The Dawn of a New Era

June 11, 2019

Jeff Christensen
Communication is the foundation of society, of our culture, of our humanity, of our own individual identity, and of all economic systems. This is why networks are such a big deal.

Kevin Kelly, *New Rules for a New Economy*
Communication is not just a sector of the economy. Communication is the economy.

– Kevin Kelly, *New Rules to a New Economy*
What Problem are we Solving?

Who Should Networks Serve?

Network Operators
Service Providers

Subscribers
Separate Infrastructure & Services

Network Operators

Who Should Networks Serve?

Subscribers

Service Providers
Separating Infrastructure and Services

Infrastructure

Services

Internet, Smart Grid, Smart City / IoT, Transportation, Education, Public Safety, Efficient Government, Affordable Communications, Entertainment, Telephone, Emergency Communications, Aging in Place, Tele-Medicine
Rule #1

Whoever Controls the Infrastructure has Control.
Incumbent network operators serve subscribers just enough to make the maximum profit.

Subscribers seek systems that profit just enough to provide the maximum service.
Open Systems vs. Closed Systems

**Open Systems**
- Encourage Evolution
- Invite Competition
- Break Down Silos
- Foster Innovation
- Enable Disruption
- Permissionless

**Closed Systems**
- Stifle Evolution
- Block Competition
- Create Silos
- Monovation
- Pre-mature Optimization
- Gatekeeper

Internet Access

Google

Facebook

Lyft

Amazon

ISP
Closed Broadband Networks

Open Broadband Networks
or Broadband Infrastructure as a Utility
The Path of Disruption

- Complex → Simple
- Expensive → Inexpensive
- Inaccessible → Accessible
Open Systems Interconnection Layers

**SENDING SYSTEM**

1. Physical Layer [Bit]
2. Data Link Layer [Frame]
3. Network Layer [Packet]
4. Transport Layer [TPDU]
5. Session Layer [SSDU]
6. Presentation Layer [PPDU]
7. Application Layer [APDU]

**RECEIVING SYSTEM**

1. Physical Layer [Bit]
2. Data Link Layer [Frame]
3. Network Layer [Packet]
4. Transport Layer [TPDU]
5. Session Layer [SSDU]
6. Presentation Layer [PPDU]
7. Application Layer [APDU]
EntryPoint is Disrupting Access at Both Layer 2 and Layer 3

Closed → Open
Siloed → Non-Siloed

Layer 1: Private Networks Layer
Layer 2: Internet Layer
Disrupt the ISP Silo (Layer 3)

> Expose the ISP to Dynamic Competition
  • Drop the price meaningfully
  • Allow users to switch ISP in 60 seconds

> Expose the ISP to Open Innovation
  • Large ISP’s have never faced the threat of innovation

> Solve the Digital Divide
You don't currently have any active subscriptions.

Select from a category at the left to subscribe to a new service.
Disrupt Access to the Layer 2 Silo
Local Resilience through Layer 2 Networks

1. Fiber Infrastructure Layer
   - Physical Host-Router Protocol
   - Fiber Infrastructure Layer

2. Private Networks Layer
   - Network Host-Router Protocol
   - Private Networks Layer

3. Internet Layer
   - Private Networks Layer
   - Internet Layer

Private Networks

INTERNET
Disrupt Access to the Layer 2 Silo

> Expose Access to Layer 2 for Innovation

- Local Resilience (If the Internet goes down)
- Move large files dynamically (Disrupt Dropbox)
- Public Safety (Dynamic Data Traffic Prioritization)
- Emergency Response (Active Shooter)
- Smart Grid – Utilities Monitoring & Management
- Dynamic SCADA System Management
- IoT in Layer 2 Networks
- Connected Vehicles
You are subscribed to the services listed below

Fybercom
100/100 - Residential
Fiber internet speed at a price you can afford!

$9.99 per Mon  down 100 MB/s  up 100 MB/s

NO REVIEWS  WRITE REVIEW

UNSUBSCRIBE

Port 1
Attributes of Layer 2

- Low Latency (Reliable)
- Privacy (Off-Internet)
- Security by Obscurity
“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
The Network of the Future

- Smart Grid
- ISP
- Internet
- Education
- Tele-Medicine
- Smart City / IoT
- Innovation
- Aging in Place
- Public Safety
- Emergency Communications
- Transportation (Autonomous Vehicles)
We Need Breakthrough Business Models, Not Breakthrough Technology

Technology doesn’t transform markets, business models do.

John Elkington and Richard Johnson

March 7, 2018

How To Finance The Network
Premises (Homes / Businesses) 10,000
Average Monthly Internet Cost $70.00
Annual Internet Spend $8,400,000
20 Year Internet Spend $168,000,000
Three Cost Categories for Subscribers

- Infrastructure Expense
- Monthly Maintenance & Operations
- ISP Internet Services
True ISP Competition in Ammon, Idaho (GIG)

- **Sept 2016**: $99.99 ISP, 1000/1000 Mbps
- **Feb 2017**: $89.99 ISP, 1000/1000 Mbps
- **July 2017**: $79.99 ISP, 1000/1000 Mbps
- **Jan 2018**: $24.99 ISP, 1000/1000 Mbps
- **June 2019**: $9.99 ISP, 1000/1000 Mbps
### ISP Packages & Costs in Ammon Today

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<tr>
<th>Provider</th>
<th>Service Speeds</th>
<th>Monthly</th>
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<td>15 x 15 Mbps</td>
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<td>Qwik.net</td>
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</table>
Cost Categories in Ammon, Idaho

- Monthly Infrastructure Expense: $17.00
- Monthly Maintenance & Operations: $16.50
- Layer 2 Private Networks: Included

Total Monthly Cost to Subscriber: $43.49

$26.49 (once infrastructure is paid off)
Ammon, Idaho Lowers Subscriber Monthly Cost from $90 to $27-$45, While Increasing Available Speeds from 30/5 Mbps to 1000/1000 Mbps
What Happens When Layer 2 & 3 Are Open and Cheap?

- Smart Grid
- Smart City / IoT
- Transportation (Autonomous Vehicles)
- Emergency Communications
- Public Safety
- Education
- Internet
- Tele-Medicine
- Innovation
- Aging in Place

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EntryPoint’s vision is to transform broadband from systems designed for the benefit of large incumbents to systems designed for consumers by:

1. Turning a Closed System into an Open system
2. Democratizing and Commoditizing Access
3. Exposing Access to Competition and Innovation
“Ammon’s platform allows an extraordinary level of competition, innovation, and experimentation by businesses, local government, and residential users alike. And Ammon’s model provides very little, if any, financial risk to the city.”

“The use of virtualization technology to enable retail competition is rare in the United States, and Ammon’s use of virtualization is especially sophisticated.”

“AMMON’S NETWORK IS WAY OUT AHEAD OF EVERYONE ELSE.”

- Chris Mitchell, Director
Thank You