



Case Study

ORION



ORANO ACHIEVES CROSS-BORDER NETWORK CONNECTIVITY BETWEEN CANADA AND THE UNITED STATES. WITH BRIDGEWAVE'S GIGABIT WIRELESS LINKS



The Optical Regional Advanced Network of Ontario (ORANO), a not-for-profit organization in Ontario, Canada is dedicated to supporting and advancing research, learning and innovation. The organization owns and operates the Ontario Research and Innovation Optical Network (ORION), an "ultra-fast" fiber optic network that connects Ontario's universities, colleges, teaching hospitals, and other public research facilities to the global grid of research and education (R&E) networks.

Priding itself as one of the world's largest and most advanced R&E networks, ORION serves more than 80 member organizations in Ontario. The network not only supports intra-network and cross-border collaboration in medical, environmental, social, educational, and physics research, but also supports advanced teaching and learning technologies as well as partnerships.

According to Sam Mokbel, director of engineering and networking operations for ORION, a reliable network link is crucial to support their members who run various communication and research applications for their research-oriented projects.

"Ensuring network connectivity despite equipment problems or weather is a challenge, and the longer distance between our institutions makes it even more difficult. Upper millimeter gigabit wireless was an attractive option because it is reliable, easy to deploy and cost effective over long distances."

*Sam Mokbel
Director of Engineering and
Networking Operations
Ontario Research and Innovation
Optical Network*

THE CHALLENGE

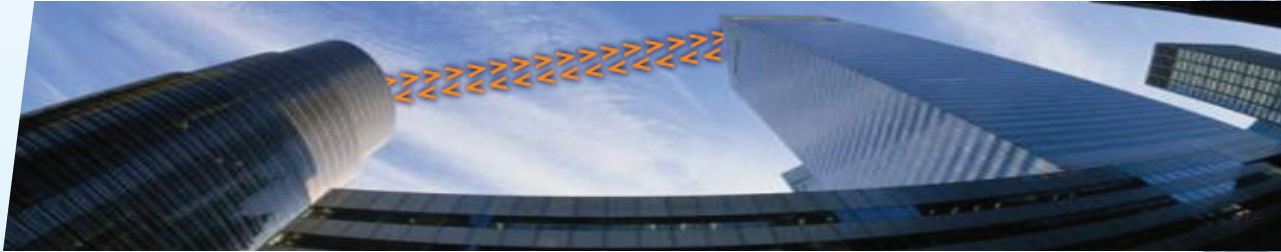
ORANO's success largely depends on the network's ability to quickly and efficiently transport extremely large data files between researchers. Their network not only runs basic communication tools such as voice over IP, email and Internet, but also research-specific applications that demand bandwidth. ORANO's research community depends heavily on the network, and wanted to expand it to other research facilities.

The organization sought to link the Point-of-Presence (PoP) at Sault College in Ontario to Merit Network's PoP (the state of Michigan's advanced R&E network) at Lake Superior State University (LSSU). The two institutions are divided by the St. Mary River and stand 6 kilometers (3.75 miles) apart.



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In addition to transporting critical data files, ORANO was looking for cross-border connectivity that would provide the following:

- Sufficient bandwidth to support the various applications of higher education institutions
- A backup to support their primary connection in case of a power outage and equipment failure
- Capabilities to withstand harsh weather and bridge longer distances over a body of water for uninterrupted, quality connectivity
- An cost effective alternative to fiber optic products that is reliable and easier to deploy

"We sought uninterrupted connectivity for a gigabit of data over long distances between two cities in neighboring countries," explains Mokbel. "Reliability was the primary consideration, however, price and ROI made the choice even more attractive."

THE SOLUTION

Mokbel and his team inquired about wireless options from various vendors and integrators, and worked with Trispec Communications in Canada to determine that gigabit wireless links were ideally suited to fit ORANO's needs. After the request for quote process was completed, ORANO chose BridgeWave as the preferred solution for their member organization.

BridgeWave's AR80X was selected due to the radio's ability to operate in harsh weather conditions while providing highly reliable gigabit transport and backup between the Northern Ontario and Michigan institutions. Additionally, only BridgeWave could meet the challenge of providing a reliable network link, as many other vendor solutions could not scale to gigabit capacity over the long distance and provide highly consistent, uninterrupted connectivity. In researching this solution and prior to its implementation, ORANO received a special use permit from Industry Canada to allow operation at 80 GHz.

In August of 2008, ORANO installed BridgeWave's AR80X product to transport data and to serve as a backup network to support their primary connection. The new connection would serve as a secondary path between ORION and Merit in case of power outages or equipment failures most common with fiber optics deployment.

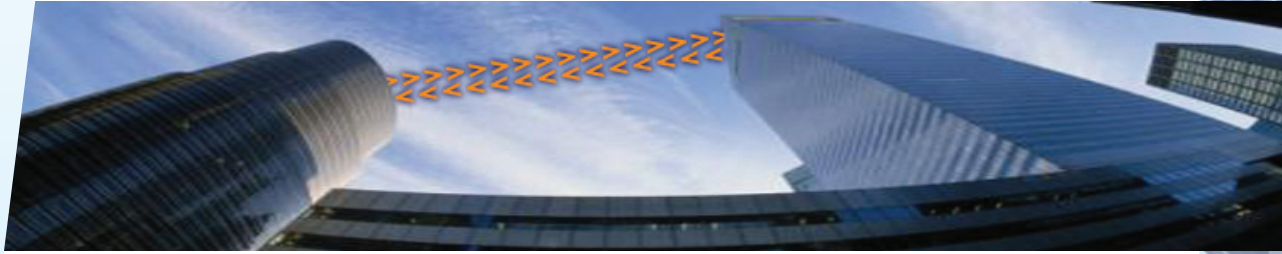
One area of concern for ORANO was the ability for a product to endure heavy rain, and BridgeWave's unique AdaptRate technology was an appealing feature, as it can switch transmission speeds to maintain connectivity even in times of severe weather such as intense downpours. With AdaptRate, the network has the ability to throttle down speed from 1 GigE to 100 Mbps, maintaining high-speed connectivity at all times.

"Wireless is susceptible to interference from weather, so AdaptRate is a nice feature to ensure connectivity and have the ability to fall back from a gigabit to 100 mbps capacity," said Mokbel.



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THE BENEFITS

The new connection allows researchers and educators in both countries to exchange large data sets while also supporting additional communications services such as voice over IP and Internet access between facilities. Mokbel and his team found gigabit wireless easier to provision and maintain than a traditional fiber link, and also more reliable for the ORION and Merit communities.

"No other product was able to deliver one gigabit of throughput over 6 or 7 kilometers, so BridgeWave was very unique in that respect," said Mokbel.

BridgeWave's gigabit wireless links have also been found to be significantly more economical when compared to fiber optics, which often mean thousands of dollars per month in leasing cost or hundreds of thousands in installation and trenching costs.

Organizations cannot afford to have interruptions when running critical applications, but BridgeWave's links have proven to be seamless and reliable over long distances in varying geographies.

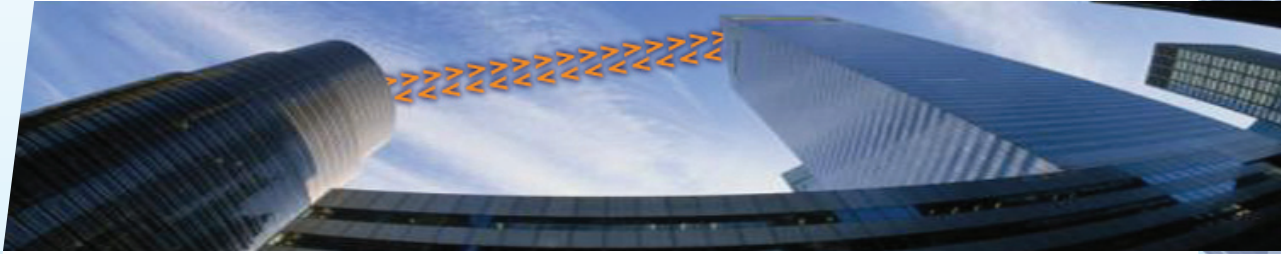
ORANO is pleased with the gigabit wireless radios, and BridgeWave will continue to remain an integral part in advancing the research organization's success.

Mokbel concludes, "We take pride in being the largest research organization in North America and our network allows us to provide our members with communication and research tools to enable the most advanced research."



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CUSTOMER: Ontario Research and Innovation Optical Network (ORION), (<http://www.orion.on.ca/>).

INDUSTRY: Research Organization, Higher Learning

CHALLENGES:

- Reliable high-speed network connectivity over long distances
- Sufficient bandwidth capacity to handle large data files and research applications
- Operation in extreme weather conditions

SOLUTION: BridgeWave AR80X wireless links

SYSTEM INTEGRATOR: Trispec Communications, a leader in the development of customized solutions in the areas of broadband cable, telecom and wireless (<http://www.trispec.com/Home.html>).

BENEFITS:

- Capacity to handle a gigabit of data and deliver high-speed performance across borders to research community
- Cost effective, rapid deployment, and easy to provision
- Backup network to ensure availability during extreme weather conditions or equipment problems



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