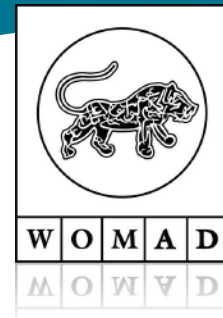


# CASE STUDY

## Outdoor Wi-Fi



### Etherlive Makes Sweet Music at WOMAD Festival with Huge Outdoor Dual-Band 802.11n Smart Wi-Fi Network

With 45,000 people and more than 200 vendors and traders set to descend on Charlton Park in England for the annual, four-day World of Music Art and Dance (WOMAD) festival, the organizers needed a better way to build a robust Wi-Fi infrastructure that could span 250 acres of land in order to deliver a variety of infrastructure services as well as public broadband access. So WOMAD turned to the experts in technology for temporary events, Etherlive Ltd., and some of the best (and only) outdoor mesh 802.11n (dual-band) Wi-Fi technology they could find from Ruckus Wireless.

While anyone could string up Wi-Fi access points on six meter high poles to blast a signal everywhere, for Etherlive, the issues were more complex. Huge metal stages, makeshift offices, large volumes of electronics, trucks and other obstacles wreak havoc for wireless communications. And running Ethernet cabling to APs at distances farther than Ethernet could support was a problem. What's more, a myriad of applications needed to be supported - from public Wi-Fi access to PDQ point of sale terminals, organizer VoIP phones to handheld devices used by sound engineers.



Delivering reliable infrastructure services using Wi-Fi at the WOMAD festivals is no easy task. etherLive built a state-of-the-art network using Wi-Fi beamforming, 802.11n and meshing technology from Ruckus Wireless.



"We've looked at and used a lot of different wireless kit, but found each came with its own set of problems," said Tom McInerney, operations director for Etherlive. "This is a massive event that covers a huge area. We needed a wireless LAN system that was highly efficient in terms of RF signal control and being able to automatically mesh and reform the mesh as things change. And there's a lot of changing going on."

McInerney noted that other vendors, such as Xirrus, didn't support meshing which made it expensive and impractical to run Ethernet cabling so far to connect every AP. Other alternatives, like Meru and Cisco were cost prohibitive, complex and required too many APs while still not providing the adaptive RF controls needed to service such a challenging environment. "Basically Ruckus was the only vendor we found that could support concurrent 2.4Ghz and 5Ghz at 802.11n speeds with a smarter wireless mesh implementation," said McInerney. "This made our decision relatively easy."

For WOMAD, Etherlive is responsible for onsite communications infrastructure covering the main arena areas, commercial locations, site offices and campgrounds. This includes providing reliable wireless for hundreds of traders using Wi-Fi PDQ terminals, thousands of music goers needing Internet access, organizer connectivity for Cisco 7961G VoIP phones, CCTV cameras for security, press access and numerous other applications. Ironically many of the temporary offices and facility, such as the press office, require wired connections. This meant high-gain wireless receivers were needed to bring in a high-speed Wi-Fi signal that could then be delivered over a local area network. "These large events

#### OVERVIEW

Co-founded by music legend, Peter Gabriel, WOMAD (World of Music) is a series of festivals held around the world. The latest festival, in Charlton Park England, needed to support infrastructure services for organizers and public Wi-Fi access for some 45,000 music goers. Responsible for delivering these services at WOMAD, etherLive Ltd., is considered one of the world's leaders for delivering complete end-to-end infrastructure services at temporary events.

#### REQUIREMENT

- Wi-Fi coverage for 250-acres of outdoor land with fewest number of APs
- Support for multiple SSIDs, multiple traffic types
- Centralized management and administration
- Concurrent 2.4/5GHz 802.11n operation with wireless meshing
- Ability for Wi-Fi solutions to automatically adapt to RF interference, obstacles
- High-gain receivers to provide wired Ethernet into temporary buildings
- Easy to manage, easy to change, low cost

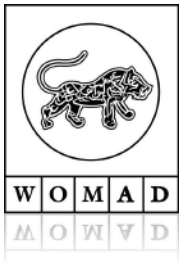
#### SOLUTION

- 18 ZoneFlex dual-band 802.11n Smart Wi-Fi access points
- 1 ZoneDirector Smart WLAN controller

#### BENEFITS

- Complete coverage of festival grounds
- Signal penetration inside the buildings
- Central management for entire wireless network
- Resilient mesh connections ensure high availability
- Lower cost than previous system with better coverage, performance and management





# CASE STUDY Outdoor/In Wi-Fi

*"Above and beyond one of the most advanced RF implementations we'd ever seen, the kit was insanely easy to configure, deploy and administer."*

*The Ruckus Smart Mesh Networking technology is the most sophisticated and reliable we've used - and we've used them all."*

**Tom McInerney**  
Operations Director  
Etherlive, Ltd.

have many moving parts," said McInerney. "The key is to keep things simple but strong." Etherlive settled on Ruckus ZoneFlex dual-band 802.11n access points and the ZoneDirector Smart WLAN controller for the WOMAD event. Eighteen ZoneFlex APs were dispersed around the 250-acre coverage area.

All configuration and management for the ZoneFlex outdoor APs is performed on the ZoneDirector controller. Etherlive engineers only needed to place the APs where coverage was needed. The Smart WLAN system then self configures and forms the mesh. Smart meshing is a simple checkbox in the ZoneDirector controller. This eliminated the need for Etherlive staff to tediously define mesh connections and failover routes for every AP.

With the dual-band ZoneFlex 802.11n system, Etherlive uses the 5GHz band to establish reliable mesh backhaul links between mesh nodes while concurrently providing high-speed user access using 2.4GHz channels.

Etherlive also uses Ruckus high-gain Wi-Fi receivers with temporary facilities to provide wired Ethernet access. A Ruckus receiver is configured to associate to the Wi-Fi network and bridges traffic to a small Ethernet switch that provides wired connections to users indoors.

Multiple SSIDs are used to segment traffic between the different user groups and define unique security and authentication mechanisms to be used. Bandwidth thresholds per SSID are used to ensure fairness among all users. Public access traffic to the Internet is redirected to a captive portal where event information and details are provided. Tiered Internet access services are also provided.

In the U.K., the festivals are required to stay within a certain decibel level. Normally this means employing staff to walk around with sound meters and report back their findings so the sound can be fine tuned. At WOMAD, sound engineers used remote sound meters connected to the Wi-Fi network, accessing these meter from a central console. This not only saved time and money but allowed engineers to make quicker decisions and changes.

"Being able to find an indoor/outdoor Wi-Fi system that delivers a whole new level of range, reliability and performance makes our job just that much easier," said McInerney.

"There just aren't any Wi-Fi systems today that can match the price/performance and reliability that Ruckus has brought to market. It's that simple,"



Eighteen Ruckus ZoneFlex 802.11n concurrent dual-band APs, managed by a single ZoneDirector Smart WLAN controller, provide reliable Wi-Fi connectivity across 250 acres of the WOMAD festival site for a variety of voice, video and data applications

