Do More With Broadband

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Is Broadband Essential Infrastructure?

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

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

Incumbent Control Model

Subscribers

Incumbents

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

Separate Infrastructure from Services

Municipal Infrastructure

Open Broadband Networks
or Broadband as a Utility

Incumbent Infrastructure

Closed Broadband Networks

Municipal Broadband Value Proposition

The Unique Value Proposition of Municipal Networks…

Create Local Control and Ownership of Network Infrastructure

Guiding Premise

Municipalities should own and control broadband infrastructure.

The Private Sector should provide services running over that infrastructure.

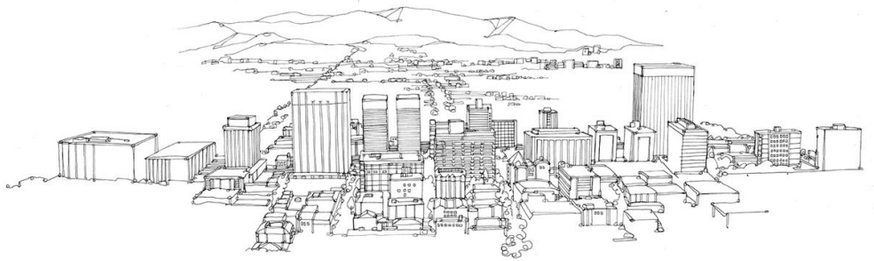
Guiding Premise

Network Operators
Service Providers

Who Should Networks Serve?

Subscribers

Guiding Premise

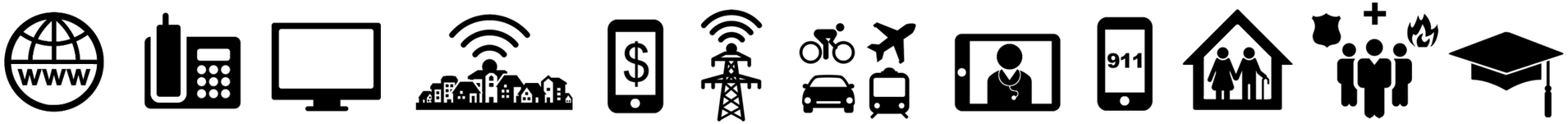


Network Operators

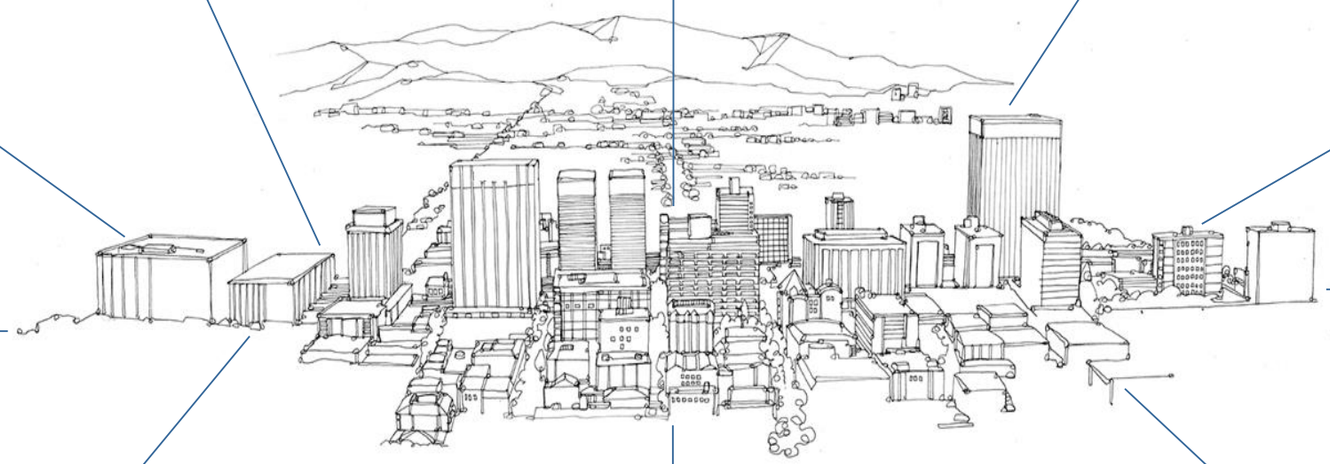
Who Should Networks Serve?

Subscribers

Service Providers



Municipal Network of the Future



ISP
Internet
Tele-Medicine
Smart City / IoT
Smart Grid
Innovation
Education
Aging in Place
Public Safety
911
Emergency Communications
Transportation

A Platform of Possibility

Efficient Government

Economic Development

Education

Smart Grid

Transportation

Smart City / IoT

Livability

Public Safety

Innovation

Affordable Communications

Tele-Medicine

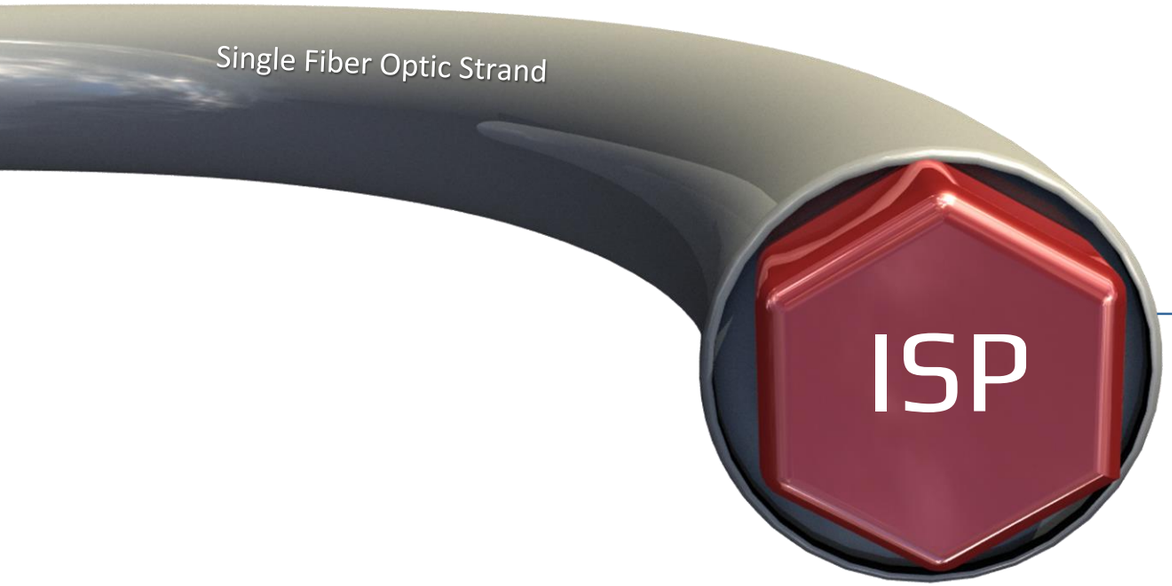
Emergency Communications

Aging in Place

The Power of Virtualization

Fast Internet

Traditional Broadband Closed Network

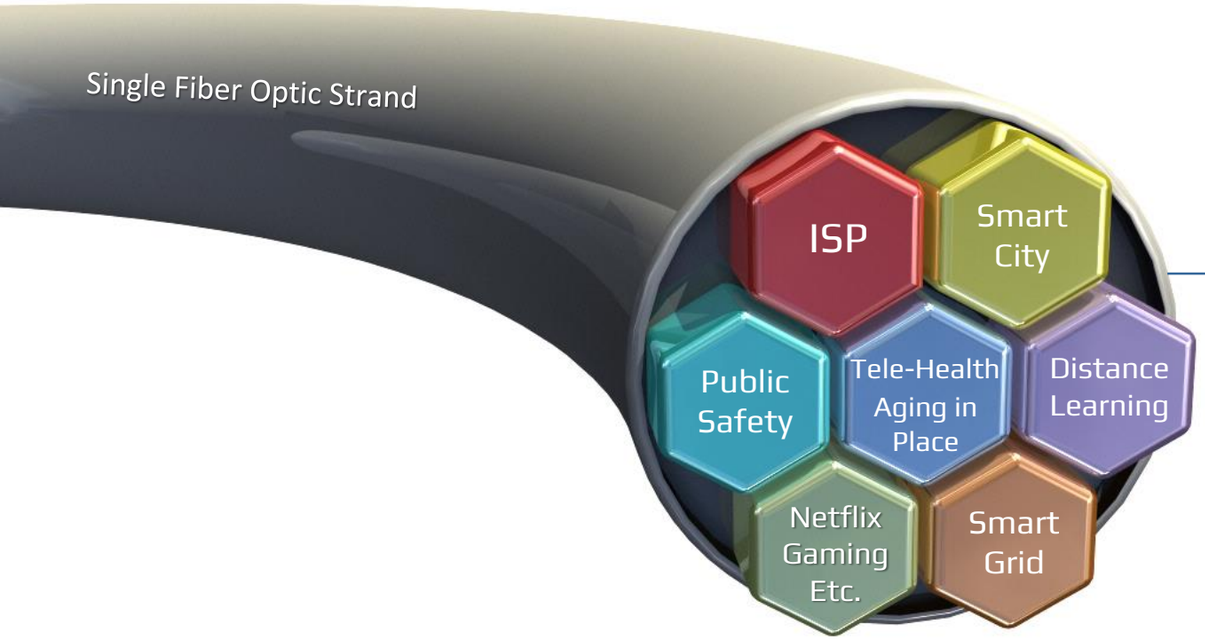


Illustrated cross-cut of a single fiber strand containing a traditional ISP Network and Service.

The Power of Virtualization

Multiple Virtual Private Networks for Off-Internet Services Requiring Greater

Privacy, Security, and Reliability

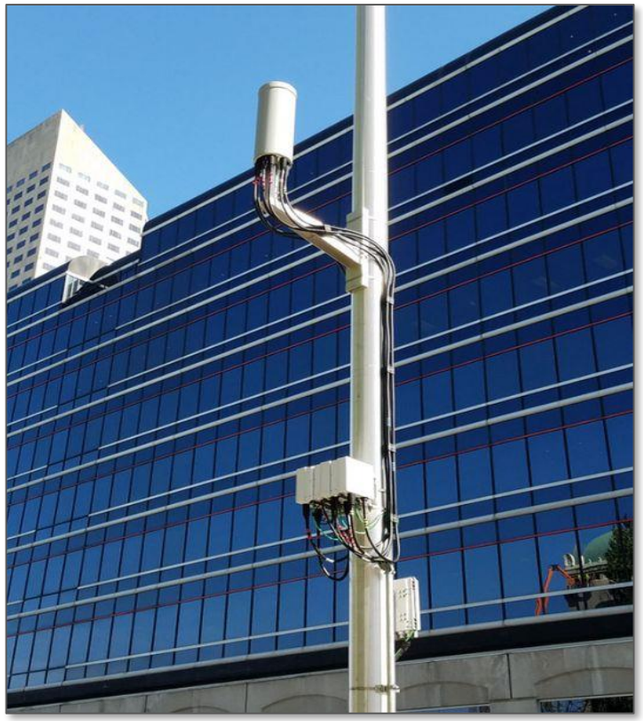


Illustrated cross-cut of a single fiber strand containing multiple virtual private networks.

"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

5G Wireless



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

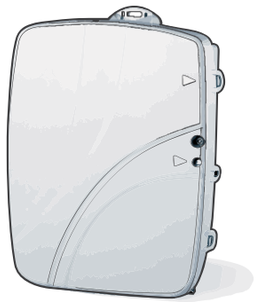
EntryPoint Technology and Products

FlowOps™ Network Management

Advanced Network Orchestration
Cloud Functionality at Subscriber Edge
Network Management Automation
Rapid and Easy Deployment of Services
Enables On-Demand Services

FlowOps™ Authentication

Authenticates any Device Connected to the Network
Prevents Unauthorized Devices from Using Network Resources
Isolates Rogue Devices



Virtual Broadband Gateway

Supports Multiple Service Providers
Enables Automated Self-Provisioning
Multi-Processors with Virtual Machines
SDN/OpenFlow Capable
Enables Service Chaining and Containers

EntryPoint Technology Key Functionality

1 **Separation of Infrastructure and Services**

Putting Service Providers in Cloud

2 **Network Automation**

Network Provisioning and Management

3 **Network Virtualization**

Multiple Private Networks Over A Single Fiber Connection

How To Finance The Network

Risk Allocation

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

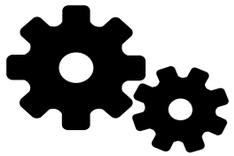
Residents voluntarily “Opt-In” to the Broadband Improvement District

Broadband Improvement District

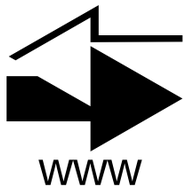
Makes Subscriber's **Owners** not Renters

Three Cost Categories for Subscribers

Infrastructure Expense

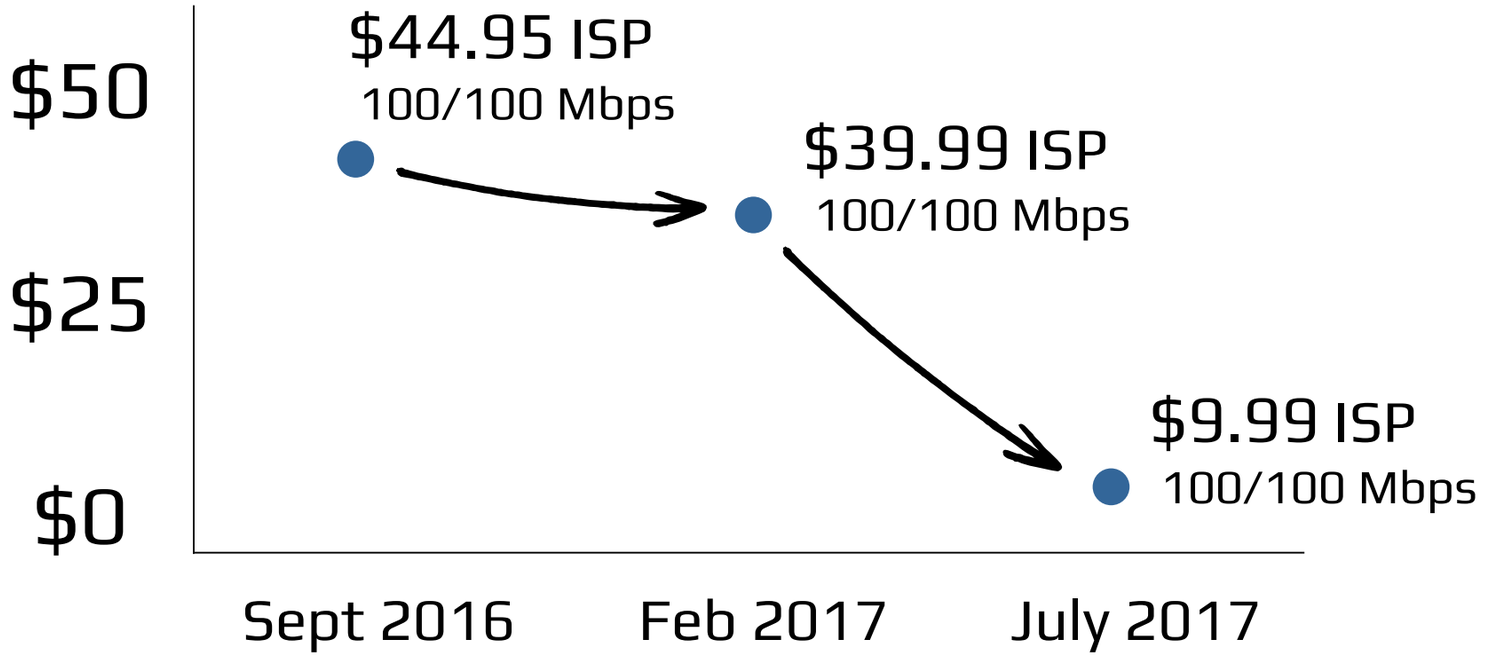


Monthly Maintenance & Operations



ISP Internet Services

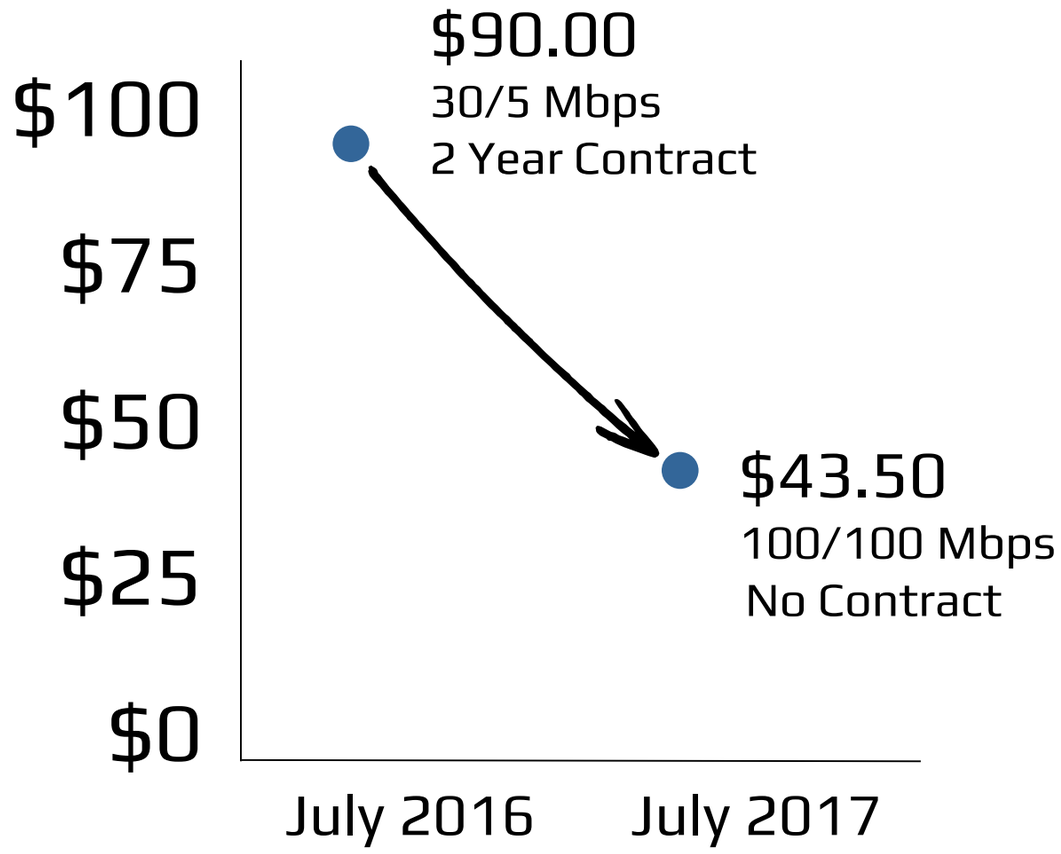
True ISP Competition in Ammon, Idaho



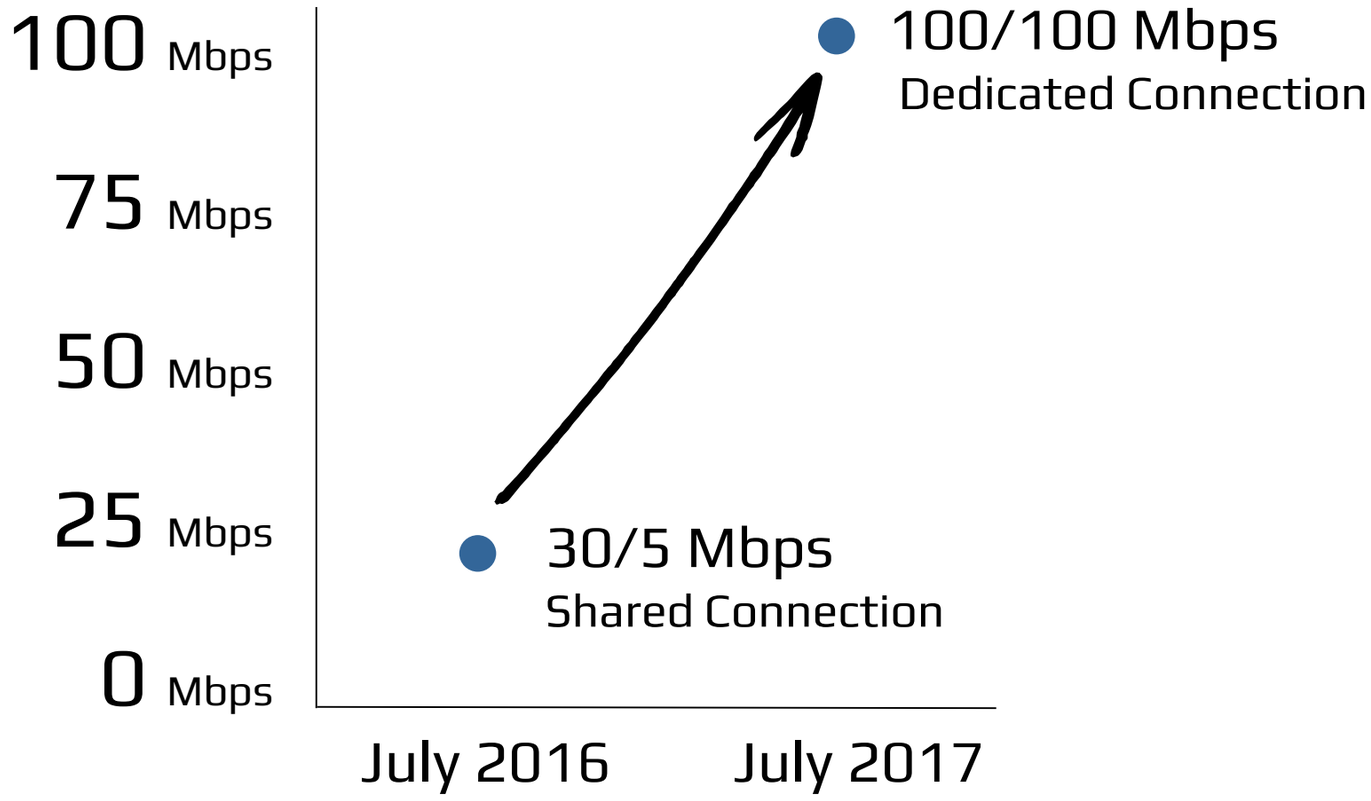
Three Cost Categories in Ammon, Idaho

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



Key Differentiators

- The Model Reinforces the Separation of Infrastructure and Services
- Lit Fiber Network Infrastructure is Organized as a Utility
- Service are NOT Part of the Utility
- The Model is Much Lower Risk for the Municipality (Financial and Political)

Network Sustainability

The 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

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If this is true… Why would Farmington place your 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