



INTERNATIONAL CIVIL AVIATION ORGANIZATION
EASTERN AND SOUTHERN OFFICE

First Meeting of the AFI VSAT Networks Managers (AFI VSAT/1)
(Kwa-Zulu Natal, South Africa, 13 to 15 June 2011)

Agenda Item 6 : Integration of AFI VSAT Networks

**PROPOSAL FOR THE IMPLEMENTATION OF COMPREHENSIVE
AFI REGIONAL CNS/ATM INFRASTRUCTURE AND SERVICES**

(Presented by SITA)

SUMMARY

As an air transport community owned organisation (including the majority of airlines) SITA fully supports ICAO's initiative to expedite the implementation of sustainable and reliable air navigation service and infrastructure improvements in the AFI region. This working Paper highlights specific technological areas in which SITA could facilitate the realisation of improvements in the AFI region. These include the leveraging of SITA's experience in adopting the Pan-European Network Services (PENS) to AFI wide data communications network services and the deployment of ICAO defined CNS/ATM applications such as Centralised AIS data base and common AMHS/AFTN switch in AFI where required to overcome identified safety and efficiency deficiencies.

REFERENCE(S)

- ALLPIRG/5 Conclusion 5/18
- APIRG 16 (Conclusion 16/31)

1. INTRODUCTION

1.1. Established over 60 years ago by a group of eleven airlines as a not-for-profit organisation to deliver ground/ground data communications services SITA rapidly evolved to become a global organisation. Today with over 550 members from the air transport community including airlines, airports, aerospace and Global Distribution Systems (GDS) providers SITA's strategic direction is driven by this vast membership from the air transport community; a key element of which is to facilitate and support the deployment of reliable and sustainable air navigation infrastructure throughout the world.

1.2. SITA has actively supported and contributed towards the standardisation, validation and implementation of ICAO recognised CNS/ATM technology. Today, SITA provides VHF and satellite air/ground data link communications services to over 180 airlines and 60 Air Navigation Service Providers. Air/ground data traffic trend analysis demonstrate that data link communications in support of air traffic management are increasing on an average of 10% per annum confirming the value and benefits of this technology to airlines and air navigation service providers alike.

1.3. In addition to SATCOM data link, SITA delivers a SATCOM Voice service that has the potential to deliver significant safety benefits in the AFI region given the lack of VHF R/T in some areas and performance issues associated with HF voice communications.

1.4. Recognising the values of collaboration in enhancing safety in AFI, SITA has been working with ICAO/ACIP to assist in the data collection and development of training database for harmonization of Aviation Training Institutes in AFI.

1.5. SITA is fully aware that implementations of communications, navigation, and surveillance (CNS) systems and applications in AFI region are continuing peace-meal although the pace is very slow compared with other ICAO regions.

1.6. Based on its vast experience, SITA is concerned the scattered and fragmented approach is likely to delay regional compliance, introduce harmonization and inter-operability issues and lead to uneconomical implementations.

1.7. APIRG 16 (Conclusion 16/31) had clearly stated the need for collective approach in the management of CNS/ATM system elements.

1.8. Conclusion 5/18 of ALLPIRG/5 states that “work towards integrated regional/interregional digital communication networks with a single (centralized) operational control and preferably based on the Internet Protocol (IP)” should be considered.

2. DISCUSSION

2.1. Today SITA delivers reliable data communications services globally and across the African continent to support airline requirements and has ensured IP service availability across the continent. Given that sustainable and reliable telecommunications is an essential pre-requisite to the delivery of safe and efficient air navigation services, SITA is willing to work with AFI states and ICAO to identify areas where SITA’s capabilities can resolve deficiencies identified in the existing communications infrastructure.

2.2. Following the introduction of SITA’s VHF air/ground data communications service in 1984 and Satellite data communications service in 1991, the industry has witnessed exponential growth in the expansion and use of this service by the majority of the world’s airlines for Airline Operational Communication (AOC) purposes. Today SITA operates over 1,200 VHF data radios across the globe and delivers the satellite service via two Ground Earth Stations that provide access to INMARSAT geostationary satellites; the combined service is used on a daily basis by over 6,000 aircraft. Since the early 1990’s a number of air navigation service providers pioneered the use of this service for the delivery of air navigation services including Digital-ATIS, Departure Clearances, ADS-Contract and Controller Pilot Data Link Communications (the latter two more commonly referred to as “FANS 1/A” in the industry). Since then the deployment of these services has also grown exponentially as air navigation service providers and equipped airlines benefit from the performance of delivery (as compared to voice) and clarity of communications. Today SITA operates over 50 VHF Ground stations and provides blanket SATCOM coverage across the African region.

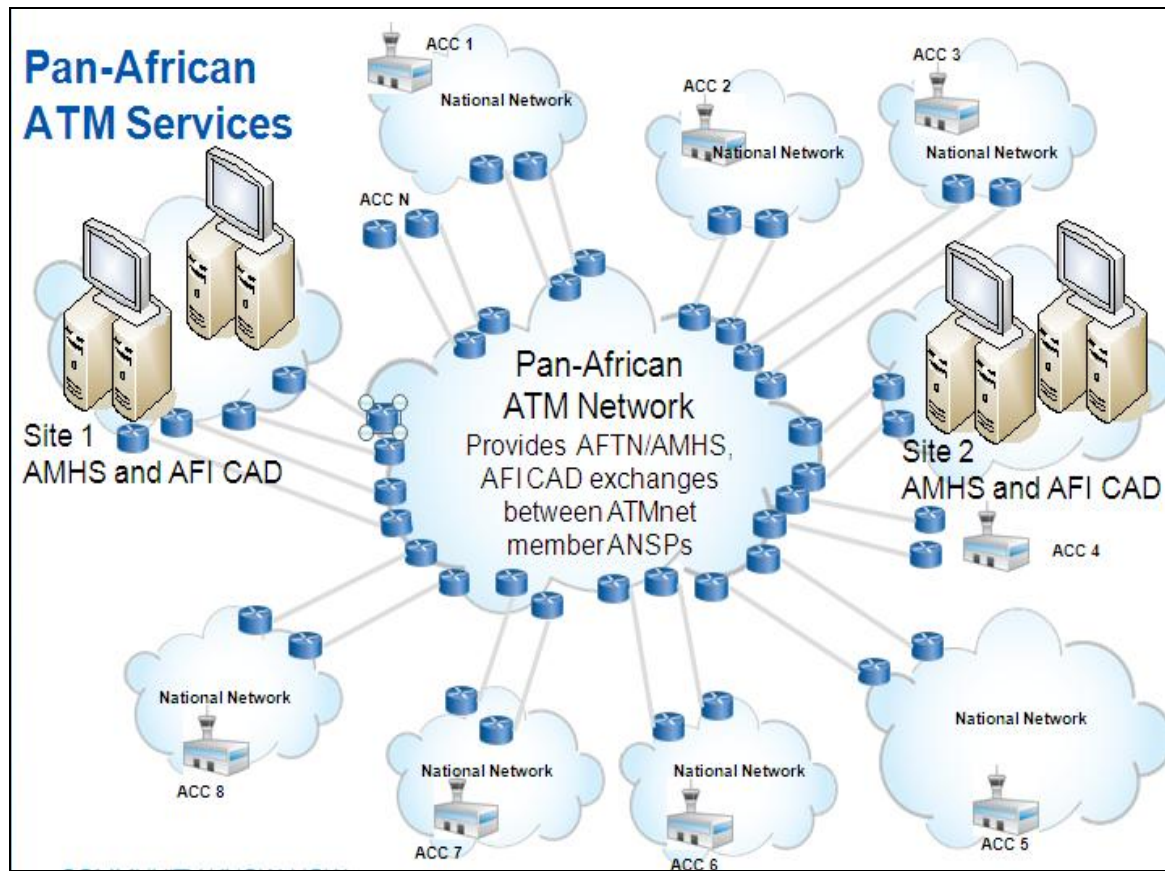
2.3. SITA has also recently delivered a Pan-European Network Service (PENS), a managed Internet Protocol based regional communications backbone service that will enable the 38 ANSPs of the EUROCONTROL Member States to exchange operational ATC voice and data communications in a

seamless and integrated manner. This service will provide an alternative to the ad-hoc bi-lateral communications that are largely in place today between the ANSPs resulting in increased service levels and reduced overall costs. It will serve both today's needs for inter-ANSP information exchange and those envisioned by SESAR - the Single European Sky Air Traffic Management (ATM) Research Programme - under its System Wide Information Management initiative thus laying a key foundation for the Single European Sky with its goals of increasing capacity, improving safety, reducing aviation's environmental impact and cutting ATM costs by 50%. PENS will additionally replace the individual IP network services that have been providing services to EUROCONTROL's Central Flow Management Unit (CFMU) and European Aeronautical Information Service Database (EAD) centralized applications thus delivering further economies of scale given the number of common points where both CFMU and EAD services are delivered. SITA is willing to work with AFI states and ICAO in expanding this concept and experience to AFI wide integrated ATM network that will enable the realization of a common AFI AMHS switch and Centralized AIS database in order to resolve identified communication deficiencies and interoperability issues.

2.4. Based on feedback that SITA has received from many air navigation service providers from around the world, including many in the AFI region, the ICAO recommendation to migrate from AFTN To AMHS has resulted in many questions given the inherent complexity to specify, procure, install and maintain AMHS equipment especially when the operational and cost/benefits are not clear. As an established service provider with significant experience in messaging services for the airline community (including the transmission and conversion of flight plans from SITA to ICAO formats) SITA is well positioned to deploy an AFI wide common AMHS service which would obviate the need and burden on air navigation service providers to make intensive individual capital investments for AMHS equipment leaving them with the simple requirement to operate user terminals whilst still complying with ICAO recommendations. SITA is willing to work with ICAO and AFI states to develop cost-effective solutions for enhancing the migration from AFTN to AMHS.

2.5. Today, the temporality, accuracy and integrity of Aeronautical Information do not meet future Navigation system requirements. Moreover, the current ATM system is based upon isolated information islands: civil and military AIS, MET, ATFM (Air Traffic Flow Management). This implies a series of transaction points at which aeronautical information integrity is potentially reduced: the same information is manually re-entered a number of times in discrete systems.

2.6. SITA recognises an effort to realise the AFI CAD initiative is underway under the close supervision of ICAO. Migrating from the current distributed AIS environment to a centralized AIS database is a necessary pre-cursor for migration to AIM that will ensure uniqueness of aeronautical information throughout the ATM/CNS system. AIM is a new function of ATM/CNS that broadens the current scope of Aeronautical Information. It ensures its quality, integrity and timeliness through the use of fully digitized interoperable systems and enables dynamic context based retrieval/delivery of Aeronautical Information. Being at the heart of the aviation Information and Communication Technology, SITA is well positioned to assist APIRG and ANSPs in realizing a central AIS database with a view to eventually migrate to a common AIM environment. SITA is willing to work with ICAO, member states and ANSPs in achieving the above in a reliable and cost effective manner.



3. CONCLUSION

3.1. Considering:

- a. harmonized implementation of complex CNS/ATM technology across regions such as Africa in a cost effective and accelerated manner can only be achieved through a collaborative effort;
- b. the value of States collaborating with capable international service providers to facilitate harmonized implementation of complex CNS/ATM technology; and
- c. that SITA is willing to support in the realization of the efforts done so far by APIRG and its various sub-groups in achieving the targets set in the ICAO Global Air Navigation Plan.

3.2. The meeting is invited to:

- a. deliberate on the proposed regional implementation strategy; and
- b. request APIRG to consider and develop this initiative further, in consultation with the industry.

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