CROSSING THE TECHNOLOGY DESERT
Solving Rural and Tribal Broadband Access

Matthew Rantanen

Arcadian Infracom
So. CA Tribal Chairmen's Association
National Congress of American Indians
Native Public Media

DISCUSSION POINTS

Rural Connectivity

Tribal Connectivity

20 years of Backbone Bypass

Evolving Communications Ecosystem Drivers

Building Backbone with Purpose

Benefit the People

How to Help

RURAL CONNECTIVITY

Many areas have no connectivity options

- Not enough end users to support traditional telecom model

Some have single connectivity option – cannot afford available options

- Average rural income is $52K/household/year

Most lack equipment

- Computer equipment is a luxury

Heavily dependent on low capacity microwave middle-mile access solutions to existing internet backbone routes

TRIBAL CONNECTIVITY

No middle-mile connectivity to backbone – 8,000 miles of custom built middle-mile fiber required to connect 573 tribes to existing fiber backbones

Many Tribes have no connectivity options
- Low user density on tribal lands prevents traditional business models from working
- No cell phone service (over 600 deaths on Tribal lands in 2018 for lack of signal)
- 30% of Tribal households do not have "plain old telephone service" (POTS) and no 911

Affordability
- Average Tribal income is $29K/household/year ($11K/household/year on Navajo Nation, largest tribe)

Rates up to $1000/Mbps from carriers

Most lack equipment
- Many Tribal households lack electricity or running water
- 3G mobile connectivity is often the best available, household PCs are a luxury

Fewer than 12 Tribal telecoms out of 573 Federally recognized tribes

TRIBAL CONNECTIVITY

Heavily dependent on microwave backhaul

Cookie-cutter network solutions do not apply

Why microwave is the solution, or a stop-gap to a more permanent fiber solution

- Lack of middle-mile fiber infrastructure to support fiber backbone access (missing 8,000 miles)

- Geographical diversity of 573 Federally recognized Tribal nations

- Tribal Historical Preservation of sacred sites, burials, artifacts make construction complex/expensive

20 YEARS OF BACKBONE BYPASS
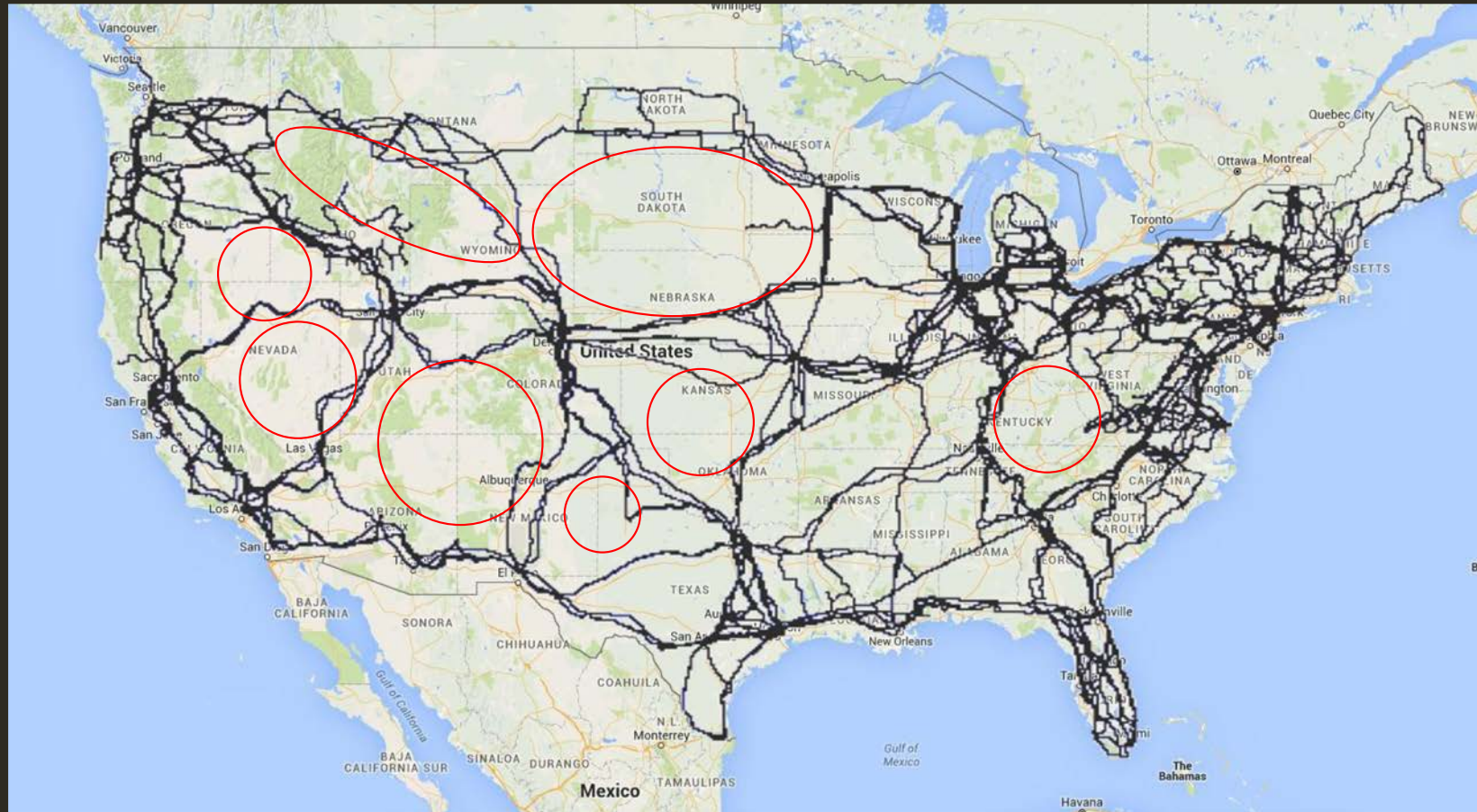
US Long-haul Fiber Routes

HOW DID IT COME TO THIS?

Company valuations in 1990s for long-haul builds was based on most mileage built in shortest time

Carriers only worked with easy ROW owners ($1M/mile tribal)

Carriers metrics (houses passed, RGUs) only work in user dense areas

No current ability for carriers to build and correct

- Too leveraged

- Too many higher value add products diverting funds

- Strained relationships with ROW owners

A POSITIVE CHANGE IN MARKET DYNAMICS

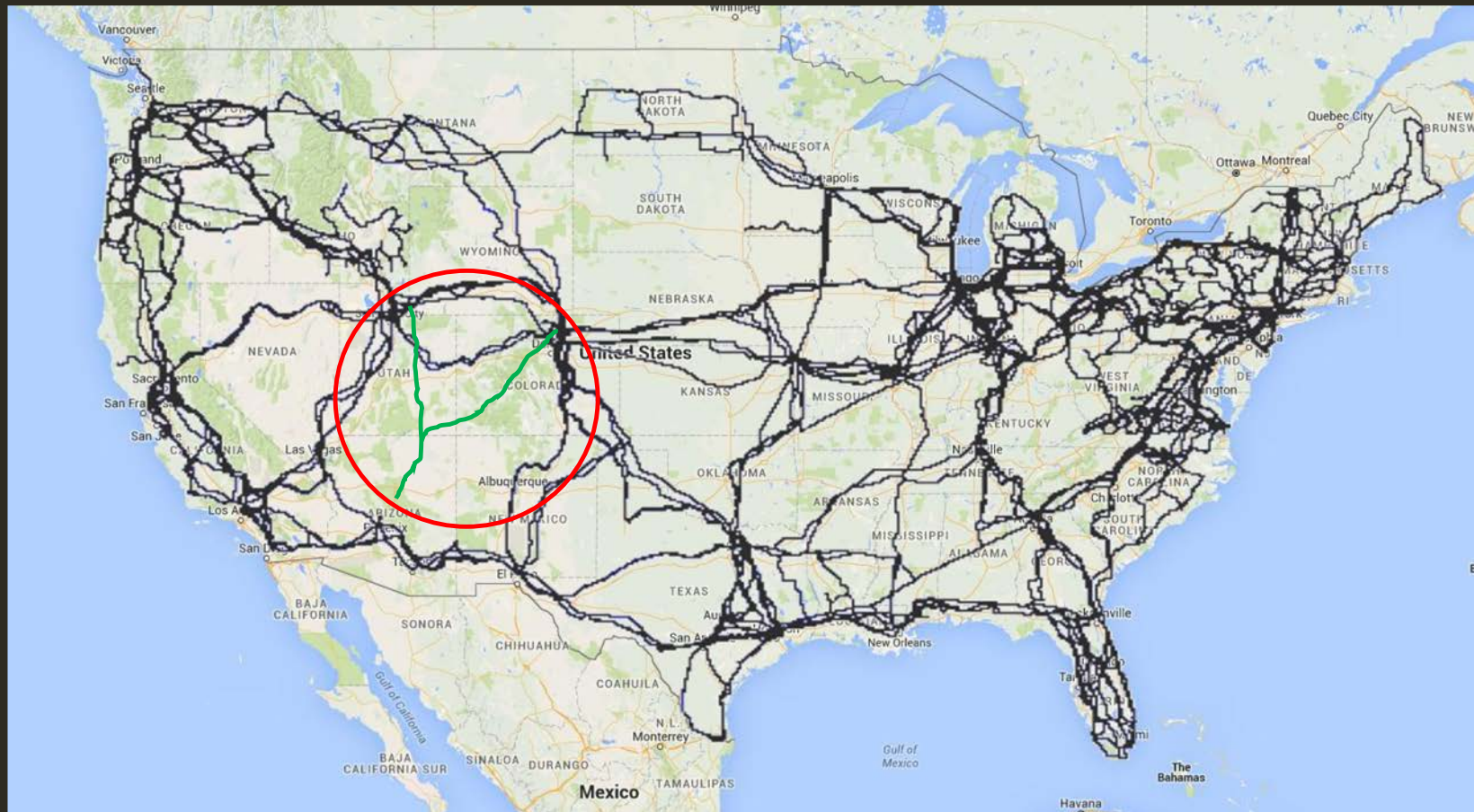Content players are now the drivers in the communication ecosystem, not the carriers

Diversely connecting data centers is now the focus

Tribal ROW owners now willing to speak with trusted insiders

The backbone between data centers can now be "stretched" to create affordable access to bypassed, underserved markets

THE FIRST STEP IS THE HARDEST

SLC – PHX, PHX to DEN (working with the Navajo Nation)

BUILDING THE NEW NORTH AMERICAN BACKBONE

To change the national fiber landscape, a different mindset is required

- Full diversity from existing fiber routes and rights-of-way

- Routing to connect as many rural and tribal areas as possible

- Strategic placement of huts, manholes, hand holds, optical access and other interconnect points

- Future-proofing for granular access

- Creating new partnerships with DOTs, townships, power providers and tribal nations

BENEFITS TO THE PEOPLE

Economic Impact

- Hiring workers

- Fees for ROW

Educational Impact

- Connecting schools & libraries

- Distance learning

- Equipment and "code" training from partners

Social Impact

- Providing opportunity

- Keeping families and cultures together

- Providing hope

BENEFITS FOR PARTNERS

New backbone = new opportunity

- Middle mile fiber from backbone to last mile providers

- Creates affordable local market opportunities for last mile and local providers

- E-rate

- Fiber to the tower (new towers)

- Telemetry data

- Federal grant programs

- Economic development zones

HOW YOU CAN HELP

Corporate Outreach

- Code camps

- Hardware and software

- Remote entry level jobs

Community Outreach

Personal Outreach

- Push your companies for Corporate Outreach

- Provide mentorship

QUESTIONS?

THANK YOU!

Matthew R Rantanen

Partnering & Business Development

mrr@arcadianinfra.com

arcadianinfra.com