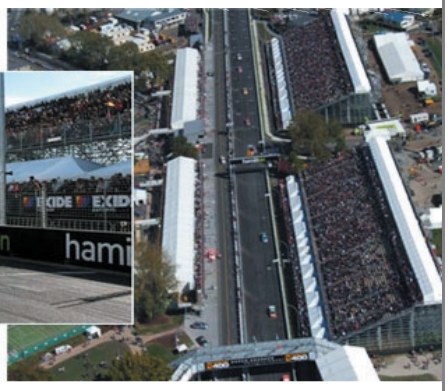
CASE STUDY

High Density Hotspots

The Hamilton 400 Event Speeds Up One of New Zealand's Largest Sporting Events with Smarter Wi-Fi

The Hamilton 400, a sanctioned round of the Australian V8 Supercar Championship, is an annual 3-day event staged on a temporary street circuit in the heart of Hamilton City. It is the largest annual event staged in New Zealand, attracting over 175,000 spectators. For the race, providing accurate, fast and highly reliable wireless data communications to each race car's support team was imperative.

With only six weeks to construct a professional race circuit along with a robust communications infrastructure to support nearly all event operations, Hamilton 400 organizers knew Wi-Fi was the way to go.



One of New Zealand's Largest Sporting Events, the Hamilton 400 needed a new model for wireless electronic communications that we reliable, robust but simple to install and manage.

But their experience with Wi-Fi in the past had left them sucking fumes. "We'd been down the Wi-Fi path before without a lot of luck," said Russell Delaney, IT Consultant for the Hamilton 400 Event. "Our first go round with conventional technology showed us Wi-Fi was still immature and very much hit or miss. For an event of this caliber and the critical role that electronic communication plays in the actual operation of the event, we needed to find an 'industrial-strength' solution."

Transponders in each race car communicate essential information to a central timing room as cars pass timing lines on each of the three sectors of the track. Time stamps, ID numbers of the transponders and other raw data must be provided to each support team in real time. They use between 8 and 10 laptops to, among other things, gather timing data, communicate with offices and exchange race information between the pits and garages.

The teams use this information to feed into custom "predictive" software scripts to determine what is happening as well as to predict what will happen on the track - such as when cars will pass other cars, etc.

Officials with handheld devices also required this information to make instant decisions about the race. Email between race control and the race team garages is also important in the event of any incident or delay. "Until now, teams would literally run up the stairs to race control and knock on the door if they had a question or problem. This obviously didn't work very well and was highly inefficient for everyone involved," Delaney commented.

Meanwhile, 350 meters away from pit lane at Waikato stadium, a single AP needed to support some 100 journalists who required race details to keep up and online Wi-Fi access to file stories and upload photos.

"Today's racing events are extremely sophisticated and every second counts, so reliable real-time data is a non-negotiable element for everyone participating," said Delaney. "The Hamilton 400 consumes a huge area with an inordinate amount of noise and interference. In this hostile environment Wi-Fi needed to do more than it ever had before. But until now, we'd never been able to get Wi-Fi to really work."

According to Delaney, running a ubiquitous wired network across such a large physical area is impractical, cumbersome and time-consuming. "We've always had a wired network but most people want wireless because there is so much movement among race teams, officials and staff," said Delaney.

COMPANY OVERVIEW

The Hamilton 400 event is the largest annual event staged in New Zealand, organised by Caleta Streetrace Management Ltd. The Hamilton 400 race attracts some 175,000 spectators and includes over 30 race cars.

REQUIREMENTS

- Simple to configure and easy to deploy centrally-managed wireless LAN
- Minimal number of APs
- Maximum coverage
- Adaptive Wi-Fi that could deal with a noisy and hostile RF environment
- Reliable connectivity
- Predictable performance at range

SOLUTION

- Six Ruckus ZoneFlex 2942 802.11g Smart Wi-Fi APs
- Ruckus ZoneDirector 1006 Smart WLAN controller

BENEFITS

- Ubiquitous Wi-Fi coverage gave officials, media and race teams access anywhere
- Automatic interference kept connection stable, performance consistent
- Automated installation allowed for quick and easy deployment
- Centralized control simplified network administration, reduced delays to any problems
- High-gain directional smart antennas integrated in ZoneFlex APs minimized capital costs

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HAMILTON 400
SUPER-CHARGED ENTERTAINMENT

"Reliable Wi-Fi access is a non-negotiable element in professional events such as these where every second counts and nearly all aspects of the event require real-time access to essential information.

The Ruckus ZoneFlex system was the only wireless LAN system we could find that addressed speed of deployment, extended coverage, reliable connectivity and consistent performance in what is arguably one of the most hostile RF environments there is - a live professional race."

Russell Delaney
IT Consultant
Hamilton 400 Event

Connector Systems Ltd

At previous races, Hamilton 400 organizers had tried to implement Wi-Fi but found it was more of a hindrance than a help. Poor coverage, flaky performance, interference and connection drops all wreaked havoc for users.

"There's a fair amount of noise, unfriendly Wi-Fi obstacles and space at these races," said David Till, Regional Sales Manager at Connector Systems, a New Zealand-based value-added distributor who worked with Delaney on the Hamilton 400 event.

"We needed a system that could deal with and adapt to the elements in real-time. Most Wi-Fi systems we found just weren't able to cope with physical layer problems such as interference, obstacles or other RF anomalies. We also needed to provide coverage everywhere without having to deploy and manage a huge number of APs, " said Till.

The 30+ cars (and associated teams), located in temporary tented steel structure on pit lane, each have their own garage. Some teams, running two cars, create VPNs over which they securely share race data and information, so stable connectivity was "hugely important."

RUCKUS RACES TO THE RESCUE

Delaney turned to Connector Systems for help. Having success in deploying the Ruckus ZoneFlex Smart WLAN system in a number of RF hostile environments, Connector suggested Delaney give it a go.

Hamilton 400 organizers ultimately selected the Ruckus ZoneFlex kit based on four key criteria:

1) ease of use
2) ability to work in a noisy RF environment
3) range and reliability
4) superior support for high density environments

"On paper, the Ruckus system seemed too good to be true," said Delaney. "With an integrated high-gain antenna in every AP that automatically adjusts to problems without human intervention, we were a bit skeptical," said Delaney.

So Delaney and his team mounted the Ruckus ZoneFlex 2942 802.11g Smart Wi-Fi APs under the eaves of temporary structure and quickly that skepticism began to fade. "As soon as we installed the ZoneFlex APs, they immediately discovered the ZoneDirector and we were off and running," said Delaney. "We needed fewer APs to cover a given area and saw exceptional signal strength. But most important, connectivity and performance was reliable."

With the ZoneFlex system in place, Delaney and his team were able to monitor the entire Ruckus ZoneFlex Smart WLAN from its control center. "With public events, there's no room or time to fix things," said Delaney.

"We can't stop the race to fix a Wi-Fi problem. The Ruckus ZoneFlex system delivered an industrial-strength solution that provided both reliable and predictable performance in what is arguably one of the most difficult environments you could find," Delaney concluded.

Right:
The Hamilton 400 circuit and event precinct consumed a massive area and required a sophisticated wireless system that was simple and quick to deploy, could provide complete coverage and could deliver reliable connectivity and performance in an extremely noisy RF environment.

Ruckus™ WIRELESS