



Case Summary

Customer

- Vianet

Industry

- Telecommunications

Region

- Ontario, Canada

Challenge

- Multi-Gigabit capacity delivery with E-Band at very long range and over water.

Solution

- UltraLink™-GX80 (E-Band PTP system)

Overcoming fiber extension limitations using E-Band

By operating its microwave infrastructure in parallel with UltraLink™-GX80 E-Band radios, Vianet achieved FTTH service expansion offering an impressive 9 Gbit/s capacity at 6.7 miles (~11 km), over a lake.

The Customer

Vianet is an innovative Canadian Service Provider with its head office Sudbury and 13 offices across the province of Ontario. Offering best of breed internet, telephony, television and business solutions, they serve rural and urban markets with an ever-expanding range of fiber and fixed wireless network to serve government, municipalities, business and residents.

The Challenge

The company experienced significant growth in their FTTH (Fiber To The Home) GPON deployment around one of their towers. However, the closest fiber POP was 6.7 miles (10.8 km) away. They were using a MW (microwave) 15 GHz link to wirelessly interconnect the company's two towers, but this was only limited to 0.8 Gbit/s capacity. Additional channel bandwidths at 15 GHz were not easy to get due to spectrum congestion. It quickly became evident that the link had to be upgraded to multi-gigabit capacity to support the additional FTTH service requirements.

Higher channel bandwidths at 15/18 GHz were not available in the target area, so in the absence of additional MW spectrum, Vianet considered E-Band as the proper solution, due to its favorable licensing nature. The challenge though was the distance between the interconnected towers that in some cases goes beyond 7 miles (11 km). This proved to be a major problem for E-Band radios not having a high system gain required to synchronize the link that far at the desired high capacities, especially over 50% of lake water. Any other alternative would increase the deployment cost significantly, making the solution inefficient.

The Solution

UltraLink™-GX80 radios were installed to operate in parallel to the 15 GHz licensed MW links so that the existing MW infrastructure, including its antennas, remained intact. The UltraLink™-GX80 link served as the primary capacity transport medium, and it successfully delivered multi-gigabit capacity at almost 7.4 miles (12 km). The radios quickly synchronized stably during clear-sky conditions and at a 9 Gbit/s speed.

“Intracom Telecom’s UltraLink™-GX80 has truly been a game-changer, enabling us to not only meet but exceed the expectations of our customers. It exemplifies Vianet’s commitment to leveraging innovative technologies that push the boundaries of what’s possible in the realm of network performance, ensuring a future-ready infrastructure that paves the way for continued success.”

Will Gasteiger
CEO, Vianet

This extraordinary achievement was furthermore complemented by Vianet’s failover mechanism. During adverse weather conditions that normally hinder E-Band’s operation, Vianet used their router to switch traffic between the UltraLink™-GX80 link and the 15 GHz MW link and even to an unlicensed spectrum link when it became necessary. Once the good weather conditions were restored, the network traffic could be rerouted back through the UltraLink™-GX80 at multi-gigabit capacities. As a result, Vianet effectively upgraded their existing 15 GHz MW links to up to 9 Gbit/s capacities using Intracom Telecom’s innovative E-Band technology.

The main driver behind the UltraLink™-GX80’s achievement is its market-leading system gain exceeding 70 dB at 10 Gbit/s. This system gain also contributed to the significant reduction of link alignment time. Such system gain levels made the E-Band link synchronize at 6+ miles (~11 km), even over 50% lake water, and maintain stability of the delivered multi-gigabit speeds.

Intracom Telecom’s UltraLink™-GX80 radio, already widely deployed in MNO and WISP networks, is at the forefront of performance in terms of link range, spectral efficiency and operational flexibility. It can even be combined with third-party vendor radios, licensed or unlicensed, to enable capacity enhancement of existing MW links in a more effective and economical way, compared to adding one or more MW links. Furthermore, Intracom Telecom can offer a dual-band antenna capable of supporting both third-party vendor MW radios, as well as the UltraLink™-GX80, greatly facilitating the deployment of such a dual-band solution.

UltraLink™-GX80 is a high-performance, high-capacity E-Band (71-76 / 81-86 GHz) radio designed for use in demanding transport applications requiring capacity up to 20 Gbit/s as an alternative to optical fiber. It is a uniquely-versatile fully-outdoor radio suitable for a wide variety of applications. It supports Ethernet/IP, eCPRI or CPRI traffic transport, while offering a rich set of standards-based L2 and L3 networking features for the delivery of Carrier Ethernet and IP/MPLS-based services.

About Intracom Telecom

Intracom Telecom is a global technology systems and solutions provider operating for over 45 years in the market. The company has become the benchmark in fixed wireless access and it successfully innovates in the 5G/4G wireless RAN transport and small-cell SON backhaul international arena. Intracom Telecom offers a comprehensive revenue-generating software solutions portfolio and a complete range of ICT services, focusing on IoT, SDN/NFV, Big Data analytics & data-driven intelligence, and Smart City solutions. Moreover, it addresses the Energy & Utilities industry, emphasizing on smart metering and end-to-end IT solutions. Intracom Telecom is also active in the defense systems sector providing security integrated systems for critical infrastructure protection and border surveillance. The company has extensive know-how and a proven track record in the market, serving fixed and mobile telecom operators, public authorities and large public and private enterprises. Intracom Telecom maintains its own R&D and production facilities, and operates subsidiaries worldwide.