



Germany | Travel and transportation

Private 5G serves as the network base for Fraport AG's future development



Client profile

One of the leading players in the global airport business, Fraport AG offers a wide range of operational and management solutions. Fraport's portfolio of companies spans 4 continents with activities at 28 airports worldwide. Fraport puts the customer in focus with their promise of providing all travelers a good trip.

At their Frankfurt Airport (FRA) home base, Fraport welcomed more than 70.5 million passengers and handled 2.1 million metric tons of cargo (airfreight and airmail) in 2019. During peak times, like summer holidays, 220,000 passengers a day travel via Frankfurt Airport.

As owner and operator of Germany's largest airport, Fraport AG wanted a secure, reliable network that would cover all 2,500 hectares of Frankfurt Airport. NTT DATA was chosen as their partner to design and build a private 5G network that would serve as the network base for connecting the technology needed to optimize airport operations. Being able to transmit large volumes of data allows Fraport to speed up work processes.



When we were looking for a partner, we wanted someone who understood our business and was able to overcome challenges associated with new technology.”

Fritz Oswald

Senior Vice President IT Infrastructure, Fraport AG

Business need

Building a base on which to implement technologies for the future

Frankfurt Airport is home to airlines, air traffic control, police authorities, airport fire department and many more. And all these interconnected elements have to communicate to keep operations running smoothly and ensure safety.

The aviation industry depends greatly on communication and exchanging accurate, up-to-date information. "As an operator of a critical infrastructure, it's really important for us to keep data safe and secure. And the best way of doing that is staying in control of the complete data flow in our network," explains Fritz Oswald, Senior Vice President IT Infrastructure, Fraport AG.

While the airport buildings have secure networks, a network for digitization and optimization would have to cover the entire airport, including the apron, the runway and the perimeter. The planes' wings block Wi-Fi signals, so technicians working underneath the plane can experience connectivity problems. In addition, large volumes of data from IoT devices have to be transmitted in real time, which traditionally requires a wired network. But laying cables would be expensive and impractical.

"The biggest challenge was to create a base on which we could implement upcoming technologies for the future. We're already testing different new technologies for activities on the airfield," says Anke Giesen, Member of the Executive Board and Executive Director Retail and Real Estate at Fraport. "The implementation of the private 5G network is the most important step for that future."

Solution

Partnering to explore the potential of real-time data exchange

Fraport partnered with NTT DATA to implement private 5G as part of their overall strategy to optimize operations. We supported them throughout the project, from surveying the site and buildings to designing the architecture and implementing the necessary software and hardware infrastructure.

Fraport had already implemented AI to enhance airport operations at Frankfurt Airport. Adding a secure, low-latency, high-bandwidth network that can transmit data in real time is key to enabling optimization and automation.

"We've already put many pieces of the puzzle together — we're dealing with artificial intelligence, we're dealing with private 5G and we're dealing with IoT," says Dr Wolfgang Standhaft, CIO, Fraport AG. "And we've already experimented with the new ideas that come from putting all these things together."

The airport is planning various use cases, such as using drones to monitor the fence surrounding the airport and transmitting information from drone cameras to the command center. Another idea is to use sensors, cameras and AI to detect foreign objects on the apron; these are dangerous and can cause serious accidents.

Outcomes

Real-time data clears airport operations for takeoff

With private 5G, Fraport has a network that covers the entire airport, even under plane wings where Wi-Fi can't reach. The network is secure and meets European data safety requirements. Being able to transmit large volumes of data in real time allows the airport to connect to everyone in the area and offers the opportunity to optimize the airport through innovative use cases.

Creating a safer airport

The safety and effective management of an airport depends on communication. Having a fast network that can transmit data in real time enables the airport, airlines and ground handlers to share the information they need to react to situations fast.

Building a base to support new technologies

Private 5G offers the reliability of a cabled network with the added benefit of being able to connect moving objects such as vehicles or airport equipment. Having a high-speed, uninterrupted network with low latency that can support huge volumes of data supports both current and future use cases.

Enabling partners

Many organizations do business at the airport and can profit from the new private 5G network in order to optimize their own processes.

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We did intensive market research up-front, and NTT DATA was one of only a few partners who had already implemented private 5G for a smaller airport in Germany. We decided to go with them because we knew that partnering with them would make new, innovative things happen.”

Dr Wolfgang Standhaft
CIO, Fraport AG

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