*International Civil Aviation Organization*
North American, Central American and Caribbean Office (NACC)
**Fourth Eastern Caribbean Network Technical Group and Second Eastern Caribbean Radar Data Sharing Adhoc Group Meetings (E/CAR/NTG/4- E/CAR/RD/2)**
Martinique, French Antilles, France, 17 to 18 June 2013

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**Agenda Item 2:**   **E/CAR AFS Network**

   **2.1   Network Performance analysis and general aspects**

**E/CAR AFS NETWORK PERFORMANCE ON FRENCH WEST INDIES (FWI)**

(Presented by France)

| SUMMARY |
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| This paper presents the performance of the E/CAR AFS network on the FWI. The full architecture has been set up for FWI, and the E/CAR AFS network (MPLS) is now performing correctly. Regular preventive visits, feedback on causes of failures, and establishing a Maintenance Procedure / SLA are activities to perform. |

| **References**: |
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| • Third Meeting of the Eastern Caribbean Network Technical Group /E/CAR/NTG/3) Meeting Final Report (Christ Church, Barbados, 4 to 8 June, 2012) |

| ***Strategic Objectives*** | *This working paper is related to Strategic Objectives: A. Safety – Enhance global civil aviation safety, and C. Environmental Protection and Sustainable Development of Air Transport* |
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**1.      Introduction**

1.1        The new E/CAR2 AFS network (MPLS) is globally performing correctly and the full architecture has been implemented. The International Private Leased Circuits (IPLC) Martinique-Trinidad, and Martinique-Guadeloupe were initially implemented. The IPLC Guadeloupe-Antigua-Trinidad was implemented in March 2013.

1.2        The network ECAR V2 is becoming more and more critical as more and more information is available and will be transmitted via this network. Specific attention has to be addressed to performance monitoring and reactivity to repair when a failure occurs.

**2.         Status of the ECAR V2 Network**

2.1         TSTT MPLS is not available in French West Indies (FWI), therefore a telecommunication architecture has been designed using Global Caribbean Network (GCN) infrastructure:
- One IPLC Martinique to TSTT MPLS (Martinique – Trinidad, 1 Mbps)
- One IPLC Guadeloupe to TSTT MPLS (Guadeloupe-Antigua, 1Mbps).
- One IPLC Martinique -Guadeloupe (1 Mbps)

2.2         The link between Guadeloupe and Antigua was not set from the beginning, and as FWI is not within the TT MPLS domain, the architecture was considered as not sufficiently redundant. This has been corrected since summer 2012, with the set-up of an IPLC link Guadeloupe-Piarco via Antigua.

2.3         There have been no major breakdowns on the ECAR V2 Network, but specific issues: line breakdown, access to San Juan, problems with voice signaling (dialing plan suspected, TSTT to check and correct).

2.4     Statistics from METROe web portal:

| Site | Availability | Typical CPU load | Typical Mem use | Resp Time |
|------|-------------|------------------|-----------------|-----------|
| Martinique | 99,544 | 1% | 24% | 32 ms |
| Guadeloupe | 99,157 | 1% | 23% | 49 ms |

**3.         Maintenance procedures and Fault reporting**

*Fault reporting*

3.1         The Web portal and the email address are working correctly.

*Feedback on solutions*

3.2         Feedback related to failures should be enriched on the portal (same as NTG3). The tool is good, but feedback from experts to communicate on the causes and corrective actions should be very useful.

*Information before maintenance*

3.3         Information is required before any configuration change, even if no impact is foreseen. Cisco routers software is a central point of the network. If a problem occurs during a configuration change, all the network could be down and backup procedures should be ready, as well as information to end users.

**4.         Supervision**

4.1         The TTCAA METRO supervision is quite useful and seems functioning correctly.

**5.**         **TSTT Visits to sites**

5.1         Preventive Maintenance plan of visits every 6 months was scheduled by TSTT, which should have started on January 2012. FWI is much in favour of getting these visits, to check configuration, to check environment, to share information, to do backup router activation (and for FWI backup link activation).

**6.**         **E/CAR agreement between TTCAA and States**

6.1         E/CAR Maintenance Procedure and Service Level of Agreement is still expected (same as NTG3). This point is becoming very important as more and more information is available or will come over E/CAR through the network: AMHS, access to Spatia data base, AFTN, voice, radar.

**7.**         **Radar Data**

7.1         Radar Data exchange activities and dates using the E/CAR AFS Network should be defined (target dates). FWI and TTCAA have defined a proposed architecture to send Martinique MSSR and Guadeloupe MSSR to Trinidad, using serial ports, in HDLC.

**8.**         **Conclusion**

8.1         The ECAR2 network is globally operating correctly but more efforts are needed to react and investigate more quickly when a problem is detected (MTTR has to be reduced). Communication with end users has to improve. Pending actions have to be completed (visit to sites, SLA).

**9.**         **Suggested Actions**

9.1         The meeting is invited to:

        a) take in consideration FWI point of view regarding the E/CAR AFS Network performance;
        b) define actions to have feedback on solutions to faults and determination of its causes;
        c) update procedures to improve coordination before maintenance activities, and define Preventive maintenance Plan and its timely execution; and
        d) define Maintenance Procedure and Service Level of Agreement.

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