Flimsy 01

Common aeRonautical Virtual Private Network (CRV) Operations Group (OG) of Asia/Pacific Air Navigation Planning and Implementation Regional Group (APANPIRG) (APANPIRG CRV OG)

OPERATIONS MANUAL

Draft First Edition – July 2020

Record of Amendment

A/L No	Date	Entered By	A/L No	Date	Entered By

Contents

~~11~~1 ~~PART I~~PART I: FOREWORD

~~1.1~~1.1 Introduction

a. The Common ~~R~~aeronautical ~~egional~~ Virtual Private Network Operations Group (CRV OG) Operations Manual is ~~an informal publication~~ developed by ~~prepared by~~ the CRV ~~Task Force~~OG and endorsed by ACSICG and CNS Sub-group of the Asia/Pacific Air Navigation Planning and Implementation Regional Group (APANPIRG), intended to provide, for easy reference of interested parties, a consolidation of material, particularly of a procedural nature, about the work of the CRV OG and its contributory bodies. It contains the Terms of Reference of the CRV OG established by ~~the Asia/Pacific Air Navigation Planning and Implementation Regional Group (~~APANPIRG~~)~~ (through Decision 27/~~34~~33~~)~~. It also contains the working arrangements and internal instructions agreed ~~developed~~ by the Group for the practical application of its Terms of Reference.

b. The document describes the ~~;~~ Terms of Reference; Composition; Position within ICAO; Working Arrangements; Rules of Procedure and Practices governing the Conduct of Business.

c. This manual basically follows the ITIL Processes which typically covers Strategy, Design, Transition, Operation, Continual Service Improvement (CSI), and presented issues require discussion under operation including Event Management, Problem Management, Incident Management, Change Management, Change Evaluation, Knowledge Management and Availability Management. The general structure of the ITIL Processes is provided in Appendix B: General Structure of ITIL~~Appendix B: General Structure of ITIL~~ ~~Appendix X~~ to this manual.

d. The framework of Part and Sections headings in addition to the page numbering has been devised to provide flexibility and the facilitation of the revision of additional or new material. Each Part includes an Introduction giving its purpose and status. A Table of Contents is also provided which serves also as a subject index and as a check list for the current pages.

e. All pages bear the date of issuance. Replacement pages will be issued as necessary and any portion of a page that has been revised will be identified by a vertical line in the margin. Additional arterial will be incorporated in the existing Sections or will be the subject of new Sections, as required.

f. Changes to text will be identified by a vertical line in the margin in the following manner;

   i. N for new or revised text;
   ii. E for editorial modification that do not alter the substance or meaning of the text;
   iii. D for deleted text

   iv. For practical reasons, this shall not be applied to title pages or to the routine insertion and deletion of Conclusions and Decisions. The absence of change bars, when data or page numbers have changed, will signify reissue of the section concerned or rearrangement of text (e.g., following an insertion or deletion with no other changes).

g. The Operations Manual will be distributed to Members and Observers of APANPIRG, the ICAO Secretariat, and to other States and international organizations participating in meetings, contributing to, or having interest in the work of the CRV OG and/or its Contributory Bodies.

~~13~~2 ~~PART II~~PART II: TERMS OF REFERENCE, COMPOSITION AND POSITION IN ICAO OF THE CRV OG

~~13.2 Background~~

~~The establishment of APANPIRG CRV OG was proposed during the deliberations of the CRV Task Force (TF) as a dedicated group to provide oversight of the CRV operations and the performance of the CRV Service Provider. The APANPIRG CRV OG is formally established by APANPIRG Decision 27/34.~~

~~13.4~~2.1 Terms of Reference (TOR)

The TOR for The Common ~~Regional~~ aeRonautical Virtual Private Network (VPN) Operations Group (OG) is approved by the ICAO Asia/Pacific Air Navigation Planning and Implementation Regional Group (APANPIRG). The CRV OG will provide oversight of the function and performance of the CRV and the performance of the Service Provider.

The activities to be performed by the CRV OG are published in the TOR and will be updated in Appendix A: CRV Terms of Reference as accepted by APANPIRG~~will provide oversight of the function and performance of the CRV and the performance of the Service Provider. The following are the activities to be performed:~~

~~a. Oversee the implementation of the CRV post Contract Award;~~

~~b. Manage issues arising from the transition with CRV TF, if any;~~

~~c. Co-ordinate and standardize the establishment or upgrade of CRV services as required;~~

~~d. Co-ordinate activities with other ICAO CRV OGs, if any, to make sure that decision making and communication with CRV Service Provider is consistent and timely;~~

~~e. Oversee the performance of the CRV Service Provider, including customer service;~~

~~f. Oversee the performance of the CRV network;~~

~~g. Oversee the escalation and solving by the CRV Service Provider of issues associated with the provision of the CRV, including safety and security related issues;~~

~~h. Assist with the resolution of issues associated with the provision of the CRV among the CRV Users as required, including safety and security related issues;~~

~~i. Assist with the migration of Aeronautical Fixed Services (AFS) onto the CRV, in line with the GANP and seamless ATM plan;~~

~~j. Maintain CRV OG documentation associated with the function, performance and management of the CRV, including the CRV OG Operations Manual, a list of CRV users and a record of variations to the common tender package;~~

~~k. Accept deliverables from the CRV Service Provider on behalf of the CRV Users as required;~~

~~l. Promote the use of CRV; and~~

~~m. Perform any other activity as required by CRV operations.~~

~~13.5 Reporting~~

~~The CRV OG will report to Asia/Pacific Air Navigation Planning and Implementation Regional Group (APANPIRG) through ACSICG and CNS SG.~~

~~13.7 Participation~~

~~The CRV OG will include all APAC Member States/Administrations, and any other organization as needed.~~

~~13.9 Conduct of the work~~

~~It is anticipated that the CRV OG will conduct its work primarily by Web Conferences, teleconferences and other electronic means of communications. Face to Face meetings of CRV OG may be required on an annual basis. The ICAO APAC Regional Office will provide secretariat support for the CRV OG.~~

~~13.11 Rapporteur~~

~~There will be two Co-Chairpersons of the CRV OG, one primarily responsible for Asia coordination and the other for Pacific coordination.~~

~~13.13~~2.2 Position within ICAO

a) CRV OG shall be the guiding and co-ordinating organ for all activities conducted within ICAO concerning the Common Regional VPN for the Asia and Pacific Regions. However, it shall not assume authority vested in other ICAO bodies, except where such bodies have specifically delegated their authority to the Group. The activities of the Group shall be subject to review by the APANPIRG.

b) The work of groups established and meetings held within the framework of ICAO, concerned with the Asia and Pacific CRV shall be coordinated with the CRV OG to ensure full harmonization with all regional activities regarding the development and operation of the Asia/Pacific system.

~~b)~~

3 PART III: WORKING ARRANGEMENTS

PART II: WORKING ARRANGEMENTS

~~13.26~~3.1 APANPIRG Procedural Handbook

The CRV shall be guided by the APANPIRG Procedural Handbook to ensure that work arrangements are consistent with its parent body

~~13.27~~3.2 Administration of the CRV OG

c) The CRV shall be administered as follows:

i. by two (2) Chairpersons, one elected from the Representatives designated by member States of the Group from ASIA Region and one from the PACIFIC region; and

ii. by ICAO Regional Director, Asia and Pacific Office designated as Secretary CRV OG by the Secretary General of ICAO. In the execution of duties the Secretary will be supported by the Asia and Pacific Regional Office.

d) The Chairpersons, in close co-ordination with the Secretary, shall arrange for the most efficient working of the Group. The Group shall always work with a minimum of formality and paperwork.

e) Between meetings of the CRV OG, some subjects may be dealt with by correspondence among appointed Representatives of Member States through the Secretary of the CRV OG. However, if States are to be consulted this should be done through the ICAO Regional Director, Asia and Pacific Office.

274 ~~PART I~~PART IV~~II~~: SERVICE STRATEGY

Service Strategy

- Strategy Management
- Service Portfolio Management
- Financial Management
- Business Relationship Management
- Demand Management

~~27.1~~4.1 Strategy Management

Process Objective: To assess the service provider's offerings, capabilities, competitors as well as current and potential market spaces in order to develop a strategy to serve customers. Once the strategy has been defined, Strategy Management for CRV ~~IT~~ Services is also responsible for ensuring the implementation of the strategy.

a) Reduce telecommunication costs in most cases (to be confirmed by local CBA)
b) Enable integration in the aeronautical infrastructure and enhanced services (GANP, regional objectives)
c) Enhance information security
d) Provide a standardized interface for AFS (instead of multiple protocols, some of which are obsolescent)
e) Rationalize coordination for network management and enhancement
f) Respond to Air Traffic requirements in a timely and standardized manner
g) Coordination with Other Regional Private Networks
h) Promote the use of CRV

~~27.2~~4.2 Service Portfolio Management

Process Objective: To manage the service portfolio. Service Portfolio Management ensures that the CRV service provider has the right mix of services to meet required business outcomes at an appropriate level of investment.

- Criteria for services to be added to CRV.
- POC of new services.

~~27.3~~4.3 Financial Management

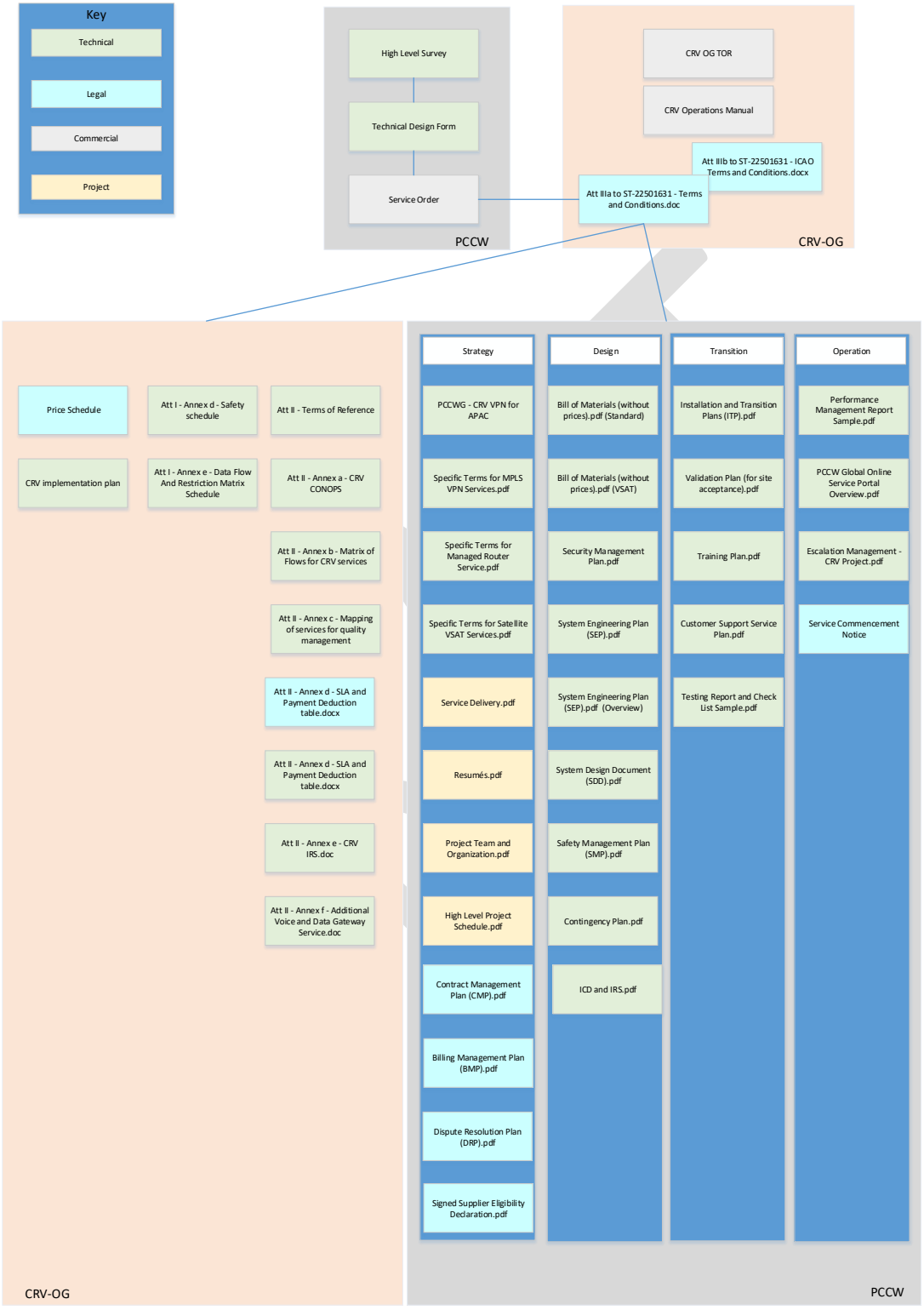
Process Objective: To monitor the management of the service provider's budgeting, accounting and charging requirements.

~~27.4~~4.4 Business Relationship Management

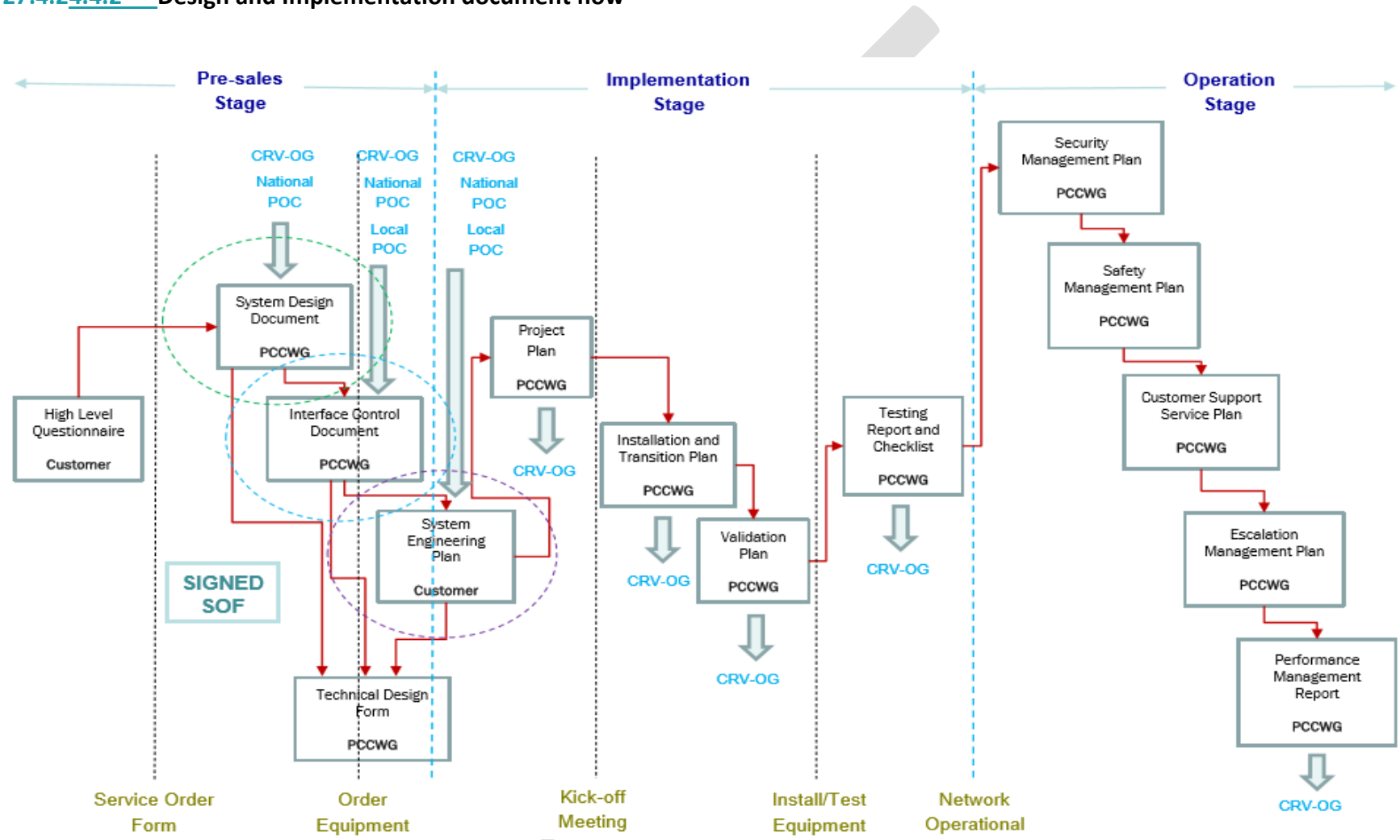
Process Objective: To maintain a positive relationship with customers. Business Relationship Management identifies the needs of existing and potential customers and ensures that appropriate services are developed to meet those needs.

~~27.4.1~~4.4.1 Legal Documentation

The list below shows the precedence of the legal documents that pertains to CRV.



~~27.4.2~~4.4.2 Design and Implementation document flow



~~27.4.3~~4.4.3 Common Package

This is located on the CRV Users Portal here: Common Package.

~~27.4.4~~4.4.4 Pre-Sales Stage

~~b.~~a. High Level Questionnaire

This provides the high level information to PCCW to be able to provide the Service Order Form(SOF) for signing.

Example of the High Level Questionnaire and Service Order Form.

~~c.~~b. System Design Document

This is the over-arching Design Document for the CRV Network.

Example of System Design Document

~~d.~~c. Interface Control Document

Example of Interface Control Document

~~e.~~d. Technical Design Form

Example Technical Design Form

~~f.~~e. System Engineering Plan

This is a living document covering the technical aspects of the CRV implementation. Any changes can be updated by the User or PCCW.

Example of a System Engineering Plan

4.4.5 Implementation Stage

~~1.0.0~~

~~b.~~a. ~~Sy~~stem Engineering Plan

This is a living document covering the technical aspects of the CRV implementation. Any changes can be updated by the User or PCCW.

Example of a System Engineering Plan

~~c.~~b. Project Plan

Provided to each state post signing of the Contract and is only relevant to that state. It is updated regularly by the PCCW Project manager

Example of a Project Plan

~~d.~~c. Installation and Transition Plan

Example of an Installation and Transition Plan

~~e.~~d. Validation Plan

This is PCCW's testing plan post implementation of the Managed Service

Example of a Validation Plan

~~f.~~e. Testing and Report Checklist

This is the result of PCCW's Testing plan post implementation of the Managed Service and is accompanied by the Service Commencement Notice (SCN)

Testing and Report Checklist

Operation Stage

~~27.4.5~~4.4.6

a. Security Management Plan

b. Safety Management Plan

Example of a Safety Management Plan

c. Customer Support Service Plan

This details the contact details for any Problems or Incidents that the State may encounter.

Example of a Customer Support Service Plan

d. Escalation Management Plan

This details the contact details if the need arises to escalate any Tickets. It also details the escalation criteria

Example of an Escalation Management Plan

e. Performance Management Report

~~27.5~~4.5 Demand Management

Process Objective: To understand, anticipate and influence customer demand for services. Demand Management works with Capacity Management to ensure that the service provider has sufficient capacity to meet the required demand.

285 ~~PART IV~~PART ~~V~~V: SERVICE DESIGN

Service Design

- Service Catalogue Management
- Availability Management
- Capacity Management
- IT Service Continuity Management
- Service level Management
- Design Co-ordination
- Information Security Management
- Supplier Management

~~28.1~~5.1 Service ~~Catalog~~Catalogue Management

Process Objective: To ensure that a Service Catalogue is produced and maintained, containing accurate information on all operational services and those being prepared to be run operationally. Service Catalogue Management provides vital information for all other Service Management processes: Service details, current status and the services' interdependencies.

~~28.1.1~~5.1.1 Requirements

a. Latency

b. Availability

c. Jitter

d. QoS/DSCP markings

e. Security

5.1.2 ~~Criteria to add a new service~~Process to add new Services to the CRV

~~28.1.2~~ In order to support the value of the CRV, a process to have been established to add new Service Provider / Service Consumer to the CRV, This process is as approved but the CRV and is located Appendix C: Process for connecting a Service Provider / Service Consumer to the CRV~~Appendix C: Process for connecting a Service Provider / Service Consumer to the CRV~~

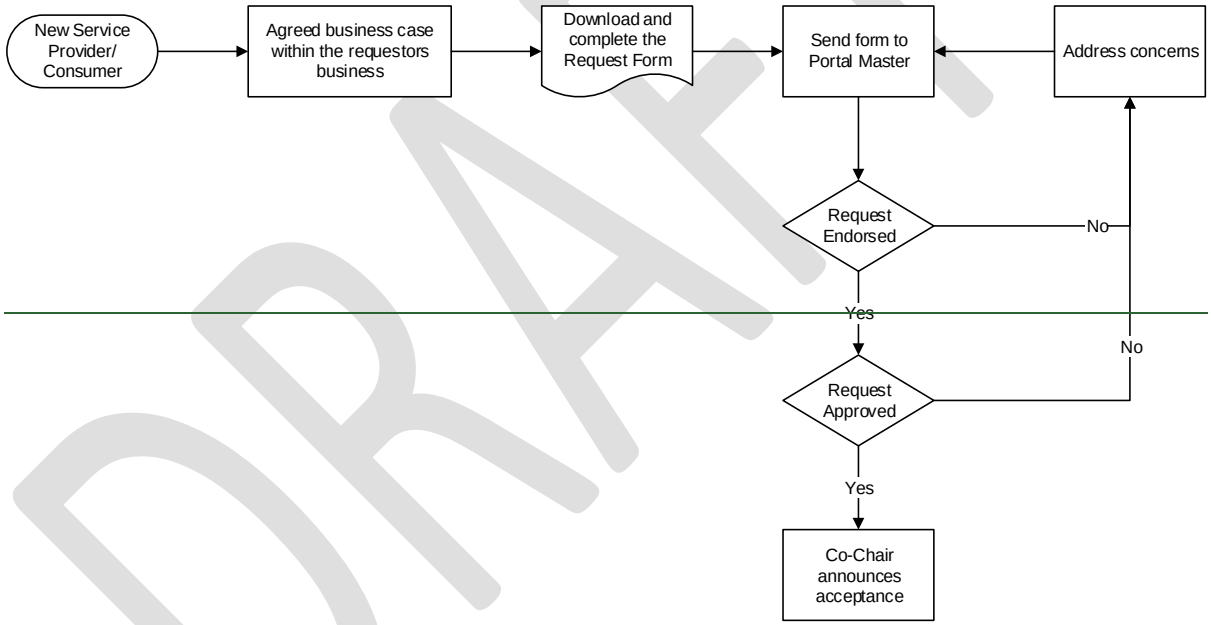
~~Considerations~~

~~Connecting a Service Provider / Service Consumer (SPSC) to the CRV can be initiated by any party that identifies a need for an SPSC to connect to it. The following should be considered by the SPSC and the CRV Member state.~~

- ~~Service Provider (SP) is defined as a company that provides aeronautical service using the CRV as the means of communication.~~
- ~~Service Consumer (SC) is defined as a company or organisation that consumes aeronautical information using the CRV as the means of communication.~~
- ~~The SPSC should be referred to PCCW to enable an initial discussion with them to assess the feasibility of connecting to the CRV. During this discussion the SPSC should clarify:~~
  - ~~Interfaces~~
  - ~~Data transfer rates~~
  - ~~DSCP marking etc.~~
- ~~It is recommended that Service Providers use public IP addressing for the delivery their services.~~
- ~~It is recommended that Service Consumers are provided with a 10.x.x.x IP addressing from the CRV Member State where the PCCW NID is installed.~~

- SPSCs will NOT be a member of the CRV Operations Group (OG). The OG may establish a CRV user group that could facilitate discussion on the use of the CRV by SPSCs.
- SPSCs will need to adhere to the CRV System Design Document (SDD). Substantive changes to the SDD MUST be endorsed by the CRV OG.
- CRV member states should consider ICAO Doc 9855 AN/459 Guidelines on the Use of the Public Internet for Aeronautical Applications as guidance when they are the Primary sponsor.
- The CRV OG IS NOT responsible for the accreditation/certification/validation of a Service Provider, but must ensure that the all reasonable steps have been taken to ensure that the Service Provider has sufficient systems and process in place to provide their service over the CRV.
- Service Consumers and CRV members SHOULD ensure that when obtaining a Service from a Service Provider that the service meets their operational service requirements.

5.1.2.2 Process



a. The information required in the connection request, should be presented in English and in a clear and logical format. The following process will be used for an SPSC to obtain approval connect to the CRV:

- Provide a business justification including Benefits Realization for joining the CRV;
- For a Service Provider: provide a documentation using Section 2.3 ACCREDITATION OF AN IASP in ICAO Doc 9855 AN/459 as a guide including a cyber-security plan;
- For a Service Consumer; at a minimum, provide a CRV connection plan and cyber-security plan on how they will shield the CRV from their organisation;
- Obtain a Primary CRV member state to sponsor their connection to the CRV;
- Obtain business justification from Primary Sponsor to support their request;

- Obtain a Secondary CRV member state to sponsor their connection to the CRV based on the information above;
- The information provided above, will be provided to the CRV OG via the APAC CRV portal.
- CRV OG members will be notified and have 25 business days to review and address any concerns that they may have with the request.
- After the 25 days, if the majority of reviews by CRV OG members are endorsed, the CRV OG chairs will review the request.
- For the request to be approved, both CRV OG Co-Chairs need to approve the request.
- A Document/Certificate will be provided to the primary sponsor that can used to verify that the SPSC is approved to connect the CRV.

a. The application process of Service Provider / Service Consumer is supported by the Airways New Zealand provided APAC CRV SharePoint portal. There will be Microsoft Word forms to facilitate the information and these forms will be migrated to an automated SharePoint Workflow as soon as practical.

a. Service Provider / Service Consumer will be required to undertake the following:

- Provide a business justification including Benefits Realisation for joining the CRV
- Provide a High Level System Design oh how their Service could potentially connect to the CRV.
  - Service Providers to use Public IP Addressing
  - Service Consumers to use the ICAO allocated IP addresses
  - Interfaces
  - Data transfer rates
  - DSCP marking

28.25.2 Availability Management

Process Objective: To define, analyse, plan, measure and improve all aspects of the availability of IT CRV services. Availability Management is responsible for ensuring that all IT infrastructure, processes, tools, roles etc. are appropriate for the agreed availability targets.

28.2.15.2.1 Monthly Performance Management Reports

Provided by PCCW Available from the PCCW Portal to each State that has joined CRV, information available: covering:

- Traffic Report
- Router Report
- QoS report
- Latency
- Packet Loss
- Jitter
- Interface

(More SLA data is available from the PCCW Portal)

At the time of the monthly invoice, PCCWG has we have the Service Report with ticket and availability information and the portal provides the rest.

5.2.2 Monthly Operations Reports

~~28.2.2~~

Provided by PCCW to each State that has joined CRV covering:

Active Service Inventory

Site Availability (More SLA data is available from the PCCW Portal)

Ticket Statistic

~~**Problem Statistic**~~

Incident Statistic (defined)

Incident without Service Iimpact (defined)

Requests

Maintenance

Ticket Details

AOB

At the time of the monthly invoice, PCCWG has the Service Report (Operations Report) with ticket and availability information and the portal provides the rest

(The ticket statistic category (Problem, Incident, Requests, Maintenance) was briefly discussed in O/G6. After reviewing yearly ticket summary and detail, we will need to clarify with CRV OG on the definition of "Problem" and "Incident". (PCCWG comments)

From here: https://wiki.en.it-processmaps.com/index.php/ITIL_Glossary#ITIL%20Glossary%20A-Z

Incident - An Incident is defined as an unplanned interruption or reduction in quality of an IT service (a Service Interruption).

Eg. A link has been flapping in the network causing reroutes.

Problem - A cause of one or more Incidents. The cause is not usually known at the time a Problem Record is created.

Eg. Link flaps have been caused by unplanned work by a third party)

28.2.3 Monthly meetings with PCCW

5.2.3

Conducted via Telephone conference that is hosted by PCCW, with each State that has joined CRV to discuss:

States Performance Management Report,

States Operations Report

(PCCWG provided monthly service report to CRV state members, we will need to clarify with CRV OG on the meaning of "States Performance Management Report" and "States Operations Report".

Hmm, I know I wrote that, maybe I captured a discussion but did not change to the final conclusion as we only get one report that is called the Service Report (Operations Report) yet the Common Package has a Sample Performance Management Report but as this is just snips from the portal I think we decided that as each Service report came out, the State receiving the report would use the portal to review Router, Interface, QoS and Traffic, and raise any issues from that information)

28.2.45.2.4 Quarterly Operations Reports

Provided by PCCW to the OG by email covering:

- Implementation progress
- Site Availability (More SLA data is available from the PCCW Portal)
- Ticket Statistic
  - Problem Statistic
  - Incident Statistic
  - Requests
  - Maintenance
- Ticket Details

AOB

~~28.2.5~~5.2.5 Annual OG meetings

Implementation progress

Site Availability

Average Monthly Bandwidth Utilisation

Peak Bandwidth peak Utilisation

~~(More SLA data is available from the PCCW Portal)~~

Ticket Statistic

Problem Statistic

Incident Statistic

Requests

Maintenance

Ticket Details

~~Network Utilisation~~ ~~(Bandwidth peak usage)~~

AOB

~~*PCCWG: We shall clarify with CRV OG on the meaning of "Network Utilisation ".*~~

~~28.2.6~~5.2.6 Root cause analysis reports

Upon request, PCCW to p~~P~~rovide detail post every Incident to the affected State and the APAC CRV OG. Include these in each of the Monthly, Quarterly and Annual Report.

~~28.2.8~~5.2.7 Notifications of Maintenance

Ensuring that all affected parties of maintenance releases are updated as appropriate.

~~28.2.10~~5.2.8 Diversity Audits

~~A rolling audit of States/Sites physical and l~~Logical connectivity based on the information provided in the Service Commencement Notice to validate diversity of the Package selected.

Regular diversity audits should be undertaken to ensure that least amount of CRV services are impacted by a CRV pop or core failure.~~.~~

~~(who, how, timing)~~

~~*(This will need more clarification from us and agreement with PCCW. It was based on the conversation in Fiji where it was raised that the Australia, New Zealand, Fiji and other Pacific sites would be terminated within two POPs in Sydney across several nodes. To ensure a single node failure did not impact multiple sites PCCW will need to provide the current POP/Node configuration for CRV and regularly audit this to ensure an agreed state is maintained.)*~~

~~28.2.12~~5.2.9 Testing failover

State LOA/MOU/Technical Letter for carrying out failover testing to ensure service continuity.

~~28.3~~5.3 Capacity Management

Process Objective: To ensure that the capacity of ~~IT~~ CRV services and the ~~IT~~ infrastructure is able to deliver the agreed service level targets in a cost effective and timely manner. Capacity Management considers all resources required to deliver the ~~IT~~ CRV service, and plans for short, medium and long term business requirements.

Co-ordinate and standardize the establishment or upgrade of CRV services as required

Oversee the performance of the CRV network;

~~28.4~~5.4 IT Service Continuity Management

Process Objective: To manage risks that could seriously impact ~~IT~~ CRV services. ITSCM ensures that the ~~IT~~ CRV service provider can always provide minimum agreed Service Levels, by reducing the risk from disaster events to an acceptable level and planning for the recovery of ~~IT~~ CRV services. ITSCM should be designed to support Business Continuity Management.

~~a)~~5.4.1 CRV Contingency Operations

The following was recorded at ~~from~~ CRV TF/6 ~~report there is this report~~:

The meeting discussed again the contingency plan in relation to the safety case. To mitigate the risk of a total or major failure (such as IT disaster that would affect the whole CRV), two layers of process would have to be articulated:

- *the procedures and measures planned and implemented by PCCW; and*

- ~~*consistently*~~*consistently, the procedures and measures planned and implemented by the CRV Users, as part of their contingency plan required by ICAO SARPS.*

Furthermore, the meeting agreed that procedures to mitigate the total failure of CRV should be discussed by CRV OG as part of the contingency planning.

~~28.5~~5.5 Service Level Management

Process Objective: To negotiate Service Level Agreements with the customers and to design services in accordance with the agreed service level targets. Service Level Management is also responsible for ensuring that all Operational Level Agreements and Underpinning Contracts are appropriate, and to monitor and report on service levels.

~~28.6~~5.6 Design Co-ordination

Process Objective: To coordinate all service design activities, processes and resources. Design coordination ensures the consistent and effective design of new or changed ~~IT~~ CRV services, service management information systems, architectures, technology, processes, information and metrics.

Change Requests

Engineering Package

Legal Documents

~~28.8~~5.7 Information Security Management

Process Objective: To ensure the confidentiality, integrity and availability of an organization's information, data and ~~IT~~ CRV services. Information Security Management usually forms part of an organizational approach to security management which has a wider scope than the ~~IT~~ CRV Service Provider.

There are distinct responsibilities for security in the CRV, This can be broken in a CRV Provider and a CRV user. At a high level the area of responsibilities can be defined as:

CRV Provider:

As a minimum the connectivity states is via GRE Tunnels.

CRV User: The CRV user should implement of security controls to ensure the integrity of Aeronautical Fixed Services (AFS), to protect the CRV Users from the CRV and to prevent compromise to the CRV from their networks

~~Security of CRV and sytem //** TB edited is the responsibility of States and Service Provider for the implementation of security controls to ensure the integrity of services.~~

~~As a minimum the connectivity states is via GRE Tunnels.~~

Other methods of ensuring the security of the connectivity are:

a. Utilising as small an IP Address range as possible.
b. Only advertising relevant IP addresses.
c. Only accepting verified IP Routes when required.
d. Utilising firewalls.
e. Utilising NAT.
f. Utilising Intrusion Protection Software (IPS)

It is recommended that external security advice is sought.

~~28.9~~5.8 Supplier Management

Process Objective: To ensure that all contracts with suppliers support the needs of the business, and that all suppliers meet their contractual commitments.

a) Oversee the performance of the CRV Service Provider, including customer service;

b) Oversee the escalation and solving by the CRV Service Provider of issues associated with the provision of the CRV, including safety and security related issues

~~a)~~

6 ~~PART V~~PART VI: SERVICE TRANSITION

Service Transition

- Transition Planning and Support
- Change Management
- Service Asset & Configuration Management
- Release and Deployment Management
- Service Validation and Testing Management
- Change Evaluation
- Knowledge Management

~~28.10~~6.1 Transition Planning and Support

Process Objective: To plan and coordinate the resources to deploy a major Release within the predicted cost, time and quality estimates.

a) Covered by the Implementation Plan , (CRV Portal - Documentation)

~~28.11~~6.2 Change Management

Process Objective: To control the lifecycle of all Changes. The primary objective of Change Management is to enable beneficial Changes to be made, with minimum disruption to CRV~~IT~~ services.

All changes are to be conveyed to PCCW via their Change Request Form. And covered by the Change Management Process as found in the Common Package. (CRV Portal - Documentation)

~~28.12~~6.3 Service Asset and Configuration Management

Process Objective: To maintain information about Configuration Items required to deliver an ~~IT~~ CRV service, including their relationships.

a) Maintain CRV OG documentation associated with the function, performance and management of the CRV, including the CRV OG Operations Manual, a list of CRV users and a record of variations to the common tender package;

This information is collated in the following ways:

CRV Operations Manual – APAC Portal
A list of CRV users – Registrations page on the APAC portal
Record of Variations is found in the APAC CRV Portal in the Common Package Folder

~~28.13~~6.4 Release and Deployment Management

Process Objective: To plan, schedule and control the movement of releases to test and live environments. The primary goal of Release Management is to ensure that the integrity of the live environment is protected and that the correct components are released.

a) Oversee the implementation of the CRV post Contract Award;

b) Manage issues arising from the transition with CRV TF, if any

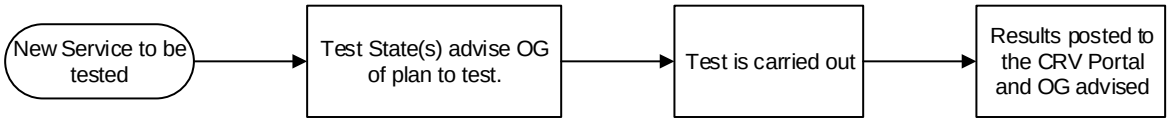
~~28.14~~6.5 Service Validation and Testing Management

Process Objective: To ensure that deployed Releases and the resulting services meet customer expectations, and to verify that CRV~~IT~~ operations is able to support the new service.

a) Accept deliverables from the CRV Service Provider on behalf of the CRV Users as required;

b) Refer to the CRV Implementation Plan

c) New Services



New services being tested by any state,
Notifies OG intention to test as soon as practical.
Advises CRV OG and PCCW 48hrs prior to testing

Testing is to be carried out with a DSCP marking of DF so as to avoid impacting other services.

The results of the tests are to be posted on the CRV portal and the OG advised of the posting.

~~28.15~~6.6 Change Evaluation

Process Objective: To assess major Changes, like the introduction of a new service or a substantial change to an existing service, before those Changes are allowed to proceed to the next phase in their lifecycle.

~~28.16~~6.7 Knowledge Management

Process Objective: To gather, analyse, store and share knowledge and information within an organization. The primary purpose of Knowledge Management is to improve efficiency by reducing the need to rediscover knowledge.

a) All information relating to the ongoing operation of the network shall be retained in the APAC CRV Portal

There will be a link to the portal from the ICAO APAC page.

b) To add items to the portal.

c) To Workflow a document.

~~36~~7 ~~PART VI~~PART VII: SERVICE OPERATION

Service Operation

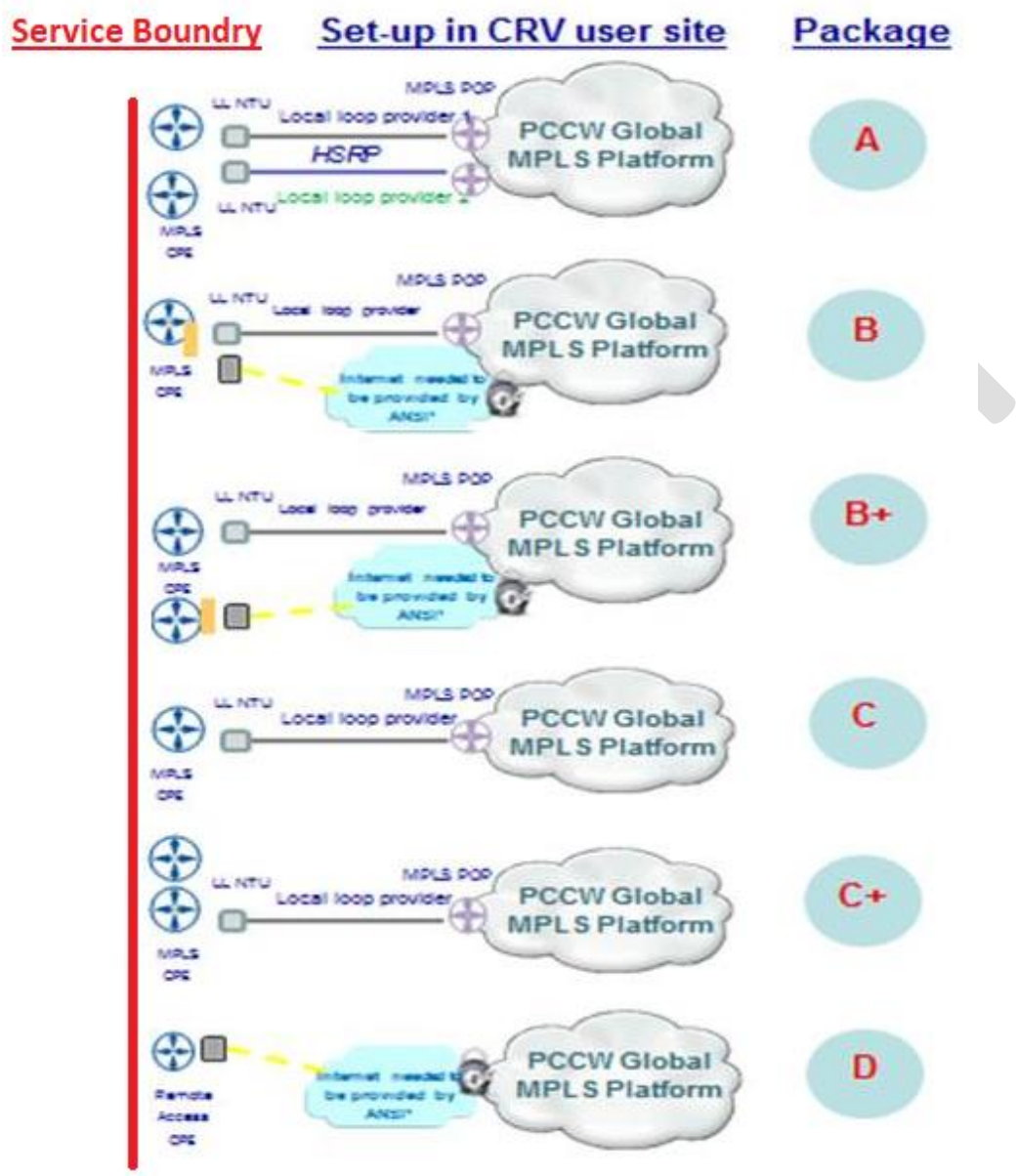
- Event Management
- Incident Management
- Request Fulfilment
- Problem Management
- Access Management

~~36.1~~

7.1 Service Boundary

It is import to define the CRV Service boundaries to ensure clear demarcation of responsibility for service operation.

The Services Boundry definition is illustrated in the diagram below, PCCWG is responsible for the connection from PCCWG MPLS Platform to the Customer interface on the PCCWG Customer Premises Equipment (CPE)/Network Interface Device (NID.)



~~36.2~~7.2 Event Management

Process Objective: To make sure CIs and services are constantly monitored, and to filter and categorize Events in order to decide on appropriate actions.

~~b)~~a) Managed by PCCW

~~36.3~~7.3 Incident Management

Process Objective: To manage the lifecycle of all Incidents. The primary objective of Incident Management is to return the CRV ~~IT~~ service to users as quickly as possible.

~~—~~Managed by PCCW

~~—~~

~~Check with Common Package.~~

~~Root cause reporting post the incident upon request. Template for this?~~

a)

~~36.4~~7.4 Request Fulfilment

Process Objective: To fulfil Service Requests, which in most cases are minor (standard) Changes (e.g. requests to change a password) or requests for information.

~~36.5~~7.5 Problem Management

Process Objective: To manage the lifecycle of all Problems. The primary objectives of Problem Management are to prevent Incidents from happening, and to minimize the impact of incidents that cannot be prevented. Proactive Problem Management analyses Incident Records, and uses data collected by other IT Service Management processes to identify trends or significant Problems.

a) PCCW Initiated – Follow the Customer Support Service Plan

b) ~~Authority~~ CRV User Initiated

   a. Troubleshoot local connectivity

   b. Polling the NID. On the ANSP NID provided by PCCW, a local loop back will be configured using a specified IP address from the allocated range of IP addressing. This will be called the troubleshooting IP address.

   c. Troubleshoot with peers

~~d.~~ ~~—~~Fault with PCCW following the Customer Support Service Plan

~~36.6~~7.6 Access Management

Process Objective: To grant authorized users the right to use a service, while preventing access to non-authorized users. The Access Management processes essentially execute policies defined in Information Security Management. Access Management is sometimes also referred to as Rights Management or Identity Management.

Access manage include ascpect such as the following:

~~-~~ Physical Access Control

~~i. The Cabinet for Core Routers are locked~~

~~i. The network main PoP sites are under 7x24 CCTV monitoring and recording~~

a)

b) Remote Network Access Control

~~. The remote access of Cores and CE routers are controlled by access-list ACL that is only allow authorized terminal of management systems.~~

~~. The TACACS is deployed to allow the authorized persons of PCCWG to access Core Routers or CE routers as AAA clients.~~

~~g)~~c) Portal Access

~~Review member's access annually~~These controls are detailed in the PCCWG System Design Document . (CRV Portal - Documentation)~~.~~

8 ~~PART VII~~PART VIII: ~~:~~ CONTINUAL SERVICE IMPROVEMENT

Continual Service Improvement

- Service Review
- Process Evaluation
- Definition of CSI Initiatives
- Monitoring CSI Initiatives

~~36.7~~8.1 Service Review

Process Objective: To review ~~business~~ CRV services ~~and infrastructure services~~ on a regular basis. The aim of this process is to improve service quality where necessary, and to identify more economical ways of providing a service where possible.

From time to the CRV OG will coordinate groups of ~~V~~volunteers to undertake a CRV Service Review in conjunction with the CRV Provider ~~for each section~~

. These Service reviews will be reported bac to the annual CRV OG meeting.~~Small groups around these sections.~~

~~Report back up to the master document owner~~

~~Approval by Chairs~~

~~Approval by APANPIRG~~

~~Master owner of the document updates and publishes every two months?~~

~~Quarterly conference call to start with to update the document.~~

~~36.8~~8.2 Process Evaluation

Process Objective: To evaluate processes on a regular basis. This includes identifying areas where the targeted process metrics are not reached, and holding regular bench markings, audits, maturity assessments and reviews.

~~36.9~~8.3 Definition of CSI Initiatives

Process Objective: To define specific initiatives aimed at improving the CRV services and processes, based on the results of service reviews and process evaluations. The resulting initiatives are either internal initiatives pursued by the service provider on his own behalf, or initiatives which require the customer's cooperation.

~~36.10~~8.4 Monitoring CSI Initiatives

Process Objective: To verify if improvement initiatives are proceeding according to plan, and to introduce corrective measures where necessary.

9 PART IX~~IX~~: CONTINUAL SERVICE IMPROVEMENT

~~36 PART VIII~~

~~DEFINITIONS~~

~~36.23~~9.1 Definitions

- A Service is defined as any Aeronautical Fixed sService (AFS) provided over the CRV supporting Meteorological Service for International Air Navigation or Air Traffic Control Services.

- Incident - According to the network design of the Service, incident that resulted in service degradation or outage. e.g. State member B subscribed two Package C (C1 and C2) and there is a fiber cut along C1. To PCCWG's point of view, C1 and C2 are two separated circuits. Even though C2 is still providing connectivity to State member B, this will still be categorized as "incident ".

- Incident without service impact - According to the network design of the Service, incident causes no service degradation or outage. E.g. State member A subscribed Package A, and there is a fibre cut on primary link. Since there is fail-over mechanism as redundancy for package A's user, the fibre cut is an incident without service impact.

- Service Consumer (SC) is defined as a company or organisation that consumes aeronautical information using the CRV as the means of communication.

- Service Provider (SP) is defined as a company that provides aeronautical service using the CRV as the means of communication.

~~A Service is defined as any service provided over the CRV supporting Meteorological Service for International Air Navigation or Air Traffic Control Services.~~

~~Connecting a Service Provider / Service Consumer (SPSC)~~

10 PART X: APPENDICES

Appendix A: CRV Terms of Reference as accepted by APANPIRG

Common Regional Virtual Private Network (VPN) Operations Group (OG) of
Asia/Pacific Air Navigation Planning and
Implementation Regional Group (APANPIRG) (APANPIRG CRV OG)

TERMS OF REFERENCE

1. Background

The establishment of APANPIRG CRV OG was proposed during the deliberations of the CRV Task Force (TF) as a dedicated group to provide oversight of the CRV operations and the performance of the CRV Service Provider. The APANPIRG CRV OG is formally established by APANPIRG Decision 27/33.

2. Terms of Reference

The Common aeRonautical Virtual Private Network (VPN) Operations Group (OG) will provide oversight of the function and performance of the CRV and the performance of the Service Provider. The following are the activities to be performed:

a) Oversee the implementation of the CRV post Contract Award;

b) Manage issues arising from the transition with CRV TF, if any;

c) Co-ordinate and standardize the establishment or upgrade of CRV services as required; d) Co-ordinate activities with other ICAO CRV OGs, if any, to make sure that decision making and communication with CRV Service Provider is consistent and timely;

e) Oversee the performance of the CRV Service Provider, including customer service; f) Oversee the performance of the CRV network;

g) Oversee the escalation and solving by the CRV Service Provider of issues associated with the provision of the CRV, including safety and security related issues;

h) Assist with the resolution of issues associated with the provision of the CRV among the CRV Users as required, including safety and security related issues;

i) Assist with the migration of Aeronautical Fixed Services (AFS) onto the CRV, in line with the GANP and seamless ATM plan;

j) Maintain CRV OG documentation associated with the function, performance and management of the CRV, including the CRV OG Operations Manual, a list of CRV users and a record of variations to the common tender package;

k) Accept deliverables from the CRV Service Provider on behalf of the CRV Users as required; l) Promote the use of CRV;

m) Undertake continuous service improvements review to ensure CRV meets future needs; and n) Perform any other activity as required by CRV operations.

3. Reporting

The CRV OG will report to Asia/Pacific Air Navigation Planning and Implementation Regional Group (APANPIRG) through ACSICG and CNS SG.

4. Participation

The CRV OG will include all APAC Member States/Administrations, and any other organization as needed. Member States and/or inter-regional entry/exit Administrations in other ICAO regions may also be invited or request to participate in the activities of CRV OG.

5. Conduct of the work

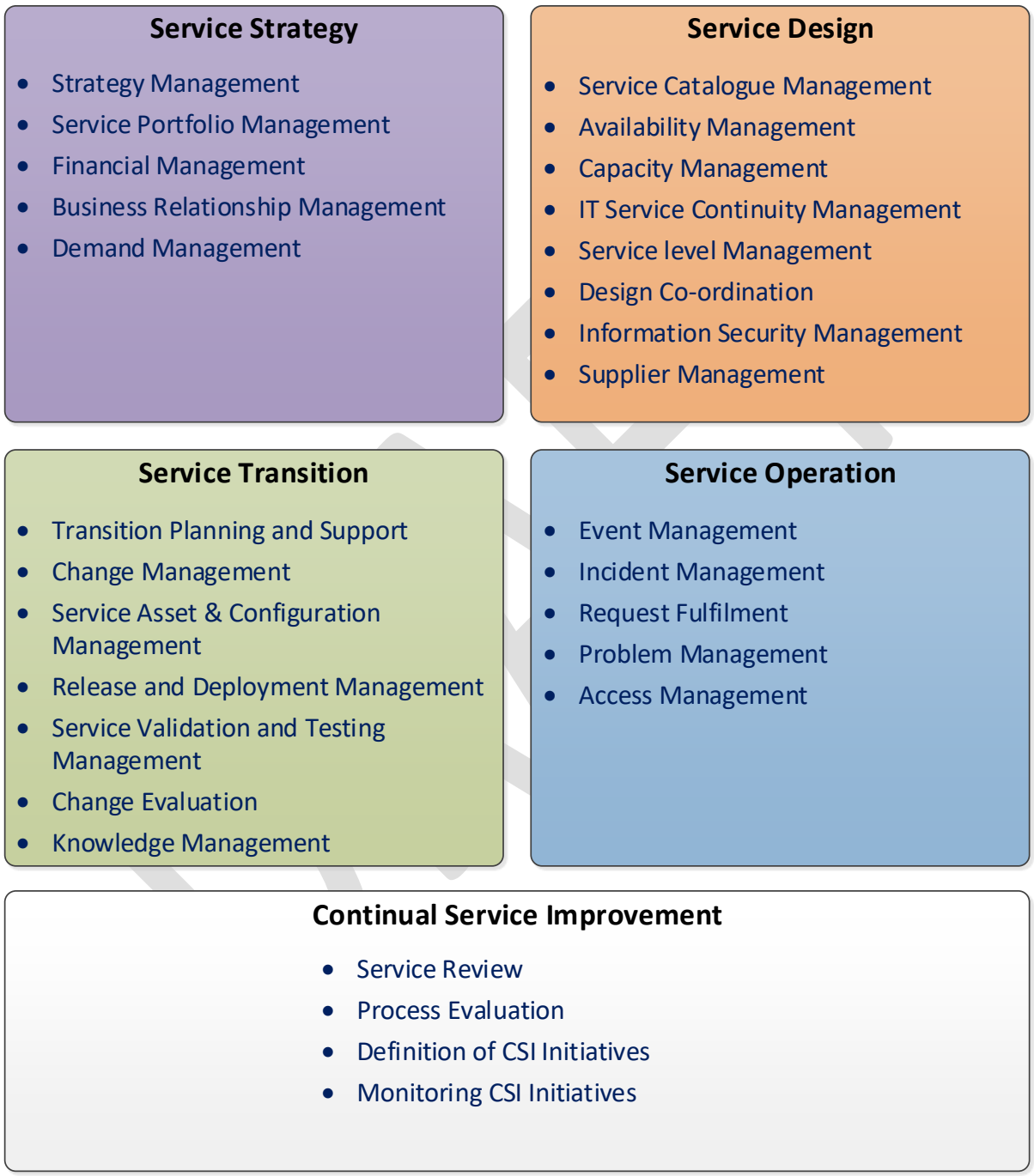
It is anticipated that the CRV OG will conduct its work primarily by Web Conferences, teleconferences and other electronic means of communications. Face to Face meetings of CRV OG may be required on an annual basis. The ICAO APAC Regional Office will provide secretariat support for the CRV OG.

6. Rapporteur

There will be two Co-Chairpersons of the CRV OG, one primarily responsible for Asia coordination and the other for Pacific coordination.

Appendix B: General Structure of ITIL

~~***Appendix X. General Structure of ITIL.***~~



Appendix C: Process for connecting a Service Provider / Service Consumer to the CRV

Introduction

Connecting a Service Provider / Service Consumer (SPSC) to the CRV can be initiated by any party that identifies a need for an SPSC to connect to it. The following should be considered by the SPSC and the CRV-Member state.

~~Service Provider (SP) is defined as a company that provides aeronautical service using the CRV as the means of communication.~~

~~Service Consumer (SC) is defined as a company or organisation that consumes aeronautical information using the CRV as the means of communication.~~

~~–~~The SPSC should be referred to PCCW to enable an initial discussion with them to assess the feasibility of connecting to the CRV. During this discussion the SPSC should clarify:

- ~~–~~Interfaces
-

~~–~~Data transfer rates

-

~~–~~DSCP marking etc.

1)

2) It is recommended that Service Providers use public IP addressing for the delivery their services.

3) It is recommended that Service Consumers are provided with a 10.x.x.x IP addressing from the CRV Member State where the PCCW NID is installed.

4) SPSCs will NOT be a member of the CRV Operations Group (OG). The OG may establish a CRV user group that could facilitate discussion on the use of the CRV by SPSCs.

5) SPSCs will need to adhere to the CRV System Design Document (SDD). Substantive changes to the SDD MUST be endorsed by the CRV OG.

6) CRV member states should consider ICAO Doc 9855 AN/459 Guidelines on the Use of the Public Internet for Aeronautical Applications as guidance when they are the Primary sponsor.

7) The CRV OG IS NOT responsible for the accreditation/certification/validation of a Service Provider, but must ensure that the all reasonable steps have been taken to ensure that the Service Provider has sufficient systems and process in place to provide their service over the CRV.

8) Service Consumers and CRV members SHOULD ensure that when obtaining a Service from a Service Provider that the service meets their operational service requirements.

~~5.1.2.2~~ Process

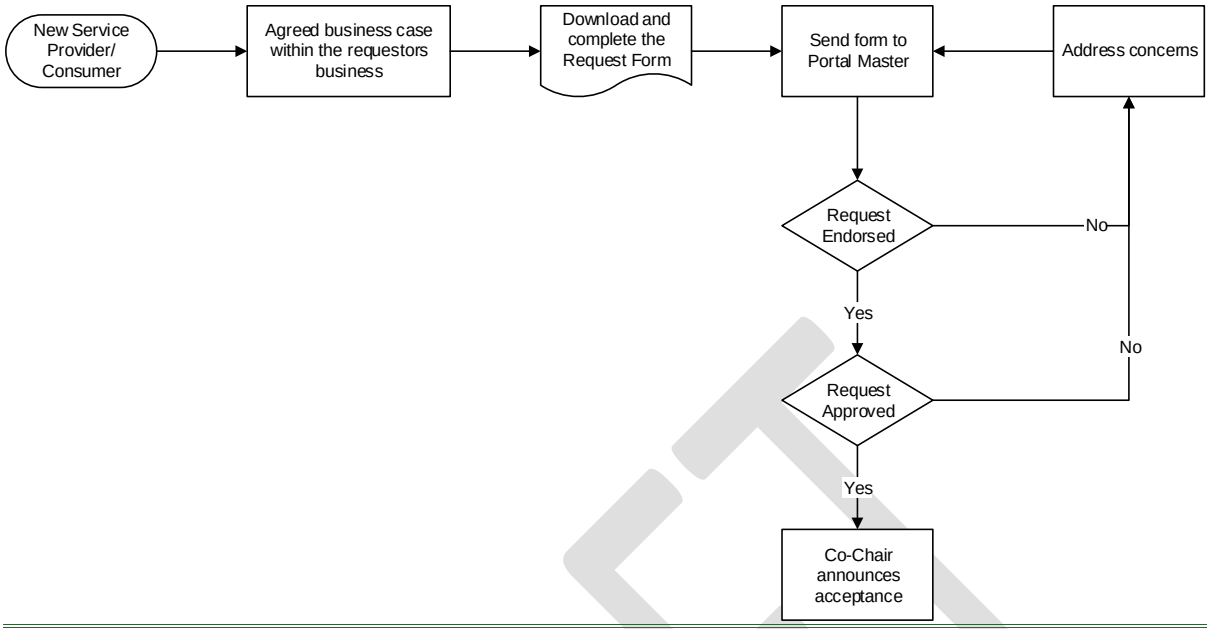


Figure 1 : Process flow for adding a new Service Provider / Service Consumer

~~a.~~ The information required in the connection request, should be presented in English and in a clear and logical format. The following process will be used for an SPSC to obtain approval connect to the CRV:

1) Provide a business justification including Benefits Realization for joining the CRV;

2) For a Service Provider: provide a documentation using Section 2.3 ACCREDITATION OF AN IASP in ICAO Doc 9855 AN/459 as a guide including a cyber-security plan;

3) For a Service Consumer; at a minimum, provide a CRV connection plan and cyber-security plan on how they will shield the CRV from their organisation;

4) Obtain a Primary CRV member state to sponsor their connection to the CRV;

5) Obtain business justification from Primary Sponsor to support their request;

6) Obtain a Secondary CRV member state to sponsor their connection to the CRV based on the information above;

7) The information provided above, will be provided to the CRV OG via the APAC CRV portal.

8) CRV OG members will be notified and have 25 business days to review and address any concerns that they may have with the request.

9) After the 25 days, if the majority of reviews by CRV OG members are endorsed, the CRV OG chairs will review the request.

10) For the request to be approved, both CRV OG Co-Chairs need to approve the request.

11) A Document/Certificate will be provided to the primary sponsor that can used to verify that the SPSC is approved to connect the CRV.

The application process of Service Provider / Service Consumer is supported by the Airways New Zealand provided APAC CRV SharePoint portal. There will be Microsoft Word forms to facilitate the information and these forms will be migrated to an automated SharePoint Workflow as soon as practical.

~~Service Provider / Service Consumer will be required to undertake the following:~~

~~Provide a business justification including Benefits Realisation for joining the CRV~~

~~Provide a High Level System Design oh how their Service could potentially connect to the CRV.~~

~~Service Providers to use Public IP Addressing~~

~~Service Consumers to use the ICAO allocated IP addresses~~

~~Interfaces~~

~~Data transfer rates~~

~~DSCP marking~~