

## Providing Wi-Fi in Difficult Terrain

There are certain amenities that customers expect, whether they're staying at a 5-star resort or a no-frills campground. Increasingly, that list includes access to Wi-Fi. Whether for work or for pleasure, travelers often cannot bear to be without a connection to the Internet. That can easily be provided if you're managing a hotel in the city, but what if your property is a campground or RV park in the middle of wooded, mountainous wilderness? In such cases, line-of-sight issues due to terrain and other obstacles typically prevent the use of cellular signals for Internet access and can make it difficult to install a wireless network as usual. Even trees can be problematic; foliage tends to block wireless signals, and objects as small as pine needles can disturb a Wi-Fi signal.

Through our years of experience providing technology services to the hospitality industry, we have developed a strategy for addressing such situations. Before we install equipment, we perform a site survey to determine the topology of the area, particularly to discover where high ground is located. Our system uses two types of radios; a master radio can be placed at the location of highest altitude to communicate with the outside world, and secondary radios can be placed on tall objects such as light poles. These secondary radios can communicate with each other to relay Wi-Fi signals to and from the master radio, which itself can relay signals to and from the outside world using cellular signals or other means.

For guests camping in tents, the Wi-Fi signal strength may not be decreased much by the structure of the tent, but what about the signal for guests staying in larger, denser structures such as RVs? To improve the signal further for RV-based guests, our solution is to install the secondary radios so that their antennas point somewhat downward. Fiberglass RV roofs are permeable by Wi-Fi, and pointing the radios down means that a stronger signal can enter the RVs.

For property owners, providing Wi-Fi needn't be an added burden of expense; rather, with the use of access codes, owners have the option to collect fees for access to their Wi-Fi network. Access codes have the added benefit of improving network security by only providing access to those who have signed up for the service.

Our strategy has worked well even in particularly difficult situations. For example, at a Christian campground in Ohio that was especially remote and burdened by serious line-of-site restrictions, we trenched fiber-optic cable to the main cabin. The main radio relay at the cabin used that fiber-optic connection for high-speed Internet access, and secondary radios throughout the campground communicated with the main radio via Wi-Fi. Creative solutions such as this allow us to provide guests with Internet access even when they have left the rest of the world behind.