



**Health Information Technology
and Broadband Deployment:
Connecting Silos and Open Fields**

State Offices of Rural Health – Region A Annual Meeting
State College, PA – July 7, 2010



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Where We Are Heading



- Broadband Infrastructure Primer
- Current state of rural broadband deployment
- Why this is the case – Broadband Silos
- Improving Broadband Access by Connecting the Silos

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Healthcare IT – The Pieces

- Digital devices
- eHealth applications
- Users – Professionals/patients (consumers)
- **Broadband infrastructure to transport digital data (ones and zeros)**

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Broadband Infrastructure

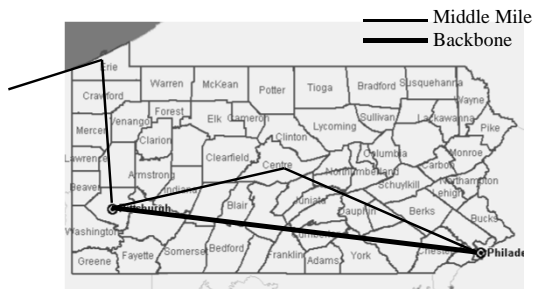
- Internet Back Bone
- Middle Mile Transport Infrastructure
- Last Mile Transport Infrastructure

Internet Backbone



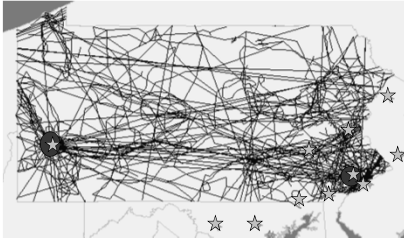
Principal data routes between large, strategically interconnected networks and core routers.

Middle Mile



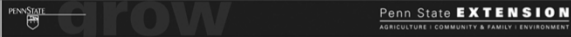
Simple Illustration

Fiber Transport Lines in Pennsylvania



Co-location Facility ☆
Internet Hub ●

PA Technology Map

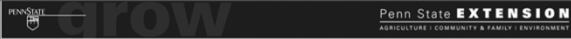


Broadband in a Slice of Rural PA

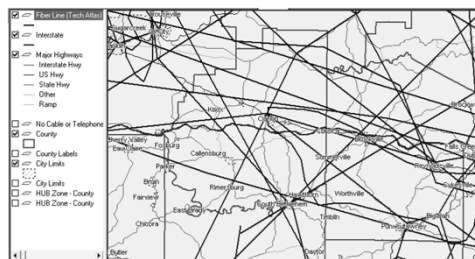


Clarion and Surrounding Counties

PA Technology Map



Existing Fiber Lines



PA Technology Map



Consumer Broadband Clarion and Surrounding Counties

PA Technology Map

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A Bit About Last Mile Broadband Flavors

- Institutional Class
 - Big Pipes (large bandwidth)
 - Secure
 - Guaranteed Quality of Service (mission critical)
- Consumer Class (DSL, Cable Modem)
 - Smaller pipes
 - Less secure
 - Best effort service

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Some Potential Institutional Broadband Providers in Clarion

- Verizon
- Sting Communication
- Level 3
- Zito Media
- ????

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**Applications Requiring
Institutional Class Broadband Service**

- Disaster Recovery
- Off site data backup and storage
- Streaming video
- High resolution image provision
- Managed services
- Internet apps connecting business partners
- Virtual modeling
- ????

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**Institutional Broadband
Matters**

- Global economy driven by broadband
- Businesses less likely to locate or grow without broadband
- Mitigate geographic penalty
- Rural institutions – hospitals, business, governments schools, likely pay more than urban and suburban counterparts

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**Organizations that Benefit from Institutional
Broadband Service**

<ul style="list-style-type: none">• Healthcare<ul style="list-style-type: none">– Hospitals– Clinics– Physician's offices• Education<ul style="list-style-type: none">– K-12– Distance education– Continuing education– Workforce development	<ul style="list-style-type: none">• Government<ul style="list-style-type: none">– Emergency services– Courts– Departments/Agencies• Business<ul style="list-style-type: none">– Banks– Consultants– Manufacturers– Entrepreneurs– Managed service providers
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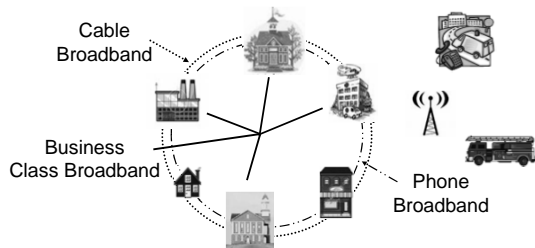
Where is Institutional Service?

- No national or state data
- Middle mile
- Antidotal examples indicate
 - Available from multiple providers in larger population centers
 - Few provider options if available in smaller communities
 - Higher cost, where available, in rural areas

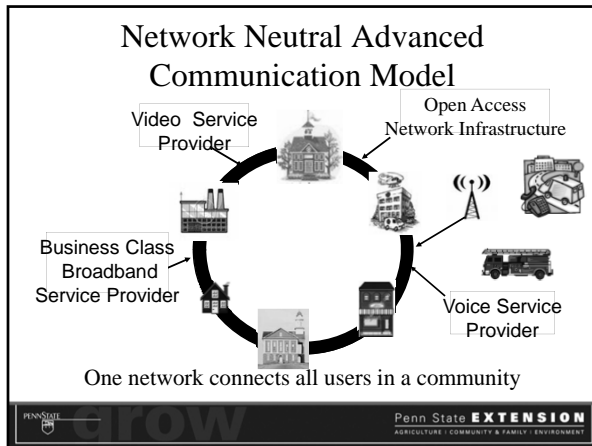
Delivery Models

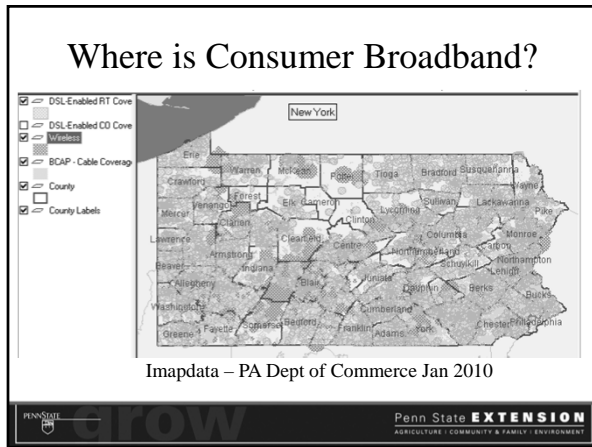
- Private Sector
- Municipal
- Network Neutral

Typical Broadband Delivery – Multiple Networks Connect Users



Rural communities will not support multiple networks without subsidies.





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Who Provides Broadband Connectivity?

- Private sector
 - Incumbent telco
 - Cable
 - CELEC
 - Broadband over power line
 - Wireless ISPs
 - Institutional (middle mile)
- Municipal – Off the table in PA (Act 183)
- Public Private Partnerships
- Open Access Networks

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**Institutional Broadband:
Silos are the Rule**

Sector	Funding Subsidies
<ul style="list-style-type: none">• Healthcare• Education• Government• Emergency Services Communication• Business	<ul style="list-style-type: none">• FCC• Dept of Ed and FCC• Tax payers• Homeland security• Dept Commerce, local government?

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Network Neutral Delivery Model

- An option for delivery of advanced communications services in rural communities
 - Network infrastructure owned by public or Cooperative,
 - Services delivered by private providers
- Examples
 - AllCoNet
 - Cambria Connected

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**Tearing Down Silos around
Clarion County**

John Stroup
Director, Clarion Hospital Foundation

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What is in it for Clarion Hospital

- Doctor Recruitment
- Connecting Clinics
- Telehealth Potential
- E-stroke
- Ambulance Services

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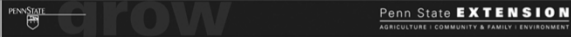
PA Broadband Plan

- **GOAL 3 – INFRASTRUCTURE AND SERVICES**
 - Encourage and implement local collaborations, including formation and utilization of Countywide Broadband Task Forces.

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Clarion County Task Force

- Organized over 5 years ago
- Participants: County, Emergency Services, Hospital, Schools, University, SBDC, Economic Development, Press,



What Does It Take?

- Dedication
- Exposure
- Support from Leadership
- Funding



The Future

- USDA Grant/Loan
- Other Funding
 - FCC
 - State
 - Private



For More Information

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