



Success story

Custom audio interface for flight simulation communications



THE NEED

A leading provider of training and simulation solutions needs to upgrade a rack used for the management of audio communications between instructors and trainee pilots in flight simulators. The new solution should provide low latency transport of multiple audio channels over a network to process on a distant workstation the audio channels coming from the pilots' and instructors' microphones in the flight simulator. These processed contents are later sent back to the pilots' and instructors' headphones. Ultimately, the goal is to guarantee seamless communication between instructors and trainee pilots.

THE CHALLENGE

The main challenge is to support a high channel count mixed with control streams on the same network. Additionally, the latency should be maintained at less than 16ms between microphones and headphones, while going through the network, the processing workstation, and the network again in order to replicate real flight conditions.

The analog inputs and outputs should also be compatible with the headsets used in aircrafts, and with some specific connected devices. Ultimately, this new COTS-based solution should be swiftly deployed to minimize development time and costs.

THE SOLUTION

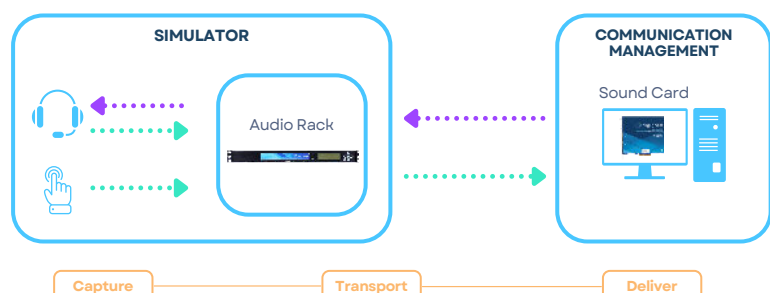
To fully meet the requirements both in terms of swift development and low latency, Digigram R&D team has selected an existing product within their portfolio. While capitalizing on a solution for the transport of multiple audio channels over Ethernet networks with a proven design and extensive performance records, they enable to build a larger system that will seamlessly integrate into the client's flight simulators.

The global solution delivered integrates a combo of audio racks and a multichannel sound card, both with networked audio connectivity. Additional developments are required to comply with the characteristics of the pilot's headsets and to offer the requested specific on-board functions and programming interfaces.

Every flight simulator is equipped with a Digigram solution, ensuring reliable and in less than 12ms audio communication between instructors and trainee pilots during training sessions.

THE BENEFITS

- Modern and reliable solution
- Ultra low-latency
- High-channel count
- Mixed control streams
- Cost-effective solution
- Swift implementation





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