Telefónica revolutionizes the use of drones with a comprehensive and secure service based on Open Gateway APIs

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BY TELEFÓNICA

Telefónica takes a decisive step towards transforming air mobility in Spain with the presentation at the Mobile World Congress (MWC) 2025 of a demo with an innovative comprehensive service for autonomous drones in collaboration with Nokia. This proposal, based on the company's high-performance 5G network and the advanced capabilities of Open Gateway, enables the safe, efficient and scalable integration of autonomous drone operations in airspace.

2025 is a key year for the use of drones, as the gradual entry into force of the U-Space regulations will allow more advanced and complex operations in European airspace. This is the regulatory and digital ecosystem being developed in Europe to safely and efficiently integrate unmanned aircraft operations into the airspace, which will significantly change the way drones are operated today. With the demo presented today at MWC, Telefónica shows that it is ready to face the challenges of this new paradigm.

Telefónica's 'Open Gateway 5G Drones' demo is based on three fundamental pillars: firstly, the 5G network combined with Open Gateway, which offers high-speed connectivity and the application of APIs that facilitate the planning and execution of safe and efficient flights, which in turn allows risk anticipation and route optimisation.

Secondly, in artificial intelligence and computational power applied to drones, two technologies that offer a significant advantage in various use cases, allowing drones to perform complex tasks such as monitoring, control and predictive maintenance of critical infrastructure, delivery of materials or even fire prevention, among others.

Finally, in Telefónica's remote control centre, which acts as the brain of the ecosystem. From here, the operations of the drones and their automated nests, located tens or even hundreds of kilometres away, are monitored and managed from any location in Spain. This includes flight planning, real-time monitoring and preventive maintenance, ensuring a complete and safe service.

Telefónica offers comprehensive management of drone nests

Telefónica presents a differential service in the drone ecosystem through the integral management of automated drone bases for the operation of autonomous drones. Drone bases are automated stations designed to house, recharge and deploy drones autonomously, functioning as operational bases for the drones, allowing them to carry out both routine and on-demand operations without the need for direct human intervention. Telefónica's comprehensive service covers, in addition to the network of drones and their nests, their maintenance, the management of flight permits for compliance with all safety regulations and standards, as well as flight piloting and operation.

The integration of 5G technology in this service is key to providing a greater flight range, a high data capacity, which is essential for the transmission of videos sent by the drone when it carries out a mission, and low latency, which allows the drone to be controlled in real time or managed in operations where the drone needs to react quickly to changes in its environment.

At the Telefónica stand at this year's MWC, users will be able to learn about Nokia Drone Networks, a 5G-based "drone in a box" solution (i.e. it includes the drone, base station and control software) with an open software architecture and integration with both private and public networks, supporting large geographical areas with a drone-as-a-service model. This demonstration is part of an ongoing collaboration between Telefónica and Nokia for the benefit of public safety and mission-critical industries.

To demonstrate the possibilities offered by autonomous drone flight planning, Telefónica is showing three use cases in Barcelona with real applications integrated with the AirborneRF platform (from Dimetor) and Open Gateway's 5G network capabilities. One of the use cases on display is related to healthcare, where an air corridor is used to transport medical supplies between hospitals. Another is related to

environmental protection, where the drone network is used to detect heat sources for fire prevention. And a third case focuses on the logistics sector for all types of industries, where inventory can be carried out autonomously thanks to drones scanning the QR codes of parts and goods in warehouses, without the need for operators and machines.

Telefónica has also implemented an advanced anti-drone system throughout the country, a technologically advanced solution designed to guarantee the safety of critical infrastructures, crowded events and confined spaces. This system, based on the latest radio frequency technology, detects and neutralises unauthorised drones with great precision, even in complex scenarios. Its effectiveness and reliability have been proven in various environments, consolidating it as a key tool in the protection of airspace.

Telefónica's anti-drone system stands out for its scalability, allowing it to adapt to future technologies and operational needs. Thanks to its ability to integrate with other security systems, the system not only responds to current threats, but also anticipates market developments, reinforcing Telefónica's commitment to technological innovation and security.To demonstrate the possibilities offered by autonomous drone flight planning, Telefónica is presenting three use cases in Barcelona, with real applications integrated into the AirborneRF platform (from Dimetor), together with the 5G network capabilities of Open.

Open Gateway, driving the development of technology

Open Gateway is the GSMA-led telco sector initiative that transforms telecommunications networks to drive a new generation of digital services through global, standardised APIs to facilitate their integration in the development of new solutions. Telefónica's use of APIs in the use of drones is redefining the future of air mobility.

In the 'Open Gateway 5G Drones' demo, which can be seen at the Telefónica stand at this year's MWC, users will be able to understand how the API Dynamic Airspace Connectivity Data works. This uses Artificial Intelligence to obtain information about the connectivity provided by 4G and 5G networks throughout a certain volume of airspace for a future date and time. They will also be able to understand the application of the API Population Density Data, which makes it possible to identify the density of people who will be under the route of a drone at the time of the flight, evaluating the potential

risks of that itinerary and choosing the best alternative to guarantee safety and comply with regulations.

Likewise, it will also be possible to find out how the API of Quality on Demand is used, which optimises the connectivity necessary for the use of the drone, offering an uninterrupted connection.

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