

CALIFORNIA RACEWAY SPEEDS TO FRONT WITH WLAN PROVIDING INDOOR AND OUTDOOR WI-FI

Summary

Customer: Mazda Raceway Laguna Seca

Industry: Entertainment

Objective:

- Provide ubiquitous wireless LAN coverage to raceway staff, teams, fans, vendors and media
- Avoid \$250,000 fine for network failure by ensuring reliability
- Ensure security for all communication— personal or business – transacted across the wireless LAN

Solutions:

- To provide Laguna Seca with the tools it needs for network management and security
- The WLA Series can be positioned in the field to identify and thwart rogue access points
- To prevent network failure, the raceway replaced large hot zones with several small sectors outside with pico cell coverage

Results:

- Guaranteed a reliable, secure network to visitors seeking access through its wireless LAN
- Rogues and hidden access points are no longer a problem
- Implemented a multi-tenant networking system that provides public and private wireless LAN services
- The threat of receiving a \$250,000 fine from the raceway's sanctioning body is vastly reduced due to restructuring of the hot-zone coverage

Built in 1957, Mazda Radway Laguna Seca is one of the premiere road racing venues in the United States. With its 2.2 miles of track located near Monterey, Calif., the raceway features 11 turns, including the famous downhill, twisting “Corkscrew” at Turn 8, and “Rainey Curve” at Turn 9, named for Wayne Rainey, a 500 c.c. Grand Prix Motorcycle World champion and local hero.

Laguna Seca is bustling year round with activity. The raceway is a branch of the Skip Barber Racing School, one of the world's largest racing schools, and it hosts several major events each year, such as The Red Bull U.S. Grand Prix, featuring the MotoGP World Championships; the U.S. Sports Car Invitational, featuring the Grand American Rolex sports Car Series; Monterey Sports Car Championships; and Monterey Historics for classic race-cars.

Four out of five Laguna Seca events are televised on ESPN. In person, these events can attract crowds of 150,000 PDA- and laptop-toting fans. The events can also attract 700 to 800 vendors, each with credit card-processing needs. And the events give rise to an urban sprawl of race teams comprised of cars or motorcycles, and their fleets of Internet-ready support trailers.

Objective

In short, tens of thousands of Wi-Fi users push through Laguna Seca's turnstiles on a daily basis. Given its unique setup – almost entirely outdoors and several disparate groups simultaneously accessing the Internet – the raceway found itself in need of a way to offer its staff, teams, vendors, media and fans reliable Internet access and full mobility throughout its facility – indoors and out. The raceway set out to deploy a reliable and secure data and wireless LAN (WLAN) infrastructure, voice over IP and ISP data services.

Finding the right wireless vendor immediately became a key part of Laguna Seca's objective. With 500 acres of property to cover, cables couldn't be run everywhere – the scenic, neighboring hillsides couldn't be dug up for placement of underground cables. Additionally, digging up the famous track wasn't an option.

Initially Laguna deployed voice services, which included digital handsets for staff, wireless handsets for track operations, 2,000 voicelines, 20 miles of copper wire, 10 miles of fiber optic cable, and eight intermediate distribution frame (IDF) locations. For ISP data services, Laguna deployed VDSL that leveraged its existing cable plant, and provided services which range from 2 Mbps to 16 Mbps.

However, Laguna Seca's first stab at deploying a WLAN ran into problems that needed to be resolved to meet its objective. Racing vehicles circling the track at 150 mph were using the same Wi-Fi frequency as the WLAN, which was set up by a service provider.

This overlap created interference that caused vehicles to fall offline and left the raceway with a network that only worked 15% of the time. That needed to change quickly considering the raceway's sanctioning body can charge Laguna Seca up to \$250,000 for network failure.

Other problems included rogue access points and hidden nodes, which threatened the raceway's ability to ensure that point-of-sale and emergency systems were reliable and secure.

Another entity threatened by rogue APs were the race teams. Telemetry – competitive data uploaded/downloaded about the vehicles – is constantly at risk of getting snooped by a cheating competitor. Meanwhile, reflectivity from the hundreds of aluminum and steel tractor trailers there to support the teams was causing network interference as well.

Solution

In answer to these problems, Laguna Seca rolled out the Juniper Networks® Wireless LAN Portfolio. This solution included Juniper Networks WLC Series Wireless LAN Controllers, WLA Series Wireless LAN Access Points, an operating system, and the RingMaster Software tool suite, which addressed the management and security problems plaguing Laguna Seca.

The operating system runs on all Juniper equipment and drives all functions of the Juniper Networks Wireless LAN Portfolio. For its part, the RingMaster Software tool suite provides pre- and post-deployment planning, configuration, management, monitoring and performance optimization of the Wireless LAN Portfolio.

Laguna Seca has also deployed about 25 indoor WLA Series Wireless LAN Access Points, which provide WLAN access while facilitating secure mobility, quality of service (QoS) for delay-sensitive applications, and seamless roaming. Outside, Laguna Seca deployed 18 MP-620s, dual radio 802.11a and 802.11b/g access points made especially to withstand harsh weather conditions.

Results

Deploying Juniper Networks Wireless LAN Portfolio enabled Laguna Seca to implement a multi-tenant system, which means it can provide public and private WLAN services anywhere, over a single infrastructure to different groups of users – and at Laguna Seca there are many. It also secures and isolates each group's traffic, and controls where they roam and the resources they access.

The RingMaster Software tool suite lets Laguna detect and disable rogue access points that have been illegally erected on the raceway premises and threaten network security. RingMaster Software's integrated intrusion prevention and detection keep rogue access points out, perform comprehensive RF monitoring for unusual activity, and detect denial-of-service attacks, flood attacks, access point spoofing and other WLAN attacks.

RingMaster Software also gives Laguna Seca the ability to perform active countermeasures when a rogue access point is detected. A nearby WLA Series Wireless LAN Access Point can deny service to or from a targeted rogue and associated clients.

Today, race vehicles on Laguna Seca's famous track circle at astounding speeds without a problem. The issue of Wi-Fi interference from speeding vehicles was resolved when Laguna Seca did away with large sector hot zones.

Instead the raceway deployed several small sectors outside with pico cell coverage, each with an area no bigger than 300 to 400 feet. The setup was non-meshed to prevent interference while providing a higher area of coverage.

The Mazda Raceway Laguna Seca track is a popular destination for competitors and spectators alike. Not only is it unique for its track, environment and exciting race venues, it stands apart from its counterparts by offering ubiquitous, secure outdoor WLAN access using the Juniper Networks Wireless LAN Portfolio.

Providing WLAN access that parallels the raceway action in quality may now be as much Laguna Seca's mission as the racing itself.

About Juniper Networks

Juniper Networks is in the business of network innovation. From devices to data centers, from consumers to cloud providers, Juniper Networks delivers the software, silicon and systems that transform the experience and economics of networking. The company serves customers and partners worldwide. Additional information can be found at www.juniper.net.

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