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IN-FLIGHT CONNECTIVITY FOR ENHANCED PASSENGER EXPERIENCE

Abstract

In-Flight Entertainment (IFE) is currently one of the biggest technological demands, and one of its key requirements is In-Flight Broadband Connectivity (IFBC). Good quality IFBC can be achievable through a reliable satellite communication network. To build the technological infrastructure of future space-to-air-to-ground connectivity, it is necessary to comprehend the new demands of in-flight passengers and crew. These demands emerge through upcoming trends in technological advancement and growth. Passengers onboard now consider a strong Wireless Fidelity (Wi-Fi) connection as a requirement to travel. With the demand for in-flight Wi-Fi rising, the service that supports it must be dependable and able to meet passenger requirements. In addition to the passengers, the crew and other services, such as gathering sensor data from the aircraft, require enhanced connectivity which is achievable by a satellite link. The main motive behind this work is to study the quality of Wi-Fi (provided by a communication satellite) inside the aircraft for enhanced passenger experience. The primary goal of this research is to examine various use cases to understand the Wi-Fi quality on board for improved passenger experience. This work focuses on the PIESD (Passenger Information and Entertainment Service Domain) region of the aircraft. Inside the aircraft, one AP (Access Point) is placed, and it is considered that three passengers (also known as users) are connected to the AP. Two PIESD scenarios are designed in which the position of the AP and users are varied in both cases. Parameters such as bandwidth, the position of nodes, and access category (type of data traffic) are varied to study their effect on the link performance by measuring throughput, packet loss ratio, and average packet latency. The scope of this work lies in studying the inflight Wi-Fi connection in the PIESD region of the aircraft by receiving good quality broadband network from the satellite link.