The eCorridors Program: Creating Competitive Advantage for Rural Communities
Economic Development
Catalysts in the Past
Advanced communications network access for voice, video, and data via fiber and/or wireless technologies is the economic catalyst of today.
Goal

• Level the playing field for disadvantaged communities in access to the most advanced next generation communications and internet services

• Definition: “Next generation” means multigigabits per second, symmetrical bandwidth and Internet Protocol services (not XDSL, cable modem, etc.)
What’s on the horizon for next generation communications and internet technology?

“Narrowband” = 56Kbps Modem

Phone or Cable Company

“Broadband” = 1 – 2 Mbps

$NGI = \text{THIS \ times} \ >1,000$

telephone lines

digital satellite TV channels

>10,000

>1,000
A Producer Network: next generation broadband internet
Blacksburg Electronic Village (BEV)

- Highest per capita use of Internet in the world
  - 87% residents online
  - 60% use of broadband
- Highest per capita availability of ISPs in world
  - >a dozen providers
- Highest business use of Internet of any community
  - >75% Blacksburg businesses using Internet for commerce and advertising
Each week the BCS relies on Massey ratings for college football rankings.

Kenneth Massey, developer of Massey Rating System
(9500 webpage ‘hits’ per day)
377 schools. 10,000 products. No inventory.

Willie Jester, CEO
BuyCollegeStuff.com
After 21 years in business, our recently added e-business generates 10% of total sales, and it’s growing.

Keith Roberts, Owner
Vintage Cellar
“Without high speed network access, we wouldn’t be here.”

David Salvaggio, CEO
Nueweb Interactive digital merchandising solutions
Our videoconferencing business depends on high speed, broadband access.
70% of sales from e-business. Small-town business – international customer base.

Roger Hjulstrom, Owner
Past Pages Bookstore
Grant PUD Fiber → Local Entrepreneurs

- **Accima**: Internet, fiber and wireless. For profit. Based in Odessa, WA

- **PowerNET on Zipp Fiber**: Internet. Electric cooperative. Based in Prosser, WA

- **Bigdam.net**: Internet, fiber and wireless. For profit. Based in Grand Coulee, WA

- **GemNet**: Internet. For profit. Based in Moses Lake, WA

- **NWInternet**: Internet, community portals. For profit. Based in Wenatchee, WA

- **QOSI.NET**: Internet. For profit. Based in Moses Lake, WA

- **Northwest Telephone Inc.**: Internet-based telephone, Internet, Audio/Video Streaming. For profit founded in 1999. Leveraging Electric Lightwave, Zipp, others. Based in Wenatchee, WA

- **vib.TV**: Interactive, high bandwidth, Internet-based video, audio, entertainment, distance learning. Digital TV packages up to 150 channels starting at $39.95 including high speed Internet access. Startup for profit based in Kent, WA.
“Open Network” Definition

- Fiber Infrastructure
- Lighted with Transport Protocol Only
- (Fiber infrastructure and services are decoupled)
“Open Network” Metaphor

• Canal – (Ditch) ➔ Dark Fiber

• Water in the Canal ➔ Fiber Lighted With Transport Protocol

Public Infrastructure – “Open Network”

“Closed Network” - Potential Competitive Conflict

• Barges Moving Or Commerce ➔ Internet, HDTV, Telephone, Cable
# Potential Cost Benefits to Consumers

<table>
<thead>
<tr>
<th>Traditional Costs/Month</th>
<th>Expected Costs/Month</th>
</tr>
</thead>
<tbody>
<tr>
<td>Telephone</td>
<td>Telephone</td>
</tr>
<tr>
<td>$25</td>
<td>$10</td>
</tr>
<tr>
<td>Cable</td>
<td>Cable</td>
</tr>
<tr>
<td>$40</td>
<td>$15</td>
</tr>
<tr>
<td>Internet (DSL)</td>
<td>Internet</td>
</tr>
<tr>
<td>$40</td>
<td>$8</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>Total</strong></td>
</tr>
<tr>
<td><strong>$105</strong></td>
<td><strong>$33</strong></td>
</tr>
</tbody>
</table>

$73 = $40 + $33
## Potential Benefits

<table>
<thead>
<tr>
<th>Consumers</th>
<th>Infrastructure Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Reduced Costs</td>
<td>• Remote Meter Reading</td>
</tr>
<tr>
<td>• Better Service (Consider Consumers Currently with none)</td>
<td>• Increased Cash Flow</td>
</tr>
<tr>
<td>• Provider for $40</td>
<td>• More Services</td>
</tr>
<tr>
<td>• HDTV</td>
<td>• Increased telecommunications capacity – perhaps a revenue source</td>
</tr>
<tr>
<td>• Business Opportunities</td>
<td></td>
</tr>
<tr>
<td>• Always On</td>
<td></td>
</tr>
</tbody>
</table>
eCorridors “Rules of Engagement”

- *Act as a catalyst*: encourage private sector based development of Inter-regional and Inter-community Infrastructure
- Engage only counties/cities where key players/leaders invite and support us
- Encourage aggressively priced “open access” to any community internet, information or application provider
Funding Sources for Regional Projects

- Federal, State & Private Grants
- Loan Programs
- State & Local Programs
- Cost Recoveries
- IRU’s: Condominium model
Danville/Pittsylvania County Prototype

- High bandwidth
- Broad access
- Affordable
- Public/private partnerships
Danville Infrastructure
Critical Elements: The Next Generation Network

<table>
<thead>
<tr>
<th>People</th>
<th>Technology Education</th>
<th>Business Practices</th>
<th>Business Replication Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Web Browsers,</td>
<td>Practitioner Training: Security</td>
<td>Data Warehouse eMall &amp; eGov</td>
<td></td>
</tr>
<tr>
<td>Spreadsheets, E-mail</td>
<td>Certification</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clients</td>
<td>HDTV over IP</td>
<td>End-to-End Apps Support</td>
<td></td>
</tr>
<tr>
<td>Computer Desktop</td>
<td>VA.edu SWAT Apprenticeship</td>
<td>Video Archive</td>
<td></td>
</tr>
<tr>
<td>“Middleware”</td>
<td>Community Portal eLearning</td>
<td>Hot Site</td>
<td></td>
</tr>
<tr>
<td>Internet Protocols</td>
<td>Standards Based Directory Services</td>
<td>ASP Site</td>
<td></td>
</tr>
<tr>
<td>Mobile IP, IP Version</td>
<td>IP Emergency Response e911</td>
<td>Web Portal Quick Deployment Generator</td>
<td></td>
</tr>
<tr>
<td>6, Gigabit Ethernet</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max. leverage: passive</td>
<td>Standards Based Directory Services</td>
<td></td>
<td></td>
</tr>
<tr>
<td>optical, all optical,</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>NG IP</td>
<td>Private Networks</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Condominium Model</td>
<td>Immediate Deployment Infrastructure Model</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wires, Radio Waves</td>
<td>“Long Haul” Fiber</td>
<td>Community &amp; “First Mile” Infrastructure; FTTH</td>
<td></td>
</tr>
<tr>
<td>Electronic Network</td>
<td>P@Optical Layer; DWDM; “wavelength” multiplexing;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Equipment</td>
<td>Next Generation Wireless</td>
<td></td>
<td></td>
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<tr>
<td>Data Link</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHYSICAL</td>
<td>Environment</td>
<td>Conduit System</td>
<td></td>
</tr>
<tr>
<td>Wires, Radio Waves</td>
<td></td>
<td>Poles</td>
<td></td>
</tr>
<tr>
<td>PHYSICAL</td>
<td></td>
<td>Existing Pipelines and others</td>
<td></td>
</tr>
</tbody>
</table>
Economic Development Magnet

Next Generation Internet

- Internet 2 Product and Service Vendors
- Companies looking for competitive edge
- High sizzle projects
Economic Development Magnet

Entrepreneurs and Small Businesses

• 90% of New Jobs – 1 to 25 Employee Co’s
• Producer Network
• Outsourced Services
• Start-Up Businesses
The Geodesic Network

MSAP
Low cost fiber mesh
Optical gigabit ethernet

• Access to fiber is ALREADY as fundamental as water and sewer for economic competitiveness.
• New, dazzling information technologies that people will want will REQUIRE fiber everywhere.
• New fiber and Internet technologies are emerging to make this viable. (Old long haul fiber and telephone technology is not it … but those companies are well positioned if they will move).
• The Geodesic Network is a way to make it happen right now.
The Geodesic Network Mesh

1. **MSAPs** distributed in communities and at large sites for service delivery and local switching, exchange, co-location.

2. **Low Cost Fiber Mesh**
   - MINIMUM cost fiber spans between communities.
   - Reliability through diversity.
   - Multiple fibers, small portion allocated to open access network, some available for lease, economic development use.
   - MSAPs and Fiber Mesh owned and operated by “provider neutral” entity. Non-profit or new for-profit model.

3. **Gigabit Open Access Network**
   - Utilize some fiber to build gigabit next generation internet overlay.
   - NGI technology and protocols (IPv6, multicast, QoS)
   - Low cost optical ethernet.
Geodesic Network Mesh
Political Representation: Geodesic Network Mesh

All incorporated jurisdictions along final chosen routes will be connected.

= County Seats
= City

All incorporated jurisdictions along final chosen routes will be connected.
“We must become the change we want to see.”

Mahatma Gandhi