



SUMMARY

THE CHALLENGE

- U.S. Navy's fleet logistics center required cellular coverage in area of 54,300 square feet
- Historical building's size, location, and materials blocked cellular signals from all four carriers, resulting in no cellular coverage in the interior of the facility
- Asbestos in the roof limited installation options

SOLUTION

- Cel-Fi QUATRA

RESULTS

- Significant cellular coverage improvements for all major carriers
- Cost-effective and quick install with small footprint
- System monitored in real-time



THE CHALLENGE

One of the U.S. Navy's oldest and largest fleet logistics center, located in a historical building in Washington, was experiencing spotty cellular coverage and dead zones inside its facilities. Cellular signals from all four major carriers could not penetrate the seven-story, mixed-use building to reach the first, second, or third floors where office space and conference rooms were located.

The size of the older building, combined with its built-for-strength construction materials, including concrete walls and floors, were blocking carriers' signals. In addition, there was a lot of cell tower shadowing from neighboring trees and the building's location, which added to the problem. As a result, cellular coverage drastically dropped in the interior of the building, leaving workers on the lower three floors unable to make calls or do anything else from their cellphones.

"If you were near a window, or on the roof or one of the upper floors, getting a cell signal was not a problem, but once you got to the interior of the building the signal degraded," explains Joseph Triano, Capture Manager, Enterprise Systems Division at Hyperion. "The

building has concrete floors, Walkerdut, and cable tray in the ceiling. Because there's no drop ceiling in there, it's a difficult building to get communications through."

Hyperion, a Virginia-based full-spectrum solution provider with several Government-wide Acquisition Contracts (GWACs), was asked to provide a solution for reliable cellular coverage throughout the lower floors of the building. Hyperion has been working on top government agency installations since 1991, and has Department of Defense clearance.

THE SOLUTION

To improve cellular reception on the three lower floors, for a total coverage area of 53,400 square feet, Hyperion designed a solution using Cel-Fi QUATRA, an active DAS hybrid. QUATRA specifically addresses the challenges of poor voice quality, dropped calls, and dead zones in large commercial buildings. Unlike analog boosters and Bi-Directional Amplifier passive Distributed Antenna Systems (BDA DAS), QUATRA delivers a cellular signal that is up to 1000x stronger, offering a much larger coverage footprint. QUATRA uses CAT 5e (or better) cabling with Power over Ethernet (PoE), so there is no need to install additional power outlets for the internal remote antennas.



- Established in 1991
- Based in Virginia with full service offices in Alabama
- Services include infrastructure integration, energy solutions, systems engineering, and project management
- Customers include government and private sector

Hyperion installed four Cel-Fi QUATRA Network Units (NUs) – the head end of the system – in a utility room on the third floor. To ensure coverage for all four top carriers, two NUs were installed to support AT&T and Verizon, while the other two support T-Mobile and Sprint. The NUs enhance the carriers' outdoor signals, and digitally re-transmit them with zero signal loss via Cat 5e cables to 14 QUATRA Coverage Units (CUs) – which are remote internal antennas that rebroadcast the signal to users inside the building. All category cabling was done from the utility room to each of the three floors. Hyperion also installed four donor antennas on the roof, one for each carrier.

"The pre-planning that we did with Nextivity was run through iBwave, and it provided an RF coverage prediction map to show us where we needed to place the CUs. We placed them on the ceiling for maximum coverage," says Triano.

THE RESULTS

Sticking to the 9-to-5 working hours at the facility, a four-person team from Hyperion installed the complete system, including all category cabling, in two weeks. Reliable, consistent cellular coverage is now available for all four carriers throughout the target lower floors. Hyperion uses the Cel-Fi WAVE portal for continued monitoring and maintenance of the system.

"We have real-time alerts set up on the WAVE portal so if any of the thresholds are not in the acceptable range we'll get an email and a text message immediately telling us that there's an issue with the installation, so we can know in real time when something occurs," says Triano.

There have been no problematic incidents or alerts since the system was installed and commissioned, and the entire facility now has cellular coverage.

"The amount of cable, hardware, and battery backup that you need is greatly reduced, and in some cases eliminated, with Cel-Fi QUATRA," says Triano. "It's cheaper, the footprint is smaller, the deployment time is quicker, and you don't have to deal with the rebroadcast agreement with the carriers. To me, there's absolutely no comparison. If you're at 500,000 square feet or under, I would recommend QUATRA 10 times out of 10."



CEL-FI
QUATRA

BEYOND
BETTER
COVERAGE

- High-quality solution for the middleprise
- Supports multi-carrier voice and data
- Carrier-approved and unconditionally network safe
- Can be monitored and managed using Cel-Fi WAVE