



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 2c: Maintenance Operation and Sustainability

OPERATION AND SUPPORT FOR BOTH SADC VSAT II AND NAFISAT.

(Presented by ATNS)

SUMMARY

This working paper provides information on the operation and support system ATNS implemented for both the SADC VSAT II and NAFISAT VSAT networks.

REFERENCE(S)

1. INTRODUCTION

1.1. During the development and the planning of the replacement network for the SADC VSAT I network, ATNS conducted a full analysis of the logistic support that would be required for the replacement SADC VSAT II network based on the experience gained in conducting corrective and preventative maintenance on the SADC VSAT I network.

1.2. The theoretical analysis had shown that the day-to-day operation and support of a VSAT network over such a large geographical area required a high level of maintenance and support co-ordination within the network. This was supported at the time by the maintenance and support data collected during the operation of SADC VSAT I, but more so today with the experience gained in supporting both the SADC VSAT II and NAFISAT VSAT networks.

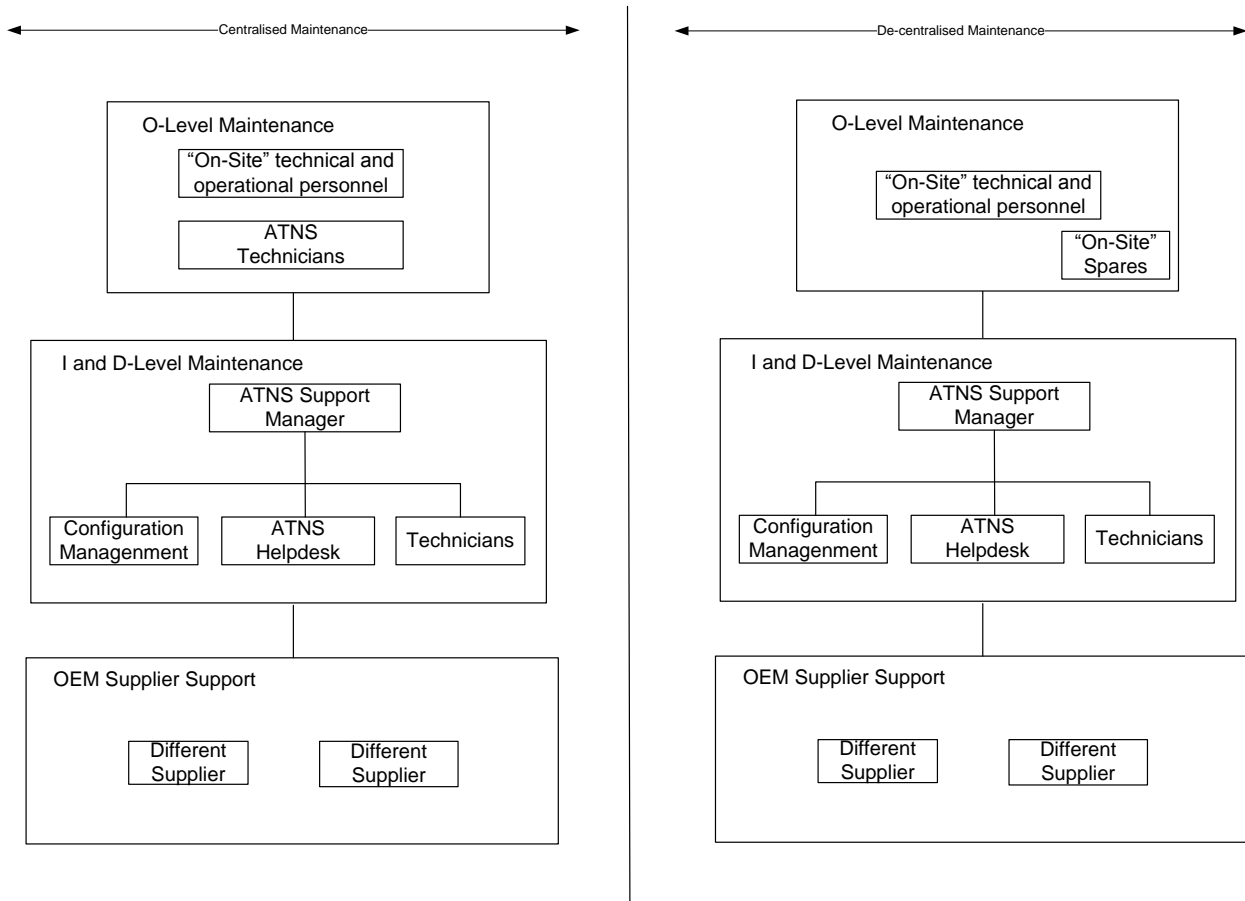
1.3. To accommodate the network split between the SADC VSAT II and NAFISAT networks, two distinct Maintenance Centres were planned, one in Johannesburg to cover the maintenance and support requirements for the SADC VSAT II network and the other from a site in the NAFISAT coverage area to address maintenance and support for the NAFISAT network.

1.4. To address specific requirements from individual member States, the maintenance and support of the networks was further divided into a baseline whereby the individual States could either subscribe to a centralised maintenance and support structure or a decentralised support structure.

2. DISCUSSION

2.1. The Support and Maintenance system in place today for operation and support of both the SADC VSAT II and NAFISAT networks are based on the normal standard three tier “O” (operational), “I” (intermediate) and “D” (depot) level support structure. In the case of de-centralised maintenance the local on-site technicians are responsible for “O” and “I” level.

2.2. The diagram below shows the differences between the centralised and the decentralised network support structures.



2.3. The successful implementation of the support structure and the continued high network availability levels is to a large extent dependent on the use of support tools throughout the network. Two major network support tools are used, the ATNS Helpdesk/Maintenance Management System (MMS) and the Network Management and Control System (NMS) deployed throughout the two networks.

2.4. All faults occurring in any of the two networks are reported to the ATNS Fault Reporting Centre where all detail prescribing the failure is recorded on a maintenance database. This facilitates the collection of network statistics and tracks failures in detail through a fault ticketing system.

2.5. The Network Management and Control System (NMS) is deployed throughout the two networks to the extent that a client NMS terminal is installed at each site to collect data and health statistics of the individual terminals but also statistics network wide. These statistics and health checks are all available on the central NMS servers.

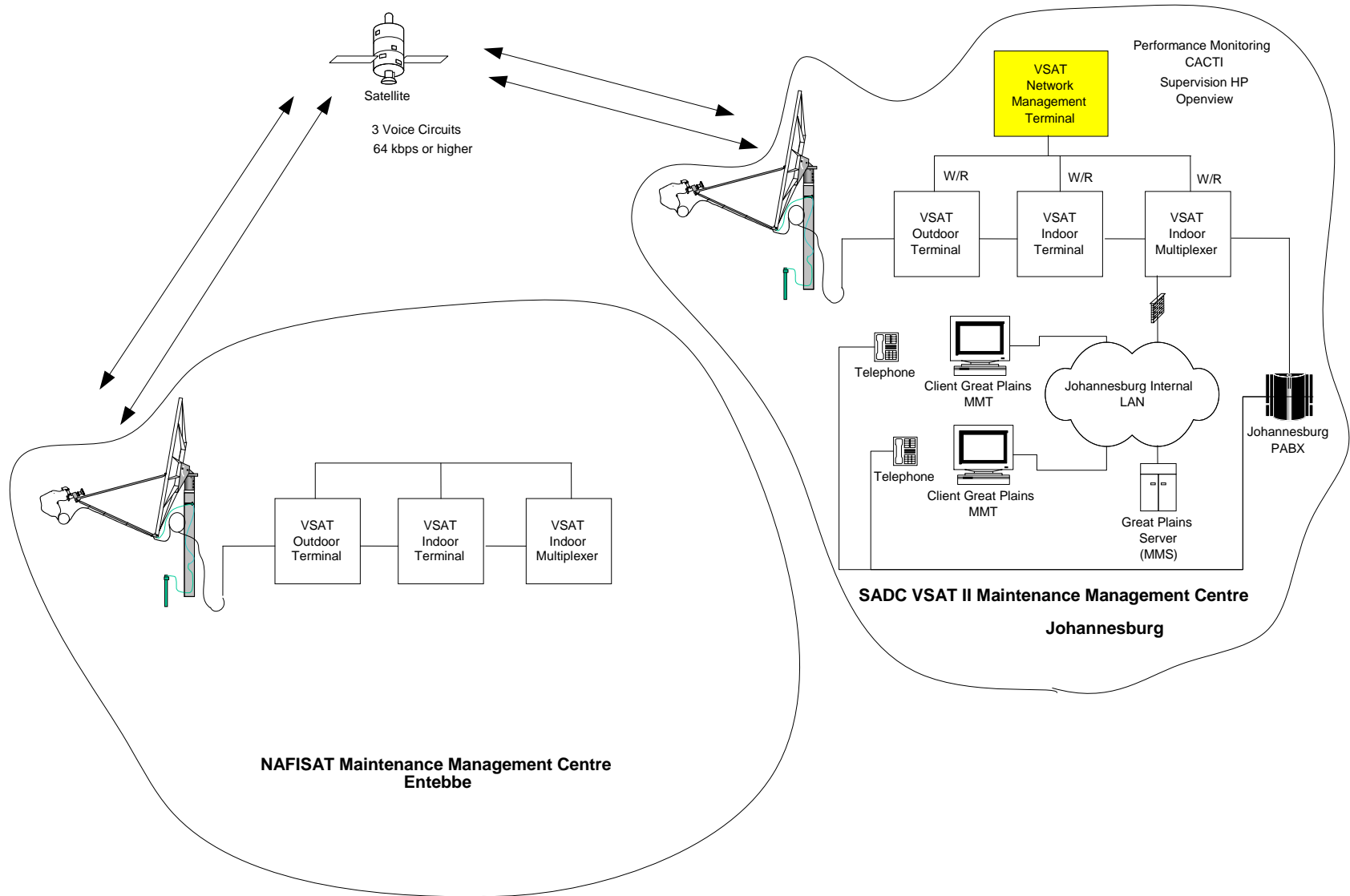
2.6. ATNS has implemented additional network maintenance tools such as the in-line test equipment recently deployed throughout the network to particularly monitor the health of the AFTN lines. Thus ATNS can react immediately to any corrective maintenance task required.

2.7. Furthermore, the “On-Site” and the ATNS technicians have received extensive training in the operation and maintenance of the VSAT networks.

2.8. Not only corrective maintenance is conducted in the SADC VSAT II and NAFISAT networks, but each year an extensive preventative maintenance program is implemented whereby each of the VSAT sites are visited by an ATNS technician and together with the local “on-site” technicians, extensive tests are conducted to ensure a minimisation of corrective failures through the next maintenance cycle.

2.9. All equipment deployed is under configuration management and should equipment fail and are replaced with spares, the failed units are sent back to the ATNS Maintenance Centre, thoroughly tested to confirm the exact nature of the failure and sent for repairs to the individual OEM (Original Equipment Supplier) suppliers. These repaired units are sent back to the ATNS MMC and re-introduced into the corrective maintenance supply chain.

2.10. The diagram on the following page shows a graphical representation of how the maintenance management centre and network standby synchronisation centres are deployed. The standby centre provides back-up timing synchronisation should a fatal failure occur within the Johannesburg terminal.



3. CONCLUSION

3.1 The meeting is invited to:

- a) Note the information provided in this working paper.
- b) Take the information into account during discussions.

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