



Case Study

3G Migration with Evolution Series Mobi PCS

Background

Mobi PCS had built a successful cellular network with backhaul provided by leased T1 circuits. As Mobi PCS grew, they found that the leased circuits were getting expensive, and in many cases could not support the increase in capacity required. The initial CDMA network was being upgraded to provide 3G services using EVDO, which would substantially increase the requirement for bandwidth. To meet the growing capacity demand, Mobi PCS had to upgrade their networks to 3G with minimal deployment costs and quick ROI.

The Challenge

The microwave backhaul solution would need to integrate seamlessly with the existing T1 based voice and data network, and then provide a simple upgrade path to allow data services to run over IP in the future. The network topology called for a ring architecture with spur aggregation networks feeding the access links to the BTS's. The system required 99.999% Grade of Service (GOS) with a minimum of 12-hour backup at each node.

The Solution: Turnkey Microwave Backhaul Network Solution

Ceragon provided a turnkey backhaul network solution, supplying hardware, installation, setup and maintenance. Once the microwave backhaul network was installed and tested, the cellular network was transferred from leased lines to the microwave backhaul. The entire cutover process was done without any issues. With the cellular network now operating more reliably than leased T1 circuits, it quickly became evident that more data bandwidth was required. Fortunately, the features and flexibility of the Ceragon Evolution Series platform could help achieve the customer's goals. With Evolution Series, Mobi PCS has been able to build a highly competitive network, with easily scalable capacities.

Evolution Series Advantages

- One platform for the entire network - same hardware used for long-haul, high capacity METRO, all the way to last-mile Access applications. This unique advantage was extremely beneficial to Mobi PCS, as they only had to train on one platform for the entire network.
- Superior system gain with small antenna sizes - ideal for Mobi PCS network deployment, in the area vulnerable to extreme weather and hurricanes. Evolution Series gets the same or better performance from a 2.5ft antenna compared to other products using a 6ft antenna.
- Significant OPEX reduction - low power consumption, fewer spare parts and simplified logistics due to full-band tunability of the transceiver units



“Ceragon’s turnkey integration proved to be high quality, cost effective, and allowed for rapid deployment.”

Eric Howard of EH COM LLC
The Mobi’s Project Prime



Implementation

The majority of Mobi's cellular base transceiver stations (BTS) were designed into the new microwave back haul network. The microwave design consists of several high capacity rings, and a few high capacity hot standby (HSB) linear topologies (2-3 nodes off the main transport ring). All microwave traffic aggregates connect directly to the MSO (TDM connects via SONET Fiber, and Ethernet via GE circuits).

The rings were designed as 2 x 155Mbps circuits; first OC3 configured as 84 x DS1 SONET circuits serving up to 28 BTS's, and second OC3 configured as 168 VT1.5 (84 in each direction), provisioned as Ethernet, yielding over 260 Mbps of high quality low latency Ethernet for EVDO back haul. Each link was designed to 99.9995% GOS, and entire network designed to 99.999% GOS.

Conclusion

Mobi PCS is an innovative Mobile Operator that required a flexible high speed wireless backbone, with quick ROI. Evolution Series platform offered a robust network design with extremely high capacity. Ceragon's turnkey solutions were able to provide a quick and seamless transition from leased lines to microwave backhaul. The flexibility of the Evolution platform allowed quick migration to IP, simple upgrades in the future and considerably reduced spares cost. High system gain with small antennas has minimized the potential impact to the network during extreme weather conditions.

The Mobi's Project Prime, Eric Howard of EH COM LLC, commented: "Ceragon's technology was selected because it was perfectly suited to support our TDM/IP back haul requirement, specifically of interest was their LCAS IP ring routing protocol. Furthermore, their turnkey integration proved to be high quality, cost effective, and allowed for rapid deployment. Mobi is quite pleased with this solution, and will continue to expand this network to the outer islands of Hawaii" .

Russell Lundberg, Mobi PCS' Director of Network Engineering, was impressed by the ease of adapting Ceragon radios to the Mobi network: "Ceragon offered a flexible platform that met our needs in a variety of field configurations and backhaul architectures. This was vital for deploying cutting edge IP backhaul in an absolutely flat architecture that scales as we grow. Our backhaul costs have declined dramatically and the network is poised for LTE transition" .

Ed Kurzenski, Mobi PCS Vice President & CTO: "This turnkey solution met or exceeded our critical requirements: High capacity next generation backhaul, with a quick ROI with a significant immediate reduction in OPEX. Designed & integrated in less than 10 months" .



Evolution Series™ radio
4-40 GHz
10 Mb/s – 1.6 Gb/s
Ethernet & T1

About Mobi PCS

Mobi PCS is the only locally operated wireless network in Hawaii. MobiPCS offers affordable, unlimited, pay-as-you-go plans with local calling areas on the islands of Oahu, Maui, the Big Island, Kauai, and Molokai. The company is owned by both investors and employees. Mobi PCS is available through over 100 dealers across the state, including Kauai and Molokai, as well as through all 7-Eleven and full-service Longs Drugs locations. For more information call 688.MOBI or visit www.mobipcs.com.

About Ceragon

Ceragon Networks Ltd. (NASDAQ: CRNT) is the premier wireless backhaul specialist. Ceragon provides high capacity LTE/4G wireless backhaul solutions that enable cellular operators and other wireless service providers to deliver voice and data services, enabling 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 200 service providers of all sizes, and hundreds of private networks in more than 130 countries. Visit Ceragon at www.ceragon.com.

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