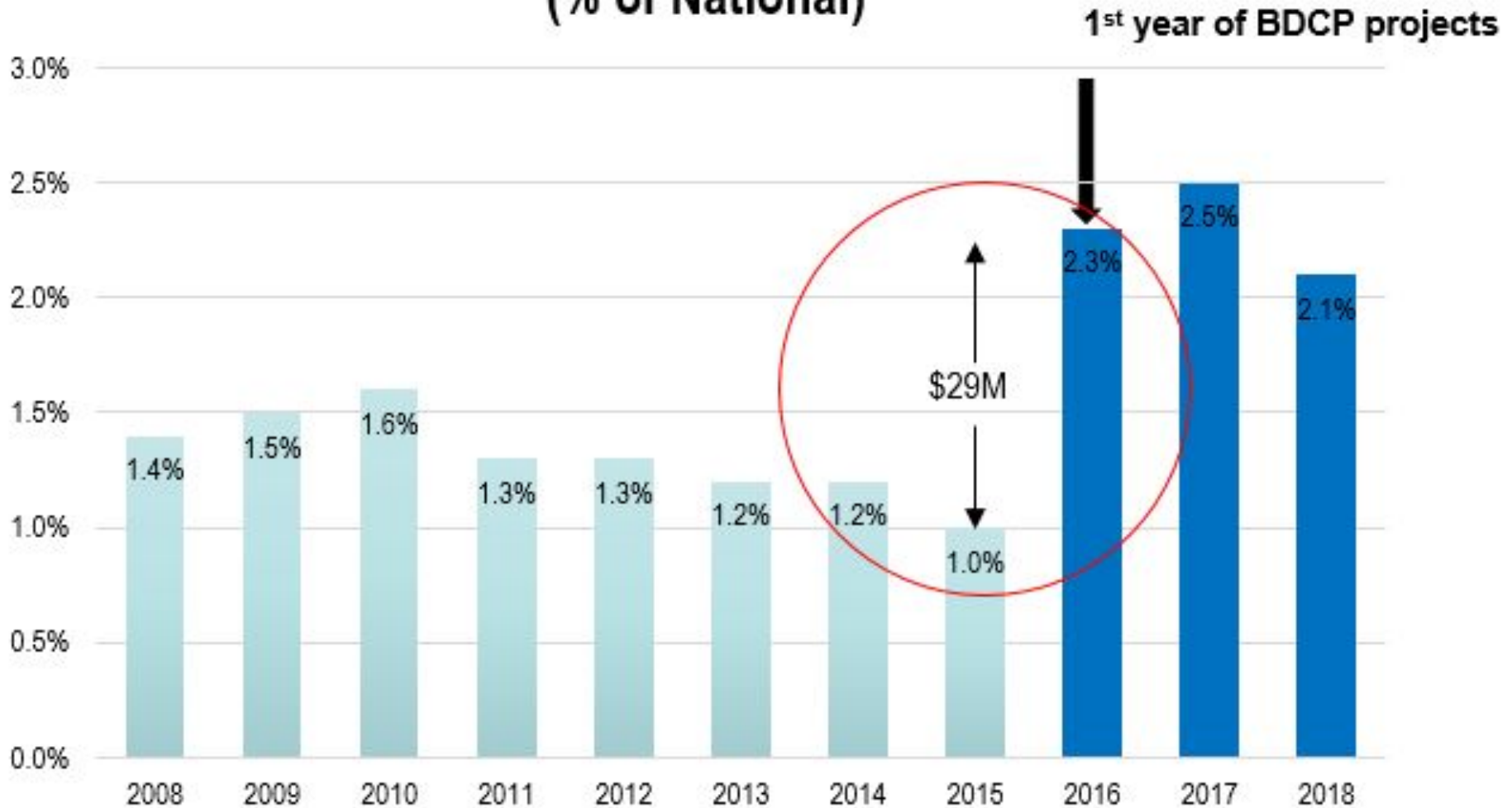


Full Support

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NM Approved E-rate Funding (% of National)



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270 (2016 - 2020)

~\$100M / 88% E-rate

Top 5

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5 X

Schools have adequate IA

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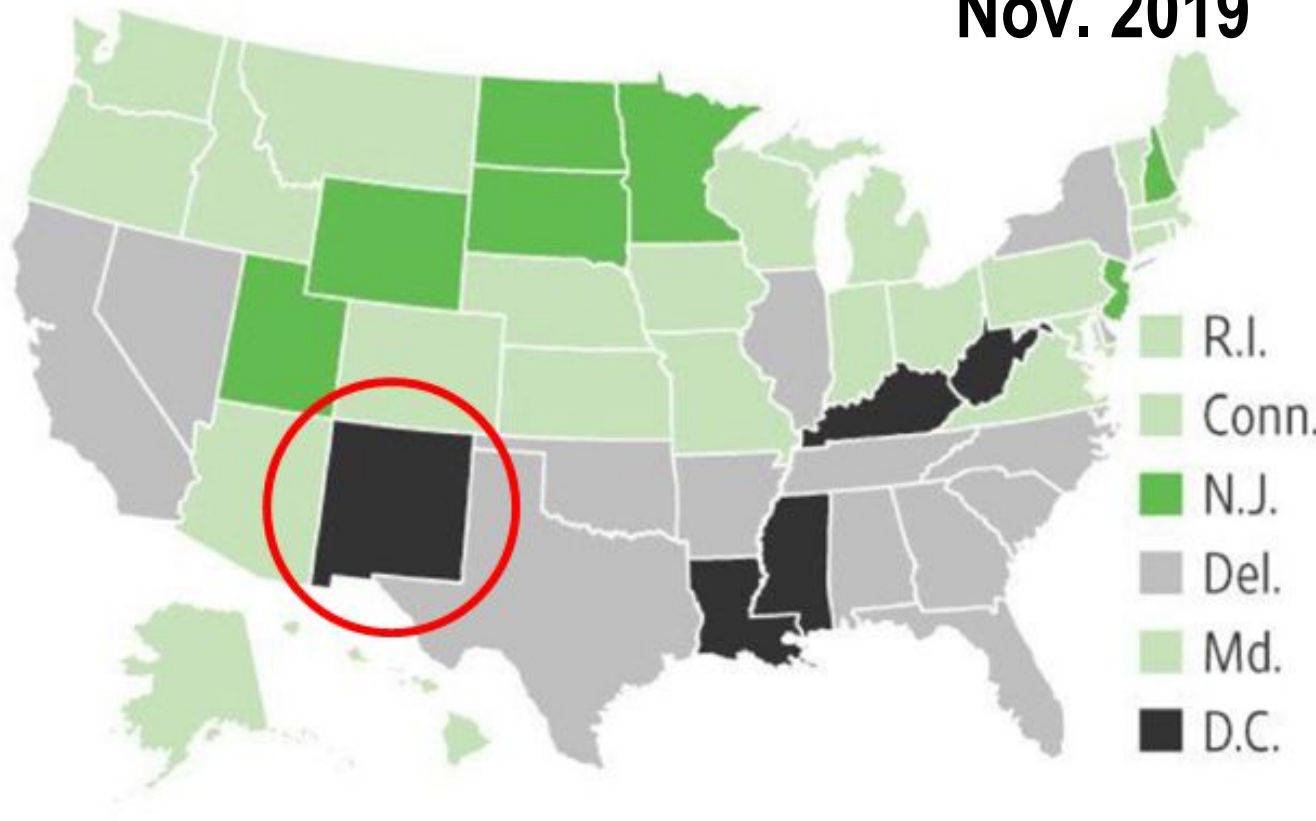
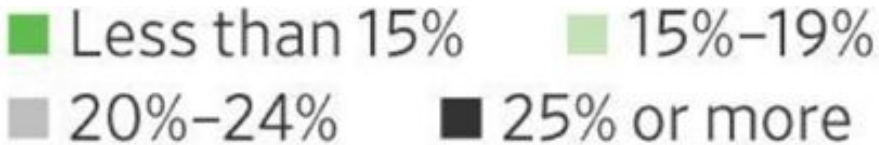


Did not win the war

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NM - 49th: LFC Broadband Report Nov. 2019



Source: EducationSuperHighway

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Technology



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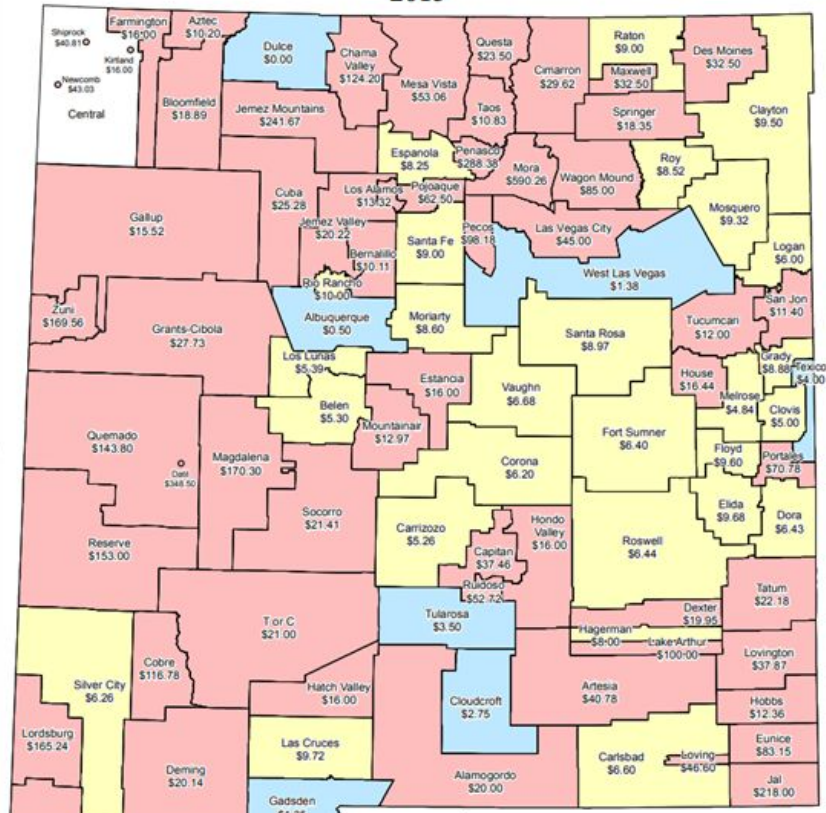


Regional / Statewide Collaboration

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ISP Cost by MBPS Per Month 2015



School Districts

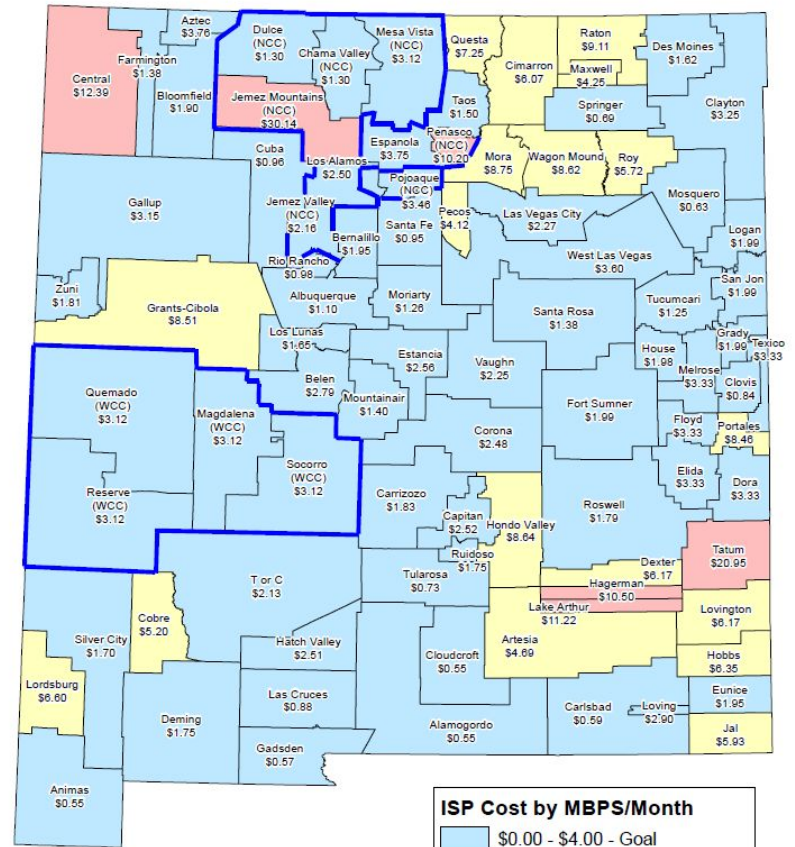
ISP Cost by MBPS/month

7	\$0.00 - \$4.00 - Goal
27	\$4.01 - \$10.00 - Acceptable
55	\$10.01 - \$591.00 - Unacceptable

DRAFT

Created 12/28/15
By AM PSFA
Sources: PSFA & BDCP

ISP Cost By MBPS Per Month 2020

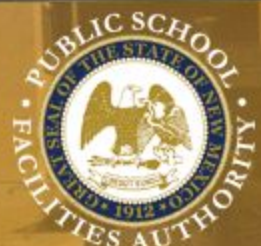


ISP Cost by MBPS/month

Blue	\$0.00 - \$4.00 - Goal
Yellow	\$4.01 - \$10.00 - Acceptable
Red	\$10.01 - \$30.14 - Unacceptable

Created 5/25/20
By AM PSFA
Sources: BDCP

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Current and Future Challenges of Systemic Distance Learning



Paul A. Romero

Executive Director of Information Technology
Rio Rancho Public Schools



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Current and Future Challenges of Systemic Distance Learning

Rio Rancho's Preparation and Response

Pre-Pandemic

- Already working towards a “Future Ready” environment
- Working towards 1:1 technology deployment
- Already using distance learning tools (Google Classroom)
- Teachers and students familiar with the tools

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Current and Future Challenges of Systemic Distance Learning

Rio Rancho's Preparation and Response

Pandemic

- Data
 - Identify need vs want - access/devices
- More than 600 homes with inadequate or no internet access, varying access to devices, 1½ weeks to resolve
 - Sparklight internet service
 - Mobile hotspots (T-Mobile) for remote areas
 - Identify “one-offs”

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Current and Future Challenges of Systemic Distance Learning

Key Factors

- Accessibility/Connectivity
- Sustainability
 - Funding 1:1 implementations
 - Device management and life cycle
- Ongoing technical support
 - Change from ticket based system to help desk staffed during non-business hours
 - Increased online resources (internal and external)

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Current and Future Challenges of Systemic Distance Learning

Key Factors

- Equity
 - Device and connectivity equity
- Working with all educational services
 - C&I, SPED, Health, Transportation, Food Service
- Social and emotional support
 - We are all human and learning can't happen if we are not safe, secure, and supported
- Privacy and security
 - External attacks increased 300%

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Current and Future Challenges of Systemic Distance Learning

Common High Level Considerations

- Social Emotional Supports
- Data Security/PII - Cloud Filtering (LMS, Video Conferencing, etc.)
 - Staff/Student Preparedness
- Policy Considerations
- Educational services that are not conducive to distance learning (Special Education, etc.)
- Continuing delivery/provisioning of non-educational services

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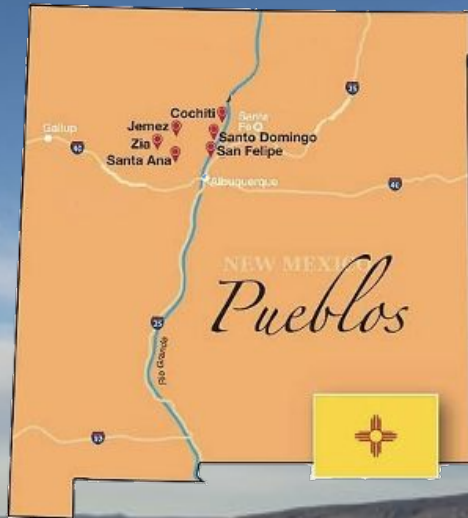


State of Internet Service on Tribal Lands



- **People:** 41% of people living on tribal lands lack access to broadband, with the deficit jumping to 68% for those living in rural areas. (FCC, 2016)
- **Homes:** 65% of Home Internet rely on cell phones. (ASU, 2019)
- **Schools:** Bureau of Indian Education schools can pay significantly more than non-BIE schools in the same locations.
Ch'ooshgai Community School \$20,750/mo. vs. NM PED School District \$6,005/mo.
- **Tribes:** In 2020, some tribal governments in New Mexico still connect with T1s (1.5 Mbps), or about 10% of a single LTE cell phone
 - Largely an issue of incumbent providers not building out on tribal land
- **The Digital Divide is now the Digital Chasm**

Building on Previous Tribal Efforts



Middle Rio Grande Pueblo Tribal Consortium
Jemez-Zia Pueblo Tribal Consortium

2015 Pueblo Beginnings



- Schools & Libraries: Very slow and expensive connections
- Tribal Libraries as critical community computing centers
- Only ½ Tribes had IT Departments
- Few Tribal libraries applying for E-Rate discounts



T1/Satellite

San Felipe Library
Santo Domingo Library
T'siya Elementary School
Jemez Day School
Jemez Walatowa High School



DSL

Jemez Tribal Library
Zia Tribal Library (Ethernet)
San Diego Riverside



LTE

MY iPHONE

Cochiti Tribal Library



Microwave

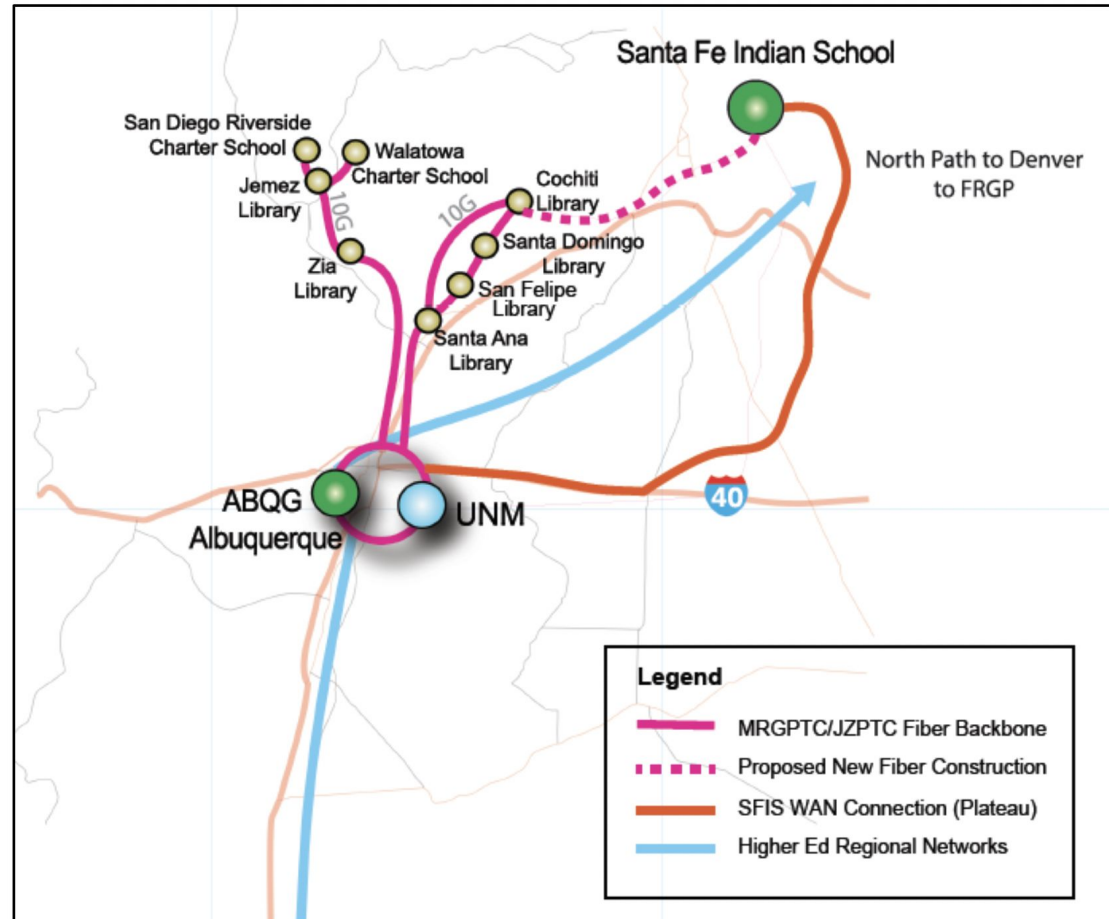
Shared w/Tribal Government

Santa Ana Tribal Library

Project Approach



- Consortium- includes all school & libraries in a geographic area
- Aggregates Demand
- Economies of Scale
- Network Design: Aims for ABQG at 505 Marquette
- The ask: 95% E-rate Discount on \$8 million projects



2019 Project Outcomes



- With E-Rate: 30 Cents/Mbps
- Over 3000% faster/Up to 96% Cheaper
- Scalable: Can grow as needed
- Benefits of ABQG: Peering and Caching, Internet2
- Increased collaboration between schools and libraries
- 23 States have K-20 Education Networks but not NM
- ***New Tribal Investments to connect to Tribal Homes***

New Speed per School/Library



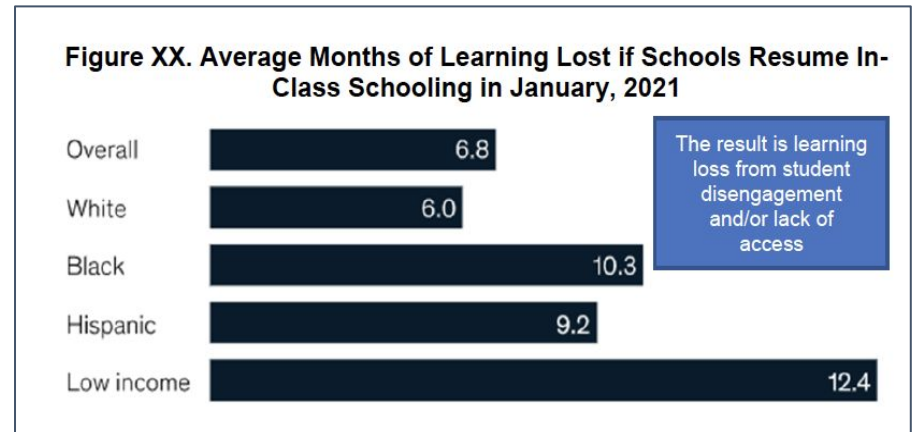
But that was before COVID-19.



- COVID-19 revealed the existing fault lines and put a face to the discrimination against students that aren't connected.
 - Lack of connectivity in homes is biggest student challenge
 - School-issued Chromebooks don't help w/o Internet
- LFC Report, "Learning Loss Due to COVID-19 Pandemic" (6/10/20)

Low income schools, students suffer most

- Internet factor
- Low-income schools underperform without established technology-rich teaching pedagogy and experience mobile technology



2020 COVID-19 Tribal Responses



- Short-term, Mid-term, Long-term Actions
 - Federal funding focuses on hotspots and devices
- Short term - Rapid Response address urgent needs for students with Cellular Hotspots, Chromebooks
- Pro: Quick Fix
- Con: Very Expensive Band-aids



Tribal Connectivity During COVID-19

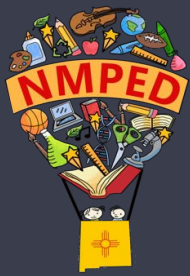
- Mid term -- Tribal WiFi hotspots at Libraries and Chapter houses. Emergency wireless network planning
- Pros: Can serve many students, reasonable cost/deployment time
- Cons: Hot/cold cars, transportation



Tribal Connectivity During COVID-19

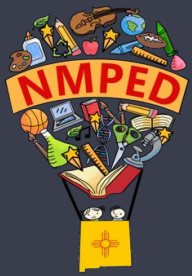
COVID-19 Notwithstanding

- Long term – Residential Internet access through the creation of permanent tribal networks that utilize the fiber backhaul
- Addressing connectivity for all tribal schools, including BIE controlled schools
- State Education Network



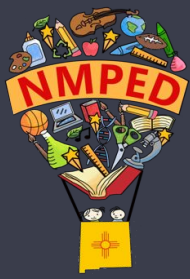
Addressing Navajo Broadband

- E-Rate application for fiber in two states to create unified network for Dine Education
- 380 new miles of fiber with DoIT providing a state match of 5% for the \$47 million E-Rate build
- Working on ensuring fiber connectivity for BIE controlled schools
- Collaboration between multiple groups including PED, SFIS, DoIT, and IAD



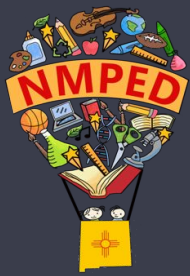
Addressing the Homework Gap

- Mobile hotspots
- Chromebooks
- WiFi hotspots using cellular technology
- Service providers have stepped up all around the state



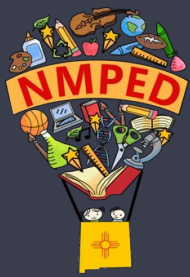
Addressing the Homework Gap

- Free WiFi spots have been mapped
- Still need better home access for students and teachers
- We still have urban connectivity deserts in areas of our urban areas
- Local Exchange Carriers are leading the way to provide better coverage, including fiber to the home



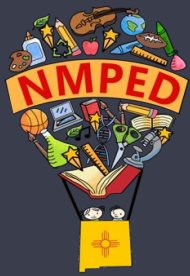
Need for technology planning

- More than broadband and devices
- Engage teachers, administrators, parents, and community
- Provide professional development for teachers to make the best use of technology
- Technology planning such as Future Ready is also about changing the culture in schools to adapt to change



Collecting data

- The Council of Chief State School Officers (CCSSO) partnered with EducationSuperHighway, a national nonprofit, and the State Educational Technology Directors Association to develop guidelines for Digital Equity Data Collection
- This is a blueprint for state education leaders about how to conduct a high-quality, student-level data collection in assessing the state's digital divide.



Collecting data

- Establishing a set of standards for the collection of student home access data will provide districts, and in turn the state, the ability to identify whether:
 - A student has access to connectivity or a device at home;
 - Is the connectivity the sufficient enough to allow the student to be engaged in online learning.
- Data points include devices, device ownership, and if devices are shared in a household
 - This data can help PED, districts, and charter schools identify and target students in of need support

Obstacles:

- Low population density
- Lack of existing infrastructure
- **Deficit of Expertise**
- Lack of Funding

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Windows of Opportunity

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Path Forward:

- State vision
- Leadership
- Clear Goals
- Dedicated / specialized staff
- Some funding
- Accountability

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Final takeaway

Statewide Broadband and (Ed)Tech Deficiencies Correction Program

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