

RCN Metro – Way to Go!

By Hunter Newby



Broadband development has been selective and bumpy and there is still much to do, but the industry has been steadily growing over the past decade in many ways and directions. The base technology at the chip and processor level has all improved dramatically to support the growth in demand and capability. The core servers hosting all of the new applications and the end-user devices being used to access those applications have all improved dramatically, but what good would it have been without an equally and balanced improvement in the networks that carry that data traffic?

Over the past 10 years, in many places narrowband thin links have become broadband fat pipes. Mobility also has been introduced into the equation. The legacy misconception that mobile and microwave wireless were polar opposites to fixed line largely has been shattered with the realization that those technologies compliment the fiber core to extend broadband reach and capabilities and that the fiber core, although “fixed”, is not analogous to fixed-line last mile. Everything has a purpose and place in the stack.

Upon reflection it's clear that the past 10 years have experienced not only a technological improvement on multiple levels, but also a psychological shift as well. Changing the mindset of network planners is a major feat. Changing the mindset and direction of the entire country is a feat a magnitude in proportion. Mass awareness of the need for broadband in places where it does not exist (driven by the proven benefits) has been significantly elevated by the Broadband Stimulus portion of the American Recovery and Reinvestment Act. If nothing else the Broadband Stimulus has shaken the status quo by

making enhanced broadband deployment a serious goal for any service provider that wants to pursue it.

There are many service providers involved in all aspects of this extraordinary growth, but one, RCN Metro Optical Networks (RCN Metro), has recently made a couple of announcements showing that it is perfectly positioned for what is to come through natural progression and that of the Broadband Stimulus. The company recently completed the upgrade of the access layer of its Ethernet network to include 10 Gigabit Metro Ethernet-based transport at several key locations. This enhances RCN Metro's already strong network performance, giving customers greater scalability and reducing the amount of time needed to increase bandwidth to mere days.

This news is significant for many reasons, but two stand out. First, it is evidence of the not only steady, but exponential growth of Ethernet transport. The Ethernet standard has been so widely adopted now that it totally permeates carrier networks and it is all demand driven. This is essential to reaching a common platform in the future through which carriers can seamlessly interconnect and allow for enterprise self-provisioning of VLAN's across networks to establish peering links.

Second, it shows RCN Metro is in the right place at the right time and staying ahead of the sales/demand curve. The company's design and implementation uses the latest and greatest equipment and technology available in the market, bringing their customers exactly what they need to expand. It also highlights the need for low-latency transport solutions, which is an ever increasingly important new differentiator beyond just having Ethernet transport as a service.

What is not obvious from the announcement but is important to note is that this is a native Ethernet over fiber network. That is important for a couple of reasons.

First, it requires fiber. In many cases it

will require new fiber laterals to be built off of an existing metro ring in to the enterprise customer premise to the demarc. This is important because the demand for and growth of 10GE will drive fiber deployments at the edge and that will logically drive fiber requirements at the core.

Second, since it is native Ethernet it does not have a Wave Division Multiplexed (WDM) layer below it. This eliminates additional cost and allows RCN Metro to be more competitive and more profitable on its access service.

This access layer differs from the RCN Metro core transport network as the core is based on WDM with multiple 10G and 40G wavelengths. Soon RCN Metro will be going to multiple 100G wavelengths between New York and Chicago to accommodate the near terabit levels of capacity it currently supports in each of those markets.

None of this is speculative. This is all demand driven and, as always, the sales effort is the key to success. Maura Mahoney, vice president of sales and marketing for RCN Metro had this to say about the customer demand behind the announcement: “Our stronghold is in financial services and their low-latency data center applications, primarily multicast traffic, are driving a lot of transport between New York and New Jersey, but also between Chicago, New York and New Jersey.”

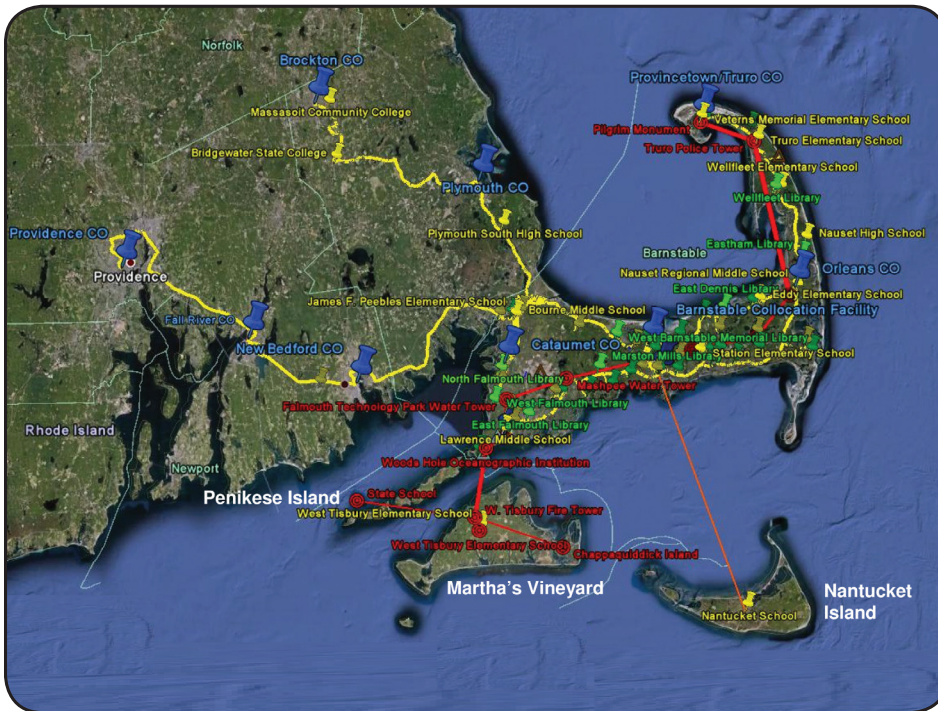
Low-latency is top of the list in terms of requirements for financial services firms, and the 10GE upgrade has done a lot for RCN Metro to meet that requirement. “The 10GE optics are much more efficient than the 1GE or FE for that matter and improve latency a lot,” states Aqeel Asim, director, data engineering & operations for RCN Metro. “They provide better buffer sizing, better memory, hold a lot more packets in the propagation stage and packet loss has improved a lot. Right when the market opens and closes there are bursts of traffic and the 10GE optics perform better then.”

On the Broadband Stimulus side of the future development story, RCN Metro also has had some recent news. It was selected by OpenCape Corp. as its network partner to build and operate a 300-mile fiber network across Southeastern Massachusetts, Cape Cod, and the Islands. The OpenCape Corp., a non-profit 501(c)(3), has applied for a \$40 million grant under the federal Broadband Technology Opportunity Grant (BTOP) program of the American Recovery and Re-

backhaul from a series of islands just outside of a major metropolitan area. Since the proposed serving area is so close to a major metro it would seem logical to assume that it already has access to ample broadband services, but that is actually not the case. RCN Metro is proposing to build a 1 Gigabit microwave link from Woods Hole to Martha's Vineyard, a 300 Megabit microwave link from Martha's Vineyard to Cutty Hunk Island, and a 100 Megabit link from

to solve the issue of getting to and from islands. The lesson that others in rural America can learn from this is that if you live on a "digital island" with no access to proper broadband backhaul, an architecture such as this one might be exactly what you need. Microwave wireless is highly effective when coupled with fiber at aggregation points for the purpose of middle-mile backhaul to major Internet peering points. This is a simple, elegant and effective approach to solving the broadband bottleneck issue not only around Cape Cod, but also around the rest of the United States as long as the last-mile provider has access to fiber and/or multi-gigabit Ethernet/WDM-based transport.

RCN Metro has developed the opportunities and designed the network that positions them in the best possible way for the high-speed, low-latency network demands of today. There is no reason why others like them in different parts of the country cannot do the same in accordance with the levels of demand they are experiencing. The demand for broadband is not limited to any one part of the United States. The ARRA has shown us that. The amount of development that must happen



investment Act to build the network.

RCN Metro will build and manage operations for the regional open access network. Municipal, public safety and private last mile providers will be able to connect to the OpenCape network for data transport throughout the region and to the Internet backbone in Boston and Providence. The added capacity will help the region develop economically and offer increased competitive opportunities for businesses, residents, non-profits, and public service organizations across the region, according to a statement issued by both companies.

What is really interesting about this is the combination of microwave wireless and fiber for transport between, around and

Cutty Hunk Island to Penikese Island. It is also looking into extending the microwave link on Martha's Vineyard to Chappaquidick Island. This would bring a significant increase in the amount of available capacity to these islands, making them all much more functional in many ways.

All of this microwave wireless transport will be brought back to the RCN Metro fiber-based transport network and the data traffic ultimately will be exchanged in major peering facilities such as 1 Summer Street in Boston, or 60 Hudson Street in New York. This architecture is very unique for RCN Metro since they do not offer microwave wireless transport as a standalone service, but actually created this combined offering

over the next few years is unprecedented and network operators everywhere will need all of the help they can get. Following in the footsteps of those that came before and succeeded is usually a good way to go. The application, use and utility of broadband is always as great as the greatest example of it, so if you do not have sufficient broadband you should follow a great example of how to create it and that will help you catch up to where others already are and have been.

Hunter Newby is the CEO of Allied Fiber, a next-generation, nationwide wireless tower and dark fiber provider. He can be reached at HunterNewby@gmail.com.