

ONECOMMUNITY DRIVES ECONOMIC GROWTH IN OHIO WITH BROADBAND STIMULUS

Summary

Company: OneCommunity

Industry: Service Provider

Challenge(s):

- Drive economic growth by expanding the use of broadband in Northeast Ohio
- Deliver high-speed broadband to schools, hospitals, government agencies and public safety agencies
- Upgrade network at scale without degrading performance

Selection Criteria: Carrier-class broadband routers and high-performance switches to support advanced networking services in regional network

Network Solution:

- MX Series 3D Universal Edge Routers
- EX Series Ethernet Switches
- QFX3500 Switch

Results:

- Deliver affordable, high-speed broadband to Northeast Ohio
- Enable connected healthcare among the region's providers
- Support twenty-first century learning in schools
- Create new efficiencies in government and public safety

Just as highways, bridges and power lines were essential for growth in the twentieth century, broadband infrastructure is critical in the twenty-first century. OneCommunity, a regional network provider in Northeast Ohio, is dedicated to bringing affordable, high-speed connectivity to schools, hospitals, government offices, public safety facilities and nonprofits.

OneCommunity customers include healthcare providers (University Hospitals), higher education institutions (Case Western Reserve University), school systems (Cleveland Metropolitan School District) and government entities (Cuyahoga County).

Challenges

OneCommunity was awarded a \$44.8 million broadband stimulus grant to upgrade its network capabilities and add 1,000 miles of fiber.

OneCommunity is establishing a platform that breaks down geographic barriers to provide better healthcare to citizens of Northeast Ohio. A critical mass of healthcare providers in the Cleveland area is connected to OneCommunity, which allows for the delivery of better patient care at a lower cost. With telemedicine a reality, patients in rural areas can have access to specialists who were once only available at major urban hospitals. Electronic medical records can be shared among healthcare providers to provide coordinated patient care.

"Radiologists used to go to different hospitals and offices every day," says Chuck Girt, vice president of engineering and operations at OneCommunity. "Now doctors and technicians can do everything remotely."

Girt cites a recent example: A man had a heart attack the day after having a cardiac workup at the Cleveland Clinic. Doctors at University Hospitals were able to view the patient's tests that were performed at the Cleveland Clinic and begin diagnosis from that point. It saved several days of testing, and ultimately, the man's life. "Being connected by OneCommunity allowed the two hospitals to collaborate," says Girt.

Higher education and K-12 school districts in Northeastern Ohio use the OneCommunity network to support a twenty-first century learning environment, including interactive learning, distance learning and online assessments.

OneCommunity also supports the communications infrastructure of dozens of governments and creates efficiencies by aggregating demand for network services from different local governments. Towns can have access to GIS mapping to improve public safety and public services.

Selection Criteria

With the broadband stimulus funding, OneCommunity gained the resources to transform into a carrier-class, fiber-optic network that could support an expanded number of hospitals, schools and government agencies. "We're carrying healthcare traffic, so we need high levels of reliability, redundancy and resiliency," says Girt.



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OneCommunity issued an RFP for carrier-class routers to support its high-speed broadband network, and it evaluated the leading vendors. Juniper and its partner, CenturyLink, quickly rose to the top of the list based on their ability to provide a complete end-to-end solution at a competitive price. The combination of Juniper's routers and CenturyLink's service made them tough to beat.

"We did our due diligence, and Juniper beat everyone on price and performance," says Girt. "Juniper is rock-solid."

"We also had to look at the cost of operations," says Girt. Capital costs don't tell the whole story, and when OneCommunity added up the cost of deploying advanced routing features plus the yearly maintenance fees from its incumbent networking provider, Juniper Networks became the clear choice.

Solution

OneCommunity is deploying Juniper Networks® MX960 3D Universal Edge Router throughout the core of its broadband network (see Figure 1), with Juniper Networks MX80 3D Universal Edge Routers serving on the provider edge. Juniper Networks MX Series 3D Universal Edge Routers are a portfolio of high-performance Ethernet routers that provide unmatched flexibility and reliability to support advanced services and applications. The MX Series routers provide the scale, performance, availability and service agility that are needed in today's Ethernet environment.

MX Series 3D Universal Edge Routers run Juniper Networks Junos® operating system, Juniper's reliable, high-performance network operating system for routing, switching and security. Running

Junos OS in a network improves the reliability, performance and security of existing applications. It automates network operations on a streamlined system, which allows IT staff to focus on deploying new applications and services.

OneCommunity uses a broad variety of Junos OS routing capabilities, including high availability, quality of service (QoS) and IP multicast. Girt is pleased that he can run multiple advanced services on the MX Series without incurring a performance penalty, something the previous router platform could not do.

"Using the MX Series has changed how we do business," says Girt. "We can tell customers 'yes, we can do that' instead of offering limitations."

The MX Series has given OneCommunity the flexibility it needs to deliver services to its customers—and to meet the rising demand for Ethernet services. It can provide customers with VPNs at both Layer 2 and Layer 3—again, something its previous router platform would not allow. "Juniper changes the dynamics of what we can offer on the customer premises," says Girt. "We can offer carrier-class Ethernet and higher speed services to customers with less installation work."

Carrier-class reliability and high availability features are designed into the MX Series, including graceful restart, nonstop routing, and unified in-service software upgrade. Girt appreciates that reliability. "We have carrier-class services with the MX Series," says Girt. "We have greater redundancy out of the gate because the MX Series itself is more redundant."

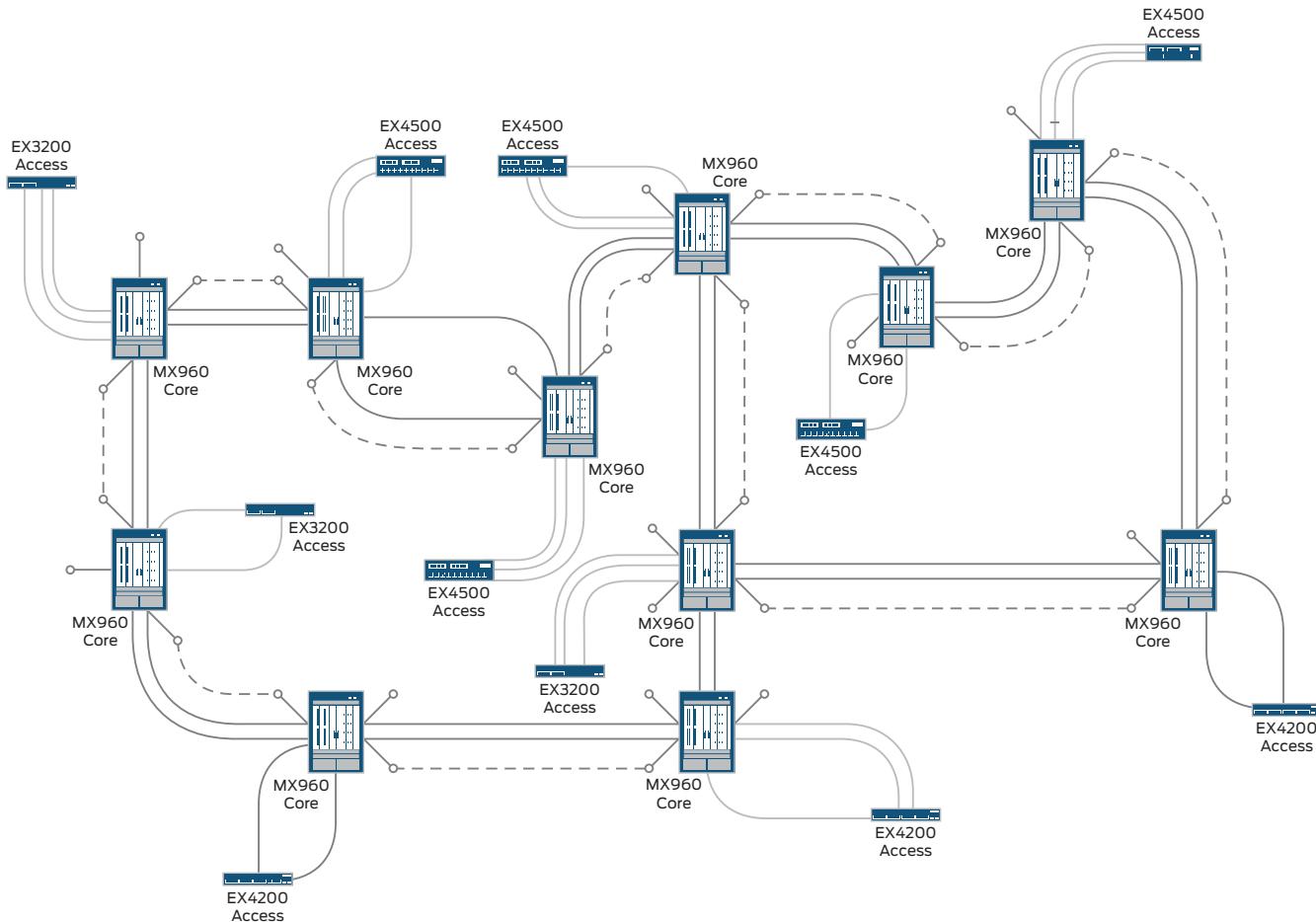


Figure 1: OneCommunity's Juniper Core and access network

Girt says the network is designed so that a voice call won't drop even if there's a path failure. "We have a 50-millisecond switchover time. If a hospital is doing an MRI, there's no interruption," he says. "With the previous network, the protocols would take up to six minutes to converge."

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- Chuck Girt,
Vice President of Engineering and Operations,
OneCommunity

QoS ensures that time-sensitive voice and video are delivered to customers. "We use the MX Series to shape the bandwidth and prioritize traffic," says Girt. While the network has plenty of capacity, Girt says that by enabling QoS, "we can show customers that they're getting priority on the network."

OneCommunity also takes advantage of low-latency multicast. Cable providers use the OneCommunity network for transport. The demands of video transport overwhelmed the previous network. "We put in the MX Series routers, and it dramatically improved performance," says Girt.

OneCommunity also uses MX Series routers and Juniper Networks EX3200, EX4200 and EX4500 Ethernet Switches to connect customers' premises to the regional network. The EX4200 and EX4500 switches are deployed in Virtual Chassis configurations, which allow multiple interconnected switches to act as a single, logical device. New switches can be added as needed, providing a scalable solution that can grow with the company's needs.

"We don't need everything on Day 1," explains Girt. "The Virtual Chassis technology allows us to build a 'mini core' that we can grow incrementally by just adding switches as needed."

Combining EX4200 and EX4500 switches in a single Virtual Chassis allows OneCommunity to satisfy the broadest set of requirements. "Our customers use everything from 10 Mbps Ethernet to 10GbE, and we need to support them all," says Girt. Mixing EX4200 switches with the 10GbE EX4500 switches gives OneCommunity the flexibility they need.

Additionally, Juniper Networks QFX3500 Switch, a standalone top-of-rack switch, is used in OneCommunity's data center to support hosted healthcare applications. Girt says the high-

performance, low-latency QFX3500 Switch is ideal for supporting MRI and other healthcare applications, and he's planning on expanding the deployment to a full Juniper Networks QFabric™ System in the future.

The QFX3500 allows OneCommunity to start small and, like the Virtual Chassis technology, expand incrementally as demand grows. When OneCommunity is ready to migrate to a full QFabric System, the QFX3500 Switches can easily be converted to QFabric Nodes, the edge devices that provide access into and out of the single-tier, ultra-low latency QFabric System in the data center.

"As customers demand more bandwidth and more horsepower, we can meet those needs without having to forklift anything," says Girt. "We just keep adding to the system."

Results

"Customers are what make us," says Girt. "Without them, we're nothing." With the new network from Juniper Networks, OneCommunity is ready to meet customer needs for the next decade.

"The customers might not see it, but from an operational standpoint, Juniper has been a huge benefit for us," says Girt. "Juniper makes our jobs easier, and the effect on the customer is tenfold."

Girt is pleased with the relationship with Juniper Networks. "Support from Juniper is ten times better than any other vendor I've worked with. They're really focused on what we as users care about, and they ask us how they can make things better."

Next Steps and Lessons Learned

OneCommunity plans to continue building out its network through 2013. Once completed, OneCommunity is expected to be one of the fastest, most reliable networks for healthcare, education, public safety, government and last-mile carrier traffic in the country.¹

For More Information

To find out more about Juniper Networks products and solutions, please visit www.juniper.net.

About Juniper Networks

Juniper Networks is in the business of network innovation. From devices to data centers, from consumers to cloud providers, Juniper Networks delivers the software, silicon and systems that transform the experience and economics of networking. The company serves customers and partners worldwide. Additional information can be found at www.juniper.net.

¹"Comprehensive Community Infrastructure Grant," OneCommunity website, March 2012, www.onecommunity.org/comprehensive-community-infrastructure

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