



ICAO

INTERNATIONAL CIVIL AVIATION ORGANIZATION

WESTERN AND CENTRAL AFRICA OFFICE

Thirteenth Meeting of the FANS I/A Interoperability Team (SAT/FIT/13)

Durban, South Africa, 4-5 June 2018

Agenda Item 4: System Performance monitoring and maintenance

**ADS-C/CPDLC SYSTEMS PERFORMANCE MONITORING
AND MAINTENANCE IN ASECNA FIRS**

(Presented by ASECNA)

SUMMARY
This paper provides the meeting with information regarding ADS/CPDLC system performance monitoring and maintenance in ASECNA FIRs. It presents system treatment function as well as Air/Ground Data Link Infrastructures and address interoperability requirements and safety monitoring aspects.
REFERENCE(S):
Related ICAO Strategic Objective(s):

1. INTRODUCTION:

ADS/CPDLC operations in ASECNA FIRs are performed from the FDPS, which principal function controls are based on flight plan data usage associated with Radar, ADS-B and/or ADS/CPDLC;

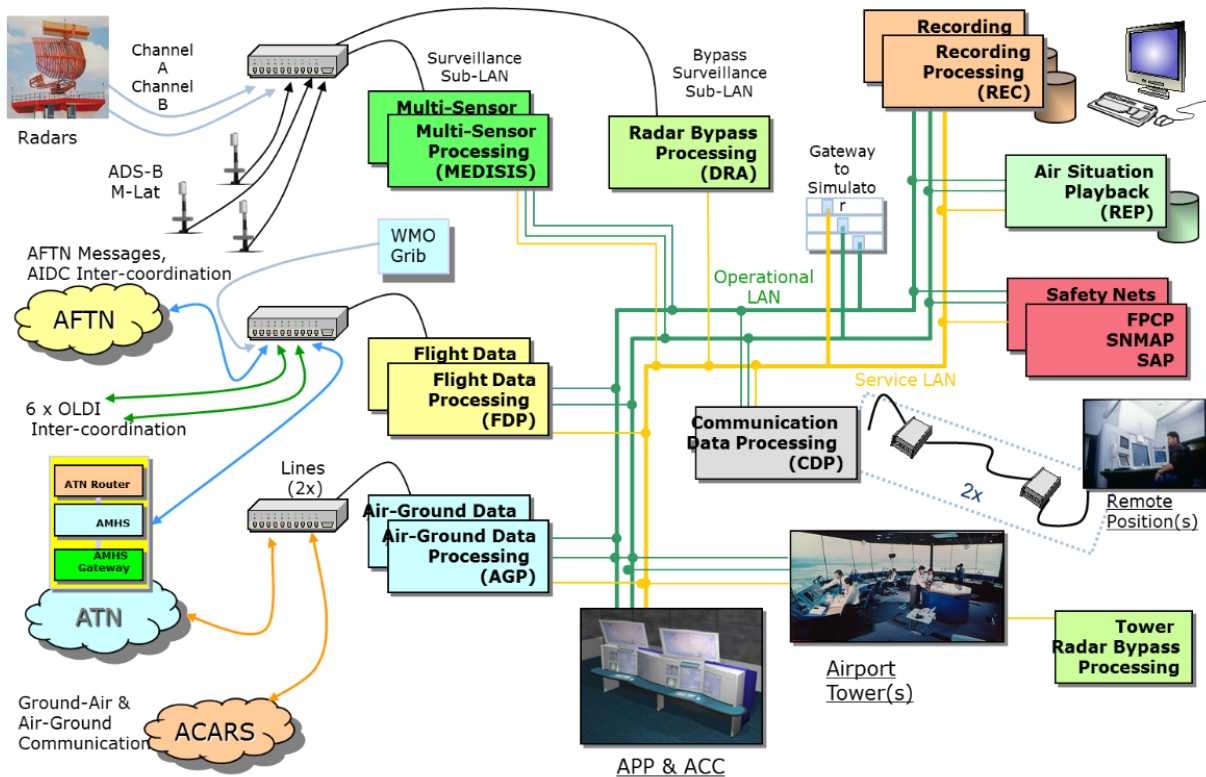
The system provides monitoring function and on line support functions for the extraction and analysis of operational.

2. DISCUSSION:

2.1 ADS/CPDLC Treatment Function:

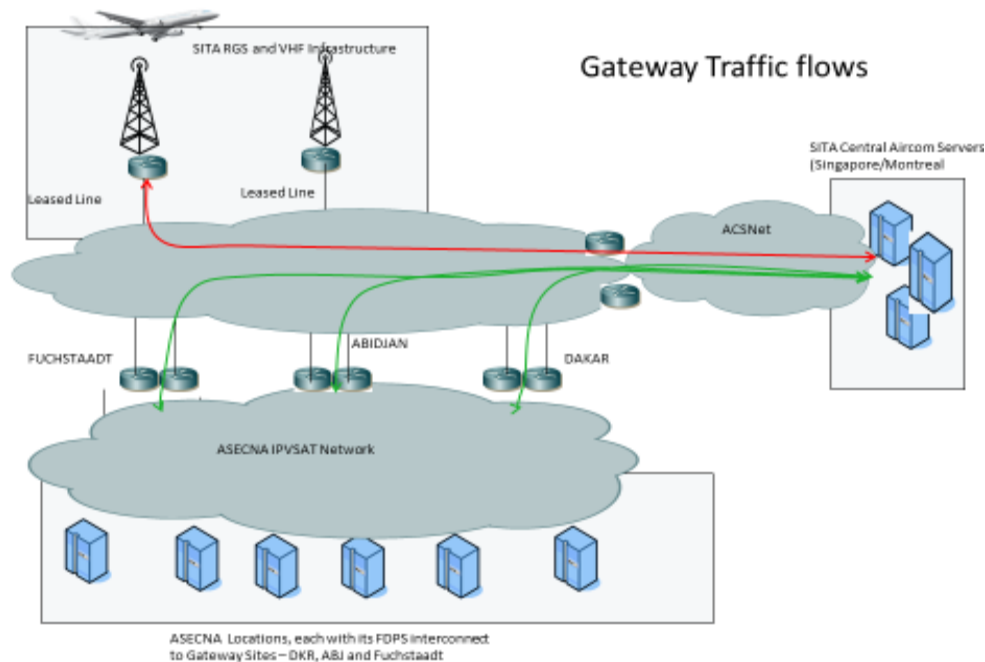
The Air/Ground Data Link treatment function ensure establishment and automatic process of Air/Ground Datalink communications between ATC center and FANS/1 or FANS/A avionic according to ARINC 622 standard.

These data links are used as basis for ADS and CPDLC as define in Doc 4444-RAC/501/12, RTCA/DO-212, RTCA/DO-219, ARINC 622.



2.2 Access to Air/Ground Data Link Infrastructure

The Air/Ground Datalink Infrastructure is provided by SITA. Access to the SITA AIRCOM network is done through 3 gateway sites located in Dakar, Abidjan and Fuchsstadt.



2.3 Interoperability

The AGDP function manages automatic ADS contract transfers to an adjacent ATC center by using contact recommendation message. The ATCO can also give clearance to the pilot to contact the new Data Authority from the Flight Plan Integrated window.

The establishment of CPDLC connection with the pilot is automatic. The CPDLC functions are integrated with other components of the system, such as FDP process tool, to allow automatic transfer of CPDLC connection to the next ATC center in association with coordination messages (AIDC) exchanged between both centers.

2.4 Safety and Monitoring aspect

The safety and monitoring aspect are both managed at ATC system level and at Air/Ground Datalink connection.

At ATC System level, the system provides the ATCO with several visual and sonorous alerts and warning mandatory for a safe operational system. These alerts and alarm result from 4D Flight profile real time calculation processed by the FDP after integration of external information (messages coming from Radar, ADS, CPDLC, AFTN, etc...) (Emergency Message, STCA, DAW, MSAW, CLAM, RAM, ARCW).

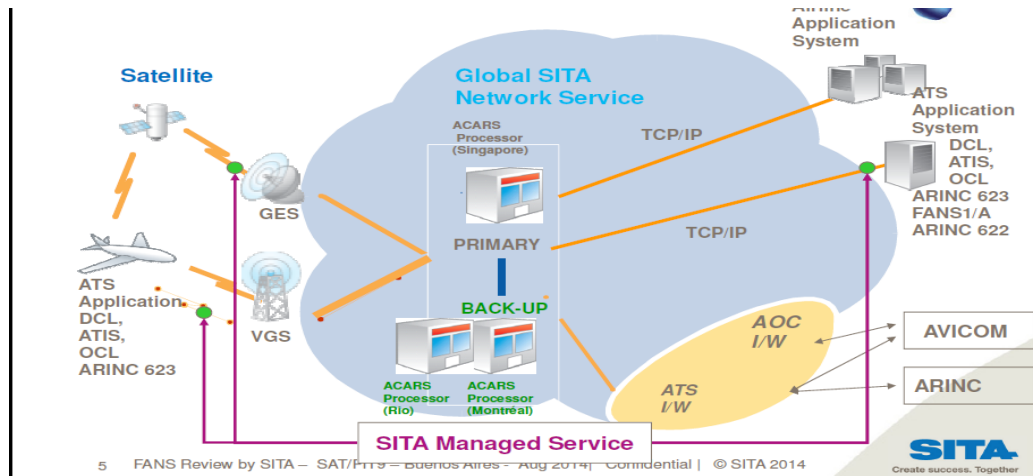
The FDP trajectory calculation also includes integrated control such as ETO, MPR, FPCP and SAR

At A/G Datalink level, SITA as part of its contract with ASECNA undertakes to transmit monthly the measurement of traffic performance of ADS-C/CPDLC connections. These statistics show:

- FANS traffic statistics with the global datalink traffic and the traffic by media and airlines;

- FANS performance with the service availability, RGS and GES availability, the uplink success rate and the uplink reject rate.

Micro failures in the ACARS link are reported when they occur, and if any, ASECNA and SITA coordinates in real time to restore the link availability.



3. ACTION BY THE MEETING:

The meeting is invited to:

- a) Take note of the information provided in this working paper;
- b) Take into consideration the capacity of the system in term of interoperability and safety and performance monitoring;
- c) Encourage Airlines to report the events to improve the monitoring of the systems.

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