Municipal Broadband Pioneer Keeps Innovating

Ocala, Florida, was a gigabit city before gigabit was 'a thing.' After connecting anchor institutions and businesses to its fiber network, the city is gradually building out to residents.

By Lisa Gonzalez / *Institute for Local Self-Reliance*

The county seat of Marion County and home to approximately 59,000 people, Ocala is located in the north central area of Florida. In the 1940s, the city became known for thoroughbred horse breeding, and the industry still flourishes there. Victorian architecture fills the city's historic district.

The College of Central Florida is one of several campuses in Ocala, and the Marion County Library System has three libraries in the city. The county public school system, Florida Hospital Ocala and the State of Florida – all entities that require high-capacity connections – employ large segments of the population.

Ocala has offered gigabit connectivity to local businesses and some residential areas since the early 2000s. When residents started seeing news reports celebrating the virtues of gigabit communities, they were a little surprised to learn that what they had been doing for years had become "a thing."

Ocala began in 1995 by laying fiber to replace copper between municipal utility facilities, including electric substations and water and wastewater locations, to improve interfacility communications. As it finished deploying fiber that year, it brought Arnie Hersch to the telecommunications utility to find ways to maximize the city's use of the fiber.

The first step was connecting the city's 52 municipal facilities to improve connectivity and save public dollars. The move eliminated the costly, slow dial-up connections that Ocala still used for internet access. Within two years, the city switched to asynchronous transfer mode, a networking standard that allowed it to use the new infrastructure for computing and voice applications, reducing costs even further.

It's difficult to know how much the community has saved by self-provisioning because for years, no comparable services were available from incumbents. Hersch estimates that Ocala saved up to $1 million per year, or 30 percent, on telecommunications. Over the years, his estimate adds up to a minimum of $23 million savings on telecommunications costs, without factoring in the possibility that a private provider would have raised rates over the years.

To remain transparent and avoid accusations of unfair advantages, when the Ocala Fiber Network (OFN) was ready to serve municipal facilities, Ocala leadership established competitive rates. It decided the telecommunications utility should charge the city the same rates that the local telephone company charged for a T1 line, even though the OFN offered a much higher capacity than the 1.5 Mbps of a T1. OFN also pays a pole attachment fee to the city, which owns utility poles in Ocala.

The gazebo in Ocala's downtown square and the Horse Fever sculpture. Ocala is known as the "Horse Capital of the World."

The city funded the deployment with a $4 million interdepartmental loan from the electric utility reserve funds to the telecommunications utility. After years of steady, incremental expansion, funded by the telecommunications division, the network has grown to about 760 fiber miles. The telecom utility has always been a division of the electric utility, and personnel from both divisions worked on the deployment to reduce costs and keep both divisions up to speed on each other's projects.

EXPANDING OFN'S REACH

In 1997, when community anchor institutions were unable to access the broadband capacity they needed from the incumbent, Ocala was ready to fill that need. CAIs began dropping the incumbent's $400 per month T1 service to sign up for 10 Mbps from OFN. Hospitals and clinics were some of the first and most enthusiastic to get on the network. By the late 1990s, OFN leased dark fiber to radiologists, hospitals and other health care providers. They used the connections to establish their own networks for transferring sensitive, data-heavy files and voice data among

facilities. OFN also leased dark fiber to Level 3.

By 2011, businesses and a small number of home offices benefited from the OFN, and the city decided to look into the possibility of sharing the resource with residents. Consultants hired to develop a feasibility study recommended that Ocala continue to expand the OFN footprint in commercial areas where larger employers were located or areas new employers find desirable, such as industrial parks. However, the consultants didn't recommend that Ocala expand the OFN citywide to serve residents, noting that the project would require substantial investment. They pointed out, however, that communities in which residents had access to FTTH typically experience benefits that outweigh costs.

Elected officials in Ocala haven't always been politically or philosophically consistent on the topic of competing with the private sector. When the telecom division was still in the dial-up business, it resold service from nearby GATOR NET, operated by the city of Gainesville. Uneasy about competing with the private sector, the

Ocala City Council instructed the telecom division to sell off the resale service to a private company.

However, that was years ago, and a different city council has no qualms about the work OFN does for the community. Today, OFN offers several services for local businesses, including dark fiber, colocation services, dedicated internet service and private networks for businesses that have multiple locations. OFN offers businesses four standard shared internet access tiers and has worked with companies that require specialized services.

RESIDENTIAL SERVICE

When Ocala began serving residential subscribers, it did so on a case-by-case basis and grew slowly. When a business needed fiber connectivity to a home office, the telecom division connected the home as long as the business paid for the residential connection. The utility took a similar approach through 2012.

The first home to receive fiber connectivity belonged to the IT director for a radiology clinic, who needed the connection to keep the clinic operating smoothly day and

night. As word spread, the utility connected doctors from the same clinic and other facilities who needed high-quality connections to work at home. Over the years, the home offices connected to the OFN came to include businesses other than medicine.

Ocala considered offering additional services to residential subscribers but had to adjust its plans in 2005, when the Florida state legislature imposed restrictions on local governments to discourage them from investing in broadband infrastructure. The city could continue to offer data because it was grandfathered in, but the change forced it to scrap its plans to offer video. Now, OFN keeps it simple by offering one tier to residential premises – symmetrical 300 Mbps for $60 per month.

By 2012, OFN served around 200 residential subscribers, mostly home offices, spread out across the city. As word spread about the service, increasing numbers of residents wanted their homes connected to the OFN. Although the telecom utility wanted to oblige, connecting each property took time. To deal with a sizable backlog, the city council imposed a moratorium on residential connections.

The moratorium has been lifted in parts of town, and OFN engineers are taking a different approach to deployment. As they build out, engineers will deploy in neighborhoods that achieve a 30 percent pre-sign-up rate. Hersch says the prior method – stringing fiber to homes as they requested service – resulted in "too much fiber on the poles." Approximately two-thirds of the current network is aerial, and residential builds will be deployed using GPON, rather than Metro Ethernet, as in the past. For now, OFN is focusing on four neighborhoods and has asked interested homeowners to sign up online to show interest.

FIBER FOR GOVERNMENT SERVICES

In addition to serving city offices, OFN offers dark fiber and other services to approximately 60 Marion County facilities. It also connects 58,000 electric meters and and more than 60,000 water meters and reads them automatically. Ocala's 129 traffic control signals connect to an intelligent transportation system via Ocala fiber. All parks and recreational facilities in the city have public Wi-Fi, including the farmers market space.

Almost 100 public safety cameras dot the city, and Ocala uses the network for smart city apps, such as real-time parking fees and enforcement. Parkers can pay their fees with smartphones, and city staffers are alerted through the network when a car has been parked in a space too long.

After buying services from CenturyLink for years, the Ocala School District recently switched to OFN when the utility deployed approximately 80 miles of fiber to connect all the middle and high schools and their disaster recovery site. Now, every school has a 10 Gbps connection and a dark fiber link to the disaster recovery site, where the OFN provides 40 Gbps service. The network could provide 120 Gbps to the school district, but the equipment at the school facilities doesn't have the ability to function at such high capacity. (The highest capacity the district received from CenturyLink was a gigabit.)

Like many other communities that have provided fast, affordable, reliable connectivity to their residents and businesses for decades, Ocala pursues its mission without fanfare. Schools administrators, public safety officials, economic development personnel and, increasingly, residents feel the benefit of the common-sense investment that community leaders made in the mid-1990s. As new applications offer new ways to maximize the investment, Ocala is poised to try them to improve life in central Florida. ❖

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EDITOR'S NOTE: READER FEEDBACK

The October 2018 issue of **Broadband Communities** included an article in which the CEO of an independent broadband provider, Sonic, recounted his company's experience with the new San Francisco MDU ordinance. The author stated that, in his experience, the ordinance benefits competitive providers, owners and MDU residents in the city. However, feedback we've received from several property owners indicates that the grave concerns they expressed before the ordinance went into effect have not been allayed by their experiences. These concerns include, among others, owners' loss of control over their properties; the prospect that providers will be unwilling to invest in serving MDUs if they risk losing customers to unanticipated competitors; and the fear that any benefits of increased competition and choice will not be widespread because competitive providers are highly selective about which buildings they serve. (Earlier articles in this magazine discussed these concerns in greater detail.) **Broadband Communities** wants to emphasize that the October article was not meant to be the final word on this subject but reflects the experience of a single provider over the first year the ordinance was in effect. We welcome any information from property owners, service providers or researchers that will shed additional light on the effects of this ordinance as experience accumulates.