International Civil Aviation Organization
North American, Central American and Caribbean Office (NACC)
GREPECAS CAR Project D – ATN infrastructure in the CAR Region and its ground-ground and ground-air applications
Santo Domingo, Dominican Republic, 27 September 2013

Agenda Item 1: ATN Ground-Ground and Air-Ground Applications
1.5 Evaluation and recommendations on the AMHS coordination and implementation

EVALUATION AND RECOMMENDATIONS ON THE AMHS COORDINATION AND IMPLEMENTATION

(Presented by FAA)

SUMMARY

This working paper presents the "lessons learned" from the various AMHS Implementation projects currently in progress.

References:

- ICAO/FAA Workshop/Meeting on the Follow-up to the Implementation of the ATS Message Handling System (AMHS) in the NAM/CAR Regions, (Miami, FL., United States, 10-12 April 2012)
- III Workshop/Meeting on the Follow-up to the Implementation of the ATS Message Handling System (AMHS) in the NAM/CAR Regions, (Santo Domingo, Dominican Republic, 24 to 27 September 2013)

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

1. Introduction

1.1 Since the 2nd AMHS Workshop, held in Miami on 10-12 April 2012, the number of AMHS transition projects that were started increased to 6. Those 6 projects are at various states of implementation varying from on the verge of being cutover to on hold. This paper will look at the lessons learned during the implementation of those projects, and will present recommendations so that these lessons can profit future implementation projects.

2 Discussion

2.1 As presented during the 3rd AMHS workshop held earlier this week, the implementation of the AMHS connection between the Dominican Republic and the United States has reached the cutover phase. To reach that point however, the project went through several phases using several processes.

2.2 Coordination: The process developed for the coordination of Dominican Republic-USA AMHS project has proven adequate. The process consists mainly of teleconferences held at fixed intervals. Once every 3 weeks at first, then weekly during phases of heavy workloads (testing, cutover, etc.), complemented by email exchanges for information exchanges (documents, teleconference date and time, etc.). This process should be used as a template for all other AMHS implementation projects

2.3 Telecommunication provisioning: Even though ordering and implementing the telecommunication links seem a straight forward process because of the existence of the underlying infrastructure (MEVA II, Interconnection links with the ECAR AIFSS network, etc.), experience has taught us the contrary. The following are examples of why it takes longer than previously planned:

- The AMHS circuit ordering depends on other requirements (to avoid paying for multiple trips by the Service Provider); circuits or requirements that are not fully defined and/or not yet formally agreed upon.
- The AMHS circuits are part of a greater “equipment upgrade package” that takes longer to implement than originally planned.
- A small change in the order placed with a Service Provider resets the implementation clock. 3 months becomes 6 months.
- VPN tunnels do not stay open even though they were left untouched. This creates the need to test the telecommunication links ahead of testing. It means that more coordination is required to involve technicians who might not be available thus postponing the testing.

2.4 The complete definition of the AMHS telecommunication links need to be defined in details and procured early in the project.

2.5 System Interoperability: Interoperability among the various AMHS systems is obviously a must, and testing must be done to ensure it. Therefore, interoperability testing is the most important phase in an AMHS Project. Because very few AMHS systems are implemented, it is difficult for AMHS Vendors to test their products before entering the Interoperability Testing Phase. Therefore, unforeseen issues are identified with a particular vendor implementation of the AMHS SARPs, and those issues need to be addressed through software updates that take time to code and implement. This is compounded by the fact that each software change triggers re-testing of more than just that particular change. Obviously, once a vendor AMHS system has gone through interoperability testing once, interoperability testing of future implementations should be straight forward.

2.6 Scope of the work to be performed: Just as AMHS is much more than an AFTN replacement, the transition from AFTN to AMHS is much more than swapping equipment. AFTN in the CAR Region is basically terminals in the various CAA locations connected to a switch in the USA that takes care of the routing of the messages generated by the terminals. However, an AMHS system is expected to perform the message generation function (like an AFTN terminal) and the routing function (like an AFTN switch). This means that if a particular CAA has more than one AFTN terminal, that CAA will have to replace each AFTN terminals by an AMHS terminal, called an User-Agent (UA) and also install a Message Transfer Agent (MTA) that will take care of the routing. This MTA will therefore be connected to MTA(s) of other CAA(s). Note that the MTA and UA functions can be implemented on the same machine within the same software suite at the site where the CAA's MTA is located. During the definition of the scope of the work to be performed, it is important to understand what an AMHS system is, and what architecture needs to be implemented before entering commercial negotiation with vendors.

3 Suggested Actions

3.1 The Members of the meeting are invited to take into consideration the information provided while planning their AMHS Implementation Project.

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