

« FANS, Initial Notification »

ludovic.apvrille@telecom-paris.fr

Introduction

FANS stands for Future Air Navigation System (see Figure 1). The purpose of this system is to manage air space. In this lab, you have to model an interaction between systems embedded into aircrafts and the ones embedded in control towers. More particularly, this lab session focuses on the initial notification: aircrafts must register their identification to the closer control tower. The targeted subsystem is modeled in AVATAR and simulated using the TTool toolkit.

The system to model is the addition of the software embedded into aircrafts and the ones embedded into ATCs. The following abbreviations are used throughout the exercise:

- AFN: Airways Facilities Notification
- ATC: Air Traffic Control
- ATS: Air Traffic Service
- FANS: Future Air Navigation System
- IATA: International Air Transport Association
- ICAO: International Civil Aviation Organization



Figure 1: Components of FANS

System specification

The following specification is an excerpt of the FANS system, borrowed from Airbus.

When initiated either by flight crew action or an automatic trigger, an ATS Facilities Notification Contact message is sent and Avionics Timer ATST1 is set. The aircraft AFN application then awaits an AFN Acknowledgment message from ground. Subject to prior agreement with the service provider, the supplementary address field of the ATS Facilities Notification Contact Message may contain an abbreviation of the ATC center address to which the message should be delivered (such as the corresponding IATA or ICAO code).

If a successful AFN Acknowledgment message is received within the period of time of ATST1, a positive indication is given to the flight crew and timer ATST1 is canceled. The AFN Acknowledgment message will contain the full 7-character address of the ground AFN end-system. This address should be used in all subsequent AFN messages.

If the aircraft AFN receives an AFN Acknowledgment message with a non-zero reason code or timer ATST1 expires, an error indication is given to the flight crew.