Opportunity Live Wire Networks proposes a fiber optic middle mile network infrastructure investment that will traverse the western metro area and extend into the mountains of Colorado West and North of Denver. This network will initially provide service to partner CCI organizations including 911 PSAPs, Community Colleges, Libraries, several towns and city facilities, Colorado Department of Transportation critical mountain roadways, and rural last mile wireless providers in the mountains. The network investment will build into four Enterprise Zones in economically distressed areas. Problems-Solutions US Highway 6 is one of the main corridors into the mountains West of Denver. This canyon road has limited communications in that wireless signals are non-existent and there are minimal road information and traffic control systems in place. These challenges for this heavily traveled corridor creates critical public service problems for emergency response crews when responding to the many accidents on this road. This proposed fiber network will provide network facilities in the canyon that can be leveraged to solve these issues. The Town of Estes Park is a community in the mountains of Colorado that has a single fiber optic feed that goes East down a canyon to the front range. This fiber optic feed serves the city government's entire communications and is vulnerable to single homed service outages along this route. The town needs a redundant pathway in the event the primary connection is out of service. The Mountain-Net 2.0 network will build fiber from the South of Estes Park thereby providing the much needed redundant pathway. The Mountain-Net 2.0 network will serve several mountain based last mile service providers who are not able to access fiber based backhaul facilities to serve their end users. These providers currently use T1 backhaul to metropolitan Internet nodes to bring Internet services into these rural areas. Many of their wireless end users commute into the metro areas for work. The lack of higher bandwidth services eliminates the ability to effectively telecommute and also creates a disincentive for economic development in these areas. Next Gen-911 is rapidly approaching as the next platform for legacy E911 systems to be able to communicate with a growing list of IP based personal communications devices. While there are many concepts of what next generation 911 systems will be, one thing that is certain is that these new emergency systems will be IP based and will require bandwidth to serve the multimedia content. This network proposal will build fiber optic facilities to twenty of the 911 PSAPs in Colorado. In addition the network will serve a unique pilot project developed by the City of Lakewood to provide broadband wireless service to police and fire crews. The proposed fiber network will serve seven wireless towers with broadband to deliver the bandwidth that will be required for this next generation public service system.
Statistics

Total Cost of Project $64,994,563
Homes Passed 344,771
Businesses Passed 87,347
CCI Sites Directly Connected 52
CCI Sites Passed 1215
Jobs Created or Saved with Project 706

Subscriber Projections
Year 1-0
Year 2-94
Year 3-169
Year 4-354
Year 5-509
Year 6-650
Year 7-670
Year 8-716

Proposed Services
Ethernet via Fiber for Point to Point and Internet Service 10Mb 20Mb 50Mb 100Mb 250Mb 500Mb 1Gb VLAN
Private Networks MPLS QoS for Time Sensitive Traffic
Redundant Service & Backhaul Feeds
Wholesale IP Backhaul
Wholesale Wavelength Multiplexing

Some of the applications that apply include high resolution image transfer, real time high definition video and audio, large file transfer, high bandwidth connections to corporate and institutional servers, on-line web based work via CRM and ERP applications, VOIP phone service, web hosting, Email hosting, real time information and multimedia to fire and rescue crews, on line educational curriculum, IPTV, and emerging tele-presence technologies. Dedicated Internet connectivity will be the most common service type provided along with VLAN connections for specific private network connections. Non Discrimination & Interconnection Plans

The ethernet services described above will be provided on a retail and wholesale basis. All service providers will have equal access to establishing an interconnect agreement to access the network. Three wholesale models will be employed that include:

1. Collocation: Service providers will have the ability to collocate their equipment in one of the data centers or huts that will be constructed into the network. This collocation can be used to interconnect their network with the system to access other terminating points on the network.

2. Wholesale Services: Wholesale resold services will be provided to qualified resellers who have the need to connect their end users via the system. This wholesale arrangement can include a direct collocation or can also be provided without a collocation.

3. Wholesale Wavelength Capacity: DWDM capacity will be available if another service provider simply needs dark wavelength capacity between two or more points in the network. Multiple meet points will be available to make this process convenient for other providers. The interconnection and wholesale programs will be listed on the company web site and will be available for all qualified service providers. Service providers may use LiveWire as their upstream Internet provider or they may choose to connect to another upstream provider of their choice.

Technology & Network Design

The fiber optic design will be a redundant ring topology using resilient Ethernet ring technology. The initial backhaul rings will be comprised of dual 10Gb Ethernet fiber links. The initial aggregated data rate of 20 GB/s will provide plenty of capacity as the network grows. This resilient ring design will maintain connectivity in the event of a fiber cut or switch failure. For service areas that have 911 or government facilities or other critical needs each fiber node will have dual switches and additional 20Gb ring connections that will provide further redundancy. All fiber nodes will have backup power systems to keep the network running in the event of power outages. This network will provide direct fiber optic connections based on standard Ethernet technology for extremely fast connections that will start at 10Mbps and extend to 1Gbps. QoS is built into the system to prioritize time sensitive applications such as VOIP, VPNs, and IPTV that require low latency real time throughput. The network will provide connections to two Tier-I Internet nodes that will be located in different locations to provide redundancy for the upstream Internet connections.

Company Profile & Qualifications

LiveWire is a facilities based CLEC that uses its interconnect agreement with the incumbent phone company along with its own facilities to provide Broadband services in Colorado. The company has an active operating authority and certificate of public convenience and necessity with the Colorado Public Utilities.
Commission. The company started in 1990 as a cabling and installation company and became a service provider in 1996. Live Wire Networks, Inc was incorporated in 1999 and is in its tenth year of providing service to homes and businesses. LiveWire is privately held and currently serves 500 accounts in the Denver-Boulder area. LiveWire has provided Internet and related IP based services since 1996 and has the existing network infrastructure to support many times the current number of subscribers. The IP based phone service started in 2004 and provides land line equivalent service quality and reliability. LiveWire's VOIP service is fully E911 compliant and has all of the state of the art features available with current IP phone technology. The company works through the NPAC Number Portability Administration Center to port numbers to and from other phone companies and has all of the back office database and network resources required to do this quickly. Infrastructure History & Service Provider Experience LiveWire's roots as a network infrastructure company are key to the success of the proposed network. The company has engineered, designed and built many fiber optic installations and telco plant projects including telecommunications, water/energy pipeline, enterprise and cable TV plant. In addition the company's experience with its current network provide the operational knowledge that is required.