INTERNATIONAL CIVIL AVIATION ORGANIZATION
Western and Central African (WACAF) Office

Ninetenth Meeting of the AFI Satellite Network Management Committee
(SNMC/19)

(Accra, Ghana, 14 to 18 November 2011)

Agenda Item 8: **AFISNET integration with other AFI Regional Networks (CAFSAT, NAFISAT, SADC/2)**

Integration of NAFISAT/SADC2 and AFISNET

(Presented by ATNS)

SUMMARY

This working paper summarises the work done in respect of the integration of the SADC/2, NAFISAT and AFISNET VSAT networks. It also provides background information in regard to the methodology utilised for the integration

1   Introduction

1.1   The conduct of safe air traffic management requires full connectivity of Aeronautical Fixed Services between all adjacent VSAT networks in the AFI Region.

2   Discussion

2.1   Tables 1 and 2 below shows the existing interconnections between AFISNET and NAFISAT and SADC/2 respectively. A recent interconnection is the AFTN and ATS/DS circuits between Kinshasa and Brazzaville Congo.

Table 1 - ATS/DS Interconnectivity

AFISNET/SADC	DAKAR	LUANDA
NAFISAT/AFISNET	KHARTOUM	BRAZZAVILLE
NAFISAT/AFISNET	KHARTOUM	N'DJAMENA
NAFISAT/AFISNET	TRIPOLI	N'DJAMENA
NAFISAT/AFISNET	TRIPOLI	NIAMEY
SADC/AFISNET	KINSHASA	BRAZZAVILLE
SADC/AFISNET	LUANDA	BRAZZAVILLE
SADC/AFISNET	LUANDA	ABIDJAN
SADC/AFISNET	LUANDA	ACCRA
SADC/AFISNET	LUANDA	DAKAR

Table 2 - AFTN Interconnectivity

Connectivity	SADC/2	AFISNET
NAFISAT/AFISNET	ADDIS ABABA	NIAMEY
NAFISAT/AFISNET	KHARTOUM	N'DJAMENA
NAFISAT/AFISNET	NAIROBI	BRAZZAVILLE
NAFISAT/AFISNET	TRIPOLI	N'DJAMENA
SADC/AFISNET	KINSHASA	BRAZZAVILLE
SADC/AFISNET	LUANDA	BRAZZAVILLE
SADC/AFISNET	LUANDA	ACCRA

2.2 The 11th Air Navigation Conference held in Montreal in 2003 considered the terms "interoperability" and "seamless" which are often used when describing future air traffic management systems. When doing so, a common understanding of these notions is not always obvious or fully comprehended by all. The Air Traffic Management Operational Concept Panel (ATMPC) identified the following working terms for use towards development of the ATM operational concept.

2.2.1 Interoperability within the ATM system might be described as the ability to transfer information, or effect functionality, across any discontinuity, in order to enable operations; and

2.2.2 Seamless within the ATM system might be described as the property that would allow a transition across any discontinuity which, from the perspective of the transiting agent, did not require a considered action to facilitate transition. It should be noted that, in this context, seamless did not imply ATM systems converge into singleness.

2.3 The conference identified that highly prescriptive standards to achieve "interoperability" and "seamless" may be beneficial for a limited number of systems, but will have a negative effect on the global aviation systems if it were applied across all systems. Excessive prescriptively-defined standards should be avoided and there should be a balance to accommodate existing systems while ensuring that emerging systems and new technological solutions can be integrated into the air navigation infrastructure.

2.4 The AFI VSAT Network Integration Meeting held in Johannesburg during the period 31 March to 1 April 2004 established the foundation for integration and interoperability between the SADC VSAT II, NAFISAT and AFISNET VSAT networks. This meeting identified the need for consideration of integration and interoperability aspects at regional and/or interregional level between the network managers and the space segment provider(s).

2.5 ASECNA completed migrating the AFISNET network to the East Hemi (EH) transponder 20/20 on the INTELSAT IS-1002 satellite at 359°E during 2006. Due to spectrum not being available on this transponder, ATNS contracted during 2006 for a lease of satellite spectrum on the same satellite, but on the East Hemi (EH) transponder 23/23 for the implementation of the SADC VSAT II and NAFISAT VSAT networks.

2.6   During 2007 ATNS and ASECNA agreed on a VSAT network integration model based on interoperability at baseband level of the two networks. As all three networks were being operated on the same satellite, the most cost effective basis of integration was to establish individual MCPC (Multi Channel per Carrier) access links between the different networks at access points as identified in the AFI Plan.

2.7   Although the networks used different satellite access techniques, seamless integration were achieved from an operational point of view, in a cost effective manner.

3   Conclusion

3.1   In view of the information provided above 100% seamless integration and interoperability has been achieved for the interconnections between NAFISAT/SADC2 and AFISNET.

3.2   The meeting is requested to take the information provided into consideration during its discussions.

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