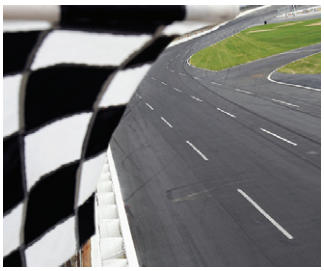
CASE STUDY

Addressing Real-Time Communications Challenges at the Indy 500



ENTERPRISE OVERVIEW:
IndyCar Series largest and winningest racing team.

Andretti Green Racing (AGR) is one of the world's most successful auto racing teams. Founded in 2003, the company has won an unprecedented 34 IndyCar Series race events, three IndyCar Series championships, and has twice won the racing world's most prestigious event, the Indianapolis 500. The team currently has four full-time IndyCar Series entries, with drivers including Marco Andretti and, in a Motorola-sponsored car, Danica Patrick.

THE CHALLENGE:
Establish high-speed wireless communications between Pit Lane and garage operations center during the Indianapolis 500.

For years, real-time communications between Pit Lane and the operations center have been non-existent at the Indianapolis 500. Track and pit areas offer no onsite cable or fiber, and the area is an exceptionally harsh non-line-of-sight RF environment with obstacles such as concrete garage walls and metal grand stands, plus reflective glass, wire fencing and unusually high levels of interference from WiFi-based networks used by workers, press and spectators. The environment is so difficult, previous attempts to use standard 802.11 wireless communications had all been unsuccessful…not only for Andretti Green, but also for competitors.

With teams of engineers in Pit Lane for four and five hours at a time, it's important for AGR to establish real-time communications to give their engineers access to current and historical data whenever they need it during practice runs and the race itself. It's equally crucial to deliver live telemetry data—such as RPM, tire pressure, ride heights, temperature and much more—to personnel in the garage operations center to help them monitor and optimize car performance in real time. Seeking to resolve these previously insurmountable communications issues, and after exploring numerous technology options, Andretti Green turned to one of its team sponsors—Motorola—for a solution.

THE SOLUTION:
High-speed Motorola wireless network based on point-to-point and OFDM technology in the 5.8 GHz band.

Andretti Green Racing needed to establish quickly deployable, low-latency, high bandwidth links for file sharing, live telemetry data streams and Internet access from the pit area to the garage. They also needed high degrees of reliability

CUSTOMER PROFILE

Enterprise
Andretti Green Racing Inc., Indianapolis, Indiana

Industry
Auto Racing

Motorola solution
- Motorola PTP 400 Series Point-to-Point Link
- Motorola PMP OFDM Access Points and Subscriber Modules
- Prizm Element Management System

Solution features
- Highly reliable, real-time wireless connectivity
- High speed transmission telemetry data from trackside to garage
- Non-line-of-sight solution
- Low latency (6 to 8 ms)

Benefits
- Provided real-time connectivity previously unavailable
- Fast, simple configuration, installation and deployment
- Competitive advantage

> "As an IT guy, I find it very rare to find a product that does everything it promises without an issue. The system performed flawlessly, and with our competitors one step behind, gave us a real advantage."
>
> **Brent Knutson, IT Director, Andretti Green Racing Inc.**

and security. Working with Motorola, AGR installed a high-speed fixed wireless solution running at 5.8 GHz and based on one Motorola PTP 400 Series link, Point-to-Multipoint 400 Series wireless access network with OFDM (Orthogonal Frequency Division Multiplexing) technology for near- and non-line-of-sight environments, Point-to-Multipoint Subscriber Modules and the Prizm element management system. The installation was accomplished in two phases. Phase One was a two-hour training and testing session and Phase Two was customer setup and testing on subsequent practice and racing days.

THE BENEFITS:
Real-time high-speed communications between Pit Lane and the garage operations center, simple installation and configuration.

The deployment allowed the team to redefine and optimize its practice and race-day on-the-track operations. For the first time ever, Andretti Green Racing was able to establish reliable high-speed wireless communications between its garage headquarters and up to four different locations—that could change from day to day—in the pit area. The system also allowed all four cars' engineering teams to communicate directly with each other from trackside. In addition, it provided Internet access, especially important for monitoring up-to-the-minute weather conditions. For security purposes, the team decided to shut down the system each evening and re-deploy it each morning. Says company IT director, Brent Knutson, "It was so easy to configure, we didn't even have to have IT people involved. We trained two AGR team members who were able to tear down, set-up and configure the system in less than 15 minutes a day." The network performed as promised, with no issues at all, helping the AGR team to a third-place finish in the race by the car driven by Marco Andretti.

THE FUTURE:
AGR plans to use the Motorola wireless solution full-time.

The test deployment at the Indianapolis 500 was followed by another highly successful deployment at a race in Milwaukee a week later. Andretti Green Racing now plans to use the network on a permanent basis. Concludes Knutson, "I don't know of any other product out there that could have accomplished everything that the Motorola solution accomplished."

MOTOROLA

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