CASE STUDY: **NASCAR GRAND-AM**

Ubiquiti Products Deliver Timing and Scoring Data at the Racetrack

Ubiquiti Networks™ products provide excellent wireless coverage at a cost-effective price.

Ubiquiti deployment is efficient because the products are quick to install and are pre-configured to expedite deployment.

airOS®, UniFi® Controller, and airControl® software use intuitive interfaces, so the Ubiquiti products are easy to manage.

The National Association for Stock Car Auto Racing (NASCAR) uses Ubiquiti products in a variety of touring series, including its Grand-Am Road Racing series. One fine example was the use of Ubiquiti products at the Grand-Am Rolex Sports Car Series and Continental Tire Sports Car Challenge held September 7-8, 2013, at the Mazda Raceway, Laguna Seca, Monterey, CA, USA.

While NASCAR races feature stock cars sharing the same set of specifications with a tight tolerance, Grand-Am races feature sports cars of different models and engines competing on the same road course at the same time.

TIMING CARS AT THE RACES

Timing and scoring data is used for multiple purposes: to keep the order of the cars during a caution, track speeds in the pit lane for safety, provide data to racing teams, compare car performance, and keep count of the completed laps at the finish line.

In 2007, NASCAR started using Ubiquiti products in some of its touring series to wirelessly deliver timing and scoring data at smaller racetracks that have little infrastructure.

"We use Ubiquiti products for their flexibility, simplicity, price point, and reliability. We pre-configured them and then deploy what we need at each racetrack... The products just work."

Scott Stofer, Manager, Timing & Scoring

UBIQUITI SOLUTION

NASCAR currently uses 150+ Ubiquiti devices, including some airMAX® and UniFi products:

- NanoStation® devices
- Bullet™ devices
- PicoStation® devices
- UniFi Access Points (APs), models UAP and UAP-Outdoor
- airRouter™ devices (soon to be replaced by EdgeRouter™)
- TOUGHSwitch™ devices
- airCam™ Mini cameras

PRODUCT FLEXIBILITY

Every racetrack has a different physical configuration. The Ubiquiti products are pre-configured and use static IP addresses, so race personnel can mix and match products to create a high-performance, low-latency private network for collecting race data and telemetry. UniFi is used to create a WLAN that is easily accessible to track officials and race crews using the device(s) of their choosing.

Some racetracks have sections where there is no line of sight to the command center, so Point-to-Point (PtP) bridges must be used to deliver the data to an area with line of sight.

NanoStationM in command center

UBIQUITI NETWORKS

UBIQUITI IN ACTION

Monitoring cars and Ubiquiti products from command center

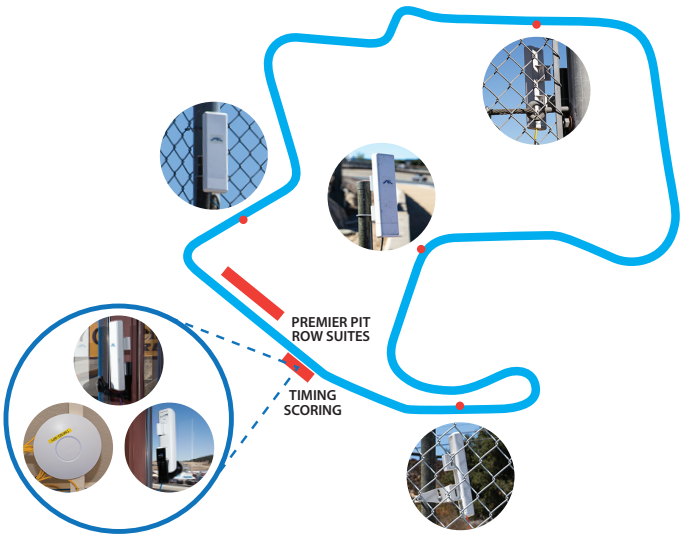
Sports cars running test session at racetrack

TIMING AND SCORING

Each car has a unique transponder, and every racetrack has an antenna embedded in every section of the track, including the finish line. Every time a car travels over an embedded antenna, its transponder sends high-speed data at a low frequency to the antenna, which carries the data to a nearby decoder. In turn, the decoder sends the time-stamped data to a Ubiquiti product, typically a NanoStation.

As part of a Point-to-MultiPoint (PtMP) link, the NanoStation sends the data to another NanoStation at the command center, where the data enters the wired network. Race personnel use software to sort and audit the data. The center's NanoStation also sends the data to the racing teams via a bridge to the pit lane. Bullet devices, PicoStations, and UniFi APs are also used on a case-by-case basis according to each racetrack's needs.

Due to its importance, the timing and scoring data has its own subnet on the network, which is typically comprised of an airRouter, TOUGHSwitch, and other products. Race personnel also use an airCam Mini to monitor the command center.



A simplified diagram of Ubiquiti products at Mazda Raceway

MAZDA RACEWAY, LAGUNA SECA

Setup took a single day. Race personnel checked the embedded antennas and deployed NanoStations around the racetrack, on the pit lane, and at the command center. They also installed UniFi APs at the command center to create a temporary wireless network for their own use. (Mazda Raceway also uses UniFi for its permanent wireless coverage.)

While race personnel use airOS and UniFi Controller software for device configuration and network management, they use airControl2 beta to monitor and visualize the network of NanoStations in real time – vital for test sessions and race days.

> *"Ubiquiti products are durable and easy to work with, and the airOS GUI is really useful for quick changes... great for us since we have a trailer full of products that we take to different races."*
>
> *Robert McLane, Jr., Timing Technician*

FUTURE PLANS

Grand-Am Road Racing will merge with the American Le Mans Series (ALMS) to create United SportsCar Racing in 2014. Race personnel will standardize the shared resources of Grand-Am and ALMS on Ubiquiti products to increase the resource pool.

As wireless demands grow, UniFi will play a greater role; its scalability and layer 3 manageability enable easy network expansion and centralized management of multiple wireless subnets. EdgeRouters will also be deployed as their multiple independent interfaces support multiple wired subnets.

Visit NASCAR at www.nascar.com

Visit Grand-Am Road Racing at www.grand-am.com

Visit United SportsCar Racing at www.unitedsportscar.com

For more deployment case studies, visit: www.ubnt.com/customers

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