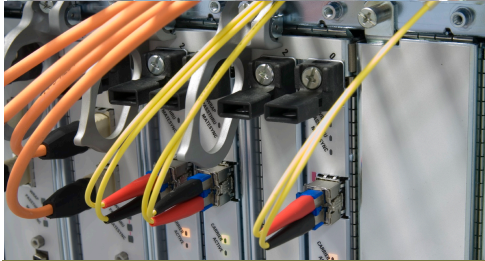# Broadband for All

Andrew Michael Cohill, Ph.D.

BEST PRACTICE PRINCIPLES

1 UNIVERSAL ACCESS
Every business and home should have the same level and quality of service.

2 SYMMETRIC BANDWIDTH
Equal upstream and downstream data capacity should be available at business and commercial locations and at all homes and residences.

3 DIFFERENTIATED SERVICES
Financially successful projects will offer many kinds of services on the network, not just triple play.

4 SUPPORT FOR INNOVATION
Service providers should be encouraged to offer new and innovative services by providing a network access cost structure that encourages experimentation.

5 FIBER PAYS THE BILLS
Wireless only networks will not jump start economic development, and wireless networks do not have the capacity to meet today's business needs.

6 PLAN BUILD OUTS CAREFULLY
Provide services first in business areas and neighborhoods where there is proven demand for services.

7 BUSINESS AND ORGANIZATIONAL PLANNING FIRST
Before selecting a network architecture or beginning to build out, develop an investment quality, multi-year business plan and identify an appropriate organizational and ownership model.

Getting our communities connected

Community Broadband Case Studies

More and more communities and regions are beginning to make investments in telecom infrastructure to help lower the cost of telecom services, to attract new businesses and jobs, to help retain existing businesses, and to make the community or region more attractive for relocation.

Danville, Virginia

The city of Danville, Virginia is operating an open access, open services network focused on creating the right kind of economic development incentives and accompanying infrastructure that will help retain existing businesses and help attract new ones. Danville has a City-owned electric utility, and the growing fiber network is being managed as part of the electric utility operations. Using a multi-phase approach, the City first hooked up government offices and local schools in 2004, and in 2006 began planning to extend the high performance, all-fiber network to local businesses and residents throughout the electric service area, which includes a large part of very rural Pittsylvania county.

The first businesses began to get hooked up in late 2007, and Danville expects to have fiber to every parcel in its business parks before the end of 2008. The city-county business incubator was one of the first locations to receive the fiber services. The City has begun doing advanced planning for taking fiber to some of its residential neighborhoods. The City is not selling any services to businesses or residents; all services are offered by private sector service providers that use the network and pay the City for the use of the network via a revenue sharing agreement. For more information, visit www.ndanville.net.

The Wired Road

The Wired Road, located in southwest Virginia, is an open access, open service network jointly owned and managed by Carroll and Grayson counties and the City of Galax . The three localities formed a regional broadband authority and began construction in September of 2007. The first institutional customers were added to the network (Carroll County Public Schools, Carroll County, Crossroads Institute) in March of 2008. Residential and business customers will be offered services in summer, 2008.

The Wired Road is not selling any services to businesses or residents; all services are offered by private sector service providers that use the network and pay the Authority for the use of the network via a revenue sharing agreement. The three governments see the network investments as a way of differentiating the region and providing a valuable economic development marketing tool.

The Wired Road is being designed as an integrated fiber and wireless network, with fiber in the three major towns and all business parks, and wireless services as the initial offering in under-served rural areas where many residents are still on dial up. The long term vision is to provide fiber to every home and business that requests it. Visit www.thewiredroad.net for more information.
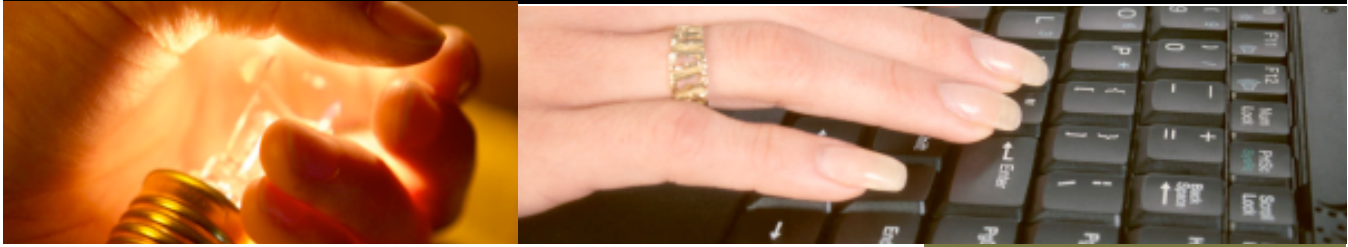
West Point, Virginia

The Town of West Point has begun investing in fiber infrastructure by installing fiber alongside a water main extension. Construction is beginning in the summer of 2008. The new telecom infrastructure will provide fiber access in the new business park in the community, and the fiber design includes taking fiber to an eighty home residential development planned for the community. The Town is engaged in advanced planning to extend the fiber to the Main Street area as well as surrounding residential areas of the community.

Vint Hill Economic Development Authority

Vint Hill is a 695 acre mixed use office park in Fauquier County that has begun deploying fiber and telecom duct for tenant use. The EDA's first fiber investments were made in the spring of 2008 to help a tenant win a major contract with the Federal government that required fiber connectivity across the park and to the tenant building.

The EDA has also made improvements and upgrades to a tower located in the business park and made the tower available to private sector wireless providers. Fiber was installed to the tower to help a local wireless service provider purchase lower cost Internet service. Fiber access at the tower will improve availability of wireless Internet access both in the park and in the surrounding area.

Accomack/Northampton Broadband

Accomack and Northampton counties, on the Eastern Shore of Virginia, have formed a broadband authority and are about to begin construction of a 60 mile high performance fiber backbone that will reach from the northern border of Maryland and will extend across the 17 mile Chesapeake Bay-Bridge Tunnel to meet other regional fiber networks in the Norfolk area.

The authority was formed in the spring of 2008, and construction on the fiber backbone will begin later in early fall, 2008. The region made the commitment to form the authority to provide fiber services to private sector firms that were demanding better connectivity to both the NASA Spaceport and Navy facilities in Chincoteague, Virginia and to provide higher performance and less expensive fiber routes off the the Shore. The Authority is currently developing plans for the deployment of wireless and fiber services throughout the region.

Ripton Broadband Coop

Coops are a great ownership and governance model because they firmly vest the enterprise in the community–every subscriber is also a shareholder in the enterprise, and shareholder/members are able to vote and select board members. The Ripton Broadband Coop serves customers in rural Vermont via wireless, using an open access, open service model. Two service providers are selling services on the network.

Coops have some unique advantages because membership fees can be used to help fund the initial development of the network. The Ripton Coop assesses a $200 membership fee and collects an additional $150 for customer premise equipment. For more information, visit www.ripton-coop.net.

CHARACTERISTICS OF A MODERN TELECOM INFRASTRUCTURE

- A single, shared digital road network available for all public and private use, offering both fiber and wireless services.

- 100 megabit and Gigabit services for homes and businesses, including symmetric bandwidth wherever it is needed.

- Multiple service providers offering many kinds of services, not just "triple play" or "quadruple play."

- A robust business and financial model that pays not only for the initial cost of the network but also ensures a long term, sustainable revenue stream to support network expansion, maintenance, and operations.

ABOUT DESIGN NINE

Dr. Cohill is President of Design Nine, which specializes in designing and implementing next generation fiber and wireless broadband infrastructure, with more than seventy years of staff experience. The firm offers broadband planning, design, and project management services, including early stage needs assessment, financial analysis, business model development, organizational design, network design and project implementation.

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