



ICAO

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

- Agenda Item 4: CRV OG Reference documents
- CRV OG Operations Manual
 - CRV Implementation Plan
 - Outcomes of Ad-hoc expert Strategy, Design, Transition and, Operations Groups

RISK ASSESSMENT FRAMEWORK FOR CRV OG

(Presented by Airways New Zealand)

SUMMARY

This paper presents options for risk assessing issues within CRV

1. INTRODUCTION

1.1 Over several CRV OG meetings, issues have arisen with installations and processes that have given cause for considering the risk of these being repeated and impacting the availability of both the CRV network and the services that use it.

2. DISCUSSION

2.1 The issues that have been encountered in the installation and process of the CRV could be considered as risks such as:

- i. Failure of multiple states connections
- ii. Increased billing
- iii. Loss of a States connectivity
- iv. CRV Failure

2.2 During the Ad-Hoc Group meetings these risks were documented in the Airways New Zealand risk evaluation template as attached in **Appendix A**.

It is also available in the portal [APAC CRV - Risk Register.docx](#)

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- 2.3 The Airways New Zealand risk evaluation template appears to be created against the ICAO DOC 9859 Safety Management manual and has criteria crafted to suit and reflect Airways New Zealand.
- 2.4 It would be prudent to create a Risk Evaluation Framework for the CRV against the ICAO DOC 9859 Safety Management that would suit the particular environment for CRV.
- 2.5 Whilst there are other examples of risk assessment templates available, they have been created specific to the entity wanting to use that example.
- 2.6 The framework would be used to evaluate issues encountered within the implementation and operation of the CRV but would not replace any Risk Evaluation Framework as used by the individual States.
- 2.7 An example Risk Assessment and Framework is attached It utilises the following table from the ICAO DOC 9859 Safety Management:

<i>Safety Risk</i>		<i>Severity</i>				
		<i>Catastrophic A</i>	<i>Hazardous B</i>	<i>Major C</i>	<i>Minor D</i>	<i>Negligible E</i>
<i>Probability</i>						
Frequent	5	5A	5B	5C	5D	5E
Occasional	4	4A	4B	4C	4D	4E
Remote	3	3A	3B	3C	3D	3E
Improbable	2	2A	2B	2C	2D	2E
Extremely improbable	1	1A	1B	1C	1D	1E

- 2.8 We will need to determine the criteria for the Consequences by Categories to reflect the CRV.

Consequence by Categories	Negligible	Minor	Major	Hazardous	Catastrophic
Aviation Safety					
Service Delivery					
Reputational					
Security					
Financial					
Legal, Regulatory and Compliance					

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

- a) note the information contained in this paper;
- b) discuss the proposed risk assessment framework; and
- c) discuss any relevant matter as appropriate

APAC CRV Risk Register as at 14/09/2022



Risk Assessment^v

Risk Owner	Hazard / threat	Risk Description				Impact Category ⁱ	Consequence rating ^{iv}	Current Controls in place	Likelihood	Current Risk (with current controls) L/M/H/E	Further actions to be taken (mitigations/treatments)	Action Owner and date due ⁱⁱ	Target Risk (after actions and current controls) ⁱⁱⁱ
		Due to	Event (Something happens)	Consequence (result, impact "leading to...")									
OG	Failure of multiple states connections	Common POP	Maintenance or failure at the POP	Loss of redundancy or full communication between several APAC states	Service Delivery Aviation Safety Asset Performance	Major	<ol style="list-style-type: none"> 1. APAC CRV Overview Drawing showing POP connectivity. 2. Monthly service provider reports. 3. Service Provider invited to APAC CRV OG meetings 4. Maintenance and outage notifications 	Unlikely	Medium 8				
OG	Increased billing	Joining process	State joins before peering states are ready	Delayed decommissioning of current services and increased billing as supporting dual services.	Financial	Minor	<ol style="list-style-type: none"> 1. APAC CRV Operation manual detailing the joining process. 2. Webinars on the processes 3. Lessons learned discussions at APAC CRV OG meetings 	Possible	Low 3				
OG	Loss of a states connectivity	Routing failure	Service provider or last mile connection fails but not the NID to the states network	Loss of connectivity with no failover resulting in lost communication	Service Delivery Aviation Safety Asset Performance	Major	<ol style="list-style-type: none"> 1. Service Providers System Engineering Plan 	Possible	Medium 12				
OG	CRV Failure	Service provider issue	Global network or multiple POP issue	Complete loss of communication across APAC	Service Delivery Aviation Safety Asset Performance	Major	<ol style="list-style-type: none"> 1. APAC CRV Overview Drawing showing POP connectivity. 2. Monthly service provider reports. 3. Service Provider invited to APAC CRV OG meetings 4. Where possible implement Internet based B2B connections outside of the APAC CRV Network 	Rare	Low 4				

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- ⁱ There can be multiple categories that the risk may fall into and they are all relevant. Once you have identified all categories, the one which as the highest consequence will be taken to combine with the likelihood to get a risk rating
- ⁱⁱ - The action owner needs to be a specific person responsible for this actions completion
- When assigning a due date, be generous to ensure it is achievable
- ⁱⁱⁱ This rating is encompassing what the risk would be if ALL the mitigation actions were to be completed (consequence, likelihood or a combination of both can be reduced)
- ^{iv} The consequence rating does not necessarily need to be the 'worst case scenario' but should be the most **feasible** for that risk
- ^v Use the [Risk Evaluation Framework](#) to do the assessment of the risk

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Business unit:

Date of review:

Participants:

Risk Owner	Hazard	Risk description			Impact	Current controls	Risk assessment (current controls)				Next Review Date	Risk assessment (Target level)				Future Actions	Action Owner	Action Due Date
		Due to	Event	Resulting in			Severity	Probability	Risk Rating	Risk Level		Severity	Probability	Risk Rating	Risk Level			
CRV OG	Failure of multiple states connections	Common POP	Maintenance or failure at the POP	Loss of redundancy or full communication between several APAC states		<ol style="list-style-type: none"> APAC CRV Overview Drawing showing POP connectivity. Monthly service provider reports. Service Provider invited to APAC CRV OG meetings Maintenance and outage notifications 	Major	Improbable		2C								
CRV OG	Increased billing	Joining process	State joins before peering states are ready	Delayed decommissioning of current services and increased billing as supporting dual services.		<ol style="list-style-type: none"> APAC CRV Operation manual detailing the joining process. Webinars on the processes Lessons learned discussions at APAC CRV OG meetings 	Minor	Remote		3D								
CRV OG	Loss of a states connectivity	Routing failure	Service provider or last mile connection fails but not the NID to the states network	Loss of connectivity with no failover resulting in lost communication		<ol style="list-style-type: none"> Service Providers System Engineering Plan 	Major	Remote		3C								
CRV OG	CRV Failure	Service provider issue	Global network or multiple POP issue	Complete loss of communication across APAC		<ol style="list-style-type: none"> APAC CRV Overview Drawing showing POP connectivity. Monthly service provider reports. Service Provider invited to APAC CRV OG meetings Where possible implement Internet based B2B connections outside of the APAC CRV Network 	Major	Extremely Improbable		1C								

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Consequence by Categories	Negligible	Minor	Major	Hazardous	Catastrophic
Aviation Safety					
Service Delivery					
Reputational					
Security					
Financial					
Legal, Regulatory and Compliance					