

**ICAO***International Civil Aviation Organization***Eleventh Meeting of the Common aeRonautical Virtual Private Network Operations Group (CRV OG/11)***Bangkok, Thailand, 01-03 February 2023*

Agenda Item 8: States CRV Implementation, CRV Bandwidth Utilization Rate, and operations experience sharing

## **VOICE CIRCUIT MIGRATED OVER CRV**

(Presented by Japan)

### **SUMMARY**

This paper presents the experience of Voice circuit migration to CRV (Common aeRonautical VPN) in Japan.

## **1. INTRODUCTION**

1.1 Voice circuits for ATC (Air Traffic Controller) almost migrated over CRV by 2022 in Japan. This paper provides this experience.

## **2. DISCUSSION**

2.1 Various IPLC (International Private Leased Circuit) migrated to CRV in Japan. Circuit for Data such as AMHS (ATS message Handling System) have a high priority.

2.2 For Voice circuit migration to CRV, Japan set policies as below.

1. The voice converter shall not be owned, Japan depends on PCCW NID (Network Interface Device) for the voice exchange function.
2. Both Main and backup ACC (Area Control Center) shall be deployed, and implement the package A for main ACC, package C for backup ACC. In case of local loop failure, the cables will be re-connected manually to backup router on package A. In case of natural disaster at main ACC, calling destination change will be made by the cables re-connection at backup ACC manually and shutdown ports at main ACC.

2.3 Voice circuit between FAA and Japan migration started at May 2019, and completed at Jun 2021. This project began by the planning of circuit service termination, but the schedule postponed because of COVID-19. The backup ACC is not set for the circuit at present time, but we want to construct the backup site in future.

2.4 For FAA circuits, Japan side is using T1 and E&M interfaces. At first, we carried out test between Japan and PCCW, but it couldn't connect due to interface issue. By setting the CE router and our devices to connect same ground terminal, the connection was established.

**Agenda Item 8**

01-03/02/23

2.5 For others, the migration proceeded according with rearrangement program of ATC airspace over Japan as follows.

With Taipei ACC

Five Voice circuits migrated at Feb 2022.

With Incheon and Daegu ACC

Three Voice circuits migrated at Mar 2021, seven Voice circuits migrated at Mar 2022.

With Manila ACC

Three Voice circuits migrated at Jul 2022.

2.6 E&M interface is using each other between Taipei ACC and Japan. At first test, we failed because there was a difference of port number. By matching recognition the port number with PCCW, the second test was successful.

2.7 E&M interface is using each other between Incheon/Daegu ACC and Japan also. First time test at 2021, it was successful. However, first test on second migration at 2022 Mar was failed because of Cisco router design, that is, if there is active SIP calls on the router, all SIP control signaling configuration cannot be modified unless the active SIP calls are cleared. Prior the test, Taipei ACC Voice circuits had migrated CRV and used for operation. After changing the Cisco setting by PCCW, 2nd test became successful.

2.8 In case of Manila ACC, Japan was using E&M interface and Manila ACC was using FXS interface. Start of the test was delayed because network devices to be attached to PCCW NID at Manila ACC side was not available in time due to COVID-19. There were various problems such as not being able to make calls on only one side, not being able to perform as expected backup, etc..., and we repeated the test many times. Finally, it was succeed after trying various PCCW NID settings.

2.9 By above experience, Japan has learned it is most important to confirm the interface each other with PCCW for Voice connection.

2.10 In Japan, we plan to migrate to CRV in the future as follows.

Incheon/Daegu ACC

Six Voice circuits will add at 2023. (Main: Fukuoka ACC backup: Kobe ACC)

AIDC circuit will migrate by Mar. 2024.

FAA

We want to establish currently Voice circuits backup at Tokyo ACC in near future.

Moscow and Khabarovsk ACC

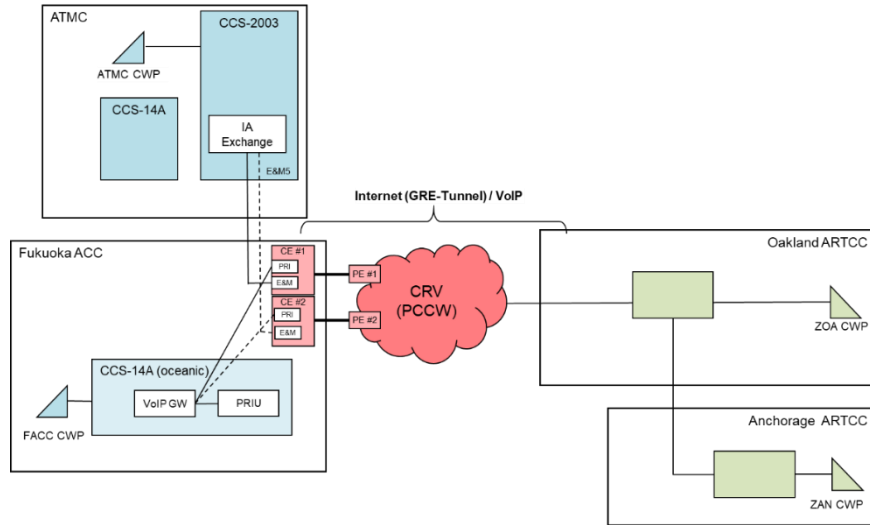
AMHS with Moscow and Voice circuit with Khabarovsk want to migrate to CRV. Now talking about details.

Shanghai ACC

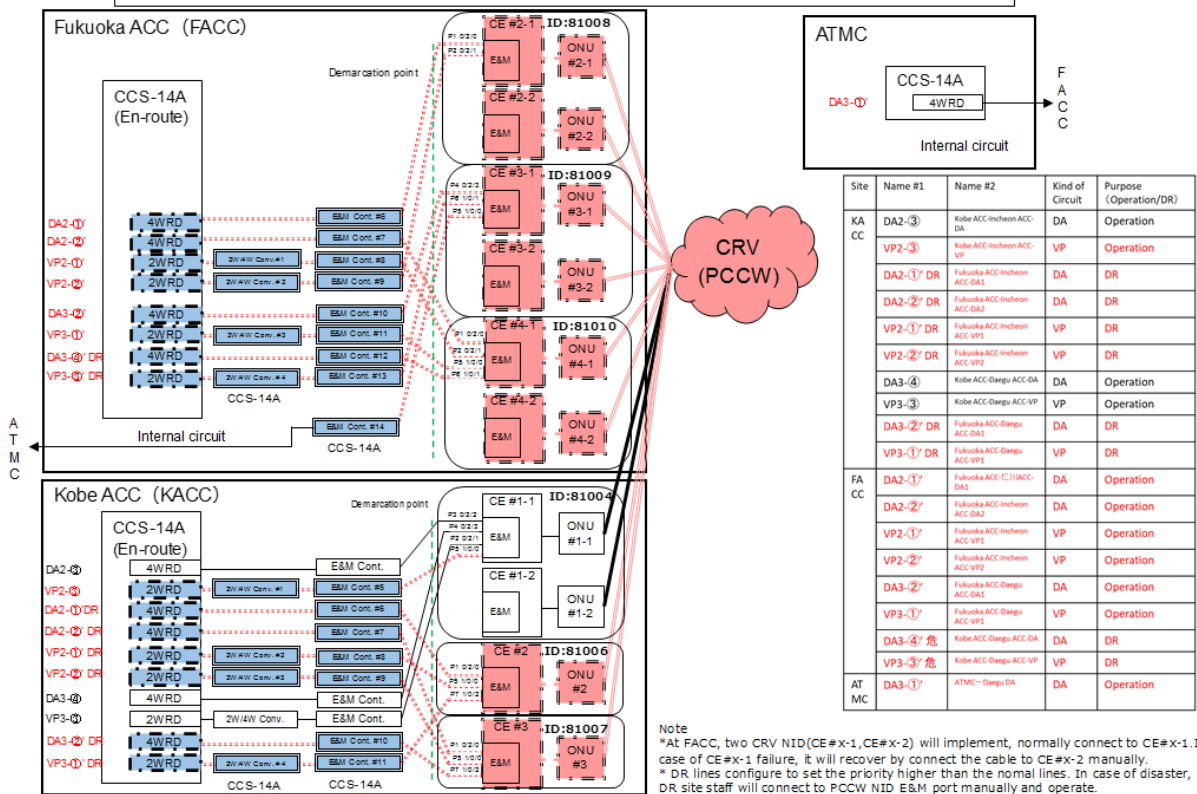
Voice circuit with Shanghai ACC is to be decided. We sent email but no reply after received a reply stating that will consider.

Relevant Diagram are follows.

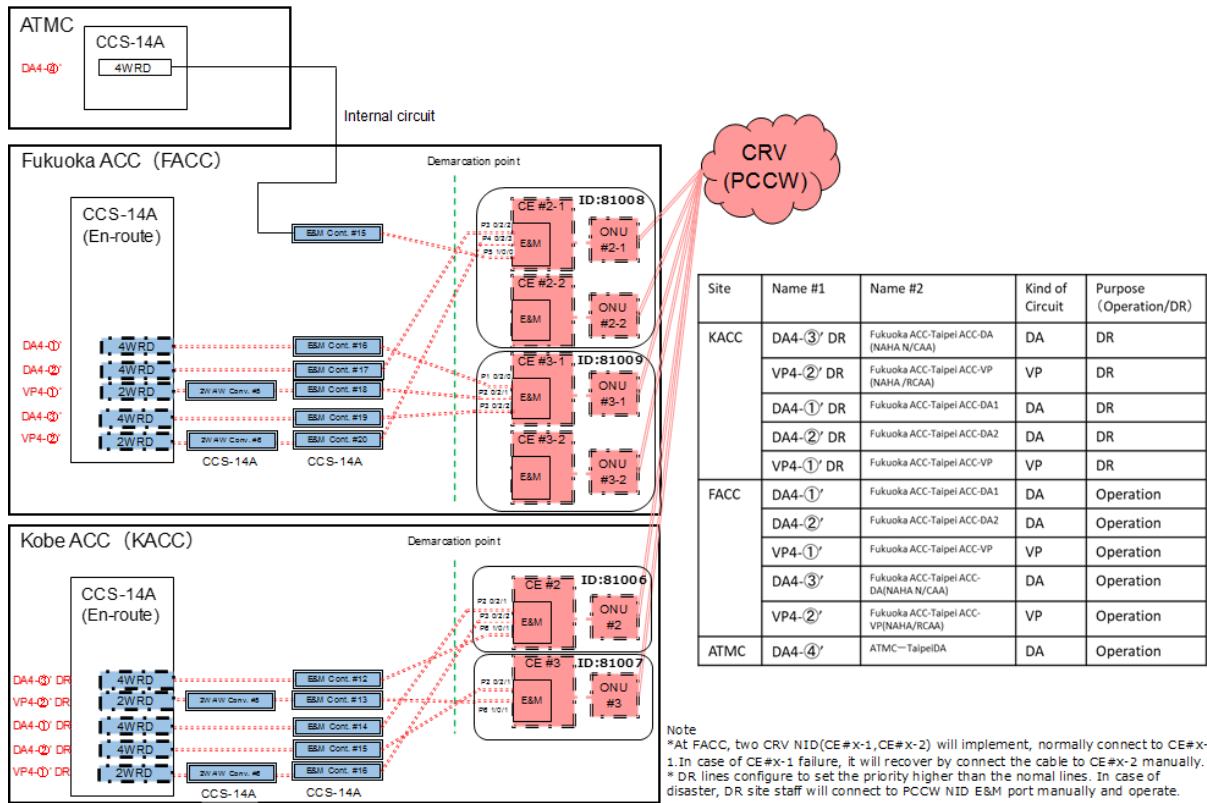
CRV implementation plan for FAA



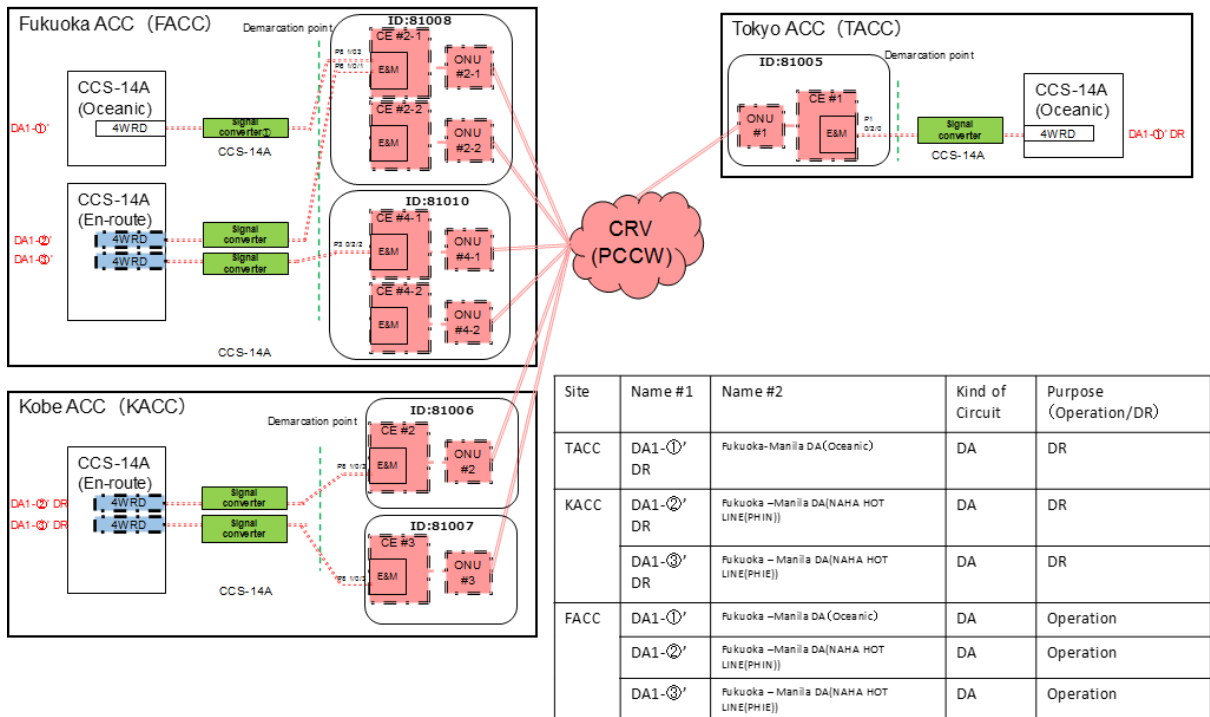
Kobe/Fukuoka ACC – Daegu/Incheon ACC Voice lines(As of Feb.2022)



Kobe/Fukuoka ACC – Taipei ACC Voice lines(As of Feb.2022)



Tokyo/Kobe/Fukuoka ACC – Manila ACC Voice lines(As of Feb.2022)



**3. ACTION BY THE MEETING**

- 3.1 The meeting is invited to note the information provided in this paper.

— END —