Request for Notification - FANS
UML for Embedded Systems

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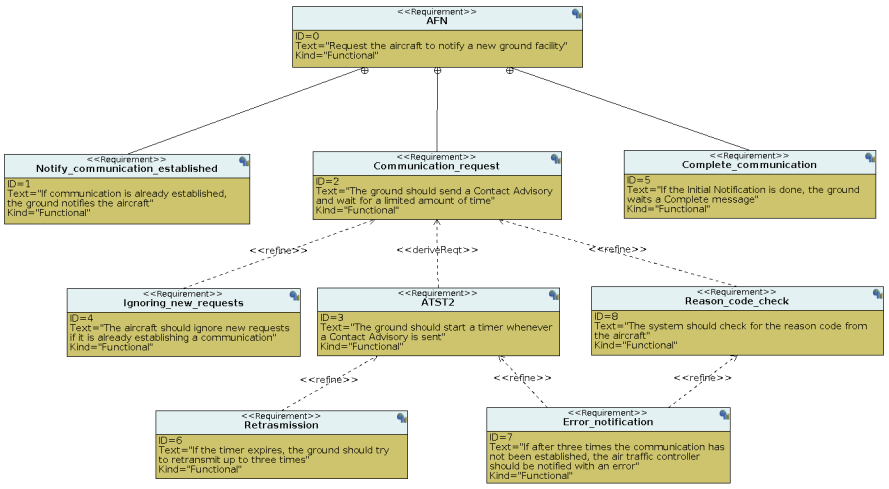
NB: all the comments and discussions are related to the extended model which handles also message parameters

1 Hypothesis

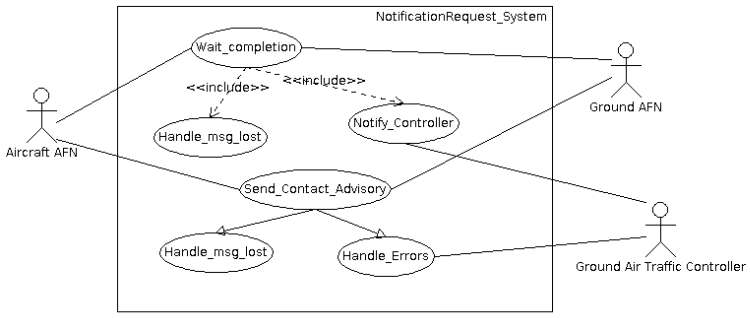
An information is missing: what should the system do if the timer ATST3 expires? I decided to inform the air traffic controller via signal.

2 Requirements

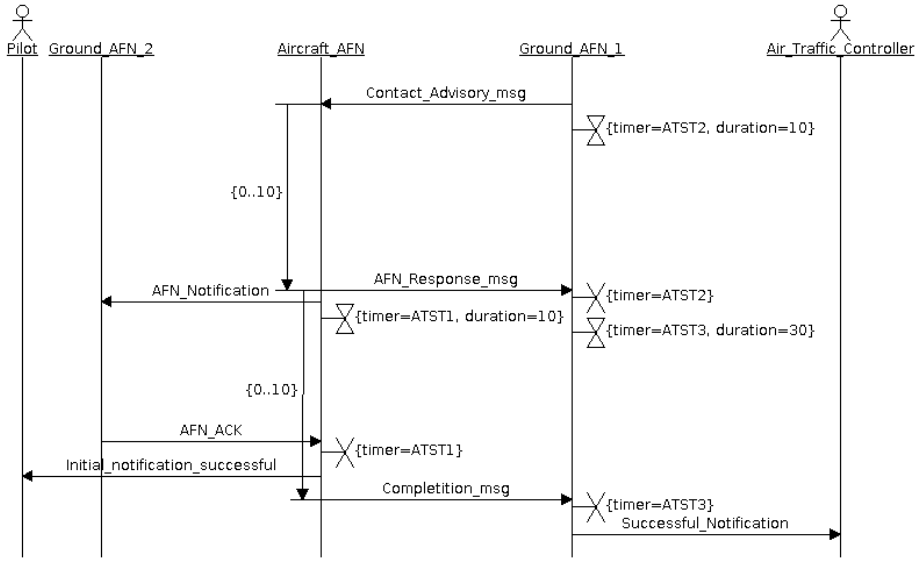


3 Analysis

3.1 Case diagram

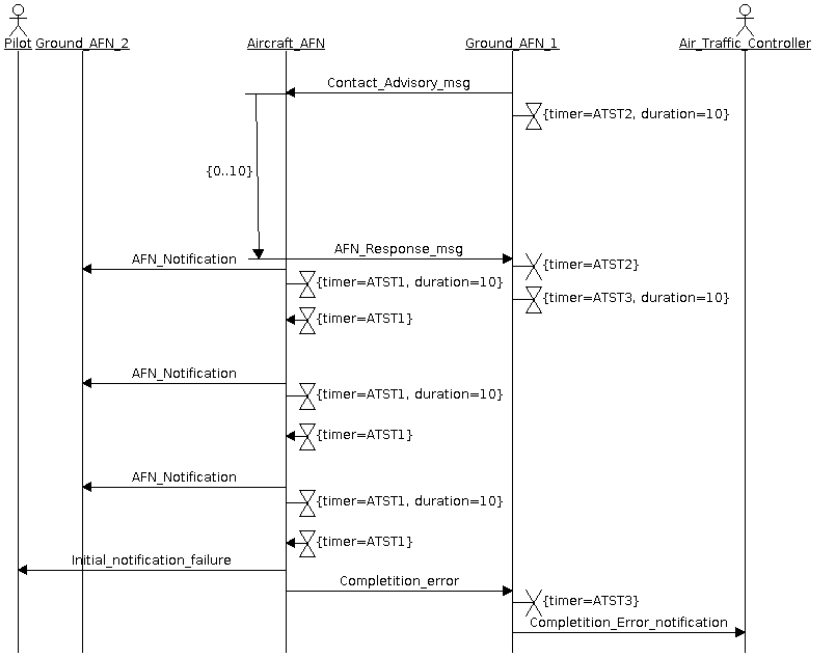


3.2 Nominal Case

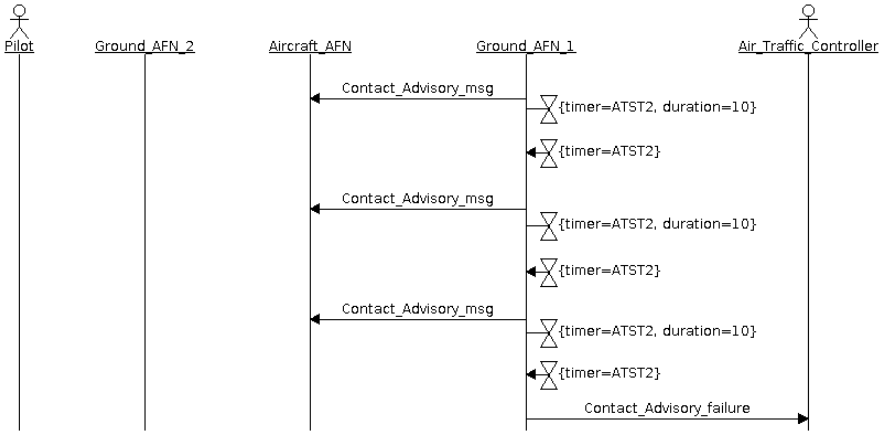


Here is shown a nominal case for the Notification Request system. The first ground AFN sends to the aircraft the notification to start a new authentication procedure with a new facility. As soos as the aircraft receives the message, it replies to the first AFN and starts the Inital Notification procedure with a new ground AFN. When done, the pilot as well as the first facility are notified with a successful message.

3.3 Error Case 1

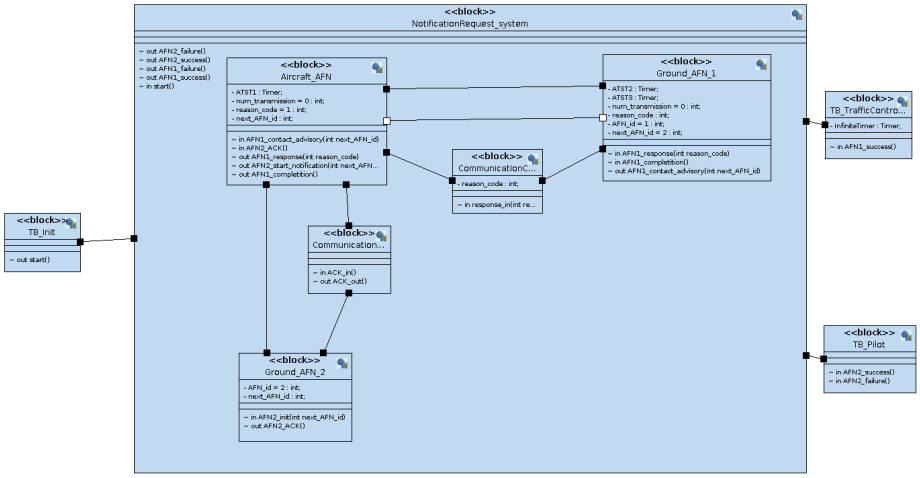


3.4 Error Case 2



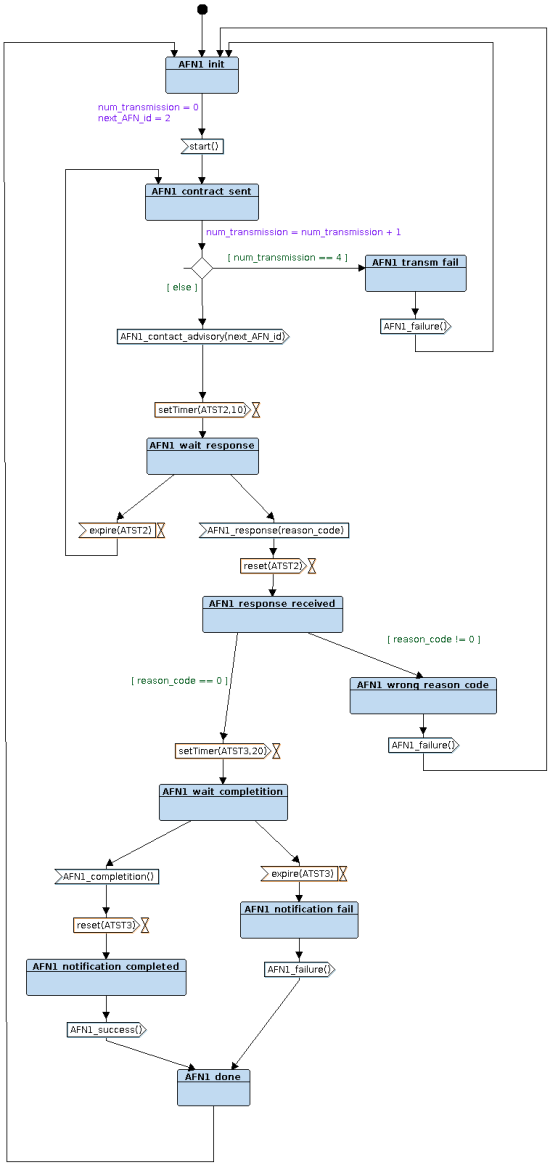
4 Design

4.1 Block diagrams

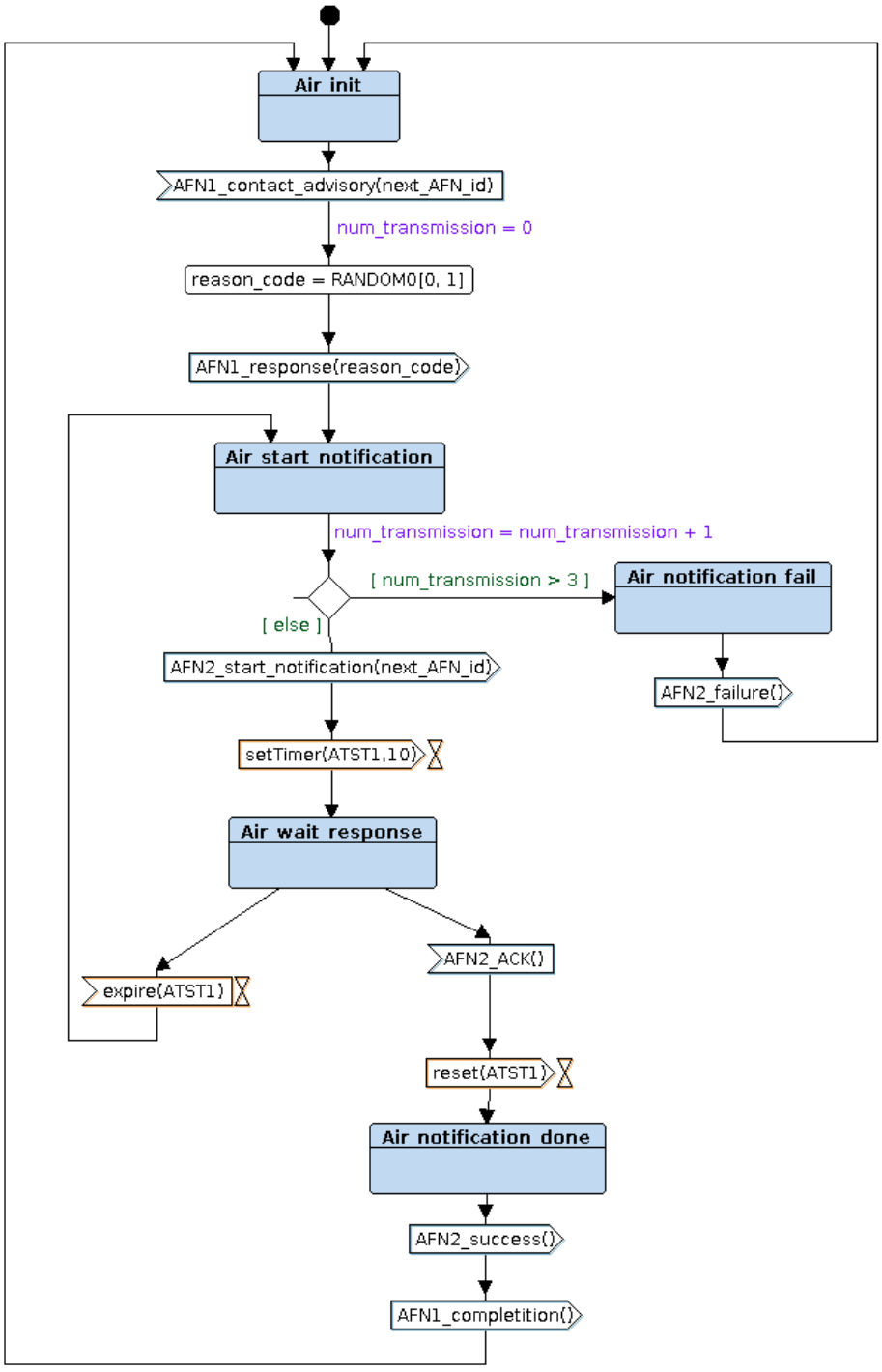


4.2 Flow diagrams

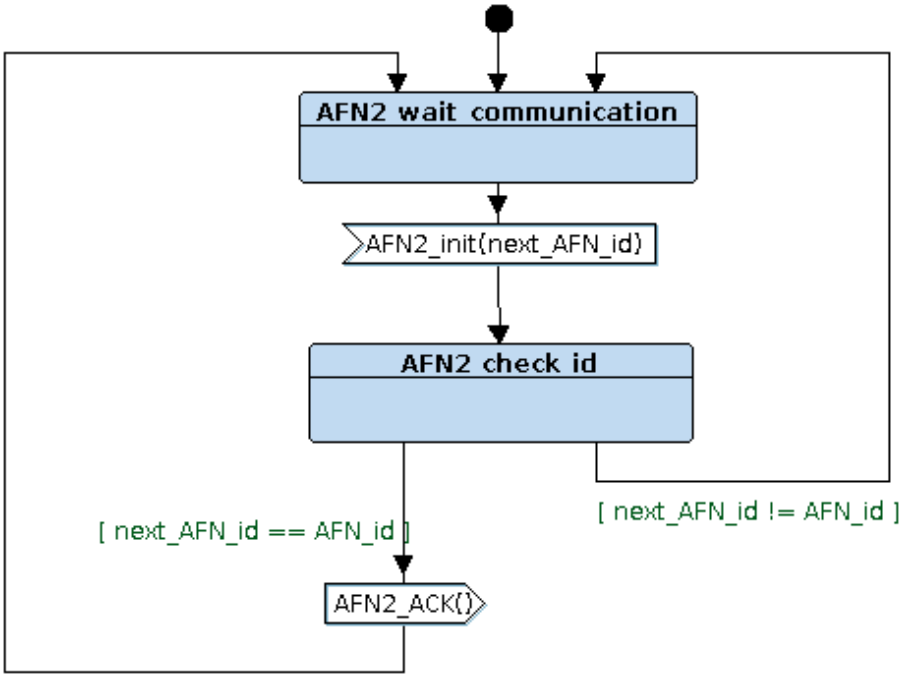
4.2.1 Ground AFN1



4.2.2 Aircraft AFN



4.2.3 Ground AFN2



5 Verification

The reachability and the liveness of the state "Pilot informed" and "Traffic Controller Informed" are both satisfied. This means that the two actors are always notified whether with a positive or error message.
On the other hand, the reachability of the state "Infinite time" is not satified: this means that the systems terminate in at most 999 unit of time.