International Civil Aviation Organization

THE FIFTEENTH MEETING OF THE COMMON AERONAUTICAL VIRTUAL PRIVATE NETWORK OPERATIONS GROUP (CRV OG/15)

Mumbai, India, 15-19 June 2026

Agenda Item 2: Review outcomes of relevant meetings

REVIEW OF RELEVANT MEETINGS

(Presented by the Secretariat)

SUMMARY

The paper presents the relevant outcomes of the meetings held in 2025 including the Thirty-Sixth Meeting of the Asia/Pacific Air Navigation Planning and Implementation Regional Group (APANPIRG/36), the Twenty Ninth Meeting of Communication, Navigation, the Twelfth Meeting of the Aeronautical Communication Services Implementation Coordination Group (ACSICG/12), and relevant discussions in other meetings.

1. INTRODUCTION

1.1 The Thirty-Sixth Meeting of the Asia/Pacific Air Navigation Planning and Implementation Regional Group (APANPIRG/36) was held at the ICAO APAC Regional Office, Bangkok, Thailand, from 24 to 26 November 2025. The Meeting was attended by **188** participants from **26** Member States, **2** Special Administrative Regions of China, and **6** International Organizations. The APANPIRG/36 meeting report, working papers, information papers, and other resources can be accessed on the APANPIRG/36 Meeting webpage.

1.2 The Twenty-Ninth Meeting of the Communications, Navigation and Surveillance Sub-group (CNS SG/29) of APAC Air Navigation Planning and Implementation Regional Group (APANPIRG) was held at the ICAO APAC Regional Office, Bangkok, Thailand, from 16 to 20 June 2025. The Meeting was attended by **100** participants from **23** States/Administrations, **2** International Organizations, and **3** industry partners. The Meeting report and other documents of the meeting can be accessed on the CNS SG/29 Meeting webpage.

1.3 The half-day AMC Workshop and the Twelfth Meeting of the Aeronautical Communication Services (ACS) Implementation Coordination Group (ACSICG/12) was held at the ICAO APAC Regional Office, Bangkok, Thailand, from 25 to 28 March 2025. The AMC workshop and ACSICG/12 Meeting were attended by 75 participants from 18 States/Administrations, 2 international organizations and 1 industry partner. The meeting report, working papers, information papers, and other resources can be accessed by the following link:

https://www.icao.int/APAC/meetingdocs?fid=917

1.4 CRV Workshop for PSIDS was held from 3-4 March 2025 and the Thirteenth Meeting of the Common aeRonautical Virtual Private Network Operations Group of APANPIRG (CRV OG/13) was held from 5 to 8 March 2025, in Wellington, New Zealand. The Meeting was attended by 74 participants from 26 Member States/Administrations, 3 International Organizations and 2 telecommunication providers. The meeting report, working papers, information papers, and other resources can be accessed by the following link:

https://www.icao.int/APAC/meetingdocs?fid=593

1.5 The Special Session - Fourteenth Meeting of the Common aeRonautical Virtual Private Network Operations Group of APANPIRG (CRV OG/14) was held from 27 to 31 October 2025 in Tokyo, Japan. The Meeting was attended by 70 participants from 28 Member States/Administrations, 1 International Organizations and 3 telecommunication providers. The meeting report, working papers, information papers, and other resources can be accessed by the following link:

https://www.icao.int/APAC/meetingdocs?fid=553

1.6 The Tenth Meeting of the System Wide Information Management Task Force (SWIM TF/10) was held from *20 – 23 May 2025* in the ICAO APAC Regional Office, Bangkok, Thailand. The Meeting was attended by **109** participants from **23** States/Administrations**, 2** International Organizations and one industry partner. The SWIM TF/10 meeting report, working papers, information papers, and other resources can be accessed by the following link:

https://www.icao.int/APAC/meetingdocs?fid=710#block-icao-page-title

1.7 The First Working Session of the SWIM Implementation Pioneer Ad-Hoc Group (SIPG WS/1) was held from *14 to 17 January 2025* in the ICAO Asia Pacific Regional Office, Bangkok, Thailand. The meeting was attended by **51** Participants from **13** States/Administrations and **2** International Organizations. The Working Session report and presentations can be accessed at:

https://www.icao.int/APAC/meetingdocs?fid=577

1.8 The Second Working Session of the SWIM Implementation Pioneer Ad-Hoc Group (SIPG WS/2) was held from *26 to 30 May 2025* in the ICAO Asia Pacific Regional Office, Bangkok, Thailand. The meeting was attended by **64** Participants from **20** States/Administrations and **2** International Organizations. The Working Session report and presentations can be accessed at:

https://www.icao.int/APAC/meetingdocs?fid=711#block-icao-page-title

1.9 The APANPIRG/36 Meeting reviewed the outcomes of CNS SG/29, noted with appreciation the following work done and achievements by the CNS SG and the contributory bodies reporting to APANPIRG through the CNS SG. APANPIRG/36 also discussed CNS-related matters and acted on the Report of the CNS SG/29 meeting and other papers presented under Agenda Item 3.4.

1.10 This paper summarized relevant information and updates with a highlight of the reviewed outcomes of relevant discussions of other meetings of CNS SG/29 and APANPIRG/36.

2. DISCUSSION

The actions taken by APANPIRG/36 & CNS SG/29 meetings on Aeronautical Fixed Service (AFS) related matters are highlighted below:

2.1 The CNS SG/29 meeting adopted the following **5** Conclusions and **6** Decisions:

Reference		Subject
Conclusion CNS SG/29/02 *(Conclusion ACSICG/12/03 (CRV OG/13/07))*	-	Adopt the CANSO Standard of Excellence in Cyber Security for CRV

Decision CNS SG/29/03 *(Decision ACSICG/12/04)*	-	Adoption of SOP to update the AMC AFTN/AMHS Routing Table in the Asia/Pacific Region
Conclusion CNS SG/29/04 *(Conclusion ACSICG/12/05)*	-	Educational material to manage the distribution of IWXXM information for COMM experts in the event of primary link failure
Conclusion CNS SG/29/05 *(Conclusion ACSICG/12/06)*	-	Checklist of steps required for operational IWXXM exchange
Decision CNS SG/29/08 *(GBAS-SBAS ITF 07/01)*	-	Guidance Document for Implementation of SBAS in the Asia/Pacific Region
Conclusion CNS SG/29/09 *(SURICG/10/02)*	-	Workflow for the request and coordination of IC codes with the ICAO APAC Office
Decision CNS SG/29/10 *(ATMAS TF/06/01)*	-	Adoption of the Air Traffic Management Automation System Implementation and Operations Guidance Document Edition 1.5
Decision CNS SG/29/11 *(ATMAS TF/06/02)*	-	Adoption of the AIDC Implementation and Operations Guidance Document (IGD) Edition 2.0
Conclusion CNS SG/29/12 *(ACSICG/12/01(CRV OG/13/04), ACSICG/12/08, SURICG/10/01, SRWG/09/01)*	-	Update the CNS Tables of ICAO APAC e-ANP Vol II
Decision CNS SG/29/13	-	Adoption of Regional Guidance Material for Addressing Human Factor Issues of ATSEP v2.0
Decision CNS SG/29/14	-	Creation of ANS Information Assurance Task Force (ANSIA TF)

2.2 The contents of above Conclusions/Decisions adopted by the CNS SG/29 are provided in **Attachment A** to this paper.

2.3 Based on the outcome of discussions on various agenda items, the CNS SG/29 meeting developed 3 Draft Conclusions and 1 Draft Decision for consideration by APANPIRG/36 Meeting, which were further adopted by APANPIRG/36. The Conclusions/Decisions adopted by APANPIRG/36 are as follows:

Reference		**Subject**
Conclusion APANPIRG/36/10 *(CNS SG/29/01 (ACSICG/12/02 (CRV OG/13/06)))*	-	Implementation of CRV for small Pacific Islands and small ANSPs in the region using CRV Solution, CRV SLA Package D+
Decision APANPIRG/36/11 *(CNS SG/29/06 (SWIM TF/10/02))*	-	Adoption of APAC Common SWIM Information Services, v1.0

Conclusion APANPIRG/36/12 - Asia/Pacific Regional FIXM version 4.3 Extension
(CNS SG/29/07
(SWIM TF/10/03))

Conclusion APANPIRG/36/13 - Decision on CRV II contract Management Process
(CNS SG/29/15
(ACSICG/12/09
(CRV OG/14/01)))

2.4 All APANPIRG/36 Conclusions related to CNS are provided in **Attachment B** to this paper.

Outcome of ACSICG/12

Thirteenth Meeting of Common aeRonautical VPN Operations Group (CRV OG/13)

2.5 Singapore shared the list of achievements that have been made by CRV OG under the leadership of Mr. Vaughan Hickford, Manager Enterprise Architecture & Networks, Airways New Zealand, in the last four years and nominated Mr. Vaughan Hickford as a candidate for CRV OG Co-Chair (Asia). The proposed nomination was seconded by Fiji, Hong Kong China and USA. No other nomination was proposed by any other member state for Meeting consideration. With the aforementioned, Mr. Vaughan Hickford was unanimously re-elected as the CRV OG Co-Chair (Asia).

2.6 Mr. Vaughan Hickford shared his appreciation to the Meeting for proposing and supporting his nomination. He recalled working on the CRV network from its inception till its implementation for more than a decade and relationships built over several years with all CRV OG members.

2.7 Singapore requested the ICAO Secretariat to prepare a list of regional IP networks in various ICAO regions, their service provider, and contract duration for working on harmonizing these dates in the future so that interconnection of regional networks can be planned strategically. The ICAO Secretariat prepared the following list in coordination with other regional offices:

SN	Region	Regional IP Network name	Service Provider	Contract start year	Contract end year
1.	APAC	CRV	PCCW Global	2017	2028
2.	MID	In process	NA	NA	NA
3.	WACAF/ESAF	No dedicated IP network AFISNET NAFISAT SADC networks	 ASECNA ATNS and IATA ATNS and IATA	NA	NA
4.	SAM	REDDIG II	Cirion/Intelsat	2015	2025
5.	NACC	MEVA III	FREQUENTIS AG	2015	March 2026
		CARSNET	Contract process ongoing	2026	2036
6.	EUR/NAT	New PENS	British Telecom	2018	2028

2.8 Some details of AFI networks were as follows:

1. **AFISNET**: The AFI Satellite Telecommunications Network covers Central and Western African States as well as Southern African and Indian Ocean States (ASECNA Member States).
2. **SADC VSAT/2**: A network launched by the Southern African Development Community (SADC) States in 2008.
3. **NAFISAT**: A network designed for the North-Eastern African States.
4. **CAFSAT:** The Central Atlantic FIRs Satellite Telecommunications Network, which involves African, European, and South American States

Note: AFISNET, SADC VSAT/2 and NAFISAT are capable of IP technology. Upgrades are still undergoing for CAFSAT for the integration of IP-based services.

2.9 CARSNET is the Caribbean Air Navigation Services Network, which is the replacement contract for MEVA. CARSNET will be a combination of dual networks, a primary one MPLS and a satellite network as a backup.

Outcomes of ICAO APAC-MID CRV Workshop – Sec (WP/03)

2.10 The CRV OG/13 Meeting reviewed the ICAO APAC-MID CRV Workshop held in Jeddah, Saudi Arabia, from 20-23 October 2024. The Workshop noted the benefits of implementing an IP Network for voice and data, recalled past ICAO MID Meetings and related decisions relevant to CRV implementation and discussed the roadblocks for CRV implementation efforts from MID States from 2017-2019. It was noted that price was one of the critical factors in the decision-making process. The ICAO Secretariat outlined reasons for encouraging MID States to join CRV and the associated benefits.

2.11 PCCWG provided details about the CRV network, including package offerings and technical solutions for MID States, along with a special promotion for Package D and D+. In response to cybersecurity concerns, it was clarified that security is the responsibility of the contracting States and the CRV service provider, with PCCWG utilizing GRE tunneling for security and being ISO 27001 certified. The ICAO Secretariat mentioned ongoing efforts to establish minimum security requirements and the need for global provisions from the Trust Framework Panel.

2.12 The CRV OG/13 Meeting noted that the CRV contract mandates States to join CRV for an initial term of a minimum of 5 years. However, as the current CRV contract is expiring on 31 December 2028, a special exception has been provided to MID States in the offer presented by PCCWG. Most MID States expressed interest in Package A and agreed to contact PCCWG individually for negotiations, with coordination support available from the ICAO MID office.

2.13 The CRV OG/13 Meeting proposed that Pakistan and India encourage Oman's higher authorities to join CRV by sharing letters detailing successful implementation experiences. Additionally, a group similar to the CRV Task Force in the APAC region was suggested for the MID region to study the CRV network and its implementation. China informed that it is planning for an AMHS connection with Kuwait and requested contact information. ICAO Secretariat will share information about the focal point from Kuwait with China.

Outcomes of SIPG WS/1 - Sec (WP/04)

2.14 The CRV OG/13 Meeting reviewed the outcomes of the First Working Session of the SWIM Implementation Pioneer Ad-Hoc Group (SIPG WS/1) held from 14 to 17 January 2025 in the ICAO Asia Pacific Regional Office, Bangkok, Thailand. The session was attended by 51 Participants from 13 States/Administrations and 2 International Organizations. The Working Session report and presentations can be accessed at:

https://www.icao.int/APAC/MeetingDocs?fid=577

2.15 The CRV OG/13 Meeting shared the concern of routing to be done by EMS in the proposed SWIM architecture. It was agreed that such architecture would not meet the purpose of SWIM implementation as routing will need to be done at the EMS/application level, which is not recommended.

2.16 For the three possible options to establish the APAC regional SWIM over CRV and the Internet, the Meeting deliberated the proposal mentioned in the SIPG WS/1 report from sections 3.12 to 3.13. The CRV OG/13 Meeting indicated that the third proposed option is not feasible, and it was noted that the two remaining options have flaws due to misunderstandings regarding how SWIM EMS will be connected over CRV and the Internet. It was agreed that there is a need for further discussion among CRV and SWIM experts to clarify the shortcomings of proposed options and make SWIM experts understand the integration of SWIM with CRV. This matter was further discussed and clarified in CRV OG Ad-hoc Experts and SWIM TF Task Leads Online Meeting on 13 March 2025.

2.17 During the 13 March meeting, it was clarified that EMS for SWIM physical connectivity to the CRV is well understood by SWIM experts. In addition, it was clarified that SIPG is not doing IP based routing but message routing, which is in layer 7.

Outcomes of CRV Ad-hoc Experts Group Meetings - New Zealand (WP/05)

2.18 The CRV OG/13 Meeting noted the outcomes of the CRV OG Ad-Hoc Expert Group discussions. Singapore shared that four expert groups were established within CRV OG, along the lines of Strategy, Design, Transition and Operations, since the CRV OG/08 Meeting in 2021. However, the four groups were working as a single group due to a limited number of members and contributions from APAC States/Administrations. In addition, joint Meetings of CRV OG Ad-hoc Group and SWIM experts are being conducted quarterly along with CRV OG Ad-hoc Governance Group. It was suggested that some of these Meetings could be merged together to save time for common members. The CRV OG/13 Meeting agreed that due to the different types of discussion involved, joint Meetings of CRV and SWIM experts will continue to be organized separately. However, CRV governance can be added to the agenda items of the CRV ad-hoc expert group. The ICAO Secretariat will take necessary action to follow revised working arrangements.

Outcomes of Joint CRV OG Ad-hoc Expert and SWIM TF TLs Meetings - New Zealand (WP/06)

2.19 The paper presented an update on the Meetings between the CRV OG Experts and the SWIM Taskforce Team Leads. The joint CRV OG experts and SWIM TF TLs Meetings occurred three times in 2024, on 7 March, 12 June, and 12 November 2024 via TEAMs. The outcomes of the discussions regarding the SWIM principally over CRV, new CRV specifications accommodating SWIM needs, PCCWG Console Connect Aviation Platform, support of CRV OG for SIPG work, and CRV Governance were introduced. The Meeting requested more States/Administrations to contribute to the CRV OG Ad-hoc Governance/Experts Group.

Proposed SOP for Dispute Resolution on CRV Matters – Fiji (WP/07)

2.20 Fiji presented the Proposed Standard Operating Procedure (SOP) for Dispute Resolution on CRV Matters to be adopted in the CRV Operations Manual. The CRV OG/13 Meeting reviewed and modified the proposed SOP for dispute resolution on CRV matters, and the final SOP was endorsed by the Meeting by the **Conclusion CRV OG/13/01- Standard Operating Procedures (SOP) for Dispute Resolution on CRV Matters**. The adopted SOP is provided in **Appendix A**. It was

informed that the SOP had been incorporated into the CRV OG Operations Manual v1.4, adopted by **Decision CRV OG/13/02**.

Criteria to add a new service in the Operations Manual – New Zealand (WP/08)

2.21 New Zealand presented a procedure to connect **a non-ANSP system** to the CRV for data communication. The CRV OG/13 Meeting noted that CRV OG will allocate an IP address to the new non-ANSP from the dedicated address block for other service providers. The CRV OG/13 Meeting deliberated the proposed procedure and adopted it to incorporate it into the CRV OG Operations Manual. The procedure is incorporated in CRV OG Operations Manual v1.4, adopted by **Decision CRV OG/13/02**. The procedure for adding SWIM services over CRV could be defined once the APAC SWIM architecture is finalized and other necessary details for SWIM implementation are available. The ICAO Secretariat will share this information with SWIM experts.

CRV OG Operations Manual Status - New Zealand (WP/09)

2.22 New Zealand presented the status of the CRV OG Operations Manual. The Meeting noted that since the publication of the CRV OG Operations Manual in April 2022, there have been many updates, mostly from discussions within the various Ad Hoc groups. The Meeting was informed that the current DRAFT version of the Operations Manual is ready for publication with various modifications, which were presented at the Meeting. The CRV OG/13 meeting adopted CRV OG OM v1.4 by **Decision CRV OG/13/02** - Publish the updated APAC CRV Operations Manual. The latest version of the CRV OG Operational Manual was published on ICAO APAC e-docs under CNS, ICAO APAC CRV Secure portal, and on the CRV portal hosted by Airways New Zealand.

Update to the CRV Implementation Plan - Singapore (WP/10)

2.23 Singapore presented the proposed updates, editorial changes, and formatting adjustments to the CRV Implementation Plan. The Meeting was informed that the CRV OG/12 Meeting tasked the CRV Ad-hoc Expert group to update the CRV Implementation Plan to refine the roles of the National and Local CRV Points of Contact (i.e., CRV User – State/Administration). The proposed updates to the CRV Implementation Plan, including editorial changes and formatting adjustments, were shared with the Meeting. The CRV OG/13 Meeting reviewed the proposed updates and adopted the **Decision CRV OG/13/03 – Update to the CRV Implementation Plan v2.3**.

Common Package Update - New Zealand (WP/11)

2.24 New Zealand presented an update to the Common Package document naming convention. It was reported that the current naming convention for the documents in the Common Package is mixed. The CRV OG/13 Meeting noted that as discussed at the APAC CRV Ad Hoc Expert Meeting on 12 December 2024, it was proposed to standardize the document naming, with each document being prefixed with an Owner number followed by a Document number. The proposed Owner numbers were 1. ICAO, 2. CRV OG and 3. PCCWG. The CRV OG/13 Meeting reviewed the common package and agreed to adopt a revised common package. The revised common package can be accessed on the New Zealand-hosted CRV Portal.

Outcomes of Fifth Ad-Hoc Governance Meetings

2.25 The Fifth Meeting of the CRV OG Ad-hoc governance group was conducted on 5 March 2025. The Meeting further reviewed the list of tasks and problem statement. It was observed that based on a list of tasks provided, there is not much of a workload on CRV Users for operations and management of the CRV network. However, many tasks such as CRV documentation, contract-related documents, and further work required to improve future CRV performance are not being done at the

State level but by the CRV OG Ad-hoc Expert Group. In addition, a regular Meeting with CRV service providers must be conducted by States as a standard practice to manage the operations of a network, which is being done by the CRV OG Co-Chair (Asia) on behalf of CRV OG Member States. Therefore, it was concluded that various tasks related to regular operations of the CRV network could be done.

2.26 The CRV OG/13 Meeting discussed the New PENS and REDDIG II governance models, agreeing that REDDIG II better suits the APAC region. The ICAO Secretariat was requested to organize a Meeting with REDDIG network administration members to discuss and understand the current structure and governance model. The ICAO Secretariat will coordinate with the ICAO SAM Office to schedule an online Meeting in Q4 2025.

2.27 The CRV OG/13 Meeting realized the need to know the total amount APAC States/Administrations pay for CRV contracts. It was agreed that CRV users would share their monthly CRV contract price with the ICAO Secretariat. It was stated that the ICAO Secretariat will share the total price for the region in a future forum for discussion. No individual data shared by each State will be disclosed with other States/Administrations.

2.28 Another suggestion was to send a state letter from the ICAO APAC Office to Member States to provide subject matter experts to support CRV OG in the management of various tasks. It was decided to first gather more information about the future CRV governance model before taking further action.

New Zealand hosted CRV Portal Content Update - New Zealand (WP/12)

2.29 New Zealand shared information about the New Zealand hosted CRV Portal. It was informed that New Zealand hosted CRV Portal provides a common platform to compile all necessary information related to CRV, such as the Operations Manual, Transition Plan and Common Package for all CRV Users. Having this portal provides the flexibility of updating the various documents and providing access to these under the control of the CRV Operations Group. It was noted that the contents of the portal remain reasonably stable, with the main updates being to the Operations Manual, Common Package items, and the Implementation Progress updates from PCCWG. Recent additions to the portal were shared and described. It was added that future enhancements include the provision of a sitemap and a history and timeline of the CRV being developed.

Review and update the APAC CRV Implementation Table and Telecommunication Infrastructure Table - Sec (WP/13)

2.30 The latest updates presented on the planning and implementation status of CRV were as follows:

- **Under Operation**
  Australia, Bhutan, Cambodia, China, Hong Kong China, Fiji, French Polynesia, India, Indonesia, Japan, Macau China, Malaysia, Mongolia, Myanmar, Nepal, New Zealand, Pakistan, Philippines, PNG, Republic of Korea, Singapore, Sri Lanka, Thailand, USA and Vietnam

- **Under Provisioning**
  New Caledonia and Maldives

- **Hot Prospects in 2025**
  Bangladesh, Brunei, Cook Island, Lao PDR, Oman, Niue, Samoa and Tonga

- **Not joined yet**
  Afghanistan, DPRK, Kiribati, Marshal Islands, Micronesia, Nauru, Palau, Solomon Islands, Timor Leste, Tuvalu, Vanuatu, Russia, ICAO MID States

2.31 Lao PDR informed ACSICG/12 Meeting that it is in contact with the CRV service provider to implement CRV. However, there is a delay in the internal procedure. It is expected that CRV implementation will be done in Lao PDR in 2026. ACSICG Co-Chair suggested informing CRV OG and ICAO Secretariat in case any issues are observed following the new SOP process adopted by CRV OG/13 by **Conclusion CRV OG/13/01**.

2.32 The CRV OG/13 Meeting reviewed the APAC CRV Implementation Table and agreed that after the Telecommunication Infrastructure Table, CRV Implementation Table updates are not required. The meeting updated the Telecommunication Infrastructure Table, which can be accessed on the New Zealand-hosted CRV Portal.

Review of CRV Information in TABLE CNS II-2 Required ATN Infrastructure Routing Plan In e-ANP Vol II - Sec (WP/14)

2.33 The ICAO Secretariat summarized the need for review and update to the **TABLE CNS II-2**- *REQUIRED ATN INFRASTRUCTURE ROUTING PLAN* specified in ICAO APAC e-ANP Vol II by APAC States/Administrations. It reminded States/Administrations to review the data affecting their administration and provide feedback to ICAO on the data's accuracy in the requisite format to update the relevant CNS requirements in all volumes of e-ANP.

2.34 The CRV OG/13 Meeting was requested to deliberate on **three options** and choose the appropriate one: 1) the need to change the template of TABLE CNS II-2 of e-ANP Vol II as per the agreed revised ATN Infrastructure Table, 2) add a table to incorporate CRV under specific regional requirements or 3) utilize the existing template of TABLE CNS II-2 of e-ANP Vol II to incorporate CRV at the appropriate place. The pros and cons of all three options were explained at the Meeting. After discussion, the Meeting agreed on **option three** and suggested that **CRV information be added to column number 7**.

2.35 It was noted that the current CNS-related table in ICAO APAC e-ANP is outdated and has not been updated by States/Administrations for many years. The CRV OG/13 Meeting urged states to verify and update **the TABLE CNS II-2- REQUIRED ATN INFRASTRUCTURE ROUTING PLAN** of e-ANP Vol II following the PfA process, as data provided in e-ANP must be up-to-date. It was suggested that data updated in the Telecommunication Infrastructure Table on the New Zealand-hosted CRV Portal can be utilized to update the required information. The ICAO Secretariat informed that **all CNS tables in the Word file** mentioned in ICAO APAC e-ANP Vol II are uploaded to the ICAO APAC ANP Webpage with instructions on how to file a PfA.

2.36 With the abovementioned, CNS SG/29 adopted **Conclusion CNS SG/29/12 (*ACSICG/12/01(CRV OG/13/04), ACSICG/12/08, SURICG/10/01,* SRWG/09/01*)* -** Update the CNS Tables of ICAO APAC e-ANP Vol II.

CRV contract management

2.37 Due to the confidentiality of the CRV contract management process, the report under agenda item 7 was published on the ICAO APAC CRV Secure portal under the CRV group.

CRV Additions in AMC – Sec (WP/20)

2.38 The CRV OG/13 Meeting was presented with information about ongoing work on the addition of CRV implementation status in AMC by Eurocontrol. It was added that Eurocontrol informed that it aimed to align with the PENS approach by May 2025 and will notify ICAO upon completion.

Future Bandwidth Requirements Based on Outcomes of Joint Event - Hong Kong China (WP/22)

2.39 It was noted that Hong Kong China presented at the CRV OG/13 a study on the bandwidth used for the ADS-B data transmitted over the SWIM/CRV environment and shared the analyzed outcomes. The CRV OG/13 was requested to encourage States/Administrations using SWIM/CRV to share their experience in conducting similar monitoring and analysis. The CRV OG/13 appreciated the study done by Hong Kong China and agreed that it was beneficial to the CRV OG/13 and that the formula used to calculate bandwidth would be helpful for CRV Users to evaluate the bandwidth requirements for ADS-B data. Hong Kong China would continue working on deriving a formula based on this analysis to compute the bandwidth required for surveillance data sharing and would suggest it to the CRV OG Ad-hoc Expert Group for incorporation into the CRV OG Operations Manual.

Package D+ For PSIDS/Small ANSPS – Fiji (WP/23)

2.40 Fiji proposed CRV SLA Package D+ for PSIDS and small ANSPs in the APAC region for implementation for CRV. Fiji informed that CRV Package D+ was formalized and incorporated in the CRV Operations manual. CRV Package D+ was presented to the Meeting as the preferred CRV Package for the PSIDS and small ANSP Member States in the APAC region through the following Draft Conclusion.

2.41 The following Conclusion as endorsed by CNS SG/29 was adopted by APANPIRG/36.

<table>
<tr><td colspan="3">Conclusion APANPIRG/36/10 (Conclusion CNS SG/29/01 (ACSICG/12/02 (CRV OG/13/06))) - Implementation of CRV for small Pacific Island and small ANSP in the region using CRV Solution, PCCWG SLA Package D+</td></tr>
<tr><td colspan="2">What: That, the CRV OG agreed to the following to assist small Pacific Islands & small ANSPs in APAC in the implementation of CRV:
a) CRV SLA Package D+ is reliable and addresses lead time for acquiring spares and PCCWG to import licenses and clearance for customer sites
b) Small Pacific Island and small ANSP in the region to consider using CRV SLA package D+ as the CRV solution to implement CRV for the exchange of voice & AMHS services
c) With a target date to implement CRV by 2025, it was recommended that the CRV OG work closely with the small Pacific Islands, small ANSP in the region and PCCWG on a cost-effective CRV solution to implement CRV.</td><td>Expected impact:
☐ Political / Global
☐ Inter-regional
☒ Economic
☐ Environmental
☒ Ops/Technical</td></tr>
<tr><td colspan="2">Why: To facilitate the implementation of CRV for the small Pacific Island & small ANSP in the region</td><td>Follow-up: ☒Required from States</td></tr>
<tr><td>When: 26-Nov-25</td><td colspan="2">Status: Adopted by PIRG</td></tr>
<tr><td colspan="3">Who: ☒Sub groups ☒APAC States ☐ICAO APAC RO ☐ICAO HQ ☐Other: XXXX</td></tr>
</table>

CRV Operational performance report- PCCWG (SP/01)

2.42 PCCW Global presented the CRV Operational Performance Report, which analyzed the reliability and overall performance of the CRV network in 2024. It was informed that the CRV network consists of 68 circuits across 38 locations, supported by various service packages. Two service providers currently support the network, and four new circuits are under implementation, targeting New Caledonia, the Maldives, and two locations in Hong Kong, with completion expected in 2025. Additionally, eight new member states are expected to join the CRV network in 2025. CRV OG/13 Meeting noted the service inventory and site availability details, which highlighted high service reliability across various administrations. It also took note of ongoing contract negotiations with prospective member states. The CRV OG/13 Meeting discussed various incidents that resulted in unserviceability in various APAC States/Administrations and their impact on the operational environment. The CRV OG/13 Meeting suggested that PCCW Global provide an analysis of various incidents in all APAC States/Administrations that have severely impacted SLA.

Analysis of APAC CRV Bandwidth Utilization – PCCWG (SP/02)

2.43 The paper presented the bandwidth utilization of each member State in 2024, providing a comprehensive understanding of how network bandwidth is utilized within the organization. PCCWG informed that the reporting tool captured and recorded the average traffic value from the NID interface at 5-minute intervals and averaged the collected data to generate the monthly traffic report. The Meeting reviewed the monthly traffic report and it was observed that the average utilization rate cannot share peak bandwidth utilization. Member States/Administrations were requested to make additional efforts to measure and monitor CRV network performance and share it with CRV OG regularly.

CRV Post Implementation issues in Sri Lanka (WP/31)

2.44 Sri Lanka informed that the CRV circuit for Sri Lanka was interrupted by two major service failures. The CRV OG/13 Meeting deliberated on the root cause of the two incidents and the issues Sri Lanka faced in resolving them. It was advised that PCCW Global should notify their support desk staff to respond to filed tickets promptly and clearly make them understand the responsibilities for managing the serviceability of Package D, where PCCW Global and ISP of States are responsible for maintaining operational performance required for the CRV network. PCCW Global informed that they have initiated an educational process for their customer support staff to enhance service and improve communication.

2.45 It was advised that the maintenance window should be agreed upon between PCCW Global and the State to avoid peak traffic periods. The CRV OG Operations Manual outlines the maintenance notification process, which should be referenced. Regarding the proposal to establish a maintenance window at the sub-regional level in the APAC region, it was agreed that further discussions are necessary, and this topic will be included in the CRV OG Ad-hoc Expert Group discussions.

Proposed CRV Connections to the Cloud – Singapore (SP/03)

2.46 Singapore highlighted that a cloud platform offers scalability, cost efficiency, performance optimization, and reliability for handling workloads. Singapore will implement some of its next-generation systems on a cloud platform. However, scaling its on-premises infrastructure to match the cloud's scalability is challenging, and currently, there was no connectivity between cloud providers and the CRV.

2.47 It was proposed that the CRV service provider establish interconnectivity between Government Commercial Cloud and Commercial Cloud platforms with the CRV. The CRV OG/13 Meeting agreed that there are some complexities in the implementation of the cloud within the CRV network and integration of it with another cloud network. PCCW Global stated that it is technically feasible, but security concerns must be addressed while implementing it in current or future CRV

networks. It was agreed that there is a need to understand various options for this implementation and recommend a path with the support of cloud service providers such as Microsoft, AWS, Azure, etc. It was agreed that New Zealand will facilitate this discussion with the cloud service provider to progress on this matter.

Space-based ADS-B on CRV – Aireon (SP/04)

2.48 The CRV OG/13 Meeting noted that ground-based ADS-B and space-based ADS-B are equally vulnerable to GNSS RFI and spoofing. However, space-based ADS-B services provided by Aireon have the capability to detect unauthenticated GNSS signals.

2.49 The CRV OG/13 Meeting requested documentation on the process to follow if they want to utilize CRV for space-based ADS-B data transmission. Aireon suggested that the Philippines initially draft the document based on their recent experience of contracting space-based ADS-B services over CRV. Aireon will provide further additions to the process, adding the coordination required between Aireon and the CRV service provider. The Philippines will draft the procedure and present it at the next CRV OG Ad-hoc Expert Group Meeting on 12 June 2025. The procedure will be reviewed and adopted by the CRV OG/15 Meeting in June 2026.

Com Chart update based on the Asia-Pac ATN Infrastructure Routing Plan- New Zealand (WP/33)

2.50 New Zealand informed that during the 12 November 2024 APAC CRV Ad-Hoc Experts and SWIM Taskforce Team Leaders Meeting, the SWIM Taskforce leads raised the concept of updating the COM Chart to show the use of CRV to deliver the relevant services to aid their understanding of the connectivity. It was informed that using the AMC, CNS II-2 required ATN infrastructure routing plan, the COM Chart was updated to show the CRV connections in two formats: a) Retaining the current COM Chart layout and replacing the link speed with CRV and b) Retaining the COM Chart layout and adding all of the sites and GRE tunnels. It was informed that using the COM chart in this way allows the visual representation of the connectivity based on the AMC CNS II-2 required ATN infrastructure routing plan and the Implementation Updates provided by PCCWG.

2.51 The CRV OG/13 Meeting appreciated the task completed by New Zealand. It was added that after CRV display integration into AMC, it will be easier for States to download the latest and updated chart from the AMC portal.

Japan's support for PSIDS and international collaboration – Japan (WP/30)

2.52 Japan presented its efforts to enhance ATS network capacity and build sustainable capacity in the Pacific Small Island Developing States (PSIDS). Additionally, Japan invited operational and technical personnel designated by the PSIDS to participate in training programs in Japan (with costs covered by Japan) in December 2024.

2.53 Japan proposed to host a PSIDS capacity-building workshop along with Special Session- CRV OG/14 on 27 October 2025 week. They informed that they will cover the cost of PSIDS to attend the workshop along with Special Session- CRV OG/14. The Meeting appreciated the offer of Japan and shared their support to the workshop.

CRV Status Implementation in Indonesia (IP/03)

2.54 The paper provided an update on the current status of CRV implementation in Indonesia. The Meeting was informed that Indonesia signed a contract with PCCW Global in the first quarter of 2022 for CRV services, subscribing to a Connection Package-C with 3 Mbps bandwidth at

two sites. The first connection was established in the first quarter of 2023. Key implementation activities include finalizing bilateral agreements, establishing connections, conducting trial operations, and monitoring performance. As of February 2025, several applications, including AMHS, are operational, while voice testing is ongoing with various adjacent states. Plans include establishing direct voice communication with Chennai and Colombo, with a contract renewal anticipated by November 2025.

Status of CRV Implementation in Malaysia (IP/04)

2.55 Malaysia informed that the official commencement date for CRV services in Malaysia started in November 2021 and the CRV Contract Agreement between PCCWG and CAAM on behalf of the Government of Malaysia was signed in Sept 2022. It was reported that Malaysia currently subscribes to package A with 2Mbps, which connects both CRV routers located in the Kuala Lumpur Air Traffic Control Center (KLATCC) to the CRV network. Various connections showing the status of CRV Implementation between Kuala Lumpur Air Traffic Control Centre (KLATCC) and neighboring CRV States, along with bandwidth utilization, were shared with the Meeting. Lastly, Malaysia shared that the involvement and technical assistance provided by the PCCWG representative in the initial preparations before carrying out the AMHS test activities between Malaysia-Singapore and Malaysia-Thailand was very helpful and facilitated.

Implementation Status of Pan India AHMS and CRV network in India (IP/05)

2.56 The CRV OG/13 Meeting noted that India had signed the service contract with PCCW Global for the provision of CRV services on 15 March 2022 using Package-B+ with 1 Mbps bandwidth. The CRV services at Mumbai commenced w.e.f 16.12.2022, and seven International AMHS data circuits and five speech circuits have been migrated on the CRV network to date. The hiring of the 2nd CRV node at New Delhi for the AMHS DR site in Package C using 2 MBPS bandwidth is being processed. A list of states for which International Private Leased Circuit (IPLC) has been replaced with CRV Network and their performance were shared with the Meeting. It was added that India has also initiated action to upgrade the existing CRV Bandwidth at Mumbai from 1 M (1024 Kbps) to 2 M (2048 Kbps) in Package B+. After the upgrade of CRV bandwidth in Mumbai, the migration plan of various circuits on the CRV network, subject to readiness from the concerned state, was shared. India urged BBIS/BIS states having AMHS/AFTN/DSC connectivity with India to migrate to the CRV network at the earliest and requested the ICAO Secretariat to urge MID region states, particularly Oman, to join the CRV network at the earliest.

2.57 The CRV OG/13 Meeting noted that India already has a national IP network named FTI (Futuristic Telecommunications Infrastructure) to support FF-ICE FPL in the future.

Outcomes of the ICAO Workshop for the preparation of new CRV requirements and specifications for future System Wide Information Management (SWIM)/other aviation services – New Zealand (WP/24)

2.58 New Zealand presented a summary of the *Outcomes of the ICAO Workshop for the preparation of new CRV requirements and specifications for future System Wide Information Management (SWIM)/other aviation services*. This detailed information can be found in the Report of the Meeting.

Retention of Pseudo CRV for SIPG- New Zealand (WP/32)

2.59 New Zealand informed that PCCWG built a "Pseudo CRV" (using Package D connections with 2MBps bandwidth) to support the SWIM TF, SIPG, and S3TIG with SWIM trials and demonstrations. The SWIM TF found it useful, and its use was extended twice until 30 March 2024.

2.60 During the 12 November 2024 APAC CRV Ad-Hoc Experts and SWIM Taskforce Team Leaders Meeting, the SWIM TF Task leads requested the possibility of retaining the Pseudo CRV for continued testing, which requires agreement from either all or some of the currently connected states of Thailand, Singapore, China, Malaysia, India, Republic of Korea, Japan and Hong Kong China, or any states wishing to contribute to this connectivity. PCCWG was asked by CRV OG for indicative pricing, and PCCWG provided two further options for the current pricing of Package D.

a) USD500/month per connection with no SLA.
b) USD900/month with a limited SLA

2.61 Both options were deliberated in the CRV OG/13 Meeting. Some states found the costs high for infrequent testing. Alternatives were considered to support ongoing testing for SWIM TF and SIPG, with SIPG WS/1 noting that using operational CRV residual bandwidth was not feasible for many states and that moving to the internet would require significant effort. The best way to move forward was to find a way to keep Pseudo CRV till needed. One proposal suggested that states purchase Pseudo CRV equipment and request PCCW Global to utilize it as needed, with payments arranged accordingly. PCCW Global supported this initiative, highlighting the ease of contracting without an SLA, but requested clarification on what period the setup would be required by SIPG/SWIM TF. Additionally, PCCW Global expressed willingness to negotiate the proposed prices with each State/administration needing the Pseudo CRV and offered support to new members wishing to join the network. It was agreed that CRV OG will discuss the expected timelines for the setup and future plans with SWIM TF. PCCW Global shared their willingness to extend Pseudo CRV till June 2025 to facilitate CRV OG to conduct discussions with SWIM TF.

2.62 The CRV OG Co-Chair (Asia) informed that currently, there is no procedure in the CRV OG Operations Manual for utilizing CRV residual bandwidth for testing. It was agreed that the procedure would be incorporated into the CRV OG Operations Manual after discussion in the CRV OG Ad-hoc Expert Group. Japan shared a request with PCCW Global to prepare a document explaining the configuration of Pseudo CRV to make States understand this network along with the procedure to request connection to this network. It was agreed that this document would be beneficial for States. PCCW Global will draft the document and share it in the next CRV OG Ad-hoc Group Meeting on 12 June 2025.

2.63 The CRV OG/13 Meeting noted that Hong Kong China uses residual bandwidth to conduct testing on CRV.

Use of L2 VPN channels to support interaction between AMHS centers of the Russian Federation and APAC Region – Russia (WP/21)

2.64 The CRV OG/13 Meeting noted that the most challenging situation involved the transition to AMHS between the Moscow and Fukuoka communication centers. Japan informed that it is continuing to commit to the implementation of AMHS with Russia.

2.65 Japan shared progress on this matter during the CRV OG/13 Meeting. As requested by the CRV OG/13 Meeting, Japan presented WP/18 and Russia presented WP/20 at the ACSICG/12 Meeting to request to resolve the issues on priority.

2.66 The CRV OG/13 Meeting was informed that ICAO CDI will support the implementation of RAS14801 Rev B. The Meeting noted that ICAO CDI shared that the document has been approved and signed, and ICAO CDI considers that the implementation is ongoing under APAC management. ICAO CDI will support any request for the recruitment and deployment of experts (budget of 46,000 USD) and the purchase of equipment and/or services (budget of 30,000 USD). ICAO's overhead will be applied accordingly, as agreed in the approved budget (BL 53.001). In addition, if the project wants to implement the budget in one year, there will be no problem.

Updates on Using the Rest of CRV Pioneer State Contribution to the ICAO Managed Service Agreement (MSA) – Sec (WP/25)

2.67 The ICAO Secretariat informed the CRV OG/13 Meeting about the utilization of the balance fund from the MSA, following up on the adopted Terms of Reference (ToR) for a CRV Security Review.

2.68 The CRV OG/13 Meeting was informed that ICAO CDI will support the implementation of RAS14801 Rev B. The Meeting noted that ICAO CDI shared that the document has been approved and signed, and ICAO CDI considers that the implementation is ongoing under APAC management. ICAO CDI will support any request for the recruitment and deployment of experts (budget of 46,000 USD) and the purchase of equipment and/or services (budget of 30,000 USD). ICAO's overhead will be applied accordingly, as agreed in the approved budget (BL 53.001). In addition, if the project wants to implement the budget in one year, there will be no problem.

Cyber-safety/security and resilience – Review of the CANSO Cyber Security Guide – New Zealand (WP/26)

2.69 The CANSO Standard of Excellence in Cyber Security, endorsed by ACSICG/12 for CNS SG/29 adoption by a Draft Conclusion was adopted by CNS SG/29 with slight changes in the title and body of the conclusion to clarify that the proposed framework is recommended for the CRV network only:

<table>
<tr><td colspan="3">Conclusion CNS SG/29/02 (Draft Conclusion ACSICG/12/03 (CRV OG/13/07))- Adopt the CANSO Standard of Excellence in Cyber Security for CRV</td></tr>
<tr><td colspan="2">What: The CRV OG adopts the CANSO Standard of Excellence in Cyber Security for CRV and recommends that:
a) CRV OG prefers an acceptable maturity level of Target Score 'C.' in carrying out the maturity assessment on the CRV.
b) The CRV Service Provider carries out the maturity assessment.
c) Each participating State/Administration carries out the maturity assessment.
d) CRV OG/Each participating State/Administration creates a plan to address the gaps in the maturity score for the CRV.</td><td>Expected impact:
☐ Political / Global
☐ Inter-regional
☐ Economic
☐ Environmental
☒ Ops/Technical</td></tr>
<tr><td>Why: To have a standard Cyber Security maturity applied to the CRV.</td><td colspan="2">Follow-up: ☒Required from States</td></tr>
<tr><td>When: 20-Jun-25</td><td colspan="2">Status: Adopted by Subgroup</td></tr>
<tr><td colspan="3">Who: ☒Sub groups ☒APAC States ☒ICAO APAC RO ☐ICAO HQ ☐Other: CRV OG</td></tr>
</table>

2.70 The CRV OG/13 Meeting noted that many States/Administrations have their own cybersecurity framework and standards to follow. However, it was agreed that the proposed maturity assessment on the CRV is not time-consuming and challenging, and it is recommended that all CRV users do it. The ACSICG/12 Meeting discussed concerns about further actions for States/Administrations where the maturity assessment on the CRV is below Target Score 'C.' It was recommended that CRV OG create guidelines for the next steps in these cases, including associated timelines to achieve Target Score 'C.'.

Doc 10169: ACCP Development Update and SWIM TF's need for PKI- (WP/27) Singapore

2.71 The paper presented the development of the ICAO Document 10169: Aviation Common Certificate Policy (ACCP) and the need for a Trust Framework Instance (TFI) for the Asia and Pacific SWIM Implementation. During the First Working Session of the SWIM Implementation Pioneer Ad-hoc Group (SIPG WS/1), the need for a TFI was emphasized, noting that PKI is essential for various use cases beyond SWIM, including CPDLC and SBAS. The CRV OG, responsible for the APAC regional common network, should be kept informed about the ACCP and TFI developments. However, the CRV OG expressed that it cannot support the implementation of provisions from several key documents related to PKI and cybersecurity due to its existing responsibilities.

2.72 The CRV OG recommended establishing additional contributory bodies to assist APAC States with these provisions and further discussion on this at the ACSICG/12 Meeting. New Zealand agreed to prepare a working paper advocating for dedicated contributory bodies to implement cybersecurity provisions for consideration at CNS SG/29, scheduled for June 16-20, 2025.

CRV Security Evolutions in AMHS- (WP/35)- France

2.73 France provided a recap of the DSNA security context within the CRV framework and shared information about the standardization progress regarding AMHS security through the recent publication of ICAO Doc 9880 Edition 3, Part II (end of 2024). Additionally, France highlighted the work done at various levels (ICAO, Eurocontrol, and Europe) to establish a PKI dedicated to ANSPs.

2.74 The CRV OG/13 Meeting was informed that "AMHS Security" in Doc 9880 Part II refers to X.400 security functionalities implemented in the application layer. Three major security upgrades are introduced in Doc 9880 Edition 3: Introduction of strong authentication from UA to MTA and MTA to MTA (use a cryptographic "Bind-token" instead of the current password in clear); Message origin authentication and content integrity for messages generated by AFTN/AMHS Gateways (MTCU: Message Transfer and Control Unit), so as to cover 99% of the AMHS traffic; and Update of cryptographic algorithms: Doc 9880 Edition 2 cryptographic settings were 20+ years old, they are replaced with state-of-the-art cryptographic algorithms.

2.75 It was concluded that X.400-based AMHS Security requires the provisioning of trustworthy public key certificates delivered by a commonly trusted PKI, and it will considerably enhance Cybersecurity in the AMHS environment when implemented. It was reiterated that cybersecurity in the AMHS environment is not only "AMHS Security" but also a PKI deployment, which is a prerequisite to deploying AMHS security to meet the ICAO standards.

2.76 France recommended that the implementation of security at the application level or at least with end-to-end network encryption mechanism aside from the ICAO Regional IP network should be given the level of priority corresponding to the level of threat against organization integrity and air traffic control safety. Security might have a substantial impact on safety. It was added that the standardization is available in the ICAO Doc 9880 to provide a high level of security for AMHS, and a PKI deployment is a prerequisite to deploying AMHS security to meet the ICAO standards. The CRV OG/13 Meeting appreciated France for such vital information, and as requested, this information was shared with the ACSICG/12 Meeting.

Review of the CANSO Cyber Security Risk Assessment Guide- New Zealand (WP/37)

2.77 The CRV OG/13 Meeting noted that the CANSO cyber security risk assessment guide is freely available on the CANSO website.

2.78 It was informed that whilst the cyber security risk assessment guide focused on cybersecurity risk, the concepts in this document could be used to provide a risk assessment framework for the CRV. The CRV OG/13 Meeting noted that the guide guides risk assessment scope, risk assessment, risk mitigation and monitoring, risk acceptance, and risk communication and consultation. In addition, the risk assessment matrix focuses on whether the risk is Unacceptable, Tolerable or acceptable. It was added that whilst the ICAO Doc 9859 - Safety Management Manual (SMM) covers the same concepts, it is possible to use the CANSO framework to create a CRV Risk assessment and associated process and procedure at an acceptable level for the CRV.

PCCWG Re-organization – Sec (IP/02)

2.79 The CRV OG/13 Meeting noted that PCCW Global informed the ICAO APAC Office about an internal reorganization effective 1 April, 2024, involving the novation and transfer of services agreements to PCCW Global Limited and HKT Global Operation (HK) Limited. This information was communicated to APAC States through ICAO APAC State Letter Ref.: T 8/2.15 – AP141/24 (CNS) dated 3 December, 2024.

2.80 Some States shared their concerns about the current approach of information sharing by PCCW Global about the PCCW Global reorganization to the States only a few weeks before the next billing cycle, resulting in several legal issues within the States. The CRV OG/13 Meeting agreed that such changes must be discussed bilaterally rather than directly informing the states to avoid problems in the contract. PCCW Global shared that they will enhance communication with States and do advance coordination for any organizational changes that affect States in the future.

Date and Venue for the Next Meeting

2.81 The CRV OG/13 Meeting agreed on the need to organize the **Special Session- CRV OG/14** as an In-Person Meeting for **5 days** to progress to the next stage of the CRV contract management process from **27-31 October 2025**.

2.82 Japan offered to host the **Special Session- CRV OG/14** in Tokyo, Japan, along with the PSIDS capacity-building workshop planned from 23-24 October 2025. It was noted that Japan will organize and manage the PSIDS capacity-building workshop. Japan added that it would also support the cost for one member from each PSIDS to attend the workshop and *Special Session- CRV OG/14* in Tokyo, Japan.

Election of Co-Chair of ACSICG

2.83 CNS SG/29 Meeting noted Mr. Augustine Lau, Head (Communications Systems), Civil Aviation Authority of Singapore, was unanimously elected as a Co-Chair of the Aeronautical Communication Service Implementation Group of APANPIRG.

CNS Deficiency

2.84 In response to the latest status of an outstanding issue on the list of Air Navigation Deficiencies in the CNS field, which was related to the unreliability of AFS communication between Afghanistan and Pakistan, Pakistan informed that the link with Afghanistan has already been established. The AMHS system installation is in progress at Afghanistan's end. It was also added that Afghanistan had not given any tentative timelines for the completion of the AMHS installation in Afghanistan. The Meeting requested that Pakistan follow up with Afghanistan in a timely manner and inform the ICAO APAC Office about the progress made.

2.85 APANPIRG/36 noted that the only outstanding issue was the unreliability of AFS communication between Afghanistan and Pakistan. Pakistan informed that the AFS communication link between Pakistan and Afghanistan remained non-operational due to the absence of a functioning AFS system on the Afghanistan side. Pakistan had fully prepared and was ready to activate the link as soon as Afghanistan established the required AFS infrastructure. Afghanistan had not given any tentative timelines. Therefore, it was requested that this deficiency be removed from Pakistan's side. APANPIRG/36 deliberated on the request of removal of one-party name from the deficiency responsible parties, even if the deficiency was not resolved yet, following the procedure of removal of deficiency defined in APANPIRG Procedural Handbook.

2.86 APANPIRG/36 agreed that the deficiency related to a reliable AFS link could not be removed from the list until the link is established. However, it was agreed to add a note to the deficiency list provided in Appendix C to the Report on Agenda Item 3.4 of APANPIRG/36, mentioning the significant efforts made by Pakistan to resolve the deficiency, and no further action could be taken by Pakistan due to the absence of a non-functioning AFS system and air traffic on the Afghanistan side.

2.87 A question was raised in ACSICG/12 about the inclusion of interregional interconnection requirements in the new regional IP network contract management process in various ICAO regions; the ICAO Secretariat informed that the CRV II contract management process formulated interregional interconnection criteria as a requirement in its technical specifications, and the same had been done in the REDDIG III procurement process. For other regions' IP networks, this information is not available. ICAO Secretariat will coordinate with other regions and share the recommendations of ACSICG/12 to incorporate interregional interconnection criteria as a requirement in their regional IP network technical specifications and request information on whether this criterion has already been incorporated in their new network contract management process.

Review of outcomes of the CRV Workshop for PSIDS- Sec (WP/04)

2.88 The paper presented the key outcomes of the ICAO APAC CRV Workshop for Pacific Small Island Developing States (PSIDS), which was held from 3-4 March 2025 in Wellington, New Zealand. CRV OG/13 Meeting report, working papers, information papers, and other resources can be accessed by the following link. The report and other documents of the Workshop can be accessed at the ICAO APAC Meeting webpage at:

https://www.icao.int/APAC/MeetingDocs?fid=1292#block-icao-page-title

2.89 The ACSICG/12 Meeting discussed the importance of the proposed white paper. However, it was agreed that CRV benefits had been explained by the ICAO Secretariat, PSIDS partner States and many other States in various forums such as CRV OG, ACSICG, CNS SG, and APANPIRG. In addition, DGCA Conferences have also recognized the importance of CRV and agreed to implement CRV by formulating various action items in past conferences. In addition, until now, ICAO has not considered not implementing CRV a deficiency. Therefore, the existing mechanism is sufficient to promote the benefits of CRV in the APAC region, and there is no need for a separate white paper.

2.90 CRV OG Co-Chair Asia informed that as per the current plan shared by the USA in past Meetings, Micronesia, Palau, and the Marshall Islands will not join CRV.

2.91 USA informed that FAA, USA supported enhanced telecommunications services at uncontrolled airports in the Pacific Islands under the US Government's Compact of Free Association agreements with the Federated States of Micronesia, the Republic of Marshall Islands, and the Republic of Palau. The USA informed about the current infrastructure at these airports and the new requirements. The Meeting noted that the planned enhancement included implementing satellite-based internet terminals, which will provide more bandwidth to support RMMC and MET/AFTN terminals and COTS VoIP to provide a dedicated voice channel. It was anticipated that enhancement benefits would include

higher bandwidth, reduced operational costs, offering dedicated voice channels, and ensuring improved reliability of telecommunications systems. Lastly, it was informed that the USA intends to provide ongoing life cycle maintenance support to sustain these improvements. USA explained the high cost associated with CRV and other networks and the rationale for choosing high bandwidth internet over them. It was clarified that in the future, the USA may consider choosing CRV as the preferred method for communication over the Internet.

2.92 The Meeting recommended that PSIDS consider Package D+ as their preferred CRV package to meet reliability requirements.

2.93 The Meeting updated the plan and tentative timelines for each PSIDS to join CRV.

2.94 Several bilateral and trilateral discussions were organized among PSIDS in the process of implementing CRV, their partner States, and PCCWG to progress on the next stage of CRV implementation.

Updates on regional IP network addition in AMC – Sec (WP/06)

2.95 This paper presented information about the ongoing work on adding the CRV Implementation status in AMC by Eurocontrol. The Meeting was informed that concerning the data entry, the Supplier field in the Network Inventory/Connections has to be populated with "CRV" by all applicable states. However, no action has been requested from the ICAO APAC States as of today. It was also informed that **backup sites are not added to the Com Charts**, and in case of **updating bandwidth**, if this needs to be done for an AMHS connection, it should be **amended in the Background Network Inventory area** for the respective Com Centre, under the connections tab. The Meeting was invited to review and update the information to AMC via AEROTHAI, if necessary, including points of contact.

AMHS Gateway Issue on Unrecognized MTS ID – Philippines (IP/03)

2.96 This paper addressed issues related to the Flight Planning and Briefing Service system's handling of unfamiliar MTS ID, which resulted in system gateway isolation. A specific case in June 2024 highlighted how the unrecognized MTS ID led to the P1 gateway closing, isolating the system. Corrective actions were implemented through coordination with the originator and ensuring proper message routing via the AMHS system. The document presented the event, resolution, and the need for continued coordination to prevent future occurrences. The ACSICG/12 Meeting queried about various technical details related to this issue and appreciated the Philippines sharing its experience.

Outcomes of ICAO APAC AMC Workshop – Sec (WP/03) and SOP for updating AMC AFTN/AMHS Routing Table in Asia/Pacific Region- Thailand (WP/19)

2.97 A half-day AMC Workshop was held on 25 March 2025 to help AMC users refresh their knowledge of the standard procedures for using the AMC tool. The AMC tool, managed by Eurocontrol, provides support for AMHS operations, address management, and user capabilities management. The workshop was moderated and chaired by Aerothai, Thailand.

2.98 The workshop started with sharing information about AMC, its significance and functionalities in the APAC Region, followed by the Standard procedure for using the AMC tool to ensure the overall quality of service for ATS Messaging. Aerothai demonstrated how to use the AMC tool. Furthermore, the Meeting drafted, reviewed, and finalized the Standard Operating Procedure (SOP) for using the AMC tool for APAC States/Administrations to manage and ensure proper coordination between COM centers, which is essential for maintaining the overall quality of service for

ATS Messaging. It was agreed that the SOP will be presented to ACSICG/12 for further review and adoption.

2.99 The workshop noted that ICAO regularly publishes the AFTN-AMHS Routing Directory for the Asia and Pacific Regions, which is more current than the AFTN/AHMS Routing Directory on the AMC portal, but the format is different from the AFTN/AHMS Routing Directory, which can be downloaded from the AMC portal. It was also added that the format of both tables is different. ICAO Secretariat informed that due to the obsoletion of the tool used to generate the AFTN-AMHS Routing Directory for the Asia and Pacific Regions, publishing the directory is becoming increasingly difficult for the ICAO Secretariat. The workshop agreed that States/Administrations should update their routing directory on the AMC portal, and there is no need to publish another formatted AFTN-AMHS Routing Directory by ICAO. Therefore, the ICAO Secretariat will promote checking and updating information in the AFTN-AMHS Routing Directory on the AMC portal and discontinue publishing other formats of the AFTN-AMHS Routing Directory.

2.100 It was recommended that States/Administrations download the AFTN/AMHS Routing Directory after each AIRAC cycle and verify the consistency of the data. If any discrepancies are discovered, they should be reported to the Aerothai focal point and the ICAO Secretariat.

2.101 It was recommended that any proposed modifications to the AFTN/AMHS Routing directory should be preceded by thorough coordination with all concerned States/Administrations by the proposer. If any assistance is needed, States/Administrations are advised to seek support from the ICAO APAC Office. The ACSICG/12 Meeting reviewed and modified the proposed SOP. The Meeting endorsed the following draft decision for CNS SG/29 adoption:

<table>
<tr><td colspan="3">Decision CNS SG/29/03 (Draft Decision ACSICG/12/04) - Adoption of SOP to update the AMC AFTN/AMHS Routing Table in the Asia/Pacific Region</td></tr>
<tr><td colspan="2">What: The proposed Standard Operating Procedures (SOP) for all ICAO Asia/Pacific (APAC) members who operate as CCC Operators (Coordination COM Centres) or External COM Centre Operators to update the AMC AFTN/AMHS Routing Table in the Asia/Pacific Region is adopted.</td><td>Expected impact:
☐ Political / Global
☐ Inter-regional
☐ Economic
☐ Environmental
☒ Ops/Technical</td></tr>
<tr><td>Why: Enhance coordination between COM centers and ensure quality service for ATS Messaging.</td><td colspan="2">Follow-up: ☒Required from States</td></tr>
<tr><td>When: 20-Jun-25</td><td colspan="2">Status: Adopted by Subgroup</td></tr>
<tr><td colspan="3">Who: ☒Sub groups ☒APAC States ☒ICAO APAC RO ☐ICAO HQ ☒Other: ACSICG</td></tr>
</table>

AMHS Implementation Status in the APAC Region – Sec (WP/07)

2.102 The paper requested the Meeting to review and update AMHS implementation status. The implementation status of ATN/AMHS in the APAC Region was updated by ACSICG/12 Meeting. Russia provided additional updates to be included in the table for China, Mongolia and Japan, to which Russia is connected. Since APAC States/Administrations are responsible for providing the updates, the ICAO Secretariat will coordinate with China, Mongolia, and Japan to update other interregional connections in the table. Other States/Administrations were encouraged to review the table further and update all interconnection information.

Educational material to manage the distribution of IWXXM information for Comm Experts in the event of primary link failure- Australia, Fiji, Hong Kong China, Singapore, and the USA (WP/10)

2.103 Australia, Fiji, Hong Kong China, Singapore, and the USA provided educational material for COM Centre operators to understand that distribution of IWXXM information requires links to possess specific capabilities, and in the event of a primary link failure, any alternate/secondary links must also possess the same or similar specific capabilities. The ACSICG/12 Meeting adopted the draft educational material as a living document and endorsed the following draft conclusion for consideration by CNS SG/29, which was adopted by CNS SG/29:

<table>
<tr><td colspan="3">Conclusion CNS SG/29/04 (Draft Conclusion ACSICG/12/05) - Educational material to manage the distribution of IWXXM information for COMM experts in the event of primary link failure</td></tr>
<tr><td colspan="2">What: The educational material to support COM/MET experts in managing the distribution of IWXXM in case of primary link failure is adopted as a living document.</td><td>Expected impact:
☐ Political / Global
☐ Inter-regional
☐ Economic
☐ Environmental
☒ Ops/Technical</td></tr>
<tr><td>Why: Educational material that identifies the required link capabilities to maintain IWXXM message distribution in the event of a primary link failure is necessary for uninterrupted service.</td><td colspan="2">Follow-up: ☐Required from States</td></tr>
<tr><td>When: 20-Jun-25</td><td colspan="2">Status: Adopted by Subgroup</td></tr>
<tr><td colspan="3">Who: ☒Sub groups ☒APAC States ☐ICAO APAC RO ☐ICAO HQ ☐Other: ACSICG</td></tr>
</table>

2.104 It was agreed that if the document is adopted by CNS SG/29, it will be shared by the ICAO Secretariat for APAC States/Administrations' feedback. The ICAO Secretariat will compile comments received from members for further review by the Ad-hoc group, and the Ad-hoc group will prepare revised educational material incorporating all received comments and present it in the next ACSICG Meeting.

Checklist of steps required to operational IWXXM exchange- Singapore (WP/11)

2.105 It was recalled that during the joint session of ACSICS/11 and MET IE/22 in 2024, the Meeting acknowledged the necessity to support the prompt implementation of capable primary and, where relevant, secondary links for the exchange of IWXXM messages. A team of Communications and Meteorological experts from Australia, Hong Kong China, Fiji and Singapore (lead) volunteered to create a checklist to facilitate the operational implementation of IWXXM message exchange.

2.106 The ACSICG/12 Meeting reviewed and modified the checklist based on the comments received from the participants. It was suggested that the Meeting adopt the checklist as a living document, similar to educational material presented by WP/10 and adopted by the Meeting as a living document, allowing for feedback for further updates. The checklist could also be adopted as a living document further based on feedback.

2.107 The following Draft Conclusion was adopted by ACSICG/12 for CNS SG/29 consideration, which was adopted by CNS SG/29:

Conclusion CNS SG/29/05 ***(Draft Conclusion ACSICG/12/06)*** - Checklist of steps required to operational IWXXM exchange		
What: A checklist to facilitate the operational implementation of the IWXXM message exchange is adopted as a living document.		Expected impact: ☐ Political / Global ☐ Inter-regional ☐ Economic ☐ Environmental ☒ Ops/Technical
Why: To support the prompt implementation of capable primary and, where relevant, secondary links for the exchange of IWXXM messages	Follow-up: ☐Required from States	
When: 20-Jun-25	Status: Adopted by Subgroup	
Who: ☒Sub groups ☒APAC States ☒ICAO APAC RO ☐ICAO HQ ☒Other: ACSICG		

Review of Asia and Pacific Region IWXXM Implementation Status/ Readiness – Sec (WP/09)

2.108 The paper presented the IWXXM implementation status and the Asia/Pacific Region's readiness to fully implement IWXXM data exchange and encouraged States/Administrations to review and update the IWXXM implementation status as required. The Meeting updated the AMHS Readiness Table for Supporting IWXXM Traffic.

2.109 A discussion was initiated on the Colom E *"Readiness Status of AMHS for supporting File Transfer Body Part (FTBP), the Interpersonal Message (IPM) Heading Extension (IHE) to support for exchanging IWXXM reports of a maximum size of 4MB and FTBP of maximum 2MB"* of Appendix A of this WP for the size of 4MB for IWXXM reports and 2 MB for FTBP.

2.110 ACSICG Co-Chair informed that in Singapore, the size of IWXXM messages utilization is much lower than 4MB. MET/IE WG Chair informed that the size mentioned in column E was suggested by MET experts based on *Guidelines for the Implementation of OPMET Data Exchange Using IWXXM guidelines* defined at a global level many years ago. The fixation of the maximum size of messages was based on the accommodation of requirements of potential users who will use IWXXM messages extensively or moderately. However, the meeting agreed on the need for an analysis to estimate this size requirement based on APAC usage. It was decided that all APAC States/Administrations having the capability to transmit IWXXM messages over AMHS can monitor the IWXXM traffic size and contribute to this analysis. The MET/IE WG Chair also noted that future IWXXM products are likely to be larger than the current product based IWXXM variants. Also, the USA has the largest TAC bulletins and they are yet to distribute their corresponding IWXXM bulletins and encouraged the ACSICG to seek advice from the US on the size of their IWXXM bulletins. The ICAO Secretariat will coordinate with COM experts from these States and support the ACISCG Co-Chairs in conducting this study.

FIJI AMHS Upgrade to Support IWXXM (IP/04)

2.111 Fiji presented the progress of upgrading its AMHS to support the Nadi RODB in exchanging the IWXXM ROBEX bulletin with RODB centers. The Meeting noted that Fiji Airports hosted the Nadi RODB, one of the five (5) designated RODBs in the APAC region. To comply with the ICAO mandate for the APAC RODB centers to exchange the ROBEX bulletin in IWXXM format in 2019, Fiji is upgrading its AMHS to support IWXXM. The Meeting noted that the AMHS has to be

upgraded to support the IWXXM requirement for Nadi RODB for the exchange of IWXXM ROBEX. While the existing COMSOFT AMHS supports extended services for File Transfer Body Parts (FTBP), it does not support the file size to exchange IWXXM. AMHS system requires support up to 4.0MB file size, including FTBP for ATS extended service in the exchange of IWXXM messages.

2.112 The Joint Meeting was informed that in mitigating the ICAO mandated for designated RODB to exchange the IWXXM ROBEX bulletin, New Zealand Meteorology has been supporting the Nadi RODB to translate the TAC ROBEX bulletin to IWXXM ROBEX bulletin and exchange with the RODB centers over the AMHS. Fiji's AMHS upgrade has been delayed due to COVID-19 impact. The contract for the AMHS upgrade with IWXXM was signed in 2024, and the system has now been deployed on-site for installation. It is expected to commission the new AMHS to support IWXXM in May 2025. It was added that Nadi RODB is expected to generate and exchange the IWXXM ROBEX bulletin directly with RODB centers when the AMHS & IWXXM system is commissioned.

2.113 The Joint Meeting shared appreciation to Fiji for enhancing their efforts for upgrading its AMHS to support the Nadi RODB in exchanging the IWXXM ROBEX bulletin with RODB centers. It requested to provide further updates on this matter in future Meetings.

2.114 In response to a question about the view of ICAO on the practice of translation of the TAC ROBEX bulletin to the IWXXM ROBEX bulletin, the MET IE WG Chair informed that as per ICAO Annex 3, every State would provide or arrange the provision of IWXXM and translation services by translation center are allowed. However, IWXXM generation from the source is a preferred method for ICAO. It was also added that the translation of TAC messages to IWXXM currently meets the requirements specified in ICAO SARPs; however, with the evolution of IWXXM products, such translation options may not be acceptable in the future.

2.115 It was also added that even after ceasing the exchange of TAC in 2030, APAC States/Administrations can generate and consume TAC messages for national usage as ICAO SARPs are applicable for international operations.

2.116 The Joint Meeting noted that the *Online Register of APAC IWXXM Exchange Status* can be accessed on the ICAO APAC e-docs webpage under MET. However, as currently, States update this online register annually during MET IE WG, which is not as frequent as needed, it was agreed that there is a need for a notification method so that when a Regional OPMET Centre (ROC) enhanced AMHS capability and can disseminate IWXXM reports to other ROCs or National OPMET Centers (NOCs), relevant NOC and ROC can be notified automatically and table can be updated. It was agreed that MET experts from Australia and Hong Kong China will work on this requirement. As the proposed action was not for COM experts, it was not recorded as an action item in this report.

Brainstorming Session

2.117 During this session, the following agenda item was discussed. The session was moderator by the MET IE WG Chair.

1. *Operational exchange of IWXXM in a hybrid AMHS/SWIM environment*
2. *Use of the Internet for MET-SWIM*
3. *A list of MET-SWIM information services which will be/preferred to be transmitted over CRV*
4. *The benefit of aggregation functions for MET-SWIM in APAC*

2.118 MET IE WG Chair presented the current OPMET Exchange model and hierarchical architecture. He introduced different stakeholders and actors in the OPMET exchange in the APAC region and planned future evolutions based on the latest edition of the Global Air Navigation Plan.

Several questions were asked for the presented diagram of OPMET Exchange in blocks 1 to 4, which were answered by the MET IE WG Chair.

2.119 The Joint Meeting noted the intention of some States to move to SWIM directly without implementing AMHS. The benefits and disadvantages of bypassing AMHS and migrating directly to SWIM were discussed. However, due to limited time and knowledge about SWIM implementation, the discussion could not be completed. The meeting requested SWIM TF to discuss this topic during any SWIM event and share information, if possible, in future ACSICG and MEIT IE WG meetings.

2.120 It was stated that currently, various States/Administrations use multiple methods to transmit MET information. It included AFTN/AMHS, IP links, public internet, web-based applications, etc. Some States shared that for their ANSP, MET, information is critical and transmitted through a secure channel. However, some have the view that MET information can be exchanged over the public internet with encryption and PKI implementation to meet security requirements.

2.121 One State informed that **ICAO Annex 3** *Meteorological Service for International Air Navigation*, Chapter 11, section 11.2 *Use of aeronautical fixed service communications and the public Internet — meteorological bulletins* mentioned public Internet and AFS for MET message exchanges.

11.2 Use of aeronautical fixed service communications and the public Internet — meteorological bulletins

Meteorological bulletins containing operational meteorological information to be transmitted via the aeronautical fixed service or the public Internet shall be originated by the appropriate meteorological office or aeronautical meteorological station.

Note.— Meteorological bulletins containing operational meteorological information authorized for transmission via the aeronautical fixed service are listed in Annex 10, Volume II, Chapter 4, together with the relevant priorities and priority indicators.

2.122 However, the Joint Meeting was informed that the current ICAO Annex 3 is not modified to meet future SWIM requirements, and a new version of ICAO Annex 3 will provide updated information.

2.123 Due to the limited time available, it was concluded that the discussion could not be finalized during the ongoing plenary. In addition, operational experts need to be involved in these discussions to understand operational experts' views on the criticality and sensitivity of various MET information services in future SWIM environments. To further progress on this topic, it was suggested that offline discussions be held on the effective way to bring CRV, MET, SWIM, and operational experts together to discuss this topic further. ACSICG and MET IE WG Secretariat will discuss this matter and inform the Meeting about further updates.

2.124 The Meeting participants shared the value of conducting the joint session. However, it was stated that there is a need for a joint session of MET and SWIM experts in the future. Therefore, it was agreed that offline discussion would be done among ACSICG, MET IE WG and SWIM TF chairs and secretariat for agreement on a way forward for an effective way of close collaboration among these groups to discuss various common topics in future joint Meetings.

2.125 Due to a shortage of time, the discussion on the last agenda item, *the benefit of aggregation functions for MET-SWIM in APAC*, could not be initiated.

2.126 For the Meeting report, working/information papers, and other documents discussed in MET/IE WG/23, please refer to the following link for detailed information:
https://www.icao.int/APAC/MeetingDocs?fid=539

Updates on the progress of the APAC AMHS to SWIM transition Correspondence Group (ATSGC) – Singapore (WP/12)

2.127 In 2024, ACSICG/11 noted that there was a lack of information on the AMHS to SWIM transition at the Asia Pacific regional level and agreed to form an APAC AMHS to SWIM transition Correspondence Group (ATSCG) to study the transition strategy by experts from States/Administrations, industry partners and concerned international organizations, on a voluntary basis.

2.128 Initially, it was essential to establish the terms of reference for ATSCG since the transition from AMHS to SWIM is a joint responsibility of ACSICG and SWIM TF. Clearly delineating the tasks to be managed under the leadership of ACSICG and SWIM TF was necessary. Consequently, following the formation of ATSCG, the members, led by Singapore, drafted the group's terms of reference. Additionally, ATSCG outlined its scope, objectives, and deliverables within the ToR. The drafted ToR was then reviewed and commented upon by the SWIM TF Task Leads.

2.129 The Meeting reviewed the draft Terms of Reference (ToR), and the **Decision ACSICG/12/07** - Terms of Reference for the AMHS to SWIM Transition Correspondence Group was adopted by the ACSICG/12 Meeting. The Terms of Reference (ToR) is provided in **Appendix E.**

2.130 The Meeting requested more participants to join the ATSCG. Australia, China, New Zealand and ROK shared their intention to participate in the group. ICAO Secretariat will contact Australia, China, New Zealand, and ROK to nominate experts and update the list of participants in ATSCG.

2.131 To proceed, it was decided to await the conclusions from the second SIPG working session (SIPG WS/2), scheduled to take place from 26-30 May 2025 at the ICAO APAC Office in Bangkok, Thailand. Following the SIPG WS/2 Meeting, an online meeting of the ATSCG will be organized.

AMHS conversion strategy and SWIM implementation plan in the Republic of Korea – (IP/02)

2.132 This paper presented information about the AMHS Implementation Status and AMHS transition to SWIM in the Republic of Korea (ROK). The Meeting noted that since 2024, Korea has established a mid-to-long-term plan for converting the Aeronautical Fixed Communication Network (AFTN) of domestic clients. The conversion was being carried out in two phases, covering a total of 138 domestic clients. Currently, three new clients are in the process of connecting to AMHS.

2.133 In 2024, Korea conducted IWXXM message transmission tests with the Japanese AMHS communication center. Similar IWXXM message transmission tests were planned with the China Meteorological Administration later this year (expected October-November).

2.134 It was reported that ROK plans to convert all domestic clients to AMHS by 2028 in anticipation of the AFTN system's expiration in 2030. It was expected that there will be confusion during the transition period in Korea, and a SWIM transition strategy and technology roadmap are needed to prepare for this. Ongoing monitoring of cases and trends in major countries will be conducted to inform this process.

2.135 The Meeting appreciated updates received from ROK and requested that the SWIM transition strategy and technology roadmap prepared by ROK be shared. ROK will discuss the possibilities of sharing the document within its organization and inform the ICAO Secretariat.

AMHS/SWIM Gateway - Building a Bridge: Transition from AMHS to SWIM in a mixed environment- Frequentis (SP/03)

2.136 Frequentis described the mixed environment during the transition from AMHS to SWIM, emphasizing the need for measures to prevent service disruptions. It was informed that the AMHS/SWIM Gateway can support this transition, considering the requirements for stateless and stateful operations, conversion, and context. Additionally, it was added that there was no universal gateway implementation that fits all scenarios. The latest AMHS security improvements can also enhance security at the AMHS/SWIM Gateway.

Transition to the AMHS procedures between the COM centers of Russia and Japan – Russia (WP/20)

2.137 The Meeting noted that during CRV OG/13 from 5 to 8 March 2025 in Wellington, New Zealand, a Working Paper (WP/21) was presented regarding the use of L2 VPN channels for the interaction between Russian and APAC AMHS centers. The paper highlighted challenges in the transition between Moscow and Fukuoka communication centers. The CRV OG/13 Meeting, in its report (para. 2.76), requested Russia to submit a working paper at the ACSICG/12 Meeting to address this issue as a matter of priority.

2.138 Russia informed that the most challenging situation is with the transition to AMHS between the Moscow and Fukuoka communication centers. The X.25 equipment used to support the exchange via the AFTN/X.25 protocol has exhausted its service limits and cannot be replaced, as it is no longer manufactured nor supported by the manufacturers. In the event of equipment failure and the impossibility of its recovery, the Moscow-Fukuoka channel will have to be temporarily closed.

2.139 The Meeting noted that Japan confirmed in February 2024 the possibility of using L2 VPN channels for AMHS procedures between Moscow and Fukuoka, but implementation has been delayed. At present, providers from Russia (TTK) and Japan (KDDI) have agreed to open a virtual channel as of 1 July 2025. To expedite the transition, the two communication centers must coordinate a work schedule for AMHS testing per ICAO requirements. If the X.25 equipment fails, routing between Russian and APAC COM centers will need to be reviewed to prevent message transmission delays.

2.140 Japan informed that KDDI has not agreed to open a virtual channel as of 1 July 2025. Russia and Japan agreed on the need for further communication exchanges with their service providers on this matter.

Current Status of AMHS Implementation in Japan (WP/18)

2.141 Japan presented the status of the transition from AFTN to AMHS between Fukuoka and Moscow. In order to ensure stable international aviation communications operations, Japan confirmed with Russia that a dedicated IP-VPN connection proposed by Japanese telecommunications company KDDI and a Russian telecommunications company will be implemented. The target for the latest transition date is now set for the end of December 2025.

2.142 It was informed that if AFTN operations between Fukuoka and Moscow are suspended for some reason before the transition to AMHS, an alternative route for destination U based on the AFTN routing directory, via Fukuoka → Beijing → Khabarovsk, will be necessary, and at that time Japan would like to ask Beijing for its cooperation.

2.143 The ACSICG/12 Meeting noted that Fukuoka → Beijing → Khabarovsk is already an alternative route. In addition, China shared its full support in taking necessary action in case of need. Therefore, COM centers in Japan, China, and Russia can take appropriate action to use the alternate

route in case of an unexpected failure of the primary link. The Meeting appreciated the efforts of both parties to maintain communication links and recommended that Japan and Russia resolve the problem as soon as possible, preferably before December 2025.

ACSICG ToR and Action Items Updates– Sec (WP/13)

2.144 The ACSICG/12 Meeting reviewed the current Terms of Reference (ToR) of ACSICG and agreed that there was no need to modify it. The Meeting was suggested to share their views about further modifications in the next ACSICG Meeting.

2.145 In response to the request to share recordings of past events organized by the ICAO APAC Office on different CNS-related matters, the ICAO Secretariat informed that some webinars/workshops conducted in the past on CRV and SWIM implementation were recorded and can be accessed on CRV and APAC-SWIM secure portal. In addition, ICAO published recordings of past webinars, Sky Talks and other discussion topics information on the ICAO YouTube channel.

The ICAO Doc 9880: Manual on detailed technical specifications for the ATN using ISO/OSI Standards and Protocols- Sec (WP/14)

2.146 This paper presented the development and latest status of ICAO Document 9880: Manual on Detailed Technical Specifications for the Aeronautical Telecommunication Network (ATN) using ISO/OSI Standards and Protocols for the information and reference of Member States. The Meeting noted that the latest edition, the third edition, was published in 2024 and specified enhancements to AMHS security standardization. It was highlighted that three significant security upgrades were introduced in Document 9880 Edition 3. At the Meeting, it was recommended that the latest version of ICAO documents be downloaded from the ICAO Secure portal on "ICAONET" and that a plan be prepared for the implementation of new provisions.

ICAO Doc 9896- Manual on the ATN using Internet Protocol Suite (IPS) standards and protocols- Sec (WP/15)

2.147 This paper presented the development and latest status of the ICAO Document 9896: Manual on the Aeronautical Telecommunication Network (ATN) using Internet Protocol Suite (IPS) Standards and Protocols. It was noted that the latest published edition of Document 9896 is edition 2, released in 2015. The Meeting was informed that a third revision was anticipated to be issued this year.

Date and Venue for the Next Meeting

2.148 The Meeting decided to conduct the ACSICG/13 Meeting as an in-person Meeting with a tentative date in the third week of April 2026 to further progress the tasks listed in the Terms of Reference. Fiji proposed hosting the Meeting from April 20-24, 2026, in Fiji. The ICAO Secretariat will coordinate with Fiji for further host agreements. It was informed that a State Letter would be issued 3 months before the Meeting.

Outcomes of SWIM TF/10

Outcomes of the Joint Event of SWIM over CRV Demonstration and Surveillance Data over SWIM Trial

2.149 Hong Kong China presented the report of the Joint Event of SWIM over CRV Demonstration and Surveillance Data over SWIM Trial, held from 28 – 29 May 2024. The report captured the details of the Joint Event, including (*i*) the SWIM services developed; (*ii*) the SWIM

infrastructure used; (*iii*) the development and testing process; (*iv*) the data format for surveillance data sharing; and (*v*) the observations and lessons learnt.

2.150 It was noted that the 2 Mbps bandwidth, tentatively offered to each State/Administration, through the pseudo CRV was insufficient for sharing surveillance data at a 1-second data rate for some States/Administrations, The amount of required bandwidth required for sharing of such data type would depend on the traffic volume with State/Administration's FIR as well as their roles in sharing/consuming ADS-B surveillance data within the SWIM environment in the future. This situation may result in the need to subscribe for a higher CRV bandwidth.

SIPG Action WS-1-9: Options for internet connection in the Asia-Pacific SWIM

2.151 This paper presented the deliberations of the SIPG on the possible options for Internet connectivity for the Asia/Pacific SWIM. Based on the SWIM TF's ToR, the APAC regional SWIM is to be constructed principally over CRV and other Internet Protocol (IP) based networks. The Internet is one such possible IP-based network. Therefore, the possible options for establishing the APAC SWIM over both CRV and the Internet were discussed. In particular, after the SIPG WS/1 held in January 2025, further deliberation on how the APAC regional SWIM can be implemented over both types of network was conducted within the SIPG. Eventually, three options for how this can be achieved were proposed.

2.152 Option 1 is to have one or more Edge EMS connect to the CRV as well as the Internet. The Edge EMS can then publish and consume services from both the Internet and CRV. The Edge EMS is responsible for routing any messages that need to flow between the Internet zone and the CRV zone. It is expected that the Edge EMS should keep the two zones separate and only exchange the necessary messages.

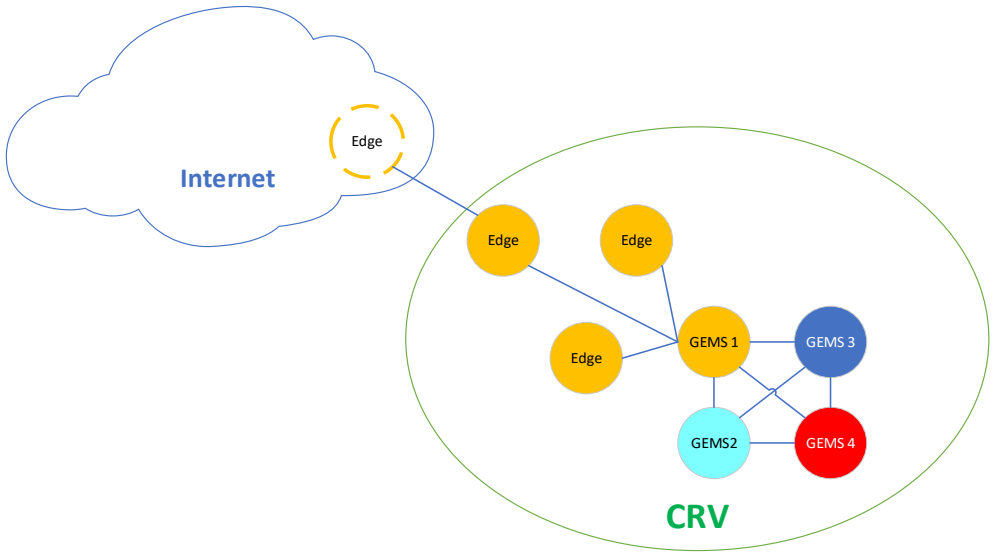

Figure 1- Option 1 SWIM Architecture

2.153 Option 2 is to have the SWIM TI constructed over both the CRV and the Internet. Each Gateway EMS provider will need to span the Gateway EMS over both CRV and the Internet with an appropriate security mechanism to segregate between the two zones. Essentially, there is no significant difference between options 1 and 2. The only difference is that in option 2, the Internet access is at the Gateway EMS.

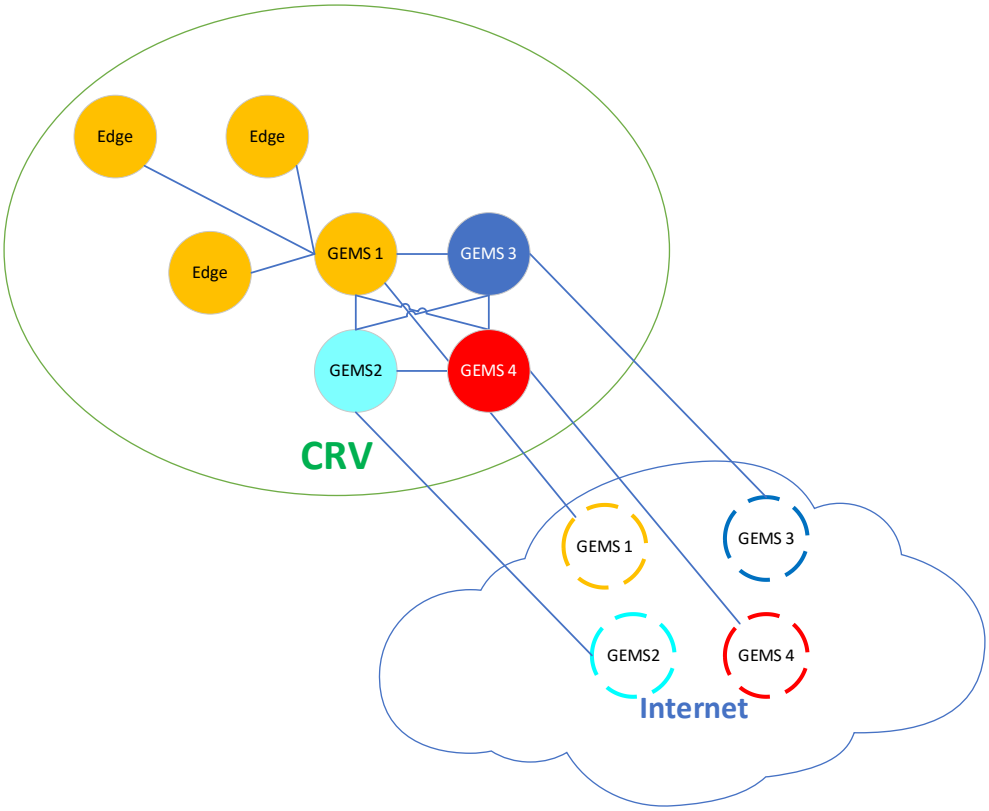

Figure 2- Option 2- SWIM Architecture

2.154 Option 3 is to have the CRV service provider also provide the connectivity to the Internet. This option was discussed during the CRV OG and SWIM TF coordination meeting, held via teleconference on 13 March 2025. The CRV OG informed that it was not a viable option and that the CRV OG does not provide or support an internet only connection.

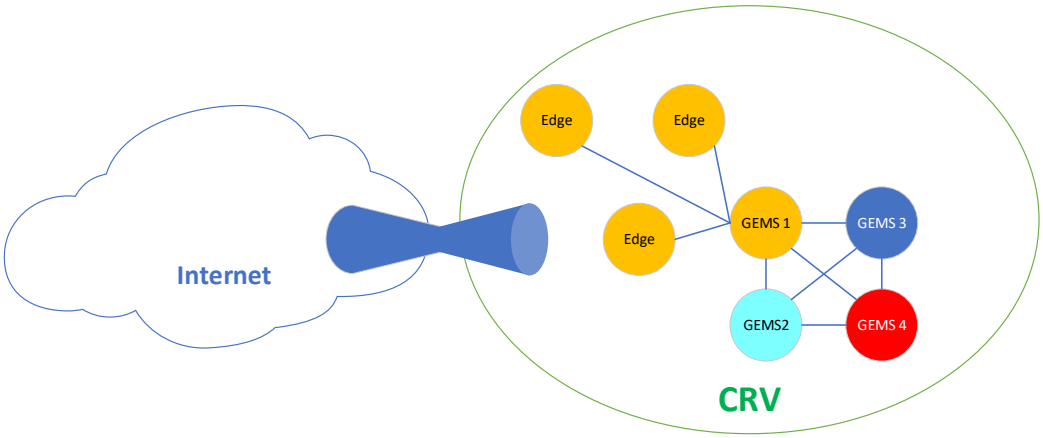

Figure 3- Option 3- SWIM Architecture

2.155 The SWIM TF/10 Meeting noted the need to determine which of the two remaining options would be the most viable for implementing Internet connectivity for the APAC Regional SWIM. It was suggested that option 1 was the simplest and could be implemented first as an interim solution, enabling an early implementation of the APAC Regional SWIM with accessibility via both the CRV and the Internet, while a more permanent solution is being developed.

2.156 The SWIM TF/10 Meeting discussed and agreed to the need to define the functionalities and requirements of edge EMS and gateway EMS to support States/Administrations in understanding and determining the appropriate level of SWIM TI capabilities required for their implementation. SIPG was assigned the task of developing the definitions as well as identifying the minimum functionalities and requirements for edge EMS and gateway EMS.

2.157 Concern was raised regarding option 2, particularly in scenarios where SWIM traffic would always need to be routed through gateway EMS, even for domestic SWIM operations. This approach might not be efficient. SIPG will further discuss this option, taking into account the concern raised.

SIPG Action WS-1-12: Conclusions of the Asia-Pacific SWIM Transition Discussions

2.158 This paper presented the deliberations of the SIPG for SWIM transition and shared the following 4 recommendations for the SWIM TF's consideration:

> **Recommendation 1:** Reach out to relevant expert groups that govern the various data types being transmitted on AMHS for their SWIM migration strategy and proposed sunset date. (e.g., AAITF, FF-ICE ad-hoc group, MET/IE, ATFM ad-hoc group, etc.)
>
> **Recommendation 2:** Work closely with the ACSICG AMHS and the SWIM Transition Group to map out a transition plan together. One topic of interest is the need for AMHS to SWIM conversion and how that should be managed.
>
> **Recommendation 3:** Consider the use of legacy formats in the Asia-Pacific SWIM. This is to enable existing data to be quickly onboarded onto SWIM. The ATM Information Reference Model should be used to maintain semantic interoperability.
>
> **Recommendation 4:** Inform the ATM Automation Systems Task Force (ATMAS TF) of the need for ATM automation systems to be SWIM compatible.

2.159 The SWIM TF/10 Meeting deliberated the recommendations in detail and agreed to adopt recommendations 1, 2, and 4 as proposed. For recommendation 3, the SWIM TF/10 Meeting discussed whether SWIM TF or operational expert groups would be a more appropriate body to determine the data formats for information exchange within SWIM. Moreover, it was noted that referencing the use of legacy formats in the region could potentially hinder progress towards SWIM transition. As a result, recommendation 3 was revised and adopted by the Meeting as follows:

> **Recommendation 3:** Consider the possible use of any other data formats, in addition to AIXM, FIXM, and IWXXM, in the Asia-Pacific SWIM. This is to enable existing data to be quickly onboarded onto SWIM. The ATM Information Reference Model should be used to maintain semantic interoperability.

2.160 For recommendation 1, the SWIM TF/10 Meeting was informed that the ATFM SG/14 meeting endorsed the draft conclusion, which was later adopted by APANPIRG/35 as **Conclusion APANPIRG/35/4**, on the adoption of FIXM v4.3 as the standard format for cross-border ATFM information exchange in the SWIM environment from Q3/2026.

2.161 The MET/IE WG Chair informed that the 6th meeting of the ICAO Meteorological Panel (METP) was held in March 2025. At this meeting, the Panel was informed that, while the IWXXM format had become a standard format for the international exchange of aeronautical meteorological information since November 2020, it had not yet reached a sufficient level of global implementation. A key reason for this slow implementation of the IWXXM format was attributed to the fact that Annex 3

continued to require States to issue and disseminate products also in TAC format and/or in abbreviated plain language. To encourage global progress towards IWXXM format, it was proposed to amend Annex 3, to specify the removal of TAC and plain text language forms as the standard format for the international exchange of aeronautical meteorological information with an applicability date of November 2030 (i.e. to align with the expected applicability date of Amendment 84 of Annex 3). The METP agreed to the proposed removal of the use of TAC and plain text language forms for the international exchange of aeronautical meteorological information such as METAR, SPECI, TAF, trend forecasts, SIGMET and AIRMET information, volcanic ash advisory (VAA) information, tropical cyclone advisory (TCA) information, and space weather advisory (SWXA) information.

2.162 The SWIM TF/10 Meeting requested the ICAO Secretariat to coordinate with ICAO APAC Aeronautical Information Services − Aeronautical Information Management Implementation Task Force (AAITF) to share the plan for the AIS to AIM transition, particularly regarding the anticipated sunset date of exchanging aeronautical information over AFTN/AMHS. **ACTION ITEM 10-3**

2.163 In response to a query regarding the global strategy for AMHS to SWIM transition, it was shared that no such discussion is currently taking place within the Air Traffic Management Requirements and Performance Panel (ATMRPP). ATMRPP is presently focused on the transition strategy for FPL2012 to FF-ICE. Discussion on migration of other ATS messages, in addition to FPL2012, CHG, DLA, CNL, RQP, RQS, DEP, ARR, has only recently been initiated.

2.164 The SWIM TF/10 Meeting noted concern regarding the differing suggestions on communication infrastructure implementation provided to APAC States/Administrations. For instance, various MET meetings have emphasized the need for the timely implementation of capable primary and, where relevant, secondary links for the exchange of IWXXM messages. It was highlighted in these meetings that IWXXM, as the successor to Traditional Alphanumeric Code (TAC), can only be transported over links with specific capabilities, which AFTN links do not support. Readiness of AMHS with File Transfer Body Part (FTBP) and the Interpersonal Message (IPM) Heading Extension (IHE) to support the exchange of IWXXM messages/reports has been promoted in MET and ACSICG meetings. However, it had also been informed at these meetings that AMHS would not support the exchange of AIXM and FIXM messages and that SWIM would be required for such exchanges. This differing guidance for ANS communication capacity enhancements has created confusion among States/Administrations, particularly whether to transition from AFTN to AMHS, upgrade existing AMHS, or bypass AMHS entirely and implement SWIM directly.

Enhancing Reliable Message Delivery in Hierarchical Architecture for APAC SWIM Implementation – Japan (WP/14)

2.165 Japan recalled that, based on discussion within the SIPG, the hierarchical architecture has been proposed for APAC SWIM implementation, in comparison to centralized and decentralized approaches. Therefore, certain concerns regarding reliable message delivery in a hierarchical architecture need to be addressed and clarified. Japan proposed an approach for constructing the hierarchical architecture, analyzed methods to enhance reliable message delivery for APAC SWIM implementation, and identified the required functionalities for Gateway and Edge Enterprise Messaging Services (EMSs).

2.166 The SWIM TF/10 Meeting noted that the hierarchical architecture consists of multiple EMSs, which are key components in constructing the APAC SWIM Technical Infrastructure (TI). These EMSs are categorized into Gateway EMS and Edge EMS and are connected to form sub-communities. A Gateway EMS serves as an interconnecting broker between different sub-communities and provides message routing functions. An Edge EMS provides connectivity service for SWIM-enabled users and routes SWIM messages between the upper-level Gateway EMS and SWIM-enabled users. In addition,

the Edge EMS offers connectivity to external IP-based networks, including the Internet, allowing approved aviation partners who cannot directly connect to the CRV to provide existing and emerging SWIM information services (e.g. MET information services).

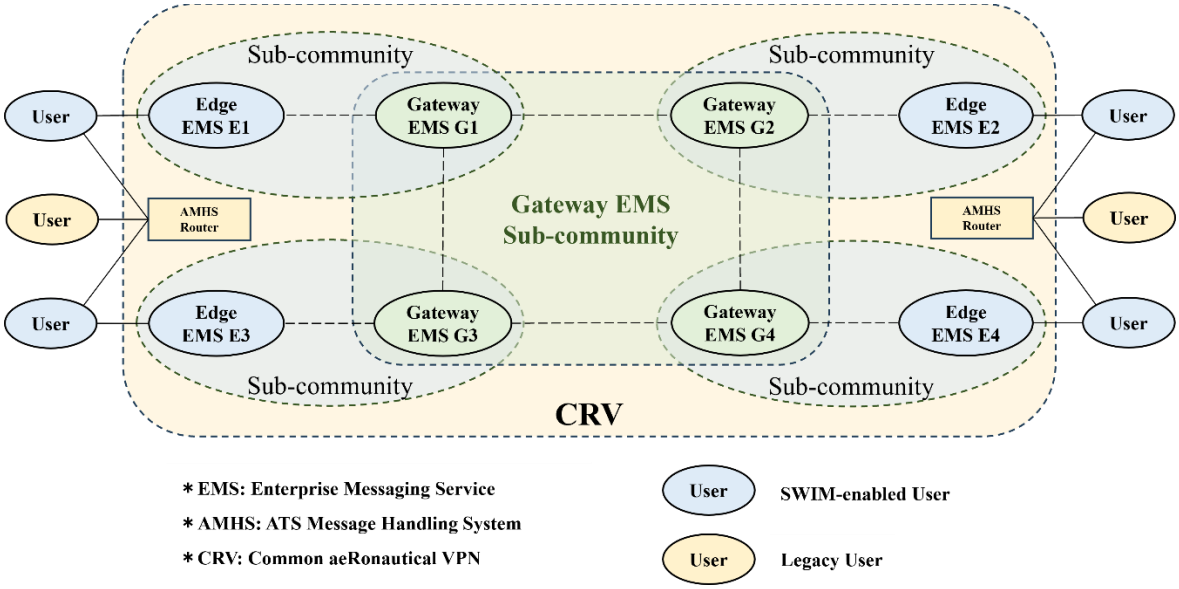

Figure 4- Hierarchical Architecture for APAC SWIM Implementation

2.167 Based on different implementation levels, the hierarchical architecture is considered an appropriate option for APAC SWIM to satisfy the various requirements of Member States and achieve interoperability during the transition.

2.168 The SWIM TF/10 Meeting also noted that the concerns regarding reliable message delivery within a hierarchical architecture have been identified and discussed at previous SWIM TF meetings. The problems, use cases and corresponding solutions for enhancing the reliability of message delivery were summarized. It was suggested to establish a collaborative environment where all Gateway and Edge EMS service providers agree on a common set of functions and settings to provide a reliable, secure and efficient message exchange service for SWIM-enabled end users.

2.169 To ensure reliable message delivery in the hierarchical architecture, the required functionalities for Gateway and Edge EMSs were listed. The at-least-once delivery configuration was always applied to support retry and redelivery policies. It was suggested that since at-least-once delivery may result in duplicate messages, SWIM information services should be idempotent, ensuring that processing a message multiple times does not cause any issues.

2.170 The SWIM TF/10 Meeting was requested to share the information as contained in this working paper with the related Working Groups/Task Forces for further deliberation. However, considering that SIPG is currently working on the development of regional SWIM TI, it was deemed more appropriate for this information to be first reviewed and deliberated by SIPG. The possibility of sharing of the information with other groups would be reconsidered once the APAC SWIM TI architecture has reached a more mature stage.

SIPG ACTION WS-1-4, WS-1-5- Improvement of the hierarchical architecture for Regional SWIM implementation and requirements for Gateway EMS – China and Hong Kong China (WP/17)

2.171 This paper presented the modified version of the hierarchical architecture for regional SWIM to address the issues highlighted in SWIM TF/9-WP/10 and promote the implementation of regional SWIM.

2.172 The SWIM TF/10 Meeting was informed about the modified version of the hierarchical architecture, with a limited number of Gateway EMSs, optimized multi-connections between Gateway EMSs and redundant connections between Gateway EMS and Edge EMS. Based on this architecture, ANSPs will be required to deploy the Gateway EMS on a separate device from their internal EMS. This configuration was presented as an effective model as it effectively transforms the ANSP's internal EMS into an Edge EMS, thereby fundamentally altering its operational dynamics and ensuring the integrity and security of the overall system architecture.

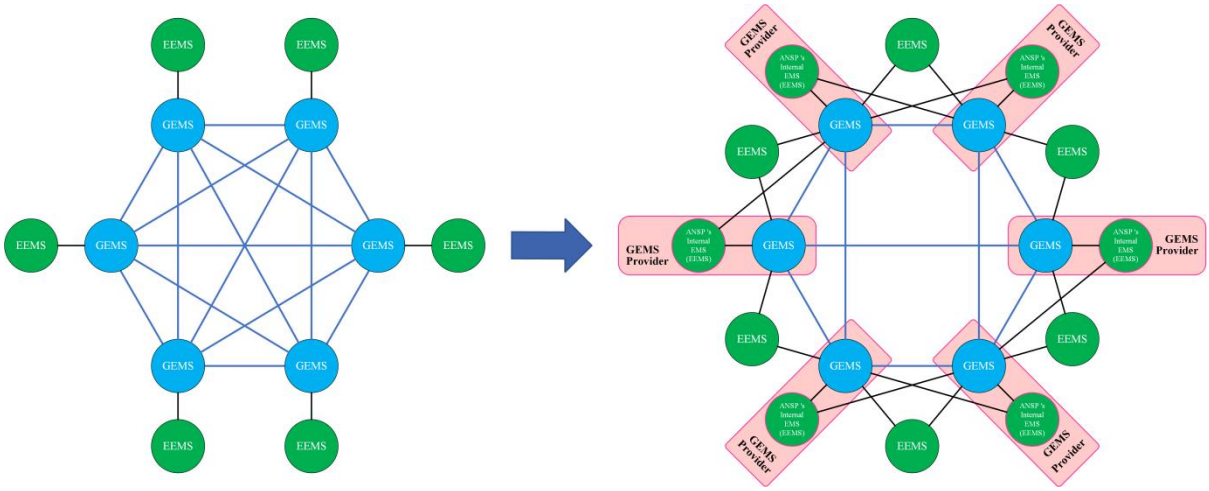

Figure 5- A modified version of the hierarchical architecture

2.173 It was added that the modified version of the hierarchical architecture could address the issue of "Detouring cannot be performed if a failure occurs in the message delivery chain," highlighted in SWIM TF/9-WP/10. It has the potential to reduce the complexity of the Gateway EMS, the regional SWIM backbone network, and avoid a single point of failure. The potential improvement brought by the modified version of the hierarchical architecture was shared with the meeting.

2.174 A draft of Gateway EMS requirements in the hierarchical architecture, including both functional and non-functional requirements of Gateway EMS was presented at the Meeting.

2.175 The SWIM TF/10 Meeting was informed that, since the Gateway EMS needs to provide services for multiple Edge EMSs, particular attention should be given to QoS metrics such as availability, latency, and throughput. With reference to the metric information of ATM-related services and systems, the Meeting was provided the following suggestions:

Metrics	**Recommended values**
Availability	≥99.9% (annual allowable unplanned downtime of 8.76 hours)
Latency	For operational use cases: In the order of seconds. For post-operational or non-operational use cases: In the order of minutes.

Throughput	depends on the Edge EMSes connecting to the Gateway EMS, data size, and data update rate, and can be measured in two primary units（KB/unit time or messages/unit time）

Table 1- Suggestions of QoS metrics recommended values for Gateway EMS

a) The availability metric requires balancing between benefits and costs. Each additional "9" in availability (e.g., from 99.9% to 99.99%) poses exponential challenges across hardware, software, testing, and operations, necessitating higher technical expertise, more rigorous governance, and substantial resource allocation. The resource investment grows exponentially as the availability level increases.

b) The latency of Gateway EMS is part of the end-to-end SWIM latency, which includes delays from Gateway EMS, Edge EMS, and CRV. The latency of Gateway EMS is primarily determined by system hardware and software performance. Through a comprehensive analysis of latency in multiple scenarios, such as surveillance data transmission, flight plan updates, and meteorological information sharing, it is recommended to define the individual Gateway EMS processing delay on the order of seconds for operational use cases and on the order of minutes for post-operational or non-operational use cases.

c) In technical terms, throughput refers to the total volume of data processed or transferred within a specified time frame. The throughput of a Gateway EMS is heavily dependent on operational scenarios, requiring consideration of a number of targets to be updated (related to the Edge EMSes connecting to the Gateway EMS), data size (determined by the data schema) and update rate (dictated by data source characteristics and scenario requirements)

2.176 The SWIM TF/10 Meeting recalled that the availability value agreed at the SIPG WS/1 was 99.0%. Given that it has been agreed that the initial APAC SWIM will support information exchange not for the purpose of providing aircraft separation, the Meeting agreed to set the availability of $\geq$ 99.0% as a starting point. Moreover, as the functions and requirements of gateway EMS and edge EMS are still under development by SIPG, it was suggested that SIPG further deliberate on the draft requirements, especially with regard to availability, as part of its continued work.

2.177 The SWIM TF/10 Meeting discussed the revised hierarchical architecture and considered the appropriate Internet connectivity option presented in WP/18 in the context of this architecture. It was agreed that SIPG would review this revised architecture, along with option 1 for Internet Connectivity for the APAC SWIM, for further deliberation and development.

2.178 After detailed discussion on the options for connectivity of Gateway EMS, i.e., using pseudo CRV or the residual bandwidth of the operational CRV, the SWIM TF/10 Meeting agreed to proceed with the latter option. This option will be submitted for further consideration by CRV OG. To support the APAC SWIM TI test to be conducted by SIPG using this agreed-upon option, the Meeting requested CRV OG to provide guidance on using the residual bandwidth of the operational CRV for SWIM testing purposes.

2.179 It was agreed that various recommendations/options suggested in WP/14 and discussed during the SWIM TF/10 Meeting, such as whether all ATN Backbone Sites can serve as Gateway EMSs, the existing network topology can be reused, a connection policy based on adjacent Flight Information Region (FIR) or air traffic volume priorities can be used to establish connections between Gateway EMSs, as well as the appropriate number of EMS required in the region, etc. will be further explored by SIPG.

Requirements Specification Template for GEMS and Global SWIM Service – ROK (WP/29)

2.180 The paper presented a structured approach to defining software requirements for SWIM implementation, drawing from internationally recognized standards such as ISO/IEC 12207, ISO/IEC 15288, ISO/IEC 25010, and IEEE STD 830. The SWIM TF/10 Meeting discussed the guidelines and examples presented in the paper. It was agreed that SIPG, utilizing the Software Requirement Specification Template designed by ROK, will populate the template with specifications related to SWIM TI. These SWIM TI specifications examples will be included as part of the regional SWIM IGD.

Expected Capabilities of CRV for APAC SWIM Implementation – Japan (WP/20)

2.181 The SWIM TF/10 Meeting recalled that to understand the required capabilities of CRV in supporting APAC SWIM construction, the Joint Event of SWIM over CRV Demonstration and Surveillance Data Sharing in SWIM Trial was held on 28 – 29 May 2024, at HKCAD. Japan presented the validation results of message exchange using the hierarchical SWIM architecture built on the pseudo CRV. Additionally, based on the QoE (Quality of Experience) from the demonstration, the expected capabilities and QoS (Quality of Service) parameters required for CRV to meet APAC SWIM requirements were analyzed by Japan and shared with the meeting.

2.182 Japan informed that, according to the analysis of validation results, the following capabilities and QoS parameters for CRV are expected to support SWIM-based applications and operations, as shown in the table below. As surveillance data sharing is a continuous and real-time service, a lower packet delay budget is expected. However, because of its large volume and high frequency, a lower packet error rate and higher priority level are not required. Moreover, it was recommended that to avoid affecting other event-based SWIM messages, including FIXM, AIXM and IWXXM messages, it is better to separate the surveillance data into a different logical network layer and message queue.

Network	**Application**		**Capability**
Bandwidth	For SWIM applications		> 10 Mbps
Latency	For SWIM information services		< 200 ms
Packet Loss	For SWIM information sharing		< 0.1%
QoS	Packet Delay Budget	For SWIM message	300 ms
		For surveillance data	200 ms
	Packet Error Rate	For SWIM message	10^{-3}
		For surveillance data	10^{-3}
	Priority Level	For SWIM message	High
		For surveillance data	Low

Table 2- Expected Capabilities and QoS Parameters for CRV

2.183 The SWIM TF/10 Meeting was informed that additional validation and evaluation tests will be conducted in cooperation with SIPG and other working groups, and the results will be reported at upcoming SWIM TF meetings. Moreover, the Meeting noted that the paper was also presented during

the joint meeting of CRV and SWIM Experts held in Guam, USA, in September 2024. It was further noted that the information contained in the paper would serve as input for the development of new CRV specifications.

CRV II Contract Management Process

2.184 The CNS SG/29 Meeting was informed that, due to the confidentiality of the CRV contract management process, the report under this agenda was published on the ICAO APAC CRV Secure portal under the CRV group.

2.185 The CNS SG/29 Meeting noted that the CRV OG/13 Meeting agreed on the need to organise the Special Session- CRV OG/14 as an In-Person Meeting for 5 days to progress to the next stage of the CRV contract management process from 27 to 31 October 2025 in Tokyo, Japan. The Special Session- CRV OG/14 discussed the way forward for the CRV contract.

2.186 The CNS SG/29 Meeting agreed that the decision will need to be shared with the APANPIRG/36 meeting, planned for November 2025, to ensure the CRV contract management process is completed on time. The CNS SG/29 discussed the way forward to get endorsements of the decision made by CRV OG/14 from ACSICG and the CNS SG. It was agreed that the ICAO Secretariat would share the decision made by CRV OG/14 with delegates of member States/Administrations participating in ACSICG/12 and CNS SG/29 to seek their endorsement on the decision, and feedback/comments, if any, by email.

2.187 After email endorsement of the proposed draft Conclusion, drafted by CRV OG/14, by ACSICG/12 and CNS SG/29 delegates, the Draft Conclusion CNS SG/29/15 will be presented to APANPIRG/36 for adoption.

2.188 The draft conclusion was shared with ACSICG/12 and CNS SG/29 on 4 November 2025 and no objections were received for the proposed draft conclusion.

2.189 With the aforementioned, the following Conclusion as endorsed by CNS SG/29 was adopted by APANPIRG/36.

<table>
<tr><th colspan="2">Conclusion APANPIRG/36/13 (Conclusion CNS SG/29/15 (ACSICG/12/09 (CRV OG/14/01)))-
Decision of CRV II Contract Management Process</th></tr>
<tr><td>What:
Following the procurement process formulated by CRV OG to choose one of the two options for APAC States/Administrations for the CRV II contract management process, i.e., current CRV contract extension vs initiate the CRV II RFP process:

a) States/Administrations agree to extend the current CRV contract for 5 years, which will be referred to as the CRV II Network. After extension, the CRV II contract date would be from 1 January 2029 with expiry on 31 December 2033
b) The contract extension for the CRV network will include updated legal, commercial, financial and technical requirements of the current service provider and CRV network implementation.
c) Considering internal procurement timelines of APAC States/Administrations, CRV OG should prepare</td><td>Expected impact:
☐ Political / Global
☐ Inter-regional
☒ Economic
☐ Environmental
☒ Ops/Technical</td></tr>
</table>

baseline updates required for the CRV network **before 1 April 2027;**	
Why: (1) The current CRV contract expires on 31 December 2028; (2) Some APAC States/Administrations, including PSIDS, are in the process of joining CRV, while some States have joined CRV within the last 1-2 years; (3) Transition to the new contract will take at least 1-2 years; (4) The CRV II contract management process executed by CRV OG resulted in the extension of the CRV contract for 5 years.	Follow-up: ☒Required from States
When: 26 Nov 2025	Status: Adopted by PIRG
Who: ☒Sub groups ☒APAC States ☒ICAO APAC RO ☐ICAO HQ ☒Other: CRV OG and ACSICG	

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

a) note the outcome of the APANPIRG/36, CNS SG/29, and its contributory bodies, and take any necessary follow-up actions; and

a) discuss any relevant matter as appropriate

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List of Conclusion/Decisions adopted by CNS SG/29

<table>
<tr><td colspan="3">Conclusion CNS SG/29/02 (Draft Conclusion ACSICG/12/03 (CRV OG/13/07))- Adopt the CANSO Standard of Excellence in Cyber Security for CRV</td></tr>
<tr><td colspan="2">What: The CRV OG adopts the CANSO Standard of Excellence in Cyber Security for CRV and recommends that:
a) CRV OG prefers an acceptable maturity level of Target Score ‘C.’ in carrying out the maturity assessment on the CRV.
b) The CRV Service Provider carries out the maturity assessment.
c) Each participating State/Administration carries out the maturity assessment.
d) CRV OG/Each participating State/Administration creates a plan to address the gaps in the maturity score for the CRV.</td><td>Expected impact:
☐ Political / Global
☐ Inter-regional
☐ Economic
☐ Environmental
☒ Ops/Technical</td></tr>
<tr><td colspan="2">Why: To have a standard Cyber Security maturity applied to the CRV.</td><td>Follow-up: ☒Required from States</td></tr>
<tr><td colspan="2">When: 20-Jun-25</td><td>Status: Adopted by Subgroup</td></tr>
<tr><td colspan="3">Who: ☒Sub groups ☒APAC States ☒ICAO APAC RO ☐ICAO HQ ☐Other: CRV OG</td></tr>
</table>

<table>
<tr><td colspan="3">Decision CNS SG/29/03 (Draft Decision ACSICG/12/04) - Adoption of SOP to update the AMC AFTN/AMHS Routing Table in the Asia/Pacific Region</td></tr>
<tr><td colspan="2">What: The proposed Standard Operating Procedures (SOP) for all ICAO Asia/Pacific (APAC) members who operate as CCC Operators (Coordination COM Centres) or External COM Centre Operators to update the AMC AFTN/AMHS Routing Table in the Asia/Pacific Region is adopted.</td><td>Expected impact:
☐ Political / Global
☐ Inter-regional
☐ Economic
☐ Environmental
☒ Ops/Technical</td></tr>
<tr><td colspan="2">Why: Enhance coordination between COM centers and ensure quality service for ATS Messaging.</td><td>Follow-up: ☒Required from States</td></tr>
<tr><td colspan="2">When: 20-Jun-25</td><td>Status: Adopted by Subgroup</td></tr>
<tr><td colspan="3">Who: ☒Sub groups ☒APAC States ☒ICAO APAC RO ☐ICAO HQ ☒Other: ACSICG</td></tr>
</table>

<table>
<tr><td colspan="3">Conclusion CNS SG/29/04 (Draft Conclusion ACSICG/12/05) - Educational material to manage the distribution of IWXXM information for COMM experts in the event of primary link failure</td></tr>
<tr><td colspan="2">What: The educational material to support COM/MET experts in managing the distribution of IWXXM in case of primary link failure is adopted as a living document.</td><td>Expected impact:
☐ Political / Global
☐ Inter-regional
☐ Economic</td></tr>
</table>

	☐ Environmental ☒ Ops/Technical
Why: Educational material that identifies the required link capabilities to maintain IWXXM message distribution in the event of a primary link failure is necessary for uninterrupted service.	Follow-up: ☐Required from States
When: 20-Jun-25	Status: Adopted by Subgroup
Who: ☒Sub groups ☒APAC States ☐ICAO APAC RO ☐ICAO HQ ☐Other: ACSICG	

Conclusion CNS SG/29/05 ***(Draft Conclusion ACSICG/12/06)*** - Checklist of steps required to operational IWXXM exchange	
What: A checklist to facilitate the operational implementation of the IWXXM message exchange is adopted as a living document.	Expected impact: ☐ Political / Global ☐ Inter-regional ☐ Economic ☐ Environmental ☒ Ops/Technical
Why: To support the prompt implementation of capable primary and, where relevant, secondary links for the exchange of IWXXM messages	Follow-up: ☐Required from States
When: 20-Jun-25	Status: Adopted by Subgroup
Who: ☒Sub groups ☒APAC States ☒ICAO APAC RO ☐ICAO HQ ☒Other: ACSICG	

Decision CNS SG/29/08 ***(GBAS-SBAS ITF 07/01)*** - Guidance Document for Implementation of SBAS in the Asia/Pacific Region	
What: The draft guidance document for implementation of SBAS in the Asia/Pacific Region, developed by the APAC GBAS/SBAS ITF, is adopted.	Expected impact: ☐ Political / Global ☐ Inter-regional ☐ Economic ☐ Environmental ☒ Ops/Technical
Why: To provide guidance to States for the implementation of SBAS	Follow-up: ☐Required from States
When: 20-Jun-25	Status: Adopted by Subgroup
Who: ☒CNS Sub groups ☐APAC States ☐ICAO APAC RO ☐ICAO HQ ☐Other:	

List of Conclusion/Decisions adopted by CNS SG/29

Conclusion CNS SG/29/09 *(SURICG/10/02)* - Workflow for the request and coordination of IC codes with the ICAO APAC Office	
What: Interrogator Codes (IC) of Mode S interrogators in the Asia Pacific region are to be coordinated and assigned through the ICAO APAC Regional Office. States/Administrations requiring ICs should request to the ICAO APAC Regional Office following the approved workflow to facilitate the request.	Expected impact: ☐ Political / Global ☐ Inter-regional ☐ Economic ☐ Environmental ☒ Ops/Technical
	Follow-up: ☐Required from States
When: 20-Jun-25	Status: Adopted by Subgroup
Who: ☒Sub groups ☒APAC States ☒ICAO APAC RO ☐ICAO HQ ☐Other: SURICG	

Decision CNS SG/29/10 *(ATMAS TF/06/01)* – Adoption of the Air Traffic Management Automation System Implementation and Operations Guidance Document Edition 1.5	
What: The Air Traffic Management Automation System Implementation and Operations Guidance Document, Edition 1.5, is adopted.	Expected impact: ☐ Political / Global ☐ Inter-regional ☐ Economic ☐ Environmental ☒ Ops/Technical
Why: New subsections have been added in the revised draft.	Follow-up: ☐Required from States
When: 20-Jun-25	Status: Adopted by Subgroup
Who: ☒Sub groups ☐APAC States ☐ICAO APAC RO ☐ICAO HQ ☒Other: ATMAS TF	

Decision CNS SG/29/11 *(ATMAS TF/06/02)* – Adoption of the AIDC Implementation and Operations Guidance Document (IGD) Edition 2.0	
What: The AIDC Implementation and Operations Guidance Document (IGD) Edition 2.0 is adopted	Expected impact: ☐ Political / Global ☐ Inter-regional ☐ Economic ☐ Environmental ☒ Ops/Technical
Why: New subsections have been added in the revised draft.	Follow-up: ☐Required from States
When: 20-Jun-25	Status: Adopted by Subgroup
Who: ☒Sub groups ☐APAC States ☐ICAO APAC RO ☐ICAO HQ ☒Other: ATMAS TF	

<table>
<tr><td colspan="3">Conclusion CNS SG/29/12 (ACSICG/12/01(CRV OG/13/04), ACSICG/12/08, SURICG/10/01, SRWG/09/01) - Update the CNS Tables of ICAO APAC e-ANP Vol II</td></tr>
<tr><td colspan="2">What: The following tables of ICAO APAC e-ANP Vol II are outdated and require immediate updates.

<u>General Regional Requirements</u>

TABLE CNS II-1 AERONAUTICAL FIXED TELECOMMUNICATIONS NETWORK (AFTN) PLAN
TABLE CNS II-2 REQUIRED ATN INFRASTRUCTURE ROUTING PLAN
TABLE CNS II-3 ATS DIRECT SPEECH CIRCUITS PLAN
TABLE CNS II-4 HF NETWORK DESIGNATORS

<u>Specific Regional Requirements</u>

TABLE CNS II-APAC-1 ATS INTER-FACILITY DATA COMMUNICATION (AIDC) IMPLEMENTATION PLAN
TABLE CNS II-APAC-2 RADIO NAVIGATION AIDS
TABLE CNS II-APAC-3 SURVEILLANCE</td><td>Expected impact:
☐ Political / Global
☐ Inter-regional
☐ Economic
☐ Environmental
☒ Ops/Technical</td></tr>
<tr><td>Why: The current TABLEs related to CNS are outdated and require immediate updates in order to update e-ANP Vol II.</td><td colspan="2">Follow-up: ☒Required from States</td></tr>
<tr><td>When: 20-Jun-25</td><td colspan="2">Status: Adopted by Subgroup</td></tr>
<tr><td colspan="3">Who: ☒Sub groups ☒APAC States ☒ICAO APAC RO ☐ICAO HQ ☐Other:</td></tr>
</table>

<table>
<tr><td colspan="3">Decision CNS SG/29/13 - Adoption of Regional Guidance Material for Addressing Human Factor Issues of ATSEP v2.0</td></tr>
<tr><td colspan="2">What: a) ICAO APAC Guidance Material for Addressing Human Factor Issues of ATSEP v2.0 be adopted.</td><td>Expected impact:
☐ Political / Global
☐ Inter-regional
☐ Economic
☐ Environmental
☒ Ops/Technical</td></tr>
<tr><td colspan="2">Why: The Guidance material for the improvement of the existing human resource management process towards ATSEP for addressing the factors adding stress and fatigue, improving their job performance and for achieving organizational resilience and cost benefits has been modified by adding a new chapter on “Supervisory and Managerial Role of ATSEP”.</td><td>Follow-up: ☒Required from States</td></tr>
</table>

List of Conclusion/Decisions adopted by CNS SG/29

When:	20 Jun 2025	Status:	Adopted by Subgroup
Who:	☒Sub groups ☐APAC States ☐ICAO APAC RO ☐ICAO HQ ☐Other: XXXX		

Decision CNS SG/29/14 - Creation of ANS Information Assurance Task Force (ANSIA TF)		
What: To ensure consistent implementation of the requirements of ANS information security in the APAC region in accordance with the various manuals and guidance documents published by the ICAO and other international organizations, especially Certificates and PKI, a contributory body is proposed to be created under the CNS Sub-group to manage this using personnel experienced in the management and provisioning of ANS cybersecurity.		Expected impact: ☐ Political / Global ☐ Inter-regional ☒ Economic ☐ Environmental ☒ Ops/Technical
Why: To provide consistent application of the requirements.	Follow-up: ☒Required from States	
When: 20-Jun-25	Status: Adopted by Subgroup	
Who: ☒Sub groups ☒APAC States ☒ICAO APAC RO ☐ICAO HQ ☒Other: ACSICG, CRV OG, SWIM TF		

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A List of Conclusions adopted by APANPIRG/36 Meeting related to CNS

<table>
<tr><td colspan="3">Conclusion APANPIRG/36/10 (Conclusion CNS SG/29/01 (ACSICG/12/02 (CRV OG/13/06))) - Implementation of CRV for small Pacific Island and small ANSP in the region using CRV Solution, PCCWG SLA Package D+</td></tr>
<tr><td colspan="2">What: That, the CRV OG agreed to the following to assist small Pacific Islands & small ANSPs in APAC in the implementation of CRV:
a) CRV SLA Package D+ is reliable and addresses lead time for acquiring spares and PCCWG to import licenses and clearance for customer sites
b) Small Pacific Island and small ANSP in the region to consider using CRV SLA package D+ as the CRV solution to implement CRV for the exchange of voice & AMHS services
c) With a target date to implement CRV by 2025, it was recommended that the CRV OG work closely with the small Pacific Islands, small ANSP in the region and PCCWG on a cost-effective CRV solution to implement CRV.</td><td>Expected impact:
☐ Political / Global
☐ Inter-regional
☒ Economic
☐ Environmental
☒ Ops/Technical</td></tr>
<tr><td>Why: To facilitate the implementation of CRV for the small Pacific Island & small ANSP in the region</td><td colspan="2">Follow-up: ☒Required from States</td></tr>
<tr><td>When: 26-Nov-25</td><td colspan="2">Status: Adopted by PIRG</td></tr>
<tr><td colspan="3">Who: ☒Sub groups ☒APAC States ☐ICAO APAC RO ☐ICAO HQ ☐Other: XXXX</td></tr>
</table>

<table>
<tr><td colspan="3">Decision APANPIRG/36/11 (Decision CNS SG/29/06 (SWIM TF/10/02))- Adoption of APAC Common SWIM Information Services, v1.0</td></tr>
<tr><td colspan="2">What: The first version of APAC Common SWIM Information Services, be adopted for immediate use by APAC States/Administrations. The set of APAC Common SWIM Information Services, and the associated performance of SWIM Technical Infrastructure underpinning these services, is not specified to support the provision of aircraft separation.</td><td>Expected impact:
☐ Political / Global
☐ Inter-regional
☐ Economic
☐ Environmental
☒ Ops/Technical</td></tr>
<tr><td>Why: To assist APAC States/Administrations in planning and implementing their SWIM information services.</td><td colspan="2">Follow-up: ☐Required from States</td></tr>
<tr><td>When: 26-Nov-25</td><td colspan="2">Status: Adopted by PIRG</td></tr>
<tr><td colspan="3">Who: ☒Sub groups ☐APAC States ☐ICAO APAC RO ☐ICAO HQ ☐Other: MET SG, ATM SG, AOP SG</td></tr>
</table>

<table>
<tr><td colspan="2">Conclusion APANPIRG/36/12 (Conclusion CNS SG/29/07 (SWIM/TF/10/03)) – Asia/Pacific Regional FIXM version 4.3 Extension</td></tr>
<tr><td>What: The FIXM version 4.3 Extension described in SWIM/TF/10/WP30 be:
a) adopted as the Asia/Pacific FIXM version 4.3 Extension;</td><td>Expected impact:
☐ Political / Global
☒ Inter-regional
☐ Economic</td></tr>
</table>

b) uploaded to the ICAO Asia/Pacific Regional Office website for use by Asia/Pacific Administrations, to support cross-border ATFM operation, A-CDM, ATFM/A-CDM integration, and traffic synchronization; and c) presented to the FIXM CCB for review and publication on the FIXM official website.	☐ Environmental ☒ Ops/Technical
Why: To provide the information exchange model necessary to support cross-border ATFM operation, A-CDM, ATFM/A-CDM integration, and traffic synchronization in the Asia/Pacific Region, in line with *Conclusion APANPIRG/35/4*.	Follow-up: ☐Required from States
When: 26-Nov-25	Status: Adopted by PIRG
Who: ☒Sub groups ☐APAC States ☒ICAO APAC RO ☐ICAO HQ ☐Other: SWIM TF	

Conclusion APANPIRG/36/13 *(Conclusion CNS SG/29/15 (ACSICG/12/09 (CRV OG/14/01)))*- **Decision of CRV II Contract Management Process**	
What: Following the procurement process formulated by CRV OG to choose one of the two options for APAC States/Administrations for the CRV II contract management process, i.e., *current CRV contract extension* **vs** *initiate the CRV II RFP process:* a) States/Administrations agree to extend the current CRV contract for **5 years,** which will be referred to as the **CRV II Network.** After extension, the CRV II contract date would be from 1 January 2029 with expiry on **31 December 2033** b) The contract extension for the CRV network will include updated legal, commercial, financial and technical requirements of the current service provider and CRV network implementation. c) Considering internal procurement timelines of APAC States/Administrations, CRV OG should prepare baseline updates required for the CRV network **before 1 April 2027;**	Expected impact: ☐ Political / Global ☐ Inter-regional ☒ Economic ☐ Environmental ☒ Ops/Technical
Why: (1) The current CRV contract expires on 31 December 2028; (2) Some APAC States/Administrations, including PSIDS, are in the process of joining CRV, while some States have joined CRV within the last 1-2 years; (3) Transition to the new contract will take at least 1-2 years;	Follow-up: ☒Required from States

A List of Conclusions adopted by APANPIRG/36 Meeting related to CNS

(4) The CRV II contract management process executed by CRV OG resulted in the extension of the CRV contract for 5 years.	
When: 26 Nov 2025	Status: Adopted by PIRG
Who: ☒Sub groups ☒APAC States ☒ICAO APAC RO ☐ICAO HQ ☒Other: CRV OG and ACSICG	

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