



ICAO

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North American, Central American and Caribbean Office

WORKING PAPER

MEVA/TMG/36 — WP/04
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**Thirty Sixth MEVA Technical Management Group Meeting
(MEVA/TMG/36)**

On-line, from 1 to 3 June 2021

**Agenda Item 4: MEVA Phase IV
4.2 Evaluation about Technologies and Services Available**

FEDERAL AVIATION ADMINISTRATION (FAA) ASSESSMENT OF CANSNET RFI RESPONSES

(Presented by United States)

EXECUTIVE SUMMARY	
This Working Paper provides an FAA assessment of the technologies and services offered by the Caribbean Air Navigation Services Network (CANSNET) Request For Information (RFI) respondents.	
Action:	Suggested actions are presented in Section 4.
<i>Strategic Objectives:</i>	<ul style="list-style-type: none">• Safety• Air Navigation Capacity and Efficiency
<i>References:</i>	<ul style="list-style-type: none">• IP/07 of the Asia Pacific Fourth Meeting of System Wide Information Management Task Force (SWIM TF/4), November 2020.

1. Introduction

1.1 In June 2020, ICAO issued a Request for Information (RFI) for technologies and services available to replace the existing MEVA III satellite network in the Caribbean. The RFI asked for “new technologies and solutions for terrestrial and/or satellite-based telecommunication voice and data network services between ATC Centres”. Following are comments on the received responses.

2. Discussion

2.1 The RFI envisioned a network having purely IP transport in the network core between Centres for both terrestrial and/or satellite solutions. This would support IP data and voice from VoIP switches but legacy information formats would need conversion. The RFI responses suggest that this approach is viable.

2.2 Respondents submitted two types of satellite system: hub based and full mesh. A full mesh system is desirable to avoid the delay associated with a voice double-hop through a hub. The two suggested full mesh systems, ND Satcom SKYWAN 5G and Polarsat, have IP transport internally. Three vendors, including Frequentis, suggested the ND Satcom SKYWAN 5G modem, which is the next generation of the MEVA III modem. It should be noted that today's MEVA III modem also has internal IP transport but it is used for M&C. Also note that IP data is being carried today (e.g. AIREON) but using the Frame Relay (FR) stack. Note that the ND Satcom SKYWAN 5G modem does not inter-operate with the MEVA III modem and so a transition from one satellite system to another will be necessary no matter which vendor is chosen.

2.3 Most respondents suggested satellite operation in C-band to take advantage of current antenna and radio deployments. Note that MEVA recently moved to the upper range of C-band (4.0-4.2 GHz) to provide bandwidth for 5G wireless technologies.

2.4 Of the five respondents offering terrestrial MPLS Multi-Protocol Label Switching (MPLS), just two providers were identified: Sencinet (formerly BT Latin America) and PCCW Global (formerly Pacific Century CyberWorks Limited). Note that PCCW is the service provider for the ICAO Asia Pacific Common AeRonautical Virtual Private Network (CRV). The impression, from documentation and verbal responses, was that vendors were not confident in being able to provide services to all current MEVA members, some suggested using satellite to access MPLS terrestrial services.

2.5 There were several solutions for legacy information conversion to IP. The Frequentis VCX and GECI VCCS offer robust solutions, targeted at ATM, with redundant power supplies and processors. Comtech/Netperformer, the next generation of the current MEVA FAD, is highly functional with the same redundancy architecture as MEVA III. All three support the desired European ED-137 recommendation for VoIP and should be able to interwork. IP conversion from network level offerings of Nokia and CISCO are understandably less attuned to the ATM environment.

2.6 Frequentis Netbroker offers the ability to monitor the quality of redundant network paths and selectively reroute types of traffic using Software Defined Networking (SDN), e.g. if the quality of terrestrial is poor, voice might be rerouted over satellite. This showed Frequentis' forward thinking and an appreciation of the issues associated with ATM. This is probably a level of sophistication beyond the current need but maybe useful if the redundancy of network paths grows.

2.7 Two respondents, PCCW and GECI, offered SWM/XML solutions though not in sufficient detail to be evaluated. PCCW suggested a network-based translation service between TAC and IWXXM for weather products. Note that PCCW and Frequentis collaboration is described in an ICAO Information Paper¹. GECI offered SWIM software for ANSP deployment. The novel idea here is that higher levels of functionality might be offered as services, perhaps leading to regional data fusion.

3. Conclusions

3.1 The current MEVA service provider, Frequentis, appears to have a business focus on ATM and be well-positioned to support an upgraded VSAT network with an IP network core and able to accommodate additional MPLS routing as the demand arises.

¹ Information Paper (IP/07) of the Asia Pacific Fourth Meeting of System Wide Information Management Task Force (SWIM TF/4), November 2020.

3.2 There is no new technology driver that would provide such a significant operational advantage to warrant an immediate change of network provider.

3.3 Given the uncertain provision of terrestrial services to members and the possible use of satellite to access terrestrial networking, a continued satellite capability would seem necessary. This also provides some diversity until redundancy can be achieved through terrestrial connections.

3.4 Since vendors offered combinations of terrestrial and satellite, it may be wise to separate these acquisitions to achieve the best offerings in terrestrial and satellite services.

4. Suggested actions

4.1 The meeting is respectfully encouraged to:

- a) review the information presented in this Working Paper; and
- b) discuss its contents and take appropriate action.