Mobile World Congress Organizers Provide Reliable Wi-Fi for 72,000 Attendees

GSMA implemented high-density Wi-Fi solution for Mobile World Congress 2013, carrying 4.7 TB of traffic over four days.

EXECUTIVE SUMMARY

Customer: GSMA/Fira de Barcelona

Industry: Industry Association

Location: Mobile World Congress 2013 in Barcelona, Spain

Attendees: 72,000

CHALLENGE
- Provide high-quality Wi-Fi experience in challenging environment
- Work around interference from thousands of access points owned by exhibitors and attendees
- Simplify setup and troubleshooting during four-day event

SOLUTION
- Implemented Cisco Service Provider Wi-Fi solution, including 260 802.11n wireless access points covering 92,000 square meters

RESULTS
- Overcame high-density challenges to connect more than 45,000 unique devices, of which 60 percent operated in the 5GHz band and 13 percent were dual-stack
- Supported peak of more than 7500 concurrent connections and 400 Mbps
- Offloaded 4.7 TB of traffic from 3G/4G network, average of 110 MB per device

Challenge

At trade shows, attendees expect reliable Wi-Fi connectivity to keep up with work, and journalists rely on Wi-Fi to meet deadlines for blogs, articles, photographs, and video. Quality expectations are especially high at the GSMA Mobile World Congress (MWC), the world's largest exhibition for the mobile industry, held annually in Barcelona, Spain. GSMA is the trade association for nearly 800 of the world's mobile operators and more than 230 companies that provide mobile products and services.

GSMA and Fira de Barcelona, owners of the Fira Gran Via venue where the event would be held, collaborated to plan MWC 2013, held in late February 2013. Organizers expected a record number of attendees, many of whom would bring a smartphone plus a tablet or laptop. "Trade shows are notoriously difficult environments for Wi-Fi, because many people crowd together in common areas," says Antoni Llevat, head of internet and communications for Fira de Barcelona.

Wi-Fi interference posed another challenge. At the event venue, Wi-Fi coverage of the one-kilometer walkway connecting the exhibit halls would be subject to interference from thousands of other 2.4-GHz Wi-Fi networks set up by exhibitors directly beneath the walkway. "The challenges for MWC 2013 were not bandwidth and backhaul, but density and interference," says Trevor McLachlan, Head of IT for the GSMA.

Solution

The GSMA and Fira de Barcelona overcame these challenges by implementing a Cisco® Service Provider Wi-Fi solution. "We needed the best technology and most in-depth expertise in high-density Wi-Fi, and that led us to Cisco," says McLachlan.

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Cisco has provided the Wi-Fi solution for MWC since 2011. The 2013 solution included:

- Access points: Approximately 92,000 square meters of the exposition floor received coverage from 260 Cisco Aironet® Wireless Access Points. Advanced features built into the 802.11n access points helped to provide a good user experience. "Cisco CleanAir Technology addressed one of our biggest obstacles by automatically working around wireless interference from exhibitors' 2.4-GHz Wi-Fi networks," says McLachlan. Cisco ClientLink technology helped 802.11a/g clients connect at faster speeds. And Cisco BandSelect directed 5-GHz devices to a separate channel, improving performance for attendees using these devices as well as the attendees connecting to the 2.4-GHz channel.

- Wireless controllers: The Radio Resource Management (RRM) feature in Cisco Wireless Controllers eliminated the need to manually configure the 260 access points, saving an estimated 60 hours of staff time. RRM automatically detected and configured each newly connected device and adjusted nearby access points to optimize coverage and capacity.

- Management software: Two IT engineers from Fira de Barcelona worked onsite with a Cisco engineer to deploy and configure the network before the event, using Cisco Prime™ Infrastructure. "And during the event, we used Cisco Prime Infrastructure to continually monitor performance and do a small amount of tuning," Llevat says. "Troubleshooting was very easy."

- Location-based services and analytics: The Cisco team used Cisco Mobility Services Engine to track the movement of devices in certain areas. The GSMA analyzed this information to understand foot-traffic patterns, helping event organizers plan the next year's floor layout.

The solution also included Cisco routers and Cisco Prime Network Registrar, which managed both IPv4 and IPv6 addresses. To reduce server costs, the team deployed the Cisco applications as virtual servers on a Cisco Unified Computing System™ (UCS®).

A Cisco engineer worked with Fira for two months before the event to plan where to mount access points to optimize coverage and minimize radio interference. After this planning, ten people needed just ten days to install the access points and get them ready to use. "Cisco's in-depth technical knowledge of high-density Wi-Fi was instrumental to the success of MWC 2013," McLachlan says. "Knowing we had leading experts on the case was reassuring in the days leading up to the event."

> "At trade shows and conventions, Wi-Fi has become an expectation, just like lighting. Attendees don't thank you for lighting, but they complain when it doesn't work. As proof that the Cisco Service Provider Wi-Fi worked great, we had almost no complaints from more than 72,000 attendees, over four days."
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Results

MWC 2013 provided the best Wi-Fi experience in the history of the event, despite connecting more people and carrying more data than ever before: 400 Mbps at the peak. "At trade shows and conventions, Wi-Fi has become an expectation, just like lighting," says Llevat. "Attendees don't thank you for lighting, but they complain when it doesn't work. As proof that the Cisco Service Provider Wi-Fi worked great, we had almost no complaints from more than 72,000 attendees, over four days."

Successes include:

- Increased the coverage area by 50 percent compared to 2012.
- Offloaded 4.7 terabytes of traffic from the 3G/4G network, an average of 110 MB per device: This total represents 75 percent more traffic than the network carried at MWC 2012.
- Connected 45,836 unique devices, 50 percent more than in 2012: Six out of ten were 5 GHz devices. "At one point, the network connected 700 devices in a 500-seat conference room," Llevat says.
- Supported a peak of 7549 concurrent connections, more than double the peak in 2012.
- Supported both native IPv6 and dual-stack (IPv4 and IPv6) clients, an industry first: Approximately 13 percent of attendees' endpoints were IPv6, and these endpoints were responsible for 10 percent of all Wi-Fi traffic.

In the Media Village, journalists used the Wi-Fi network to publish content including video, large image files, and blogs. "They transmitted twice the volume compared to 2012, and performance was flawless," says Llevat.

For the first time at Mobile World Congress, the GSMA used Near Field Communication (NFC) technology in conjunction with Wi-Fi to enhance the experience for attendees. Approximately 25 "smart posters" on the walkway advertised event guides, a village map, and videos. Attendees could just tap their NFC-capable smartphones against a tag on the poster to capture the URL for a webpage or video, and then access the content over the Wi-Fi network. This fun and novel way to obtain information proved popular with attendees.

Llevat concludes, "Attendees don't care which Wi-Fi solution we use. They just expect to be able to tweet, post, instant message, and upload images and videos. The Cisco Service Provider Wi-Fi solution worked reliably in the background to make this happen."

PRODUCT LIST
Wireless
• Cisco Aironet Wireless Access Points 3600, 2600, 1600, and 1550 Series
• Cisco Wireless Controller 8500 and 5500 Series
• Cisco Prime Infrastructure
• Cisco Prime Network Registrar
• Cisco Mobility Services Engine
Data Center
• Cisco Unified Computing System (Cisco UCS) C220 M3 Rack-Mount Servers

Watch video: How GSMA implemented a high-density Cisco Service Provider Wi-Fi solution for Mobile World Congress 2013

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