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Final Copy of Case Study

Status:

Laureate

Year:

2013

Organization Name:

Ohio Academic Resources Network

Organization URL:

www.oar.net

Project Name:

OARnet 100 Gbps Network Expansion

Please select the category in which you are submitting your entry

Emerging Technology

Please provide an overview of the nominated project. Describe the problem it was intended to solve, the technology or approach used, how it was innovative and any technical or other challenges that had to be overcome for successful implementation and adoption. (In 300 words or less.)

Created by the Ohio Board of Regents in 1987, the Ohio Academic Research Network (OARnet) provides networking and technology needs to Ohio colleges and universities, K-12, public broadcasting, state and local government and hospitals. With more than 1,850 miles of fiber-optic backbone, OARnet provides more fiber per-capita than any other state. OARnet projected that its 10 Gigabits per second (Gbps) network would face increasing demands because, in part, of the growing importance of "Big Data." Governor John Kasich announced the State of Ohio would invest \$13.1 million to increase the network capacity in 8 months to 100 Gbps, connecting ten major cities and linking to Internet2's international 100 Gbps network. According to Lightwave Magazine, "the first wave of 100 Gbps established itself in the field this year" (2012). While a few research and education networks have limited deployment of 100Gbps networks, Ohio is first to invest in this gold standard on a statewide scale. OARnet launched its fiber-optic backbone with scalable architecture in 2004, which allowed network engineers to easily upgrade the new, ultra-fast network by the promised delivery date. For the 100 Gbps

upgrade, OARnet used equipment from Cisco and Juniper, who were challenged to quickly ramp-up to build the bleeding-edge technology. Ohio's economic future depends on creating high-tech environments that support next-generation business applications. The network will serve as a statewide incubator for public-private partnerships aimed at commercializing applications and hardware, attracting new employers with the research network and serving as a platform for developing new applications in large-scale scientific research. A Cleveland Plain Dealer editorial wrote, "Ohio is wired for business. Goodbye Rust Belt, Hello Nerd-vana." The Columbus Dispatch similarly wrote, "For those inventing the future, Ohio is the hot spot."

When was this project implemented or last updated? (Please specify month and year.) Has it incorporated new technologies and/or other innovations since its initial deployment? (In 300 words or less.)

State leadership, from the governor to the legislature, as well as Ohio higher education communities and public and private stakeholders understood the importance of the upgraded network and supported the initiative. Initial discussions regarding the implementation began in October 2011. With Ohio Governor John Kasich's support, funding was awarded on Jan. 30, 2012. He announced the project during his State of the State address on Feb. 7, 2012, with the promise it would be installed by the end of the year. The project was completed over two phases. Phase I of the development increased speeds at connection points between Cleveland, Columbus, Cincinnati, Dayton and Toledo and was completed in September 2012. Phase II installations targeted the connection points at Akron, Athens, Youngstown, Wooster and Portsmouth and were completed before December 2012.

Is implementation of the project complete? If no, please describe the project's phases and which phase the project is now in. (In 300 words or less.)

On Dec. 11, 2012, less than 12 months since the first announcement of OARnet's enhancement, Governor Kasich did a ceremonial lighting of the 100 Gbps network. Following the debut of a new promotional OARnet video (see <https://vimeo.com/54974130>), a live streaming videoconference connected Governor Kasich to university research facilities in 10 Ohio cities including: Cincinnati, Cleveland, Dayton, Toledo, Akron, Athens, Youngstown, Portsmouth and Wooster.

Please provide at least one example of how the technology project has benefited a specific individual or organization. Feel free to include personal quotes from individuals who have directly benefited from the work. (In 300 words or less.)

Leaders from diverse sectors have praised the upgrade and see limitless opportunities. Ken Murray, CEO, Transmatix: "When you're talking about modern health care research medical imaging, genomics, DNA sequencing you're talking about enormous data sets. Until today, bandwidth didn't exist to effectively transmit this volume of information from one point to another. One reason we located our new company, BioLinQ, in Ohio, rather than California, is because Ohio demonstrated the most forward-thinking approach to technology and high-speed innovation." Ray Leto, President, Total Sim: "OARnet's 100Gig network upgrade really helps Ohio support its great research institutions and the cutting-edge industrial innovation that's happening."



It's going to be a great advantage for recruiting companies to locate in Ohio. Our business focuses on modeling and simulation for the automotive industry, and we chose Ohio over the North Carolina Research Triangle because of the advanced technology infrastructure available here." William Ball, MD, VP for Research, University of Cincinnati: "The University of Cincinnati has recently launched the University of Cincinnati Research Institute to better connect our experts to industry partners such as P&G. The power of the enhanced network will surely expand the impact and success of UCRI's efforts to facilitate commercialization and enhance experiential experiences for our students." Ali Rezai, M.D., Director, Center for Neuromodulation, Wexner Medical Center at The Ohio State University: "Ohio's enhanced 100 Gbps broadband capability will help Ohio be at the cutting edge of medical innovation and information sharing which will greatly facilitate our patient care, clinical research and training programs. We can remotely evaluate and monitor our patients' clinical status, and further optimize their treatment and management remotely." Columbus, Ohio was named a 2013 Top7 Intelligent Community of the Year; the 100Gig factors into Columbus' success.

Would this project be considered an innovation, a best practice or other notable advancement that could be adopted by or tailored for other organizations and uses? If yes, please describe that here. (In 300 words or less.)

Yes. Ohio's accomplishments through OARnet have reaffirmed its role as a leading technology hub that is the envy of many other states. Ohio is setting a standard that many other states adopt and tailor for their own economic development efforts. Following the announcement of OARnet's upgrade, a technology leader in Wisconsin said in a Milwaukee Journal Sentinel op-ed, "The Buckeye State's most ambitious economic growth strategy involves building a high-speed electronic data network that can serve researchers, businesses and communities alike. It's an undertaking that business leaders, researchers and policy-makers in Wisconsin would be wise to follow -- especially if they want the Badger State to compete for companies and jobs."

If there are any other details that the judges should know about this project, please note them here. (In 300 words or less.)

OARnet is a prime example of how Ohio is transforming from the "Rust Belt" to the "Innovation Belt." A BusinessWeek article notes that Cleveland is the fastest growing market for technology jobs in America, and Cincinnati is third: <http://images.businessweek.com/slideshows/20110801/cities-with-the-biggest-growth-in-tech-jobs#slide11>. Ohio can begin to compete with the technology strongholds like Silicon Valley, the triangle of North Carolina and Boston. Full OARnet media kit available at: <https://oar.net/press/media/100gbps>.