

Virtual Lifeguards and Fire Watch for Community Protection in Laguna Beach, CA

HIGHLIGHTS

Challenges

- ❖ The fire department wanted a more efficient and effective way to provide lifeguard protection and fire watch services for the community
- ❖ Live coverage of community news, events, and public forums was limited
- ❖ Wildlife tracking was difficult in the rugged terrain of Laguna Beach canyons

Solution

- ❖ Solar powered video cameras in canyons and park areas to watch for wildfires
- ❖ Video surveillance for extra lifeguard capacity at the beaches
- ❖ Metro-scale wireless access for residential and business use

Results

- ❖ Improved protection of homes and businesses through advanced warning of fires
- ❖ Increased lifeguard monitoring to save lives at the beach
- ❖ Cost-effective wireless Internet service for residents and businesses

Systems and Services

- ❖ Tropos Networks 5110 and 5210 MetroMesh routers
- ❖ PRO 911 Systems: System integration
- ❖ Laguna Broadcasting Network (LB-Net): Network operation

The City of Laguna Beach, California with its beautiful rolling hills, large canyons, and spectacular beaches offers wonderful lifestyle benefits for residents. Protecting local residents and their homes in this tranquil environment has recently been made easier through a video surveillance application based on wireless mesh network technologies from Tropos Networks. The Laguna Broadcasting Network, Inc. (LB-Net), an early pioneer in wireless broadband Internet services, is the owner and operator of the wireless broadband network along with the video surveillance applications that help lifeguards and fire watch personnel protect local residents

The Challenge

Since the 1993 fire, the community has taken preventive measures such as brush clearings, trail breaks, and a Red Flag Patrol on days when it is necessary to be extra vigilant. However, the possibility that a fire could break out, still posed a significant threat.

A video surveillance solution could be used to increase protection through virtual firewatchers while also providing the foundation for other applications such as virtual lifeguards, wildlife protection, and Web-based broadcasting of local events and news.

Results

LB-Net has deployed a wireless mesh network stretching across Laguna Beach, Irvine, and Newport Beach, making it one of the largest wireless networks in Southern California. Digital video surveillance cameras are used with the wireless network to extend the protective reach of fire watch and lifeguard personnel. A state-of-the-art, wireless video fire watch network now protects more than 20 square miles of green belts, parks and open space that encircle Laguna Beach. Digital Sony cameras with pan, tilt and zoom features are mounted on collapsible fiberglass poles out in the wilderness areas where dense growing shrubs and small trees present the greatest vulnerability to fire. The wireless routers and cameras are solar powered and backhaul connected to a solar powered transmitter with battery back up, creating a highly reliable network.

During Red Flag conditions, the password protected surveillance cameras are monitored by park rangers, public safety and water utility officials, enabling early detection of wildfires so that firefighters can react before the fire can spread. The community is now contemplating expanding the use of the Fire Watch network to allow local organizations to watch for bobcats, habitat movement and other environmental activities.

Digital video surveillance is being used to provide virtual lifeguards as well. During winter months, a lifeguard staff of just six people covers the entire stretch of several miles of beaches. Video surveillance allows a small team of lifeguards to monitor



"We chose the Tropos network because of their proven and tested deployments in cities around the world under all sorts of conditions."

Ryen Caenn
President

Laguna Broadcasting Network, Inc.

a much broader area. With cameras constantly focused on the most dangerous locations, lifeguards can spot swimmers entering dangerous waters and take action to prevent an emergency.

The wireless network is also used for live Webcasts of local events. For example, the annual Patriot's Day Parade is captured on video and is broadcast over the Web for real-time viewing by the community. Historical society meetings and other local events are also broadcast through the LB-Net portal.

In addition, residents and businesses can purchase wireless Internet services on a monthly basis through a variety of service plans. The network has even been extended to Newport Beach Harbor, where American Yacht Charters vessels utilize Tropos mobile routers onboard to stay connected to the wireless mesh network while cruising the bay so that seafaring passengers can have access to high-speed Internet service during the cruise.

Tropos Solution

PRO 911 Systems, a leading integrator of wireless mesh solutions, designed and implemented the LB-Net network using Tropos 5110 and 5210 MetroMesh™ routers. Deep expertise with advanced communications solutions for municipalities and public safety agencies enabled PRO 911 Systems to design an efficient solution and to suggest innovative uses of the wireless mesh network for the community.

A benefit provided by the Tropos routers was the ease of deployment and the simplicity with which each router could be configured into the network. David Mitchell, President of PRO 911 Systems, remarked, "The Tropos equipment was very easy to install and it just worked extremely well without a lot of time spent on configuration. This gave us the flexibility to easily move the equipment when we were trying to optimize coverage."

The simplicity of Tropos equipment also enables LB-Net to offer temporary wireless service at local events. Tropos routers with battery units can be brought onsite at an event, providing a cost-effective and hassle-free way to deliver temporary broadband coverage for an event.

Looking Forward

LB-Net is working with city officials and city agencies to add the following applications in the future:

- Automated Utility Meter Reading – Centralized monitoring of water meter readers will help reduce costs, enable greater accuracy, quickly detect leaks and provide the ability to take readings anytime.
- Mobile City Operations – Several city departments are evaluating the installation of mobile network routers within city vehicles to improve efficiency of field workers, enabling them to submit field reports remotely.
- Voice over IP (VoIP) phones – Cell phones that are being used today to help lifeguards communicate with other staff will be replaced by a VoIP phone solution to save on telecommunications costs.

