



Case Study

Ceragon delivers LTE ready backbone Telenor Serbia

Evolution Long Haul answers the migration to all-IP challenge

Background

Telenor Serbia, a subsidiary of the Norwegian telecom group, Telenor, is one of Serbia's largest mobile network operators. With more than 3 million subscribers, the company provides a full menu of mobile telephone services throughout the country.

As the subscriber base grew to its current level, so did the demand for more bandwidth, and it is still growing. In 2009, the company started a large-scale upgrade project to transform its entire network to all-IP. As the access segment of the network was gradually upgraded, the company required a true LTE-ready, high-capacity backhaul capable of handling voluminous all-IP traffic.

The Challenge

As most of its backhaul network was TDM based, Telenor Serbia looked for a flexible and practical solution to support the legacy segments of their network while gradually migrating to all-packet transmission. The company required a comprehensive solution that would seamlessly maintain revenue generating services and subscriber satisfaction while evolving at a manageable pace.

The Solution: Evolution Long Haul

Telenor's solution was Ceragon's Evolution Long Haul, a flexible, high-capacity wireless backhaul platform that supports both TDM and packet traffic. Evolution Long Haul is a multi-channel, multi-service transport platform that allows the migration of entire networks, all at once or over time, to an all-packet environment without service interruption and with minimal time and cost.

- Ceragon provided a turnkey solution supplying hardware, installation, commissioning and maintenance.
- The backbone network was built using the state-of-the-art Evolution Long Haul multichannel solution, a flexible microwave long distance system for all-indoor or split-mount installations.
- High-power transceiver units with Combiner Space Diversity and Multicarrier Adaptive Bandwidth Control provide reliable long-distance links.
- The full-band tunability of the transceiver units and the platform modularity allowed for simpler deployment and fewer spare parts which contributed greatly to reducing deployment and maintenance costs.



Implementation

Ceragon provided all necessary services related to the migration including planning, swapping of the old SDH radio with the migration-ready Evolution platform and subsequent reconfiguration of the network from SDH to packet transmission. During the swap procedure, Ceragon provided 24/7 network monitoring and operation services to make sure the traffic was running smoothly and to circumvent network failures. The network is managed via Ceragon's NetMaster network management system (NMS). To date, most of the backbone is built on Ceragon's Evolution Series microwave platform providing long distance transmission for Telenor's nationwide mobile network.

The Evolution Long Haul solution provides high-capacity transport in an all-indoor configuration (up to 10 channels in one rack and one antenna) and a split-mount configuration (up to 8 channels over one antenna). In addition, Telenor was able to deploy microwave in 7 GHz access links as Ceragon was the only vendor that could provide high-power radio for this band. The solution enables effortless upgrade to all-IP where a simple change of interface module switches the running system to all-packet transmission.



Conclusion

This project is an excellent example of synergy between people and technology combining the right product to address customer challenges with properly defined migration procedures and highly qualified teams of experienced personnel. Evolution Long Haul has proven itself to be a flexible system able to run TDM and IP traffic simultaneously. Ceragon project implementation teams ensured that the upgrade process ran smoothly and managed the process to guarantee continuous network uptime keeping the operator's migration costs to a minimum. Working closely with and on behalf of the customer, Ceragon ensured Telenor's level of revenue generation and subscriber satisfaction during the migration period. ensured the high level of revenue generation and subscriber satisfaction even during the migration.

About Telenor Serbia

Telenor Serbia (Telenor d.o.o.), subsidiary of Norwegian company Telenor, is one of the largest Serbian mobile network operators, with more than 3 million subscribers. The Telenor Serbia GSM signal covers 95% of Serbia's inhabited territory and 90% of Serbia's land area.
For more information about Telenor Serbia, visit www.telenor.rs

About Ceragon

Ceragon Networks Ltd. (NASDAQ: CRNT) is the premier wireless backhaul specialist. Ceragon's high capacity wireless backhaul solutions enable cellular operators and other wireless service providers to deliver 2G/3G and LTE/4G voice and data services that enable smart-phone applications such as Internet browsing, music and video. With unmatched technology and cost innovation, Ceragon's advanced point-to-point microwave systems allow wireless service providers to evolve their networks from circuit-switched and hybrid concepts to all IP networks. Ceragon solutions are designed to support all wireless access technologies, delivering more capacity over longer distances under any given deployment scenario. Ceragon's solutions are deployed by more than 230 service providers of all sizes, and hundreds of private networks in more than 130 countries.
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