International Civil Aviation Organization

Eighteenth Meeting of the ICAO Aeronautical Information Services − Aeronautical Information Management Implementation Task Force (AAITF/18)

Bangkok, Thailand, 19 – 23 June 2023

Agenda Item 6: Any Other Business

DISSEMINATION OF AERONAUTICAL INFORMATION IN SWIM ENVIRONMENT

(Presented by ICAO Secretariat)

SUMMARY

This paper presents discussions being held in various CNS contributory bodies Meetings regarding the CRV bandwidth required to support SWIM services and requests Meeting to share plan to disseminate aeronautical information in SWIM environment.

1. INTRODUCTION

1.1 The Eleventh Meeting of the Common aeRonautical Virtual Private Network Operations Group of APANPIRG (CRV OG/11) was held from *1 to 3 February, 2023* in ICAO Asia and Pacific Regional Office, Bangkok, Thailand. The Meeting was attended by 65 participants from 19 Member States/Administrations. The Meeting report, working papers, information papers, and other resources can be accessed by the following link:

https://www.icao.int/APAC/Meetings/Pages/2023-CRV-OG11-.aspx

1.2 The Seventh Meeting of System Wide Information Management Task Force (SWIM TF/7) was held from *9 to 12 May 2023* in ICAO Asia and Pacific Regional Office, Bangkok, Thailand. The Meeting was attended by 73 participants from 16 States/Administrations, 2 International Organizations and 1 telecommunication service provider. The Meeting report, working papers, information papers, and other resources can be accessed by the following link:

https://www.icao.int/APAC/Meetings/Pages/2023-SWIM-Seminar-and-SWIM-TF7.aspx

1.3 As an established practice in progressing various tasks of the SWIM TF, online Task Leads (TLs) coordination meetings were organized from time to time between Task Force Meetings to follow up on the progress of each task more effectively. The objectives of these coordination meetings are also to discuss and better understand the regional information exchange requirements to be supported by APAC SWIM as well as the feasible and appropriate approach to establish SWIM over the regional network.

1.4 This paper provides significant information about a relevant discussion being held in CRV OG and SWIM TF Meetings related to CRV bandwidth requirements for AAITF review and consideration.

2. DISCUSSION

SWIM principally over CRV

2.1 The Common aeRonautical Virtual Private Network (CRV) is a cross-border cost-effective telecommunications network for APAC States, which enables the implementation of the Global Air Navigation Plan and Seamless ANS objectives. The CRV has been considered as an underlying Internet Protocol (IP) network for SWIM infrastructure and information services. CRV is currently used to provide the Aeronautical Telecommunication Network (ATN) service that is required for time-sensitive information distribution, as mandated by ICAO Annex 10.

2.2 Whilst it appears that the CRV network has been built to support AFTN, AMHS, and Voice services, there are not limitations for other CRV users providing other type of services if they wish to join the CRV network.

2.3 It is anticipated that the use of CRV to support SWIM may result in additional bandwidth demands due to the nature of XML based messages. Although cost of using Pubic Internet, considered as an alternative underlying network to carry SWIM traffic, is significantly cheaper than cost of CRV, security might be an issue. On the other hand, compared to the Public Internet, CRV can provide a more reliable and higher secured connection. The Pubic Internet might thus be considered as a back up to CRV.

CRV Bandwidth Requirements for SWIM Services

2.4 Currently, the CRV Solutions is based on the recommended CRV SLA provided by the CRV supplier, PCCWG. The CRV SLA Package is summarized in the table below:

SLA Package	Package A	Package B+	Package B	Package C+	Package C	Package D
Local loop connection	2	1	1	1	1	NIL (customer self provided internet)
NID	2	2	1	2	1	1
IP Sec Gateway (backup)	NIL	Yes (customer provides internet)	Yes(customer provides internet)	No	No	Yes (customer provide internet)
Availability	99.97% (connectivity + router)	99.95% (connectivity+ router)	99.5% (connectivity+ router)	99.7% (connectivity+ router)	99.5% (connectivity+ router)	99.5% (IPSec gateway port only)
Site to Site Round Trip Delay by zone	200ms / 600ms	200ms / 600ms	200ms / 600ms	200ms / 600ms	200ms / 600ms	PoP to PoP 200ms / PoP to PoP 600ms
Site to Site Packet Drop rate	<0.1% for Voice; <0.5% for Data	<0.1% for Voice; <0.5% for Data		<0.1% for Voice; <0.5% for Data		PoP to PoP <0.5% for Data
Site to Site Jitter	15ms for Voice; 250ms for Data	15ms for Voice; 250ms for Data		15ms for Voice; 250ms for Data		250ms for Data (PoP to PoP)
Rebate	Yes	Yes		Yes		No

2.5 Based on the latest SWIM TF Terms of References (ToR), SWIM TF is working to propose a high-level Asia/Pacific regional SWIM architecture, the corresponding SWIM technical infrastructure requirements, and the implementation approach to construct such architecture principally over CRV and other IP based networks to ensure interoperability among regional SWIM participants and to support transition for non-SWIM capable entities.

2.6 To assess the bandwidth requirements and cost effectiveness of using CRV to support SWIM in the Asia/Pacific region, CRV bandwidth capacity and CRV technical specifications are topics of interest in various Meetings of CRV OG, SWIM TF, and ACSICG.

2.7 The SWIM TF Task Lead Meeting held on 22 February 2023 discussed potential bandwidth requirements for CRV to carry SWIM traffic. Since SWIM covered the exchange of information in various domains, it was shared that estimating the required bandwidth by SWIM TF alone is challenging. Considering that AAITF is the forum of regional aeronautical information experts, the SWIM TF Task Lead Meeting thus requested ICAO Secretariat to help coordinate with AAITF to understand AAITF's plan to disseminate aeronautical information in SWIM environment to assist in assessing bandwidth requirements.

3. ACTION BY THE MEETING

3.1 The Meeting is invited to:

a) note the information contained in this paper;

b) share (*i*) plan to disseminate aeronautical information in SWIM environment, if any, and (*ii*) estimation of bandwidth requirements in doing so; and

c) discuss any relevant matters as appropriate.

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