

OneCommunity's Ultra-High-Speed Network Expands Access to loE Capabilities



EXECUTIVE SUMMARY

Objectives

- Leverage high-speed connectivity to improve quality of life and encourage technology-focused economic growth
- Expand access to information and public services, including healthcare, education, and government offerings

Strategy

- Develop a unique, nonprofit, public-private governance structure
- Engage with communities to promote access among underserved populations
- Encourage pilots and experimentation for the public good

Solutions

- Owns and operates 2400 route miles of fiber-optic cable
- Promotes public/private collaboration to foster competitiveness and economic growth, and to transform the area into a "smart region"
- Provides training, low-cost equipment, and affordable Internet access to low-income residents
- Promotes pilot programs that address community pain points

Impact

- Fosters low-cost, creative, local solutions through collaborative business model
- Attracts new business and innovative startups by providing high-speed Internet access
- Increases educational opportunities by connecting school districts, higher education, museums, and libraries
- Improves access to healthcare information

Background

In January 2014, Cisco released the results of an in-depth analysis of the economic benefits of the Internet of Everything (IoE) for the public sector. Cisco's model revealed that some \$4.6 trillion in "Value at Stake" would result from the adoption of IoE capabilities across 40 key public sector use cases over the next 10 years, including smart water, smart buildings, smart energy, smart parking, and more (<http://bit.ly/1aSGIzn>).

As a next phase of its analysis, Cisco engaged Cicero Group, a leading data-driven strategy consulting and research firm, to undertake a global study of IoE capabilities across these 40 use cases – how the best public sector organizations are "connecting the unconnected," as Cisco terms it. To that end, Cicero Group conducted interviews with dozens of leading public sector jurisdictions – federal, state, and local governments; healthcare organizations; educational institutions; and non-governmental organizations (NGOs) – to explore how these global leaders are leveraging IoE today.

The research examined real-world projects that are operational today, are being delivered at scale (or through pilots with obvious potential to scale), and that represent the cutting edge of public sector IoE readiness and maturity. The aim of the research was to understand what has changed in terms of the jurisdictions' people, processes, data, and things, and how other public sector organizations can learn from (and replicate) the trail blazed by these global IoE leaders. In many cases, these jurisdictions are Cisco customers; in others, they are not. The focus of these jurisdictional profiles, therefore, is not to tout Cisco's role in these organizations' success, but rather to document IoE excellence, how public sector entities are putting IoE into practice today, and to inform a roadmap for change that will enable the public sector to address pressing challenges on multiple fronts by drawing on best practices from around the globe.

About OneCommunity

OneCommunity is an award-winning nonprofit organization operated in northeastern Ohio serving public and private sector entities, including governments, libraries, and educational and healthcare institutions. OneCommunity promotes a connected and smart community by providing next-generation broadband infrastructure and services. The organization seeks to 1) improve quality of life by utilizing high-speed connectivity to promote access to public services, 2) enhance healthcare and educational opportunities, and 3) encourage technology-focused economic growth. OneCommunity now manages more than 2400 route miles of optical fiber infrastructure.

Dr. Lev Gonick is co-founder and CEO of OneCommunity. Before his association with OneCommunity, Dr. Gonick was CIO for Case Western Reserve University. He has more than 25 years of experience in network technology. Dr. Gonick is widely recognized as an influential thought leader on connectivity and network innovation, and has received numerous honors and awards for his work in technology and the public sector.

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Lev Gonick,
CEO and Co-Founder,
OneCommunity

Objectives

OneCommunity’s goals include a desire to leverage advanced high-speed connectivity to improve quality of life and encourage economic growth. The organization leverages an open, high-speed network designed to expand access to information and public services, including healthcare, education, and government offerings. OneCommunity builds on a strong foundation of partnerships with local public and private entities to achieve its goals.

OneCommunity serves as a catalyst for the development of new community-focused technology and capabilities. OneCommunity also provides a test bed for development of new applications, including sensor-based applications spread across the OneCommunity network.

Dr. Gonick founded OneCommunity with the help of like-minded individuals, saying, “We shared a vision that was raised by a lot of important community stakeholders, which was the idea of constructing a next-generation network that would actually attend to the priorities of the community – areas such as education, healthcare, and neighborhood safety. These were the things that actual community members indicated were very high priorities. So this idea of creating a co-op or an aggregation strategy to advance community value attracted me.”

Strategy

Technology

OneCommunity connects more than 700 organizations within its next-generation, ultra-high-speed fiber-optic network. The cabling for the network is typically aerially deployed using rented poles. OneCommunity also partners with its competitors, renting unused bandwidth to increase network access for customers.

OneCommunity manages over 2,400 route miles of community-owned fiber, and connects more than 700 organizations within its next-generation, ultra-high-speed fiber optic network.

According to Dr. Gonick, one of the advantages of the OneCommunity model is that it enables member organizations to access the fiber-optic infrastructure in ways not available in the private market. OneCommunity allows member organizations either to manage their own network infrastructure or have OneCommunity provide the management and engineering services necessary to keep the infrastructure running. As a result, OneCommunity differs from typical telecommunications companies that provide a fixed, managed product.

OneCommunity provides integrated network access across 24 counties in northeastern Ohio, a market that historically has had a number of disjointed telecom providers. With its single fiber-optic network, OneCommunity can provide seamless network services across the broader geographic region. This has become an additional benefit, particularly for OneCommunity members who have multiple connected sites throughout the area.

In addition to providing the broadband network, OneCommunity initiates, supports, and pilots educational programs that utilize end-point technologies such as video-conferencing devices and sensors for medical education, training, and patient monitoring. OneCommunity has also driven deployment of other sensor-based systems to monitor public health issues such as air quality and lead contamination.

Governance

OneCommunity is a collaborative public/private nonprofit enterprise, with a 19-member board of directors chaired by Ray Voelker, CIO of the Progressive Group. “We are a nonprofit, community-owned network,” Dr. Gonick explained. “Our board is composed of presidents of community colleges, directors of county libraries, healthcare partners, university leaders, large employers of IT staffing in the community, and entrepreneurs.” The organization is owned by the member organizations that participate in the OneCommunity network.

Funding is received by member organizations, as well as via private donations and government telecommunications access grants. Recent funding efforts have yielded a \$44 million grant under the American Recovery & Reinvestment Act for its Comprehensive Community Infrastructure program through the Department of Commerce. The grant was matched by \$15 million in private funds and in-kind contributions. OneCommunity was also a recent recipient of an \$18.7 million federal broadband stimulus grant.

Community Engagement

OneCommunity conducts a variety of community outreach efforts, including projects to encourage disadvantaged individuals and families to “cross the broadband divide.” The group sponsors Connect Your Community, which provides computer skills training, low-cost access to equipment, and ongoing support. Connect to College Now, a similar, parent-focused digital learning and inclusion program, provides low-cost computers, training, and connectivity to disadvantaged parents and children within the Cleveland Metropolitan School District.

OneCommunity has attracted significant local and international attention for its unique business model, and Dr. Gonick concedes that an “enlightened” point of

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view regarding public access is required to appreciate the vision of the organization. “We are indeed a very different type of model. There are a number of organizations around the world that have come here to look at the OneCommunity model. There’s a One Maryland project that is modeled significantly after our work. In the United Kingdom, there is a One-Manchester initiative that had its origins in trying to create this hybrid model. There are similar programs and projects in New Zealand.”

The City as an Operating System

Part of the OneCommunity strategy is to see the city as an operating system upon which applications and solutions are developed to improve residents’ quality of life. Connectivity throughout the system provides virtually unlimited possibilities to develop applications for public benefit. According to Dr. Gonick, a number of startup companies have sprung up with the help of OneCommunity expertise and infrastructure. These include firms such as SnappSkin, which provides healthcare monitoring and social interaction opportunities for home-bound adults; and Intwine Connect, which provides connected energy, home security, and environmental monitoring solutions utilizing Internet-enabled sensor technology.

OneCommunity is in the process of creating a development “sandbox” – a full-city-block experimentation area where developers and entrepreneurs can test different sensor technologies on the OneCommunity network.

“We love to encourage piloting and experimentation,” Dr. Gonick said, suggesting that the best experiments and solutions are those that address specific community needs. “Hopefully, these are cross-segment projects, so that libraries and museums are applying for grant opportunities to work together, and so that healthcare organizations are working in creative ways with the neighborhood for the delivery of community-based health and the like.”

Solution

Dr. Gonick says OneCommunity started roughly 10 years ago as a collaboration between Case Western Reserve University and the City of Cleveland. The organization now services major healthcare institutions in the northeast region of the state, as well as school districts, other higher-education institutions, museums and libraries, government organizations, as well as private enterprises.

“Today, we have 2400 route miles of our community-owned nonprofit fiber,” Dr. Gonick said. “There are over 700 organizations actually on the network. It’s a \$200 million community asset, all with next-generation connectivity. We provide a full spectrum of engineered services, but with more fiber assets than anyone else – especially anybody prepared to actually use them on an open network committed to shared rights of use. There are probably 25 anchor institutions in our community. Our county library is perhaps among the most innovative in the country. It not only delivers traditional library services, but also partners with the Museum of Art and the healthcare community in ways that really are formed by the same kind of logic – everyone leveraging the network to create new opportunities.”

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Public/Private Collaboration

Dr. Gonick’s vision includes working closely with the private sector to foster competitiveness and economic growth, and to ultimately transform the OneCommunity service area into a “smart region.” Inclusion of both the public and private sectors makes OneCommunity an ideal test environment for researchers and entrepreneurs. “It’s in that context that we have been looking to continue the commitment to work with real community challenges for advancing not just traditional tethered network access, but also mobile and sensor networks, telemetry networks, and other things that we now call the Internet of Things,” he said.

OneCommunity’s collaborative approach is unique in the world of connectivity. “Our business model is fundamentally about connecting public-benefit organizations, so we are very much a competitor to a lot of other kinds of network providers,” Dr. Gonick explained. “But unlike all of them, we have a core mission that is about effectively improving the quality of life around key areas of community health and wellness, education, workforce training, and community and neighborhood safety.”

Education and Pilot Programs

OneCommunity actively pilots many outreach and civic improvement programs, which have extended well beyond Ohio. For example, the Connect Your Community program encourages connectivity and learning by providing broadband training, low-cost equipment, support, and affordable Internet connectivity to low-income residents from Detroit, Michigan, throughout Appalachia, and as far south as Bradenton, Florida.

Dr. Gonick encourages a cooperative effort in identifying and addressing the “pain points” of each community in these programs. He describes the Connect Your Community program as one that is “following this model of piloting and finding the right delivery partners in the community. These could be public housing partners or faith-based organizations and the like. We’ll then help them focus in on what they’ve identified as a serious pain point – we’d call it a business problem, but they’re really community pain points. These issues may include inability to apply for jobs online because they don’t know how to get online, or not knowing how to file their taxes.”

Dr. Gonick highlighted one example where schools and medical institutions are partnering to increase education to combat the massive health challenge of type 2 diabetes. As part of the program, OneCommunity helped facilitate the use of immersive video-conferencing technology to enable students to connect their parents and family members with doctors and healthcare professionals for diabetes education and patient consultation. This interaction allowed healthcare professionals to reach medically underserved populations in the Cleveland area.

Figure 1. OneCommunity: New and Better Connections.



Source: Cisco Consulting Services, 2014

Benefits provided by OneCommunity’s network include the organization’s collaborative ability to drive technological solutions to specific community needs, and to respond quickly and flexibly from a local Network Operating Center, meeting best-in-class service-level agreements.

Impact

Benefits provided by OneCommunity’s network include the organization’s collaborative ability to drive technological solutions to specific community needs, and to respond quickly and flexibly from a local Network Operating Center, meeting best-in-class service-level agreements. In addition, the model has spurred economic development around community-based solutions such as in-home healthcare monitoring and environmental monitoring.

Collaborative Business Model

Dr. Gonick believes some of the greatest advantages of his collaborative business model are its flexible approach and support of innovation. He emphasizes the importance of partnering closely with local entities for low-cost and creative solutions. “We’re local, so we’re responsive to local needs rather than the call center being somewhere in another state or offshore. We do a huge number of community ‘convenings’ around thought leadership, including conversations about how the community can think about the Internet of Things in ways that no other Internet service provider is likely to,” he said.

Economic Benefits

Dr. Gonick recognizes that ready access to state-of-the-art broadband is essential to any community seeking to attract businesses and support economic growth. He also wants to leverage that connectivity to make highest-speed network services accessible and affordable for all residents.

OneCommunity both competes against and partners with traditional broadband providers to creatively provide affordable access options to public institutions and disadvantaged residents, but Dr. Gonick also oversees a for-profit arm of the organization that works exclusively with private enterprise. “We think it could be

transformational for our region to focus in on ways in which the network can serve as a business and economic development attractor,” he explained.

Educational Opportunities

Increased access to educational opportunities is a primary objective for OneCommunity, which connects K-12 school districts, higher education, museums, and libraries within its service area. Additionally, OneCommunity sponsors free training and provides affordable equipment and services for the disadvantaged through its Connect Your Community and Connect to College Now programs. OneCommunity also supports libraries and museums in building online learning opportunities and providing cost-effective services.

In November and December 2012, OneCommunity conducted a random survey of 10,400 of its Connect Your Community participants. Among the results, 95 percent of respondents gave the programs a rating of “Good” or “Excellent,” with 99 percent of respondents indicating they would recommend the program to others. Even more significantly, 22 percent of respondents indicated they had obtained new employment as a direct result of training provided by the Connect Your Community program.

Health and Public Safety

Improved access to healthcare information and services is another benefit provided by OneCommunity. In addition to connecting healthcare facilities and providers on its network, OneCommunity sponsors programs to make healthcare and government health service information more easily accessible to users. In the survey mentioned above, 81 percent of respondents indicated the Connect Your Community program improved their ability to find health information online.

OneCommunity also provides broadband services to governmental agencies, and partners with local entities to increase the public’s awareness of online services and health information. The organization also supports programs designed to monitor health concerns such as diabetes, and to track air quality and other environmental health concerns, such as lead content within neighborhoods.

Lessons Learned / Next Steps

Dr. Gonick concedes that it can be challenging to organize the vast amounts of available data on large public-oriented networks – particularly as sensor-based technology develops – and then actually use that data to improve quality of life within a community. The challenge lies, he says, in “not only figuring out how to generate tons of data from sensors, but to think about an elegant model that allows us to know how to create a healthcare atlas for our community – for example, one that’s not overwhelming the community with data, but really trying to help them.”

The long-term goal of data collection and disbursement for the public’s benefit guides Dr. Gonick’s work. “I resist the temptation for a technical fit in favor of a more holistic orientation, which means it’s a longer journey,” he explained. Dr. Gonick partners closely with the community to accomplish these goals in unique and cost-effective ways.

In addition to connecting healthcare facilities and providers on its network, OneCommunity sponsors programs to make healthcare and government health service information more easily accessible to users.

Going forward, OneCommunity is emphasizing a “city as an operating system” approach, encouraging further technology development through piloting and providing test-bed opportunities for local innovators and entrepreneurs.

“Because we’re a production network, not an experiment, we definitely are a blend,” explained Dr. Gonick. “We are absolutely a significant public benefit enterprise network provider, but the reason I’m having dinner with the CIO of the university healthcare system is because he wants to talk about innovation and the cost of the network access that he has with OneCommunity.”

Going forward, OneCommunity is emphasizing a “city as an operating system” approach, encouraging further technology development through piloting and providing test-bed opportunities for local innovators and entrepreneurs. According to Dr. Gonick, some companies are actually moving to the Cleveland area to take advantage of the innovative network, bringing added economic development and capacity to the region.

OneCommunity’s engagement in pilot programs furthers its goal of establishing a smart and connected community. One example is a sensor-based program for the many residents in his community with type 2 diabetes. “I was out at a startup company in one of the neighborhood communities here, where I saw a fabulous new sensor technology solution for house-bound adults, many of whom are either obese or have diabetes that has become debilitating,” Dr. Gonick explained. “Sensors are used to monitor their health and at the same time provide them with social interactions with their families and with others to keep their quality of life as high as possible.” Other potential pilot initiatives include a telehealth program and kiosk-style healthcare consultations.

“We very much see the city as an operating system in a two- to five-year horizon,” Dr. Gonick said. He believes his organization is nearing its goal of increasing the quality of life in northeast Ohio in a number of significant ways, and cites the environmental impact of monitoring lead content and air quality. Dr. Gonick is also planning programs to address the region’s aging baby boomer generation, saying the organization is looking to roll out a connected and smarter aging strategy to improve quality of life across a number of areas broadly.

Dr. Gonick says that he will continue to work toward “extending network reach from the traditional idea of simply surfing the net, to being interactive and, we think, compelling, in addressing a community-identified challenge. We very much see ourselves as being catalysts for a reimagining and a reinvention project that is informed by how a community can use large digital infrastructure initiatives to help it come together to chart its future.”



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