

Mobility of the future: Wireless networking over the roofs of the city



The Austrian cable car manufacturer Doppelmayr/Garaventa has built the world's largest urban cable car network in La Paz, Bolivia – using Wi-Fi technology from Germany as the basis for communications.

Mi Teleférico, which translates from Spanish as “my cable car”, has connected the cities of La Paz and El Alto since 2014. The cable car network, consisting of ten lines in all, offers daily commuters and tourists a reliable and quick alternative to traditional means of transport such as buses and cars. And as the number of daily passengers illustrates, the popularity of Mi Teleférico is beyond dispute. For the safety-related applications and additional service offerings for passengers, the Austrian cable car manufacturer Doppelmayr/Garaventa has installed a modern Wi-Fi solution from Germany.

The future of urban mobility

The figures from Mi Teleférico are impressive: 1,396 cabins on a total of ten cable car lines over a distance of more than 30 kilometers move in excess of 300,000 people every day and even up to 600,000 on peak days. Some sections negotiate up to 666 meters



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Torsten Bäuerlen,
project coordinator at
Doppelmayr/Garaventa

of difference in altitude. “The cable car in La Paz is perfectly integrated into the city’s mobility concept and closely meets the requirements of city residents and the geographical conditions,” explains Torsten Bäuerlen, project coordinator at Doppelmayr/Garaventa. “Safe and reliable operation is essential for the success of the cable car network. Communication via Wi-Fi plays an important role here. The wireless technology also paves the way for a wide range of future innovations.” The requirements of a Wi-Fi in urban cable cars like those in La Paz are extremely tough. Well aware of this fact is Manuel Urbanek, CEO of LOOP21 Mobile Net GmbH from Vienna, a technology partner of Doppelmayr/Garaventa on numerous cable car projects over many years. “Safety-relevant applications operate over the network, such as the intercom system, security cameras and lighting control,” says Urbanek. “The Wi-Fi has to be robust, reliable and powerful enough to guarantee that these applications are constantly available.” When it comes to hardware, Doppelmayr/Garaventa and the IT service provider rely on the German network specialist LANCOM Systems from Aachen, Germany.



Wi-Fi in the gondolas

But how does the Wi-Fi signal get to the gondolas? Each of the cableway pylons has an outdoor WLAN access point mounted at the top. Thanks to the IP66 protective housing, this specialized hardware works reliably even across a temperature range of -33° to 70° Celsius. The APs are equipped with directional antennas to specifically focus the Wi-Fi signal along the path taken by the cabins. Each gondola is also fitted with an AP that receives the signal and forwards it to the interior Mobility Communications System (MCS) – a central system designed by LOOP21 IT. One and two-way intercom systems, security cameras as well as lighting control and emergency call buttons are connected via the MCS. The MCS also provides the Wi-Fi hotspot for guests.

Goodbye traffic jams and congested roads

For the people in the metropolis of La Paz, Mi Teleférico is now an important part of their everyday lives. “The cable cars are an essential part of the city’s multimodal transport offerings. They stand for high mobility, reliability, they are easy on resources and take up a minimum of space,” explains Bäuerlen. Passengers can enjoy spectacular

views, especially when the modern gondolas descend from the higher El Alto down towards La Paz. Since Mi Teleférico went into operation, residents and tourists have been enthusiastic about the new means of transport. Not least because the cable cars know neither traffic jams nor congested roads. They bring passengers to their destinations quickly, reliably and on time. And the wireless network is just as scalable as the cable car network itself. New sections of a route can be quickly and easily provided with Wi-Fi and integrated into the overall network.

The urban cable car network in La Paz has long been an economical success for operators and urban residents. The calculation by the initiators have paid off: combining proven transport technology with state-of-the-art wireless LAN and specialized communication solutions for a high level of security and reliability.



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The customer

As quality, technology and market leader in cableway engineering, Doppelmayr/Garaventa operates production plants as well as sales and service centers in 50 countries worldwide. To date, the Group has built more than 15,000 installations for customers in 96 nations. Flexibility, know-how and pioneering spirit make the Group ideally equipped to meet all the challenges of traditional and new markets.

Innovative transport systems from Doppelmayr/Garaventa continually set new standards. Top comfort and safety define our installations – in summer and winter tourism regions as well as in the urban transit sector. Our material transport systems and cableways for preventive avalanche blasting offer impressive efficiency and performance. All-year-round experience concepts round off our extensive portfolio. With Doppelmayr/Garaventa, customers get top quality in modern design, user-friendly solutions and optimum service. From the initial idea to the completed project and beyond.

The partner

LOOP21 Mobile Net GmbH develops solutions based on communication networks. With a team of 60 employees in Vienna (head office) and Hamm (Germany), the wireless experts manage more than 2000 telecommunication systems in 18 different countries. Several ski resorts, cableways, entertainment parks, stadiums, shopping malls, retailers, events as well as cities have been equipped with the "Made in Austria" Wi-Fi solutions of LOOP21.

LOOP21 offers mobile infrastructure and mobile services. Based on the specially developed hotspot software, competence and years of experience in (wireless) network technologies, services are implemented internationally in the field of infrastructure, customer engagement and data analytics. Keywords: Industry 4.0, Mobility, Internet of Things.

Also in our service portfolio is the location of customer devices and the increasing use of complex sensors via Wi-Fi. LOOP21 thus offers the tools for optimizing customer communication and customer loyalty, such as customer flow analyzes and POS marketing, as well as customized industry solutions with data analysis and M2M applications.

At a glance

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Requirements

- High reliability of all hardware components
- Robust technology for extreme weather conditions
- Central control of all Wi-Fi components via WLAN controllers

Components deployed:

- LANCOM Outdoor access points
- LANCOM WLAN controllers