International Civil Aviation Organization

Eighth Meeting of the Common aeRonautical Virtual Private Network Operations Group (CRV OG/8)

(Video Teleconference, 17– 19 May 2021)

Agenda Item 12: Next meetings and any other business

PRESENTATION OF PCCW GLOBAL'S SURVEILLANCE DATA SHARING PLATFORM

(Presented by PCCW Global Limited)

SUMMARY

This information paper describes the system architecture of PCCW SWIM service and its progresses to build its Surveillance Data Sharing Platform (SDSP) with EMS and Service Registry.

1. INTRODUCTION

1.1 Since developing the ICAO CRV network for the Asia Pacific, PCCW Global has aimed at expanding the network by offering value-added services on top of the advanced aeronautical network. These services cover the provision of critical information through the globally interoperable System Wide Information Management (SWIM) infrastructure, interfaces and exchange models.

1.2 By combining PCCW Global's network infrastructure and hosting facilities with Frequentis' proven knowledge and experience in application development for the aviation industry, state Air Navigation Service Providers (ANSPs) will now be able to benefit from SWIM initiatives without the high investment costs and development expenses of traditional systems.

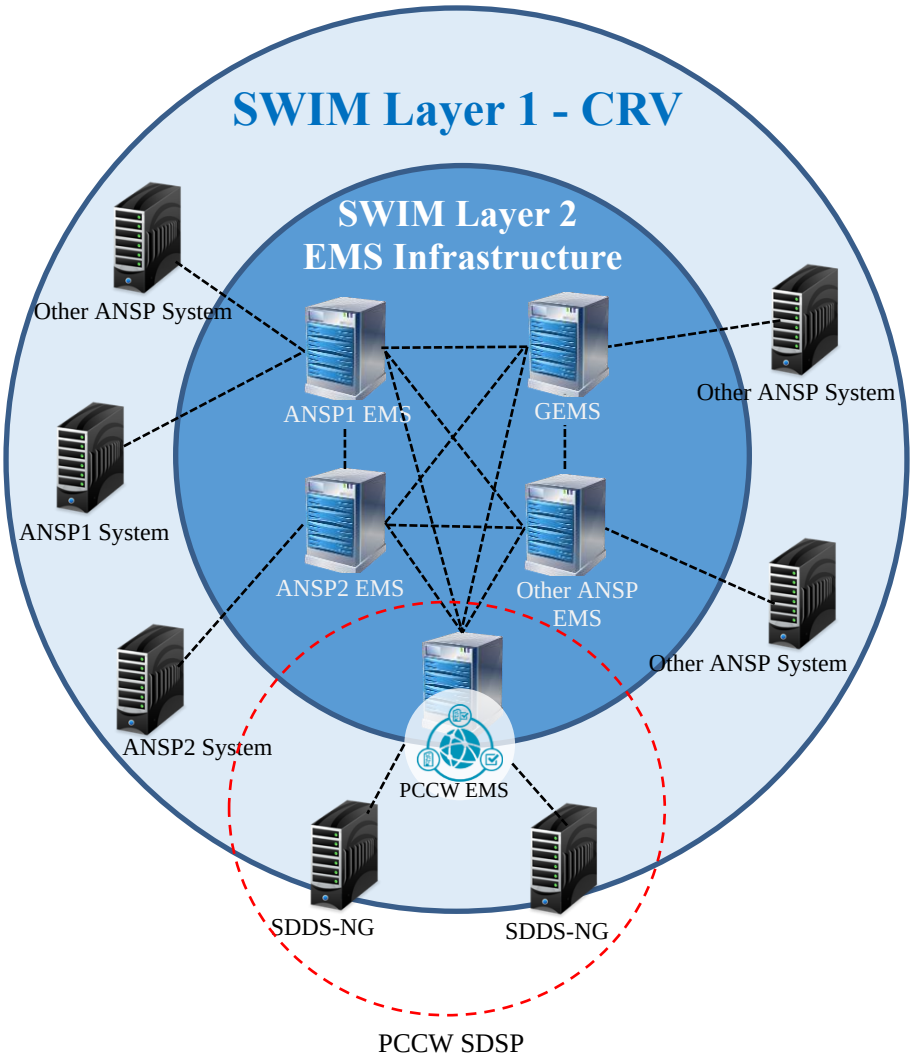
1.3 For SWIM weather data exchange, PCCW Global has launched its IWXXM Translation and Exchange services as the first in a series of modules. The services are hosted on a high-availability private platform in a fully managed and controlled environment which connects to CRV network infrastructure with the approval of the ICAO and CRV Operation Group (CRV-OG).

1.4 For SWIM Surveillance data exchange, PCCW Global see the benefits of using its SWIM services, Service Registry and EMS for the sharing of surveillance data which will enable ANSPs to see traffic further ahead, facilitating the planning and implementation of ATFM. *(Align with HKCAD & CAAS WP/13 on SWIM TF4)*

2. DISCUSSION

2.1 From the EMS Infrastructure layer, PCCW's EMS can be part of the GEMS and will be inter-connected with other ANSPs' and providers' EMS.

2.2 PCCW Global is working with Frequentis Comsoft to host their SDDS-NG (Surveillance Data Distribution System – Next Generation) on PCCW SWIM as Surveillance Data Sharing Platform (SDSP) for qualified States/Administrations/Stakeholders to publish or subscribe surveillance data by following the guidelines of ICAO CRV OG & SWIM TF. The core component of the SDSP, SDDS-NG, was developed in full compliance with current international standards, in particular safety standards such as SWAL 3 (Software Assurance Level 3 according to SAM). SDDS-NG has been operationally proven by many ANSPs worldwide and it is a state-of-the-art system for its purpose of aeronautical surveillance data sharing.



2.3 PCCW SDSP has the following functions, including, but not limited to, surveillance data processing (data validation, filtering, modifications, format conversion e.g.), data distribution and forwarding.

Data Processing Function

2.4 Data Validation. PCCW SDSP supports extensive data validation. Upon reception of the surveillance data, SDDS-NG verifies the incoming data integrity, validates the data syntactically and

semantically. Invalid data are discarded and therefore receiving user's data processing systems are protected.

2.5 Data Filtering. PCCW SDSP supports filtering of surveillance data, including geographical area filter, altitude (flight levels) filter, filtering out selected targets per aircraft identification ("blacklisting") and data type filter. It also means that each user can configure its own multiple filters and receive only data of interest.

2.6 Data Modification and Conversion. PCCW SDSP supports extensive data modification and data format conversion, including conversions between different editions of particular ASTERIX Category (CAT021 Ed. 2.1 to Ed. 0.23 e.g.). Customized formats conversions can also be supported to include e.g. legacy surveillance sensors in the data provision.

Data Distribution and Forwarding Function

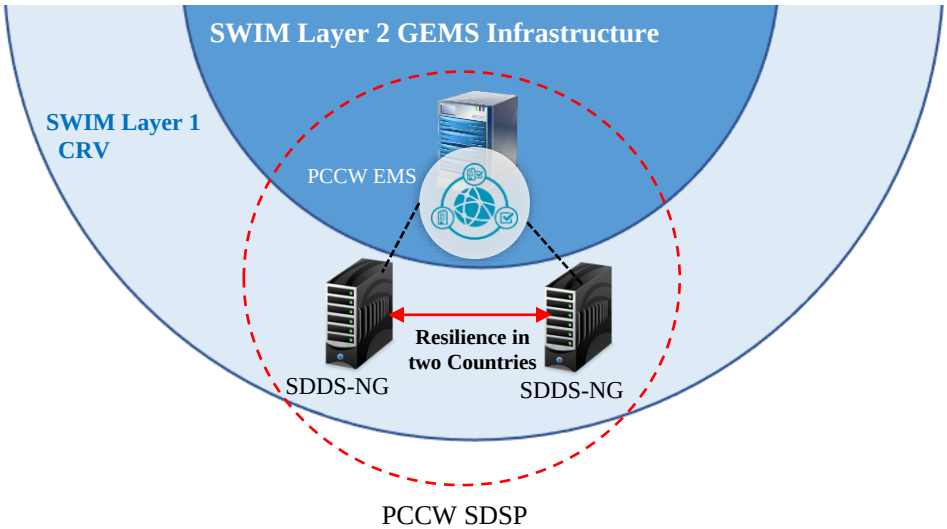
2.7 PCCW SDSP supports all above mentioned data processing functions that can be applied to the received data stream from providers before its further distribution and forwarding to receiving users (utilizers).

2.8 PCCW SDSP offers various individual configurations of distribution criteria on single data stream level. Every input data stream from providers can be simultaneously processed and distributed independently to multiple different receivers/utilizers based on their individual configuration.

PCCW SDSP Network Mode (Resilience in different locations)

2.9 In the context of the surveillance data processing the availability of the different surveillance data sources is a major concern as the quality of the air situation picture depends on it. Therefore, the surveillance sources are typically connected with redundant links. Under normal conditions one of these links is marked as the primary link and only data of this link is processed (in order to avoid duplicate data). Only if this link fails the fall, back link is to be used.

2.10 For PCCW SDSP, it can be deployed in redundant mode, so that resilience in two countries, together with the network diversity of CRV network to provide a high availability service to ANSPs.



3. ACTION BY THE MEETING

3.1 The meeting is invited to:

a) note the information contained in this paper; and

b) discuss any relevant matter as appropriate.

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