



USING BROADBAND DATA TO ACCELERATE COMMUNITY PLANNING

MARIEL TRIGGS, MURALNET, MODERATOR

LAI YI OHLSEN, MEASUREMENT LAB

BOB BALLANCE, THE CENTER FOR INTERNET AS INFRASTRUCTURE

NICOLE UMayAM, ARIZONA STATE LIBRARY, ARCHIVES AND PUBLIC RECORDS

OPEN INTERNET MEASUREMENT **MLAB**

LAI YI OHLSEN

PROJECT DIRECTOR, MEASUREMENT LAB

LAIYI@MEASUREMENTLAB.NET

WHAT IS M-LAB?

- People/Organization: A joint initiative between staff at Code for Science & Society, Google, and Princeton PlanetLab
- Data: An open repository of user-contributed, longitudinal, open-source derived Internet infrastructure data
- Infrastructure: A global infrastructure deployed, built, and run to aid in the creation of that data repository

MEASUREMENT LAB'S MISSION

Measure the internet.

Save the data.

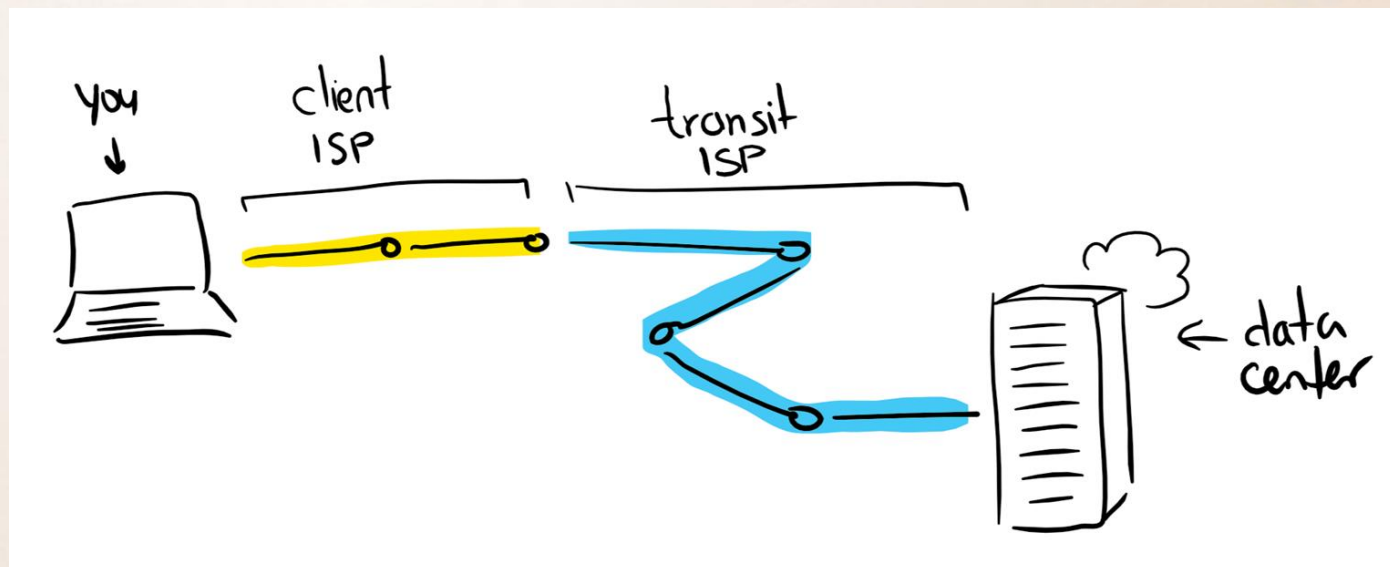
Make it universally accessible and useful.

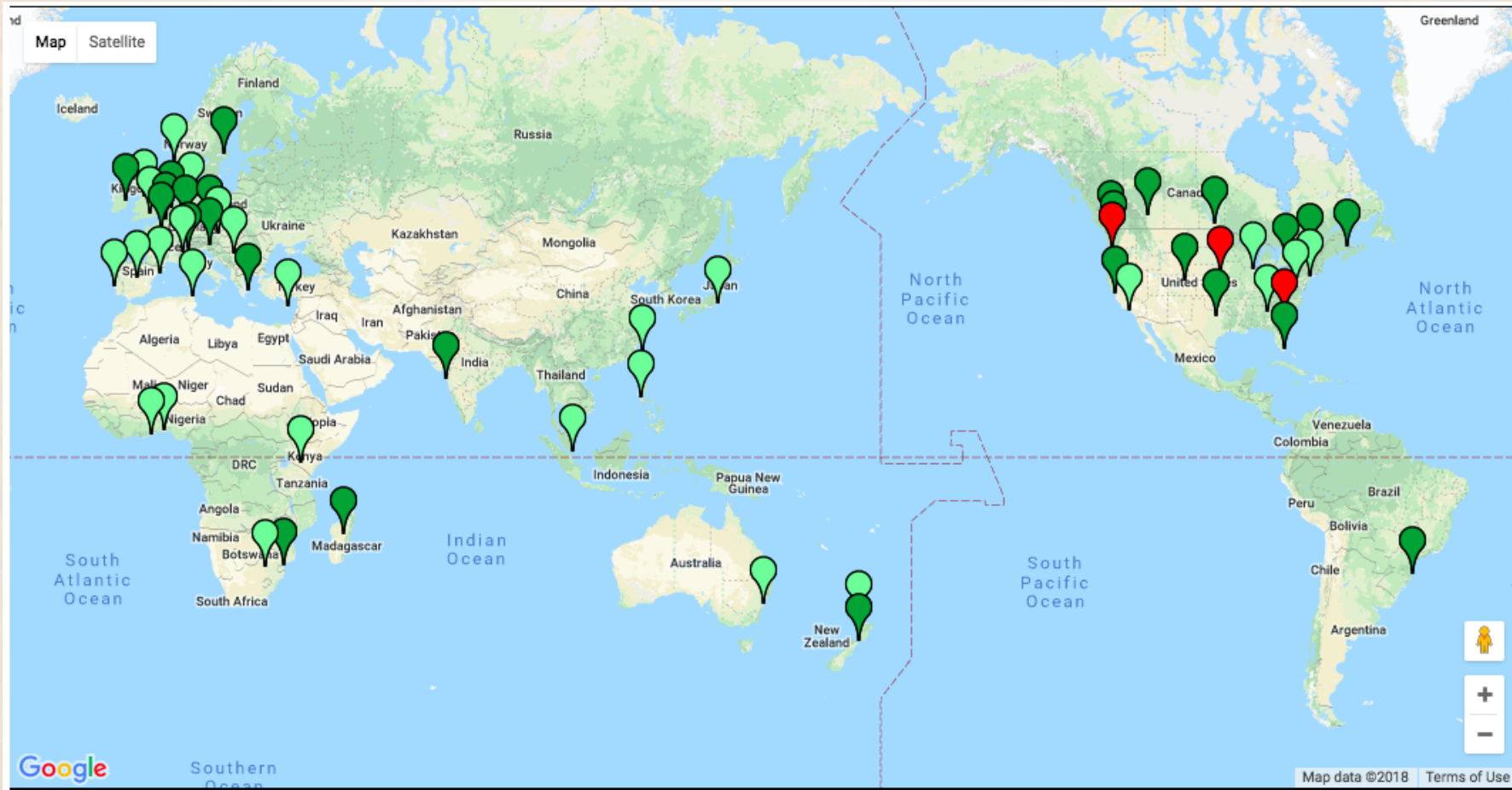
Note: we don't measure the internet by ourselves -- people measure the Internet, using their own computers/phones and our servers, and we collect the data, and support them in their measurements

MLAB

M-LAB PLATFORM

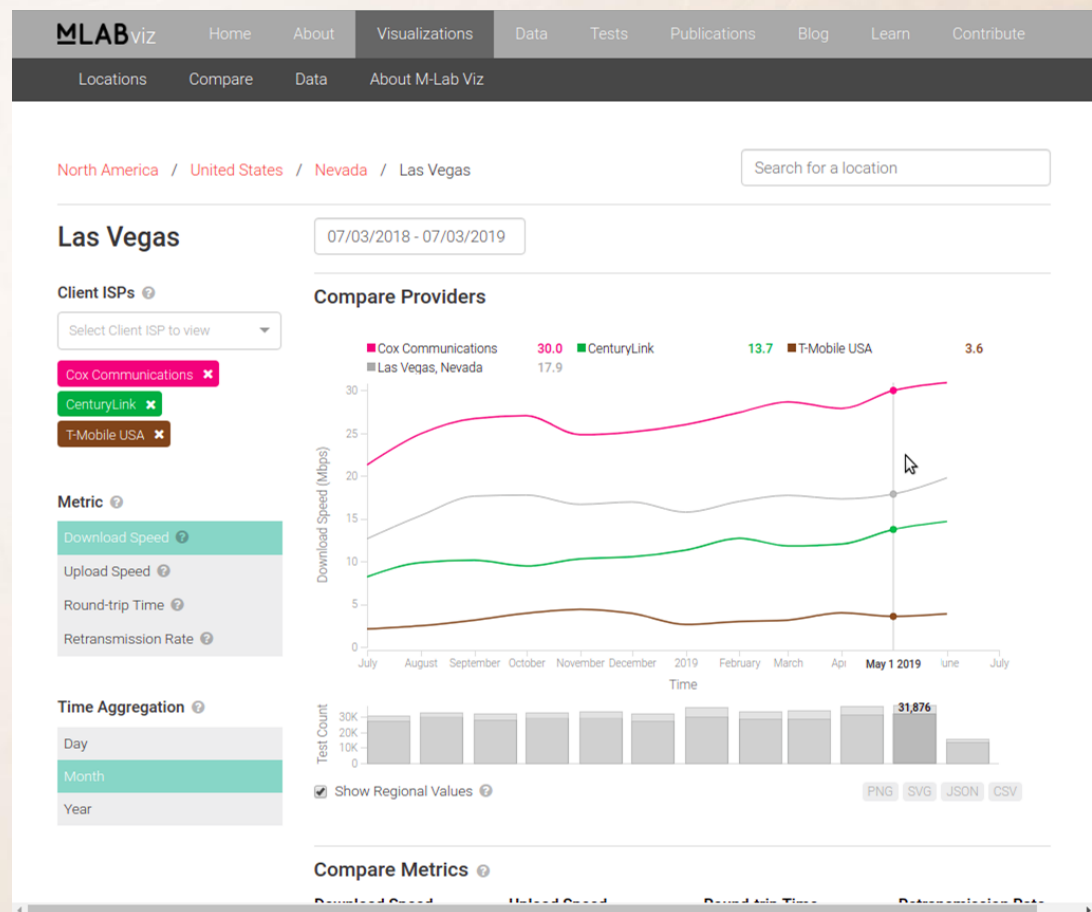
- High capacity servers placed next to content
- M-lab measures user experience of the **full route** from user to content





M-LAB DATA

- Source data (raw packet traces & metadata)
- Visualization website
- BigQuery (parsed data)
- Other M-Lab & community-developed applications



MEASURING LIBRARIES BROADBAND NETWORKS

- Partnership with Simmons University and Internet2 Project, funded by IMLS
- Goal: Study how and if study broadband measurement tools aid libraries to best serve communities digital demands
- Our part: Enable tools for the collection of continuous measurements to understand their broadband service on an ongoing basis

MEASURING LIBRARIES BROADBAND NETWORKS

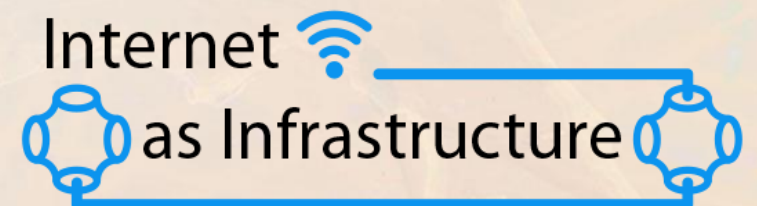
- Partnering with libraries to install small measurement computers in 1-2 places
- Requires a small time commitment
- Please let me know if you'd like more information on how to get involved!

COMMUNITY STORY-TELLING USING BROADBAND DATA

ROBERT A. BALLANCE, PH.D.

THE CENTER FOR INTERNET AS INFRASTRUCTURE, LLC.

BALLANCE@INTERNET-IS-INFRASTRUCTURE.ORG



I3 Connectivity Explorer

I3 Connectivity Explorer [Home](#) [Settings](#) [Learn](#) [Resources](#) [Help](#) [I3 Blog](#) [Policies](#)

Turtle Mountain [North Dakota](#) [Demographics](#) [ACS » Internet](#) [Wireless](#) [Wireline](#) [Speedtests](#)

Turtle Mountain Reservation and Off-Reservation Trust Lands

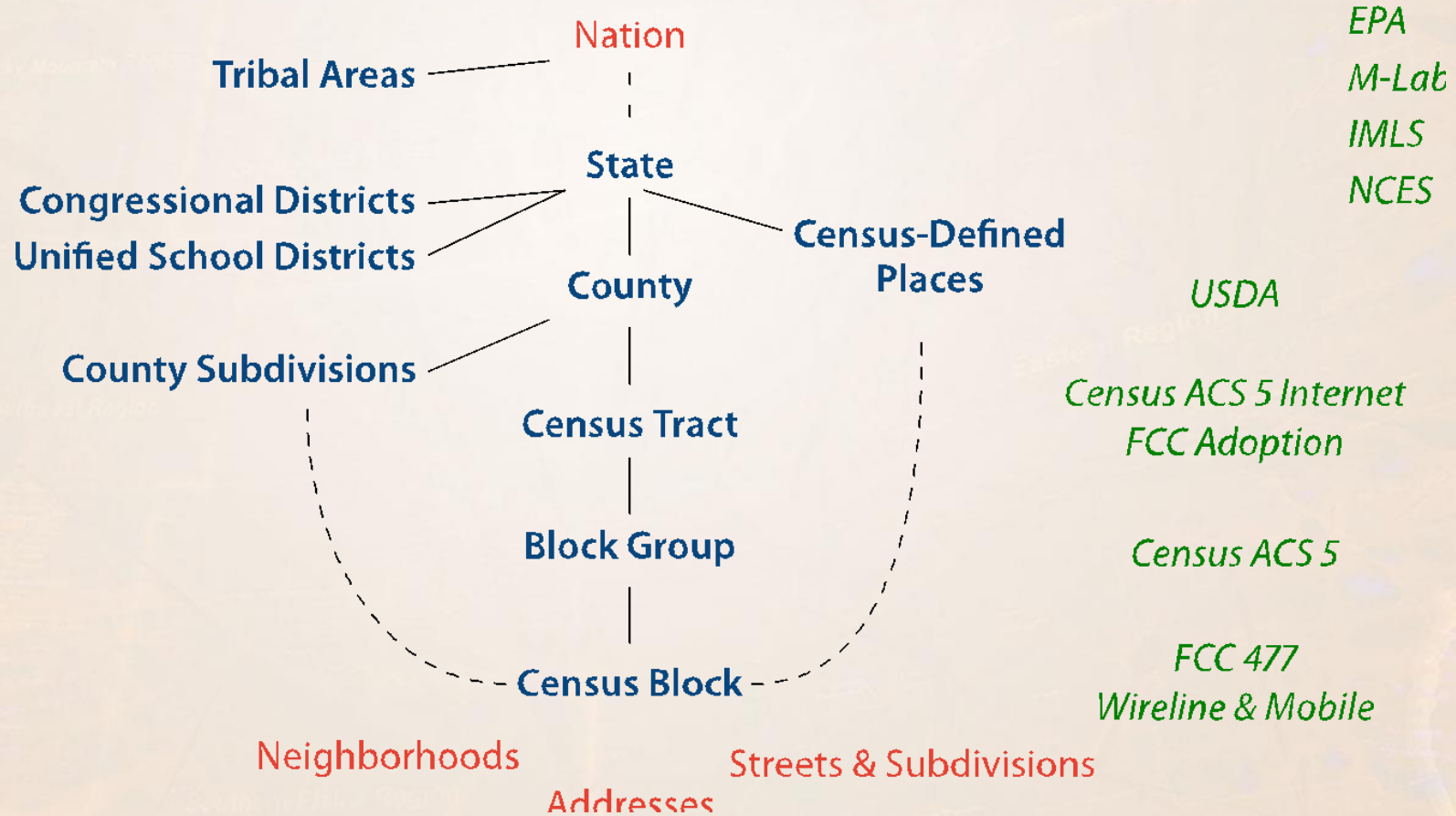
9,232 ± 262
Population
227.5 mi ²
Area
41 persons/mi ²
Population Density
\$5,022,806
Annual Economic Benefit of Broadband
\$28,688 ± \$4,111
Median Household Income
41.98% ± 5.47%
Household Poverty Rate
Eco Regions
9.2 Temperate Prairies 9.3 West-Central Semiarid Prairies
County Info
Burke County Rural:Federal/State Government McHenry County Rural:Farming

The map displays the Turtle Mountain Reservation and Off-Reservation Trust Lands in North Dakota. It includes a legend for 'Location' with 'Turtle Mountain Reserva' (checked), 'Public Schools' (checked), 'Private Schools' (unchecked), and 'Post-Secondary Schools' (unchecked). The map shows the reservation boundary, population density, and school locations. Labels on the map include Napinka, Melita, Minto, Cando, and Rugby. The map also shows Turtle Mountain Provincial Park.

USERS:

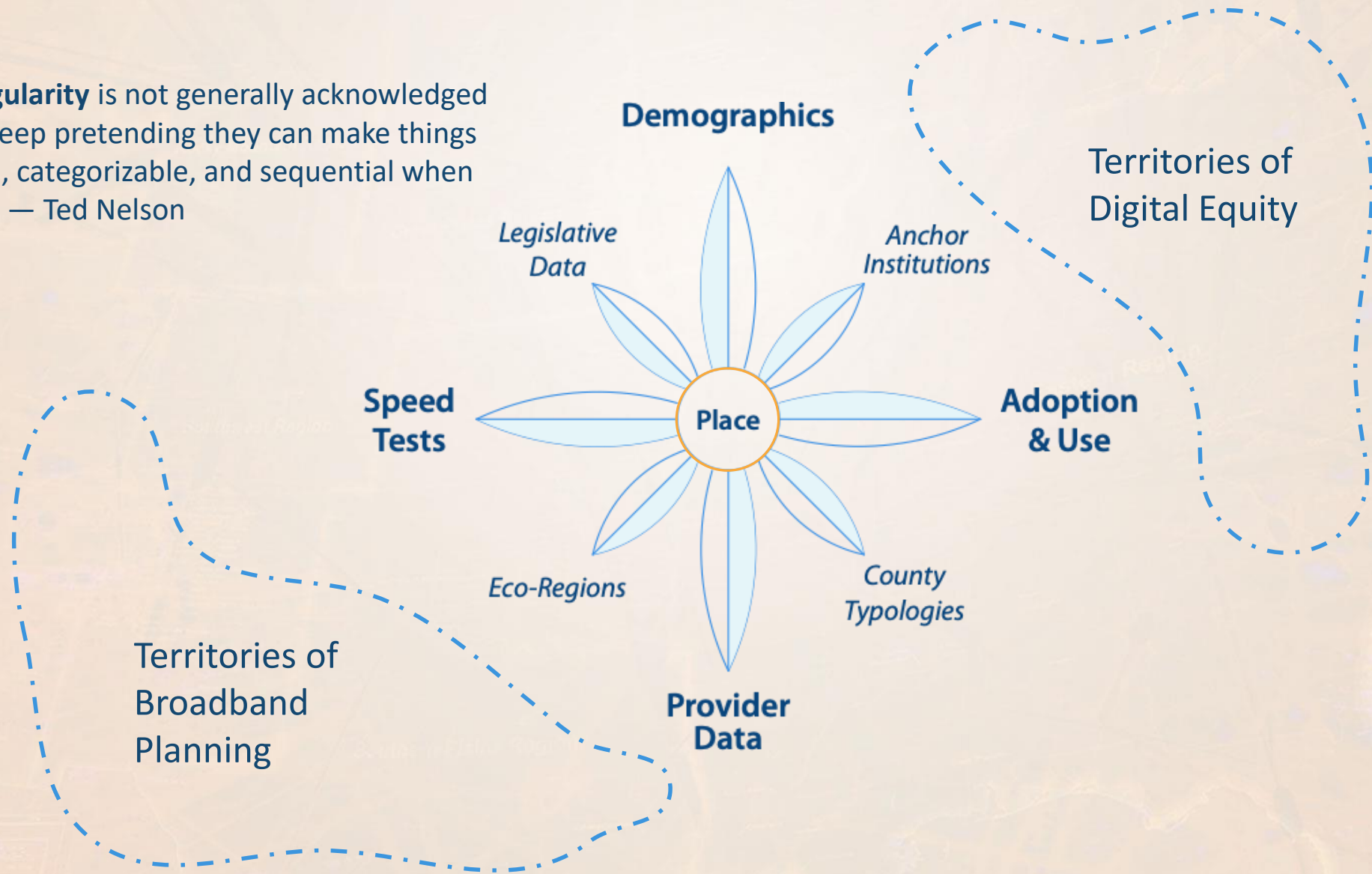
- Digital Equity Teams
- Libraries
- County and community planners
- States

Data & Geography

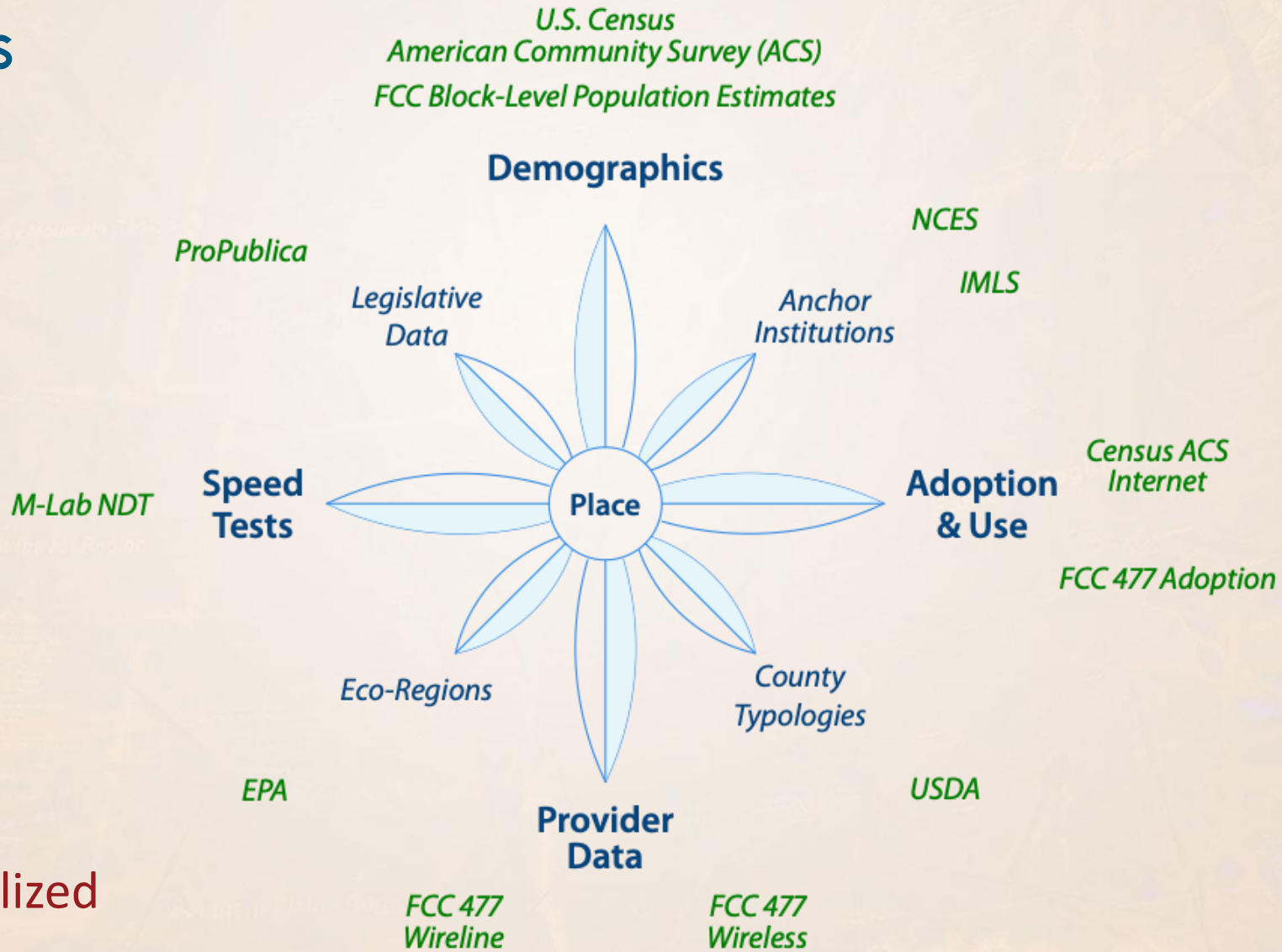


WAYFINDING

“Intertwingularity is not generally acknowledged — people keep pretending they can make things hierarchical, categorizable, and sequential when they can’t.” — Ted Nelson



Data Sources



National data, localized

WHAT WE'VE LEARNED

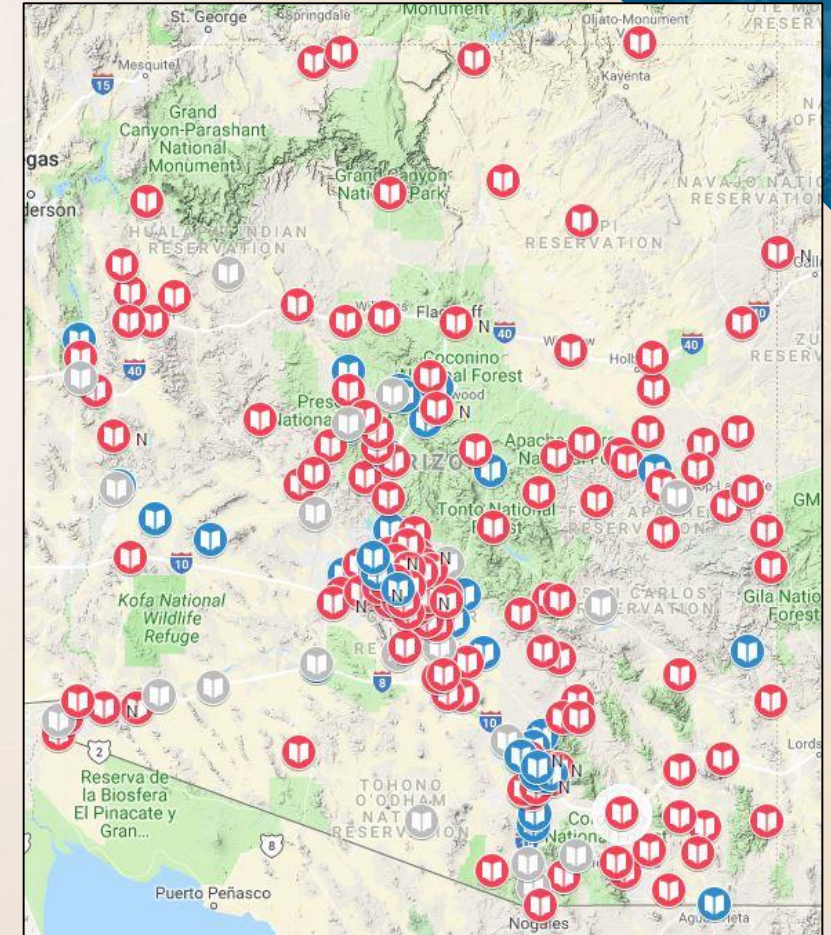
- National data, localized, helps to set the context
 - Every data set has its *limits* and its *imperfections*
 - Understanding those limits helps you to pose meaningful questions about the data
- Local data and local insights are critical for planning
 - Broadband planning and action teams are effective for local planning
 - Different communities have different needs
- The data is not the story
 - Your local needs, goals, and aspirations provide the real story

PUBLIC LIBRARY CONNECTIVITY DATA

Annual Public Library Statistics (self-reported)



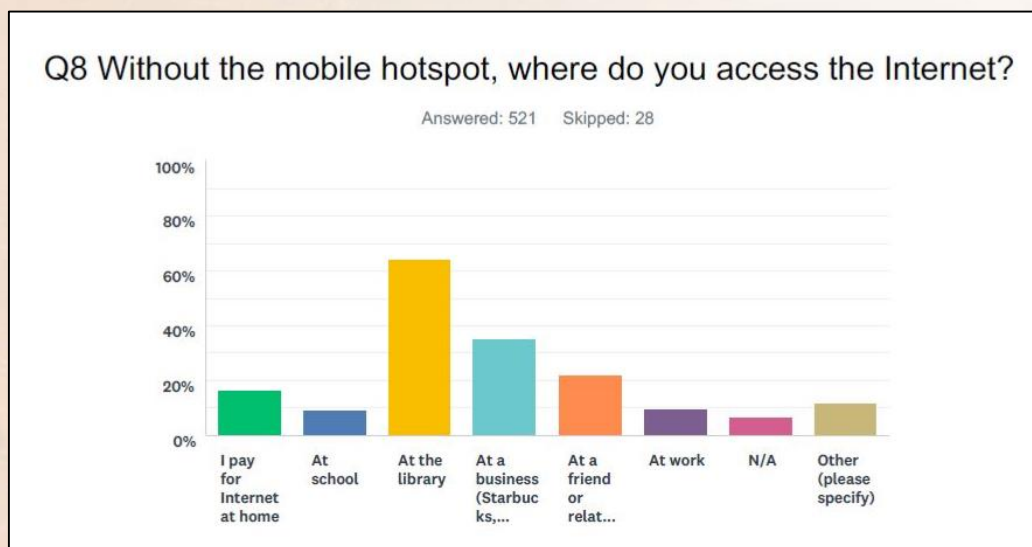
“Leaners”: People outside using the library’s wifi after hours






Arizona Public Library outlets that do not meet the FCC 2014 E-Rate Modernization Order bandwidth targets

EMPOWERING LIBRARIES TO DEMONSTRATE THEIR VALUE

COMMUNITY SURVEYS



TRAINING ON USING NATIONAL DATA

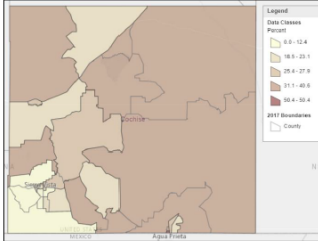


 AZ Tech Training
 March 25-29, 2019
 

Extra Credit: Make a Map!

Census data is found in a variety of locations. To get the raw numbers, and to compare multiple areas, go to American FactFinder: <https://factfinder.census.gov>

Note: To create a map, you'll need to add multiple *Geographies* of the same type (e.g. more than one census tract or more than one county selected).

Percent of Households Without an internet subscription in Cochise County by Census Tract



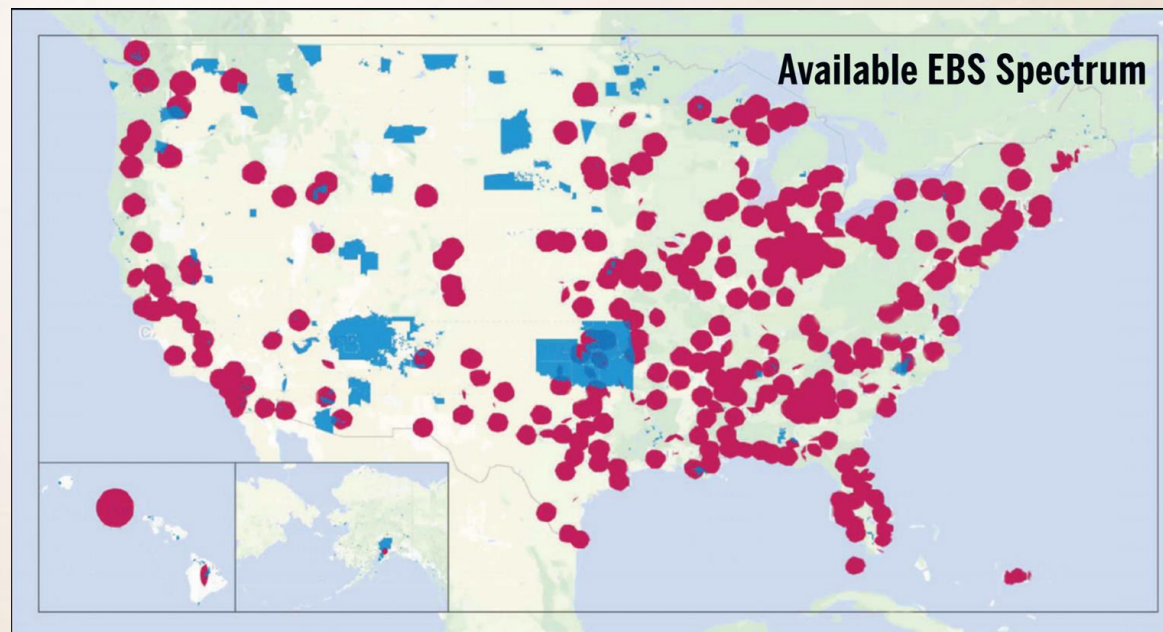
Subject	Census Tract 2017, Cochise County, Percent	Census Tract 2013, Cochise County, Percent	Census Tract 2009, Cochise County, Percent	Census Tract 2005, Cochise County, Percent
TYPE OF INTERNET SUBSCRIPTIONS				
With an internet subscription	63.2%	70.9%	66.6%	67.2%
Did not use any other type of internet subscription	1.9%	0.0%	1.9%	1.2%
Disconnected at any time	16.0%	19.9%	14.0%	16.0%
Cellular only access	37.5%	51.7%	44.0%	36.0%
Connected only access via other type of internet subscription	13.9%	19.3%	7.2%	5.5%
Disconnected with no other type of internet subscription	14.2%	24.6%	33.1%	41.7%
Mobile or CDL	11.9%	28.1%	9.7%	17.8%
Mobile internet service	11.9%	28.1%	9.7%	17.8%
Without an internet subscription	36.8%	29.1%	33.4%	32.8%

Source: U.S. Census Bureau, 2013-2017 American Community Survey 5-Year Estimates

FCC ORDER : NATIVE NATIONS CAN CLAIM UNLICENSED EBS SPECTRUM OVER RURAL TRIBAL LANDS

EBS spectrum is in the 2.5 GHz band which is ideal for rural broadband deployments

Contact Mariel Triggs at mariel@muralnet.org or visit muralnet.org for more information



MuralNet is a 501(c)(3) nonprofit whose purpose is to bring broadband to under-connected people on tribal lands on a grand scale.

CONTACT US

- **Mariel Triggs**, MuralNet,
 - mariel@muralnet.org @muralnetwork
- **Bob Ballance**, The Center for Internet as Infrastructure, LLC
 - ballance@internet-is-infrastructure.org
 - I3 Connectivity Explorer: <https://i3connect.org>
- **Lai Yi Ohlsen**, Measurement Lab
 - laiyi@measurementlab.net
 - www.measurementlab.net / @MeasurementLab
- **Nicole Umayam**, Arizona State Library, Archives and Public Records
 - numayam@azlibrary.gov @nicole_umayam