Offer in-flight broadband access

Use case

Nokia LTE air-to-ground (A2G) technology is well suited to provide broadband connectivity to continental aircraft flights. It has significant technology and cost advantages over existing and future satellite solutions. Nokia is the leader in A2G solutions with European wide commercial deployment to provide cost-effective in-flight broadband that offers the best possible services to airlines and their valued passengers. This use case describes how Nokia can help you to offer in-flight broadband access with our innovative LTE A2G solution.
Challenges

Passenger traffic continues to rise annually, with significant competition among airlines to provide best-in-class in-flight services. Key among these is broadband connectivity. Today's flyers are increasingly accustomed to broadband connections anywhere, 24/7. They need to stay in touch with family and maintain critical business communications, and they want to access to entertainment in their free time. When they fly, they want broadband connectivity equal to what they experience from terrestrial networks and Wi-Fi hotspots. These expectations are increasing demand for fast, seamless connectivity on an aircraft to the point where an airline's in-flight broadband capability has become a key competitive advantage.

Currently, most in-flight connectivity uses satellite backhaul, with vendors operating a satellite/ground internet system. For short-haul and medium-haul continental flights, these systems tend to be bulky and expensive. Additionally, current capacity is limited and exhibits high latency, especially when serving a large number of continental aircraft in a limited geographic area.

How we help you

Nokia LTE A2G utilizes a ground-based cellular system to create a direct link between the aircraft and the ground for broadband IP connectivity without the delay hop via a satellite. With a highly efficient air interface and a flat IP network architecture, LTE is an ideal platform on which to deploy an A2G network. Passengers enjoy in-cabine high-speed internet services using Wi-Fi connectivity.

How our approach changes the game

LTE A2G has several compelling advantages over existing systems:

• LTE A2G provides the best customer experience with outstanding performance. The LTE A2G solution outperforms existing L band and Ku band satellite solutions in bit rates per aircraft, with the additional benefit of much simpler, lighter and less-expensive aircraft equipment, especially compared to the Ku band equipment.

• LTE A2G uses a dense ground network where each site contributes to network capacity instead of a single satellite to share its capacity over a very large region.

• Unlike satellites, the flexible LTE A2G approach allows rolling out and expanding the network capacity exactly where it is needed by adapting the cell sizes or increasing the number of cells.

• LTE A2G also can provide multimedia services to passengers should airlines decide to offer that option.

• LTE A2G is based on fully standardized technology

• Lightweight of equipment (airplane fuel usage) and reduced installation time to allow airplanes go quickly into service
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Figure 1. Nokia LTE A2G end-to-end turnkey solution including managed services

Why our approach is different

Financials:
• Lightweight for efficient fuel consumption
• Minimum installation time
• Investment protection
• Ready for further evolution, standardized technology

Passenger experience:
• Best performance: speed and latency

Additional future applications such as:
• Cabin crew data link communication
• Complementary channel for controller-to-pilot data link communication
• Real-time aircraft IoT channel
How you benefit

• The A2G LTE solution offers cost-effective, optimized operations for airlines. A2G LTE is based on off-the-shelf technology with a wide, established ecosystem of components. It is less expensive to acquire, deploy and operate than satellite systems, with less downtime for maintenance and a relatively low weight (as compared to satellite) for more efficient fuel consumption.

• In addition to providing advanced passenger communications and entertainment services, airlines can upload and download essential real-time flight data via a broadband connection rather than through time-consuming static hard disk data transfers at ground stops.

• A2G LTE also can enhance maintenance by offering real-time problem identification; maintenance crews can minimize the time for diagnosis and go straight to fixing the issue.

• The LTE A2G solution can be expanded further toward a complementary channel for controller-to-pilot data link communication as well as a data channel for cabin crew to communicate with the airline’s operational center or air traffic control.

Let us help you

With the Nokia LTE A2G solution, you can offer affordable broadband access for passengers and operations inside your aircraft during air travel. We are fully committed to provide a complete, end-to-end LTE A2G solution.