

Mazda Raceway Laguna Seca

CASE STUDY

Famous raceway delivers secure, reliable indoor and outdoor Wi-Fi to fans, vendors and race teams



Built in 1957, Mazda Raceway Laguna Seca is one of the premiere road racing venues in the United States.

"With Trapeze Smart Mobile® technology, we can confidently deploy a scalable indoor/outdoor wireless network with seamless mobility and integrated management."

—Frank Basso
Director of Communications
Mazda Raceway Laguna Seca

With its 2.2 miles of track located near Monterey, California, the raceway features 11 turns, including the famous downhill, twisting "Corkscrew" at Turn 8, and "Rainey Curve" at Turn 9, named after 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 Histories 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.

DESCRIPTION

The parent company of Mazda Raceway Laguna Seca is the Sports Car Racing Association of the Monterey Peninsula (SCRAMP), a not-for-profit organization that has distributed nearly \$15 million to local charities through its 50-year history. The raceway hosts several major events including the MotoGP World Championships and the U.S. AMA Superbike Series.

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

SOLUTION

- The WLAN Mobility System from Trapeze Networks provides Laguna Seca with the tools it needs for network management and security
- Trapeze's rugged MP-620 outdoor access point can be positioned in the field to identify and thwart rogue APs
- To prevent network failure, the raceway replaced large hot zones with several small sectors outside with pico cell coverage. The setup was non-meshed to prevent interference from vehicles while providing a higher area of coverage

RESULTS

- Laguna Seca can guarantee a reliable, secure network to any visitors legally seeking Internet access through its wireless LAN
- Rogues and hidden APs are no longer a problem due to features in the Trapeze wireless LAN Mobility System that detect and disarm them
- Laguna Seca implemented a multi-tenant networking system that provides public and private wireless LAN services anywhere, over a single infrastructure to different groups of users
- Exposure to \$250,000 fines from the raceway's sanctioning body is vastly reduced due to a strategic restructuring of the raceway hot-zone coverage.

Mazda Raceway Laguna Seca (continued)

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, 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

To solve these problems, Laguna Seca rolled out the WLAN Mobility System® from Trapeze Networks®. This solution included Mobility Exchange® controllers, Mobility Point® access points, Mobility System Software® and the RingMaster® management suite which addresses the management and security problems plaguing Laguna Seca.

Mobility System Software runs on all Trapeze equipment and drives all functions of the WLAN Mobility System. While RingMaster provides pre- and post-deployment planning, configuration, management, monitoring and performance optimization of the Trapeze WLAN Mobility System.

Laguna Seca has also deployed about 25 indoor Trapeze Mobility Point (MP®) 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 Trapeze Networks' WLAN Mobility System enabled Laguna Seca to implement a multi-tenant system so it can provide public and private WLAN services anywhere, over a single infrastructure to different user groups – at Laguna Seca there are many. It secures and isolates each group's traffic, and controls roaming and resources accessed.

RingMaster lets Laguna detect and disable rogue APs illegally erected on the raceway premises that threaten network security. RingMaster's intrusion prevention and detection keeps rogue APs out, perform RF monitoring for unusual activity, and detect denial-of-service attacks, flood attacks, AP spoofing and other WLAN attacks. It also gives Laguna Seca the ability to perform active countermeasures when a rogue AP is detected. A nearby Trapeze Mobility Point can deny service to or from a targeted rogue and associated clients.

Today, race vehicles circle Laguna Seca's famous track 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.

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