



EXPO Milan - High Density

7signal assures great Wi-Fi experience for 21 million EXPO visitors

Continuing the series of World Fairs inspired by the famous Great Exhibition held in London 1851, Italy hosted EXPO Milan. With hundreds of exhibitors representing 145 nations the event was attended by more than 21 million visitors.



Situation

This was the second time Milan had stepped up to host a World Fair. But back in 1906 people didn't have smartphones and Wi-Fi didn't exist yet. Being "connected" meant something very different than it does today. Today, being "connected" means having uninterrupted access to the Internet wherever you are - on vacation, at an Expo, everywhere. EXPO Milan organizers understood this and realized that a good Wi-Fi experience would be an important factor in overall visitor satisfaction.

Challenge

The new venue for EXPO Milan which featured 5 thematic areas and over 70 pavilions covered a massive area of 1.1 million square meters. Telecom Italia was commissioned to provide the wired and wireless infrastructure. Planning for the network began in 2014 while many of the structures and art exhibits were still in the design phase. It was hard to predict where most of the visitors would congregate. The network design also needed to consider how the buildings and exposition areas might be used in future, after the six month EXPO finally ended.

The biggest design challenge was the large open spaces, as well as in the many modern buildings with unique architectural designs. But since much of the construction had not started, it was impossible to conduct an accurate site survey before planning access point placement.

For the hundreds of exhibitors, EXPO Milan would be home for the next six months, therefore, they needed a highly functional wired and wireless network. It would need to deliver reliable Internet access, secure Point of Sale, voice over IP, streaming video and more.

With predicted attendance anywhere between 10,000 and 40,000 visitors per hour, Telecom Italia faced many of the same issues experienced by universities - self service on-boarding, massive surges of users entering and exiting exhibits, and constant Wi-Fi roaming. They had to deliver ubiquitous Wi-Fi coverage over a vast area, while also supporting high density around the pavilions, yet they were flying blind as to what the RF environmental conditions would ultimately be like once everything was built.

The eyes of the world would be on this prestigious event, so the guest experience had to be excellent. For these reasons Telecom Italia and their access point vendor enlisted the assistance of 7SIGNAL, The Wi-Fi Performance Company.

BENEFITS REALIZED FROM THE 7SIGNAL WI-FI PERFORMANCE MANAGEMENT SYSTEM

- ✓ Continuously managed Wi-Fi experience for 10 to 40,000 hourly visitor for 6 months.
- ✓ Expo organizers gained confidence with real-time visibility into the health of the Wi-Fi network.
- ✓ Gained the performance visibility to intelligently and continually optimize the network on behalf of EXPO visitors seeking a fully-immersive, connected experience.

7SIGNAL

6155 Rockside Road
Independence, OH 44131

☎ 216.777.2900
✉ info@7signal.com



Solution

The wireless LAN consisted of more than one hundred 802.11n and 802.11ac access points, about 30% of which were mounted outdoors on lamp posts and on exterior structures. In addition to the facilities and PoS networks, an EXPO guest network provided secure Internet access to visitors through a captive portal.

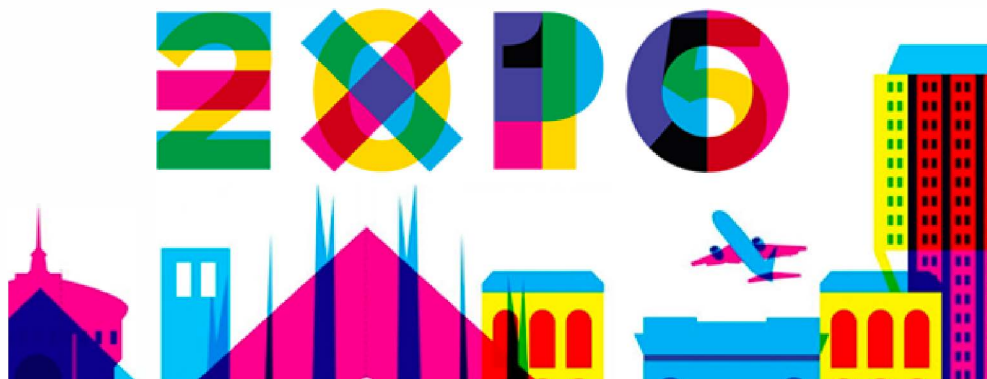
As a proactive safeguard against the unknown RF conditions in the environment, 7SIGNAL was called upon to implement its Wi-Fi performance management system to provide continuous assessment of the Wi-Fi user experience throughout the event, and to provide an early warning system if performance fell below acceptable levels.

Cinetix Telecom Solutions, 7SIGNAL's reseller in Milan installed and configured the Sapphire system. They placed five Sapphire Eye sensors in key locations on the EXPO campus, and configured the service level targets for different key performance indicators. Given the highly mobile nature of the visitors, service levels for availability and throughput were the top concerns.

Each visitor was rate limited to 2 Mbps, and service level thresholds were set to alarm the IT staff when throughput dropped below 1.8 Mbps. Web page download tests included several mainstream websites, like Twitter, Facebook and Youtube, along with the expo's own website. They also setup automated weekly performance reports. These would give EXPO management at-a-glance performance charts for upload and download throughput, connection success rate, and webpage load times.

Results

The Sapphire Eye gave Telecom Italia and EXPO organizers complete visibility of Wi-Fi performance from the user perspective, throughout the EXPO. Whenever performance in a certain area dipped below the service level thresholds set, they received alerts and were able to drill down, investigate and fix the root cause. The data also gave them the basis for making incremental changes to the WLAN configuration to optimize throughput, and the means to verify whether new performance results showed improvement over previous benchmarks. Weekly reports from the Sapphire Eye showed Telecom Italia maintained better than 99.7% connection success rate and average download and upload throughput for each user of just under 2 Mbps.



// It was very comforting to know we'd get an alert the moment performance fell below expectations. //

Project Manager
Telecom Italia



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Independence, OH 44131
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✉ info@7signal.com