

Street-level Service

Within two hours of unpacking the equipment, the ADC's LRCS was transporting calls

The increase in popularity of wireless devices has caused mobile subscribers to demand coverage anytime, anywhere, and all the time. Wireless service providers are challenged with cost-effectively providing adequate coverage and capacity where it is needed. This is particularly difficult in urban areas due to zoning restrictions and congestion from tall buildings that limit the placement of cell sites for additional capacity.

The Problem

A wireless service provider was providing service to a busy urban area in Manhattan. The existing cell site was located on the 12th floor of a 14-floor building at the intersection of two streets.

Three sectors of the cell site were being used to provide macro coverage, with antennas located on the building's roof. A fourth sector was used to provide street-level coverage. However, the coverage in the area was not adequate to meet subscriber needs.

The ADC Solution

ADC leveraged the existing cell site by installing its all-digital long-range coverage solution (LRCS) to replace the analog transport system. The LRCS uses digitized RF transport technology to extend wireless coverage from existing cell sites to all areas or distribute capacity from centralized radio suites.

The LRCS host unit was installed in a 19-inch rack alongside the radios in the 12th floor cell site. Four radios were connected to the host unit. The wavelength division multiplexing (WDM) feature reduced the number of fiber cables required, keeping additional fibers free for other applications.

The LRCS remote unit was installed in the building's basement. Two antennas mounted on the outside of the building channeled wireless signals in either direction of the intersection.

Within two hours of unpacking the digital RF transport system was opera-



GRAPHIC: NAVEEN K SAINI

tional, with a noticeable increase in the number of calls being made. The LRCS provided seven times the RF output power of the system it replaced. Therefore, two additional radios were installed, providing 50 percent more capacity to accommodate the increased traffic.

Benefits Realized by the Customer

The flexible architecture of Digivance LRCS allows capacity and coverage to be distributed precisely where needed. In this case, the new and existing base station capacity was centralized at the 12th-floor cell site, eliminating the capital and operating costs associated with locating a new cell site.

The customer got increased flexibility in configuring the existing capacity for maximum utilization. The increased RF output power of the LRCS not only

GLOBALLY RELEVANT

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enabled the service provider to expand the number of base radios serving the area, but it can now also accommodate additional capacity.

Optimized radio capacity will result in increased profitability for the service provider. The service provider's received signal strength and signal quality immediately improved. Subscribers will be able to place more and longer calls, and experience fewer dropped calls, increasing customer satisfaction and improving quality of service.

Since quality of service is directly related to subscriber churn, the service provider is likely to increase customer retention and avoid the acquisition costs of replacing a dissatisfied subscriber base.

The optional WDM module allows the RF signal to be transported over a single fiber cable, conserving a second fiber for other revenue-generating activity. In addition, the digital RF transport platform enables the transition to future capabilities such as

dense wavelength division multiplexing and free space optics links.

The element management software in the LRCS simplifies operation and maintenance of the system. The element management system (EMS) provides operational and maintenance capabilities for up to 15 Digivance LRCS links. Remote alarm monitoring from the network operations center reduces troubleshooting time. The EMS also provides local alarm networking of multiple systems for monitoring and control.

The modularity of the LRCS system is another advantage. In the event of a failure, the specific module requiring service can be removed and a replacement module inserted. In contrast, some of the other systems require the entire unit to be dismounted and sent to the vendor for repair. Furthermore, it also offers optional battery backup in the case of a power failure.

ADC offers full installation support for Digivance LRCS. Within just two hours of unpacking the system, Digivance LRCS was transporting calls. Comparatively, when the service provider had to install the existing analog system itself, it reportedly took weeks to become fully functional.

Case study sourced from ADC
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