

Case Study ATM sector

European ATN Network Planning Tool

CUSTOMER

EUROCONTROL, the European Organisation for the Safety of Air Navigation, today has as its most important goal the development of a coherent and coordinated air traffic control system in Europe.

BUSINESS ISSUES

A major factor enabling this development will be improved technical interoperability in line with the ICAO CNS/ATM concept. This concept envisages the use of the Aeronautical Telecommunication Network (ATN) to provide a common framework for the integration of the various air/ground and ground/ground network technologies into a seamless whole, ie, an internetwork. In order to identify and resolve issues related to the design of the ATN in Europe, EUROCONTROL needed an ATN simulation tool to evaluate the proposed European network topologies.

LOGICA's SOLUTION

Logica, with Helios Technology as sub-contractor, is building a user-friendly, generic ATN network planning tool, using Mil 3's OPNET simulation tool, to meet this requirement. Logica's approach follows on from the successful work carried out for NATS Ltd developing a large-scale simulation of air traffic leaving the UK across the North Atlantic.

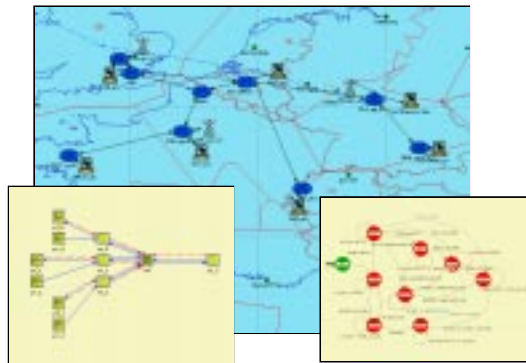
The network planning tool will offer a toolkit of components including:

- Aircraft traffic generator
- BIS router
- Ground End System
- Ground Station
- Ground Subnetwork

These components can then be configured by the user to model realistic configurations of the European ATN or national ATN implementations.

In order to provide a usable large-scale simulation while maintaining the fidelity of the results, Logica has chosen to include faithful models of the key ATN internet protocols together with simplified models of air-ground and ground-ground subnetworks. The air-ground subnetwork models are calibrated using more detailed simulations of VDL Mode 2 and the Mode S subnetworks.

The tool will be used to construct a network model of the core ECAC area with air traffic scenarios based on EUROCONTROL forecasts.



BENEFITS

Using Logica's ATN network planning tool EUROCONTROL and its member states will be able to investigate the distribution of data traffic, the quality of service achieved, and the associated costs of ATN design options such as those proposed by the ACCESS study. Since the tool incorporates realistic message exchanges, it can be used to support the validation of proposed operational procedures for the use of ATN data link. In addition the tool can be configured to model a range of other ATN configurations. Finally the tool provides a model of the key ATN inter-domain routing protocol that can be used for detailed OPNET simulations with a range of router configurations.

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