



International Civil Aviation Organization

**THIRD MEETING OF THE COMMON REGIONAL VIRTUAL PRIVATE
NETWORK TASK FORCE (VPN) OF APANPIRG (CRV TF/3)**

Bangkok, Thailand, 09 – 12 December 2014

Agenda Item 4: Impact of RFI on Cost Benefit Analysis First Iteration

**IMPACT OF RFI ON COST BENEFIT ANALYSIS ON
SMALL PACIFIC ISLAND STATES**

(Presented by Fiji)

SUMMARY

This paper presents the impacts of the CRV RFI on CBA for small Pacific Island States and the propose solutions to be discussed and reviewed by the CRV TF/3 meeting.

1.0 INTRODUCTION

- 1.1 The paper present the impact of the CRV RFI on CBA for the smaller Pacific island States with in the Nadi Flight Information Region (FIR). The Pacific island States are Kiribati, Tuvalu, Vanuatu, Wallis & Futuna and New Caledonia.

2.0 BACKGROUND

- 2.1 Fiji currently managed the Nadi Flight Information region (FIR) which covered six million square kilometers in area that includes Pacific Island States of Tuvalu, Kiribati, Vanuatu, Wallis & Futuna and New Caledonia. Airports Fiji Limited as the ANSP operates the Nadi Air Traffic management center (ATMC) that is located at the Nadi Airport for the provision of this service in the Nadi FIR.
- 2.2 In providing the ATM services to these Island States, the Nadi ATMC employs point to point communication to each respective international airport ATC towers. Communication between Nadi ATMC and the Tontouta airport ATC tower at New Caledonia is provided through multiplexing voice and AFTN data circuit using GINCOR multiplexer over internet VPN communication link. Communication to Vanuatu, Kiribati and Tuvalu and Wallis & Futuna ATC

towers are provided directly through voice and fax using the PSTN. The AFTN data service to Vanuatu is currently provided by Air Services Australia through their AFTN system at Brisbane center while Wallis & Futuna is provided via the New Caledonia AFTN system using the same GINCOR multiplexer system. Satellite communication link is the only mean of international communication services that is available on these islands.

2.3 APANPIRG/24 has endorsed the study and the implementation of a common regional VPN network for the Asia/Pacific region by 2016. The Cost Benefit Analysis of the CRV has indicated a cost saving of 23%.

3.0 COMMUNICATION REQUIREMENT

3.1 The table below provides the current communication requirement and estimated cost of the existing and future services.

TABLE 1.0 – Communication Requirement and estimated cost based on current services.

#	State	Estimated Bandwidth	Estimated Cost USD (Monthly)	Preliminary CRV Cost USD- proposal (Monthly)	Communication Link Available	Communication Service
1	Tuvalu – Funafuti Airport	PSTN	100	TBD	Satellite	Voice/Fax
2	Kiribati – Bonriki & Christmas Island airport	PSTN	100	TBD	Satellite	Voice /FAX
3	Vanuatu	PSTN & Data (VPN over internet)	150	TBD	Satellite	Voice & AFTN (via Brisbane AFTN system)
4	Wallis & Futuna	PSTN & Data (VPN over internet)	150	TBD	Satellite	Voice & AFTN (via Tontouta AFTN system)
5	New Caledonia	PSTN & 1.0 Mbps (VPN over internet)	200	4,595 (256K – 2.0M)	Satellite	Voice & AFTN

6	Fiji	PSTN & 1.5Mbps (VPN over internet & IPLC)	4,000	4,595 (256K – 2.0M)	Southern Cross Cable, Satellite	Voice & AFTN/AMHS
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*** The preliminary CRV cost is based on the indicative cost received in the RFI proposal.

TABLE 2.0 – Communication Requirement & Chargers based on future services.

#	State	Estimated Bandwidth	Estimated Cost USD (Monthly)	Preliminary CRV Cost - RFI Proposal (Monthly)	Communication Link Available	Communication Service
1	Tuvalu – Funafuti Airport	256K IPVPN	1,000	TBD	Satellite	VOIP ,AMHS, ADS-B, SWIM
2	Kiribati – Bonriki airport	256K IP VPN	1,000	TBD	Satellite	VOIP ,AMHS, ADS-B, SWIM
3	Vanuatu	256K IP VPN	1,000	TBD	Satellite	VOIP ,AMHS, ADS-B, SWIM
4	Wallis & Futuna	256K IP VPN	1,000	TBD	Satellite	VOIP ,AMHS, ADS-B, SWIM
5	New Caledonia	2.0M IP VPN	5,500	4,595 (256K – 2.0M)	Satellite	VOIP ,AMHS, ADS-B, SWIM
6	Fiji	2.0M IP VPN	5,500	4,595 (256K – 2.0M)	Southern Cross Cable, Satellite	VOIP, AMHS, ADS-B, SWIM

*** 256K is the minimum IP VPN bandwidth offered by most of the service provider for international connection.

4.0 CRV SOLUTION

4.1 Based on CBA conducted on the CRV, a saving of 23% is expected on the communication charges. It is most unlikely that these small island States will benefit from this cost saving instead the cost is expected to increase for the use Satellite communication link dictated by the bandwidth requirement.

4.2 To enable these Pacific Island States to benefit from the CRV, the service providers must also consider a cost effective solution based. The following proposed some cost effective solutions that can be considered by the CRV TF/3 meeting:

a) VPN over Internet

The use of VPN over internet can be considered for non-critical applications as performance and safety requirements will not be met. This will be the cheapest option and the CRV service providers will probably charge for the management of the internet gateway.

b) VSAT Communication

To meet the performance and safety requirements of the CRV, cost efficient and adaptive communication solution such as satellite communication link like VSAT is preferred. The cost will be probably more than the VPN over Internet option but it will provide a more secure and high reliable communication link for current and future services and conform to ICAO requirements.

5.0 WAY FORWARD

5.1 The cost of the communication bandwidth will become a determinant factor for these small island states to join the CRV. As stated above the expected cost saving of 23% proposed by the CRV CBA is not likely to be realised by these small island state because the communication cost is expected to rise. It is important that the CRV Task force discuss and find the best strategies as part of the CRV RFP where the benefit of the CRV is shared by all the member states.

5.2 In ensuring that small island states will realise the benefits of the CRV, the following can be considered by the CRV TF/3 meeting:

- a) The specification for a cost effective solutions to these small island states becomes a strong incentive for bidders to deliver in the CRV RFP.
- b) The inclusion of specific requirements for small islands in the sealed tender for use of internet based VPN for non-critical applications.
- c) Call for subsidizing of cost from other ANSP if the solutions proposed are still not affordable. The cost saving of 23% from the CRV CBA can be used as the bench mark in the cost sharing.
- d) Standardizing of communication cost structure based on bandwidth requirement using IP VPN rather than geographic location. This will eliminate the high cost that is expected to be borne by small island states due to their geographical location and the type of communication service used.

6.0 ALTERNATIVE SOLUTION

6.1 If the solution proposed by the selected vendor is still not affordable or funding is not available, an alternative solution such as the federating hubs technology can be used through Fiji, New Caledonia, New Zealand, USA and Australia as gateway for these island states to the CRV.

6.2 The option of integrating the CRV to the existing point to point communication for small island states that cannot afford the CRV cost should also be considered and explored further in the RFP.

7.0 ACTION BY THE MEETING

7.1 The meeting is required to note the content of this paper and discuss and review the impact of the CRV RFI Cost Benefit Analysis First Iteration for small Pacific Island States.
