



The Dawn of a New Era

Do More With Broadband

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Key Questions and Concepts

Is broadband infrastructure essential infrastructure?

Is this the domain of the City?

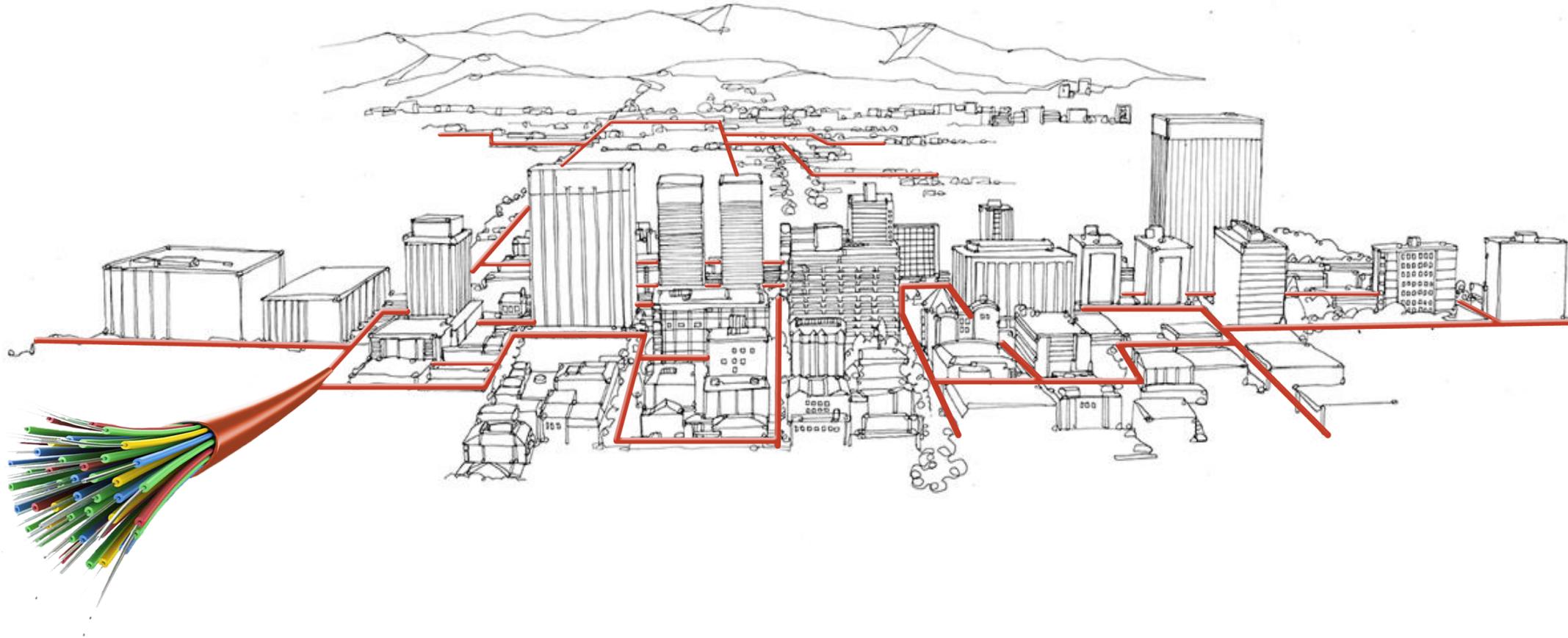
How should these networks work?

The current model is broken. Why?

The goal is to disrupt the current model...

not the companies that currently operate the model.

How do we pay for these networks?

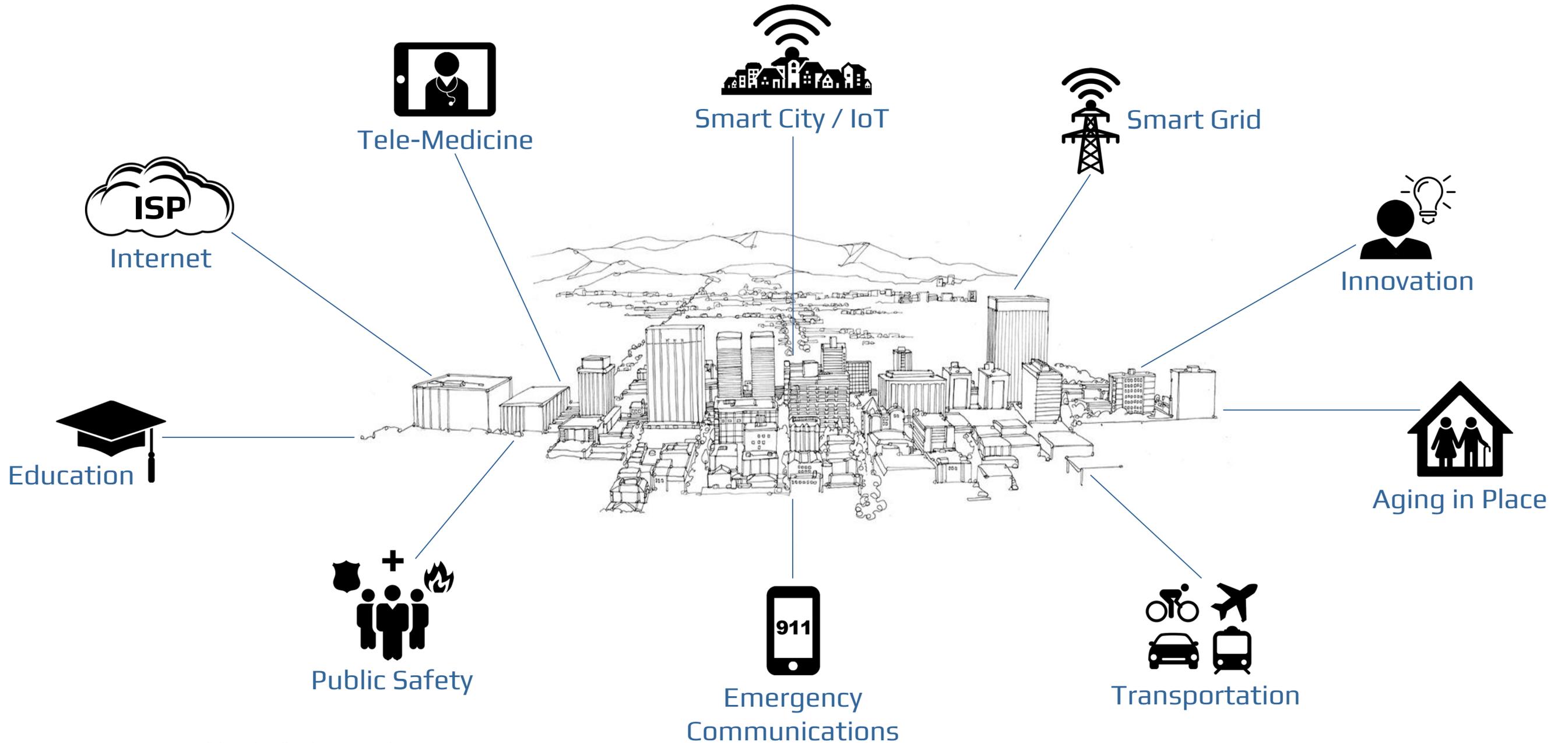


Broadband Infrastructure - Is this the Domain of a City?

Communication is not just a sector of the economy. Communication **is** the economy.

– Kevin Kelly, *New Rules to a New Economy*

Municipal Network of the Future



Current Model



Network Operators
Service Providers

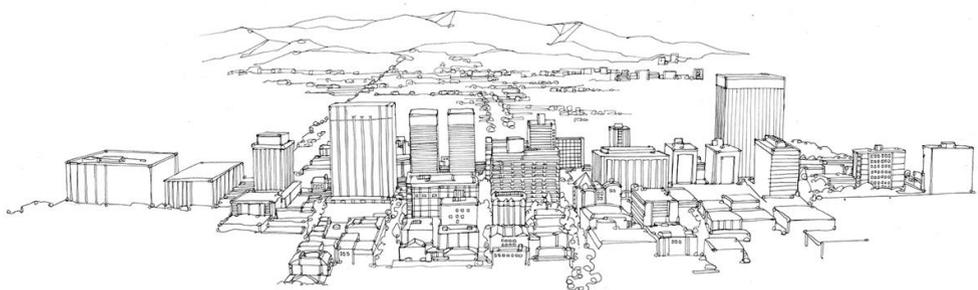


Who Should
Networks
Serve?



Subscribers

Future Model



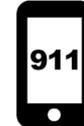
Network Operators

Who Should
Networks
Serve?



Subscribers

Service Providers



Subscribers



Incumbents

- Subscriber Pays
- ISP Has Control
- Misaligned Interests
- No Competition
- Throttled Innovation
- Scarce Bandwidth
- Inflated Prices
- Permission Required

Municipal Infrastructure



Open Broadband Networks
or Broadband as a Utility

Incumbent Infrastructure



Closed Broadband Networks

Rule #1

Whoever Controls the
Infrastructure has Control.



Municipal Broadband Value Proposition

The Unique Value Proposition of Municipal Networks...

**Create Local Control and Ownership of
Network Infrastructure**

Municipalities should own and control
broadband infrastructure.

The Private Sector should provide services
running over that infrastructure.

A Platform of Possibility



Efficient Government



Economic Development



Education



Smart Grid



Transportation



Smart City / IoT



Livability



Public Safety



Innovation



Affordable Communications



Tele-Medicine



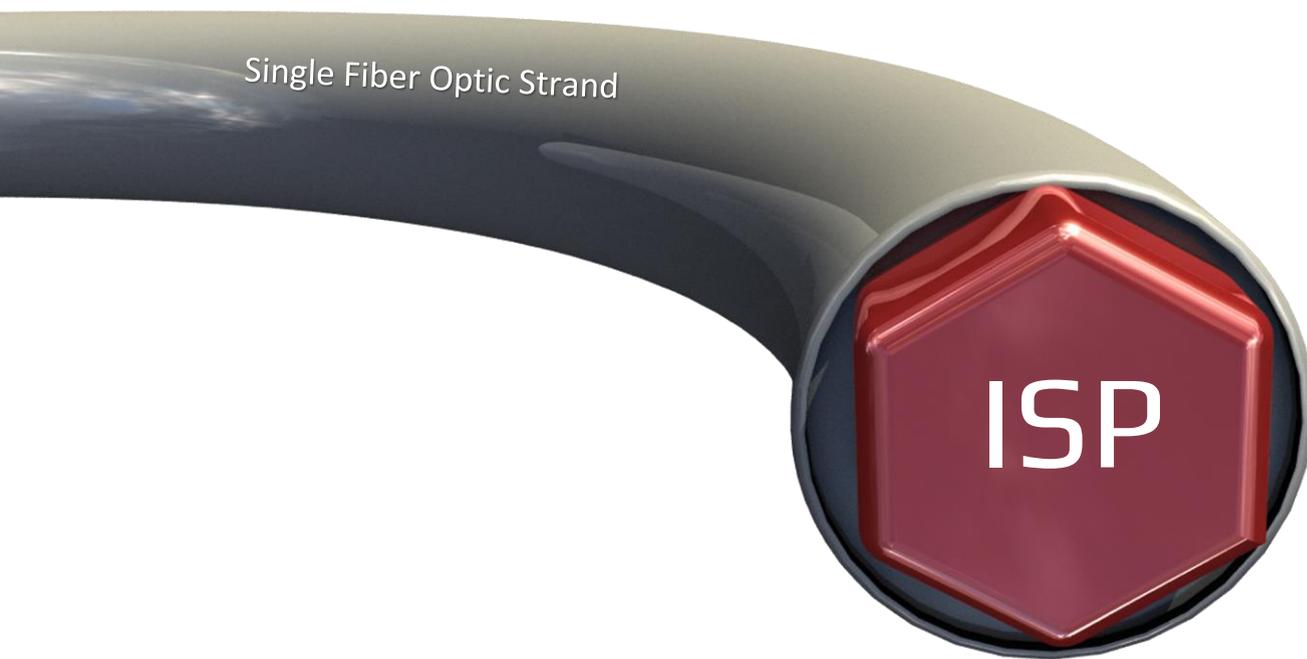
Emergency Communications



Aging in Place

Fast Internet

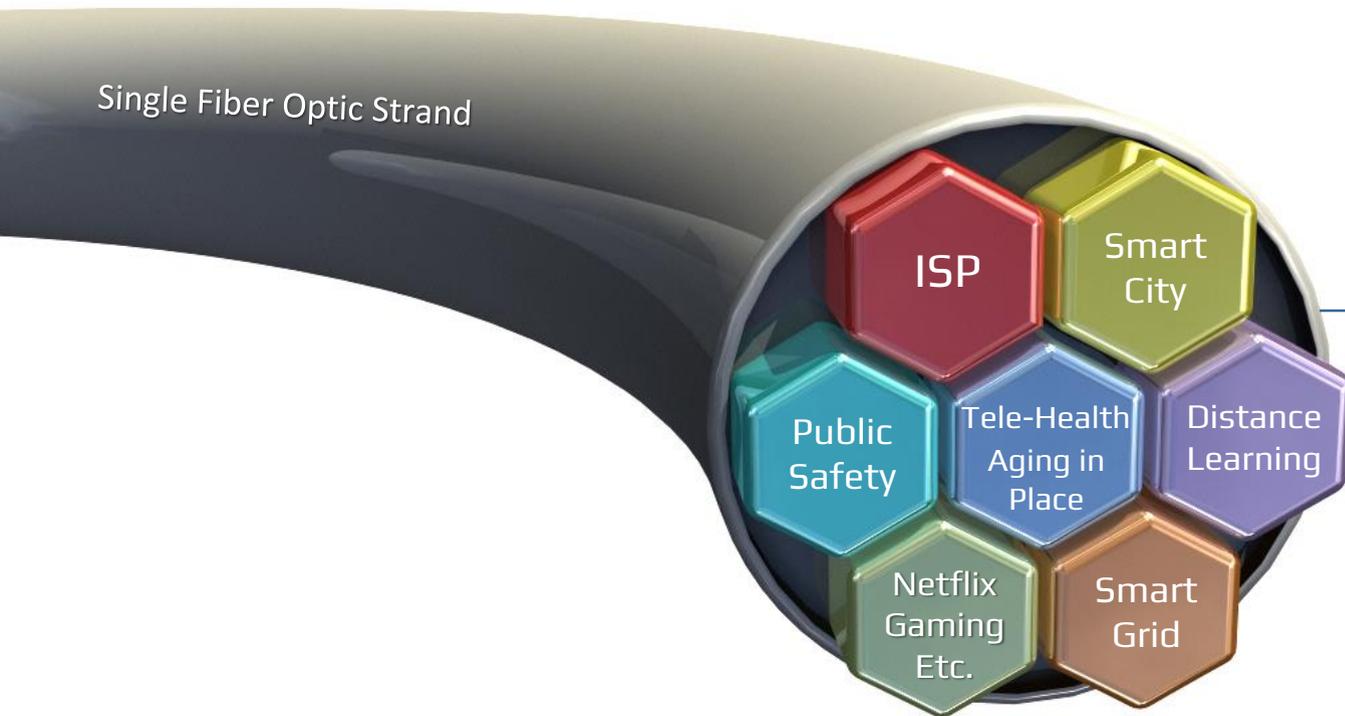
Traditional Closed Broadband Network



Illustrated cross-cut of a single fiber strand containing a traditional single ISP service.

Fast Internet + Virtualization

Open Virtualized Broadband Network



Illustrated cross-cut of a single fiber strand containing multiple virtual private networks.

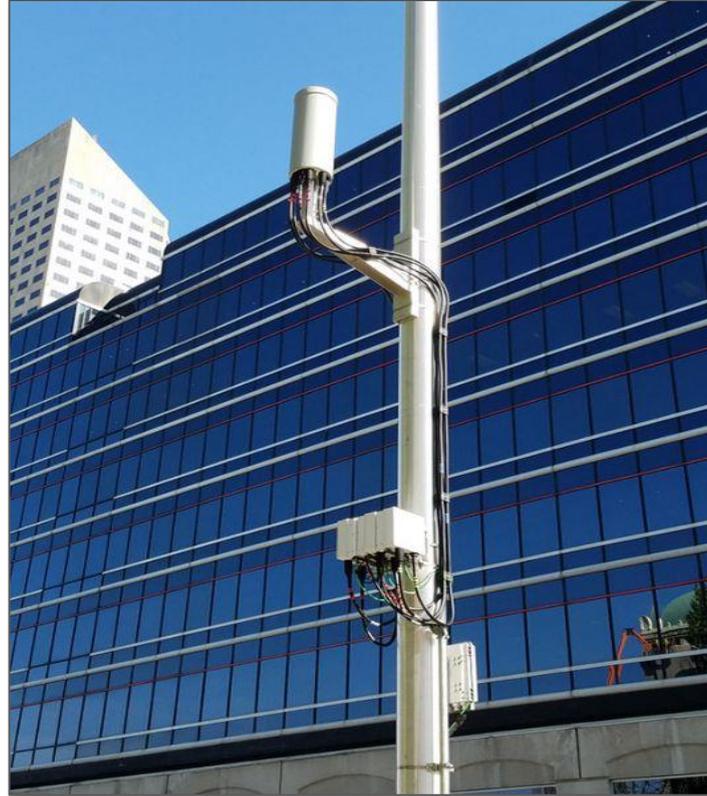
Multiple Virtual Private Networks for Off-Internet Services Requiring Greater Privacy, Security, and Reliability

The Power of Virtualization



“We are at the dawn of a new era: Software Defined Infrastructure; a starting point of a very deep revolution that will reshape our global computing infrastructure. Today’s internet will run in just one “slice” across this infrastructure, with many other novel services populating other slices.”

– National Science Foundation - February 2016, Workshop



Wireless works best the faster it gets back to fiber

Power of Abundant Bandwidth



Scarcity



Abundance

Abundant Bandwidth Leads to Flourishing
Economic Growth – Innovation – New Applications



Subscriber Portal Demonstration

Video Demo of the EntryPoint Subscriber Experience

<https://youtu.be/zIYE0qI3beQ>



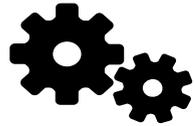
How To Finance The Network

Paying for the Millcreek Fiber Network



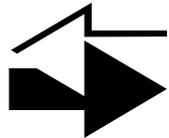
Premises (Homes / Businesses)

22,000



Average Monthly Internet Cost

\$70.00



WWW

Annual Internet Spend

\$18,480,000



20 Year Internet Spend

\$369,600,000

Funding should come from the property owners who sign-up voluntarily

Residents voluntarily “Opt-In” to the Broadband Improvement District

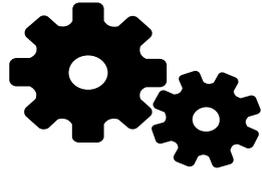
Makes Subscriber's **Owners** not Renters



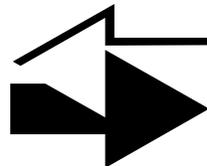
Three Cost Categories for Subscribers



Infrastructure Expense



Monthly Maintenance & Operations

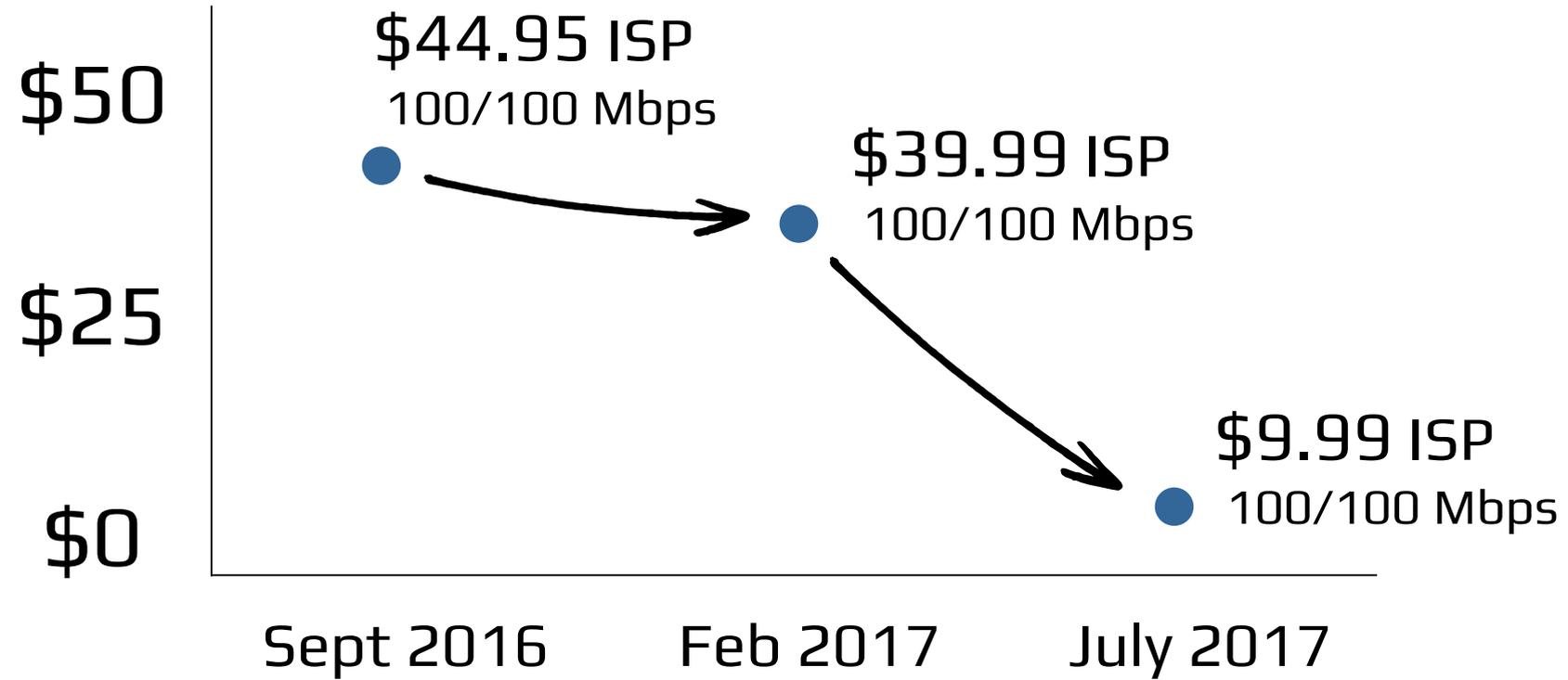


WWW

ISP Internet Services



True ISP Competition in Ammon, Idaho

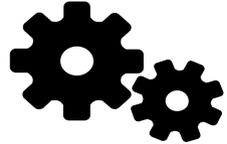


Three Cost Categories in Ammon, Idaho



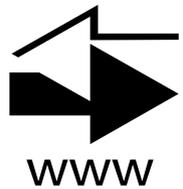
Monthly Infrastructure Expense

\$17.00



Monthly Maintenance & Operations

\$16.50



Best Monthly ISP Value Currently (100/100 Mbps)

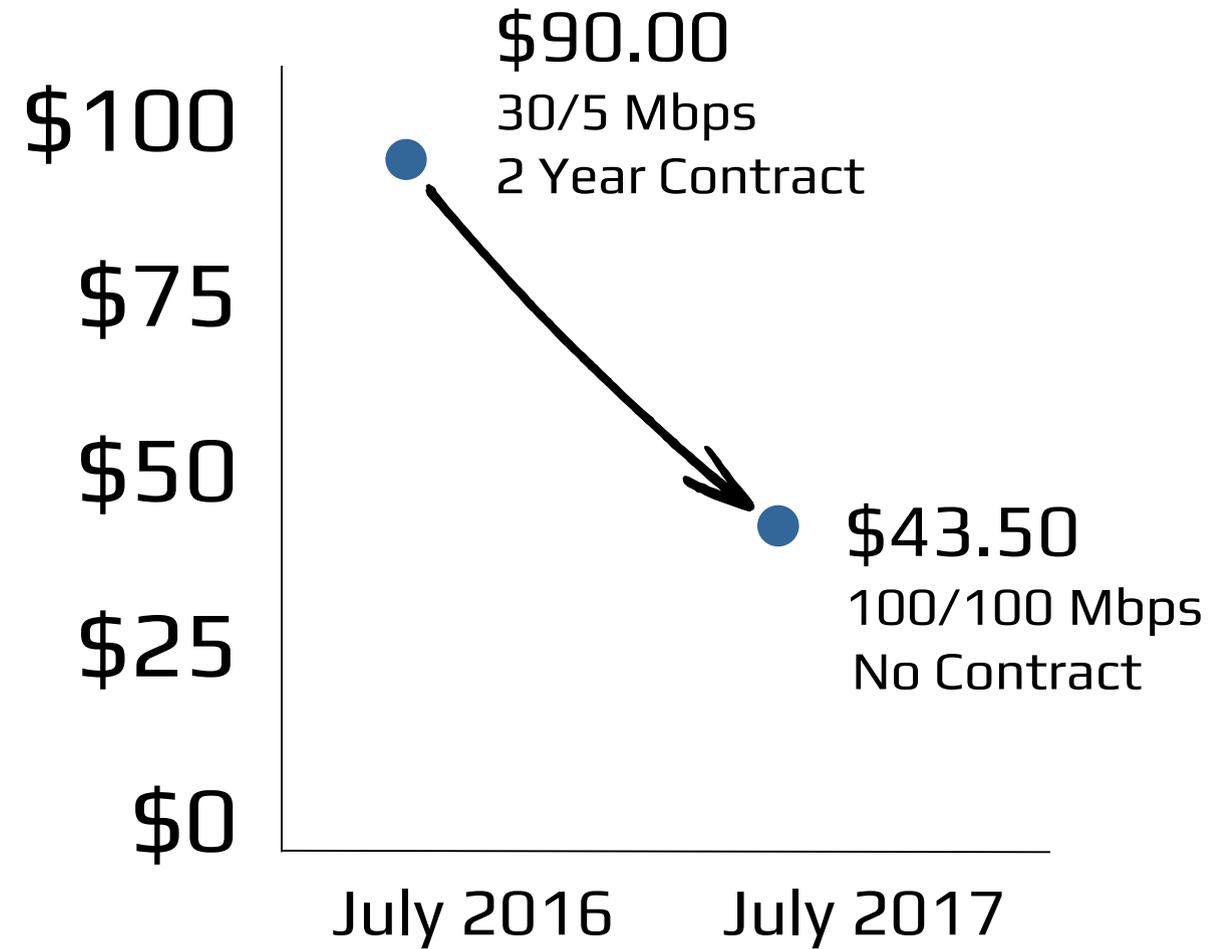
\$9.99



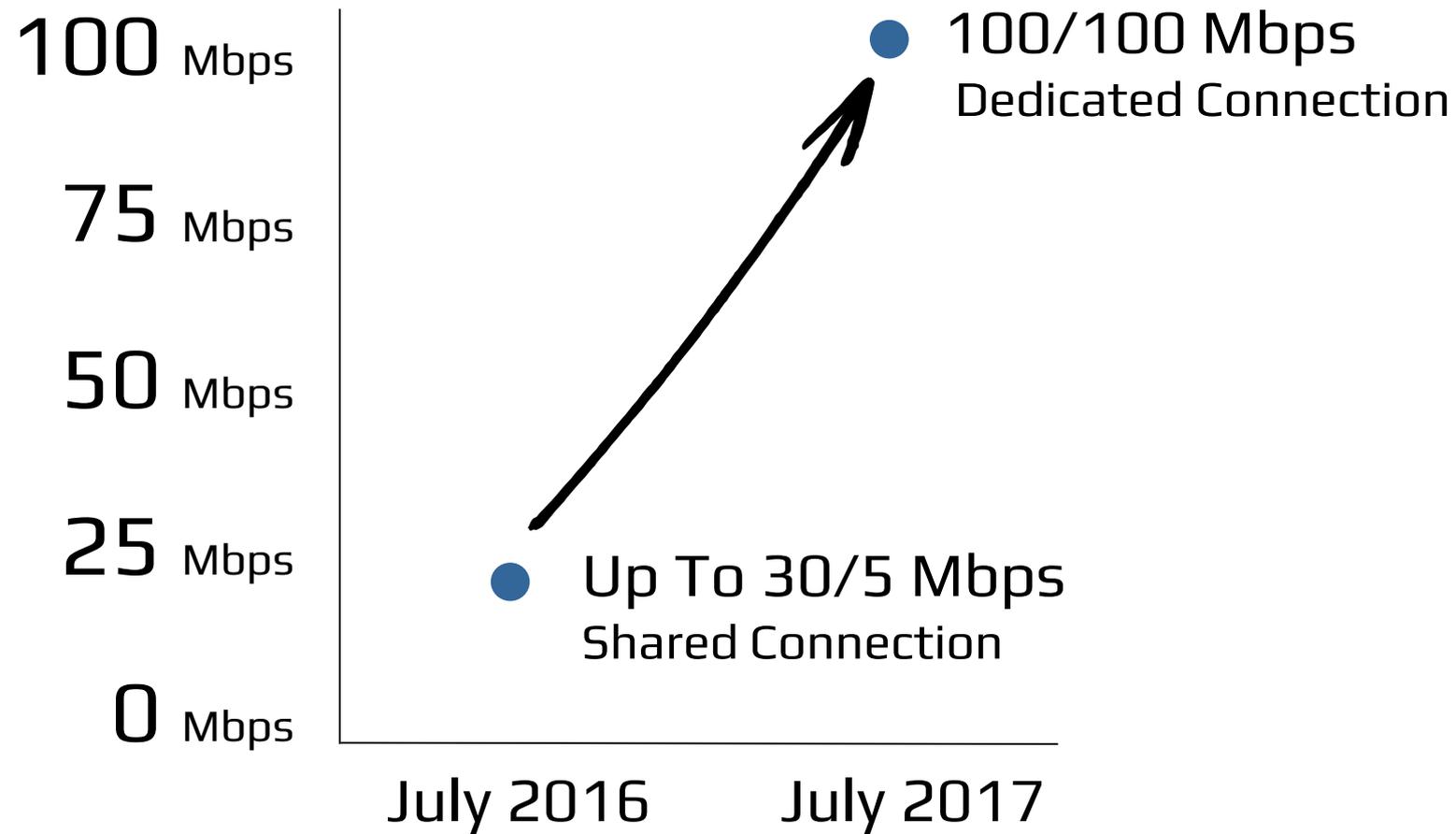
Total Monthly Cost to Subscriber

\$43.49

Total Monthly Cost Reduction in Ammon, Idaho



ISP Bandwidth Speeds in Ammon, Idaho



This Model is Different...

- ➔ The Model Reinforces the Complete Separation of Infrastructure and Services
- ➔ Lit Fiber Network Infrastructure is Organized as a Utility
- ➔ Service are NOT Part of the Utility. Network is not dependent upon revenue from Services.
- ➔ The Model is Much Lower Risk for the Municipality

This Model is Sustainable Because...

- ➔ Success is not dependent on take rates
- ➔ Subscriber's become partners with city
- ➔ Success of the municipal network is not dependent upon the success of services

Who is going to control your cities future?

Communication is not just a sector of the economy. Communication **is** the economy.

– Kevin Kelly, *New Rules to a New Economy*

If this is true... Why would Millcreek leaders place our economic future in the hands of a few private companies whose interests are not aligned with the interests of the City and it's residence?



The End

Thank You

