International Civil Aviation Organization

The First Meeting of Air Traffic Management Automation System Task Force of APANPIRG (ATMAS TF/1)

Web-conference, 28 – 30 October 2020

Agenda Item 4: ATM Automation System implementation by States
- 4.1 Sharing of States' system plan, design, installation and commissioning
- 4.2 Systems operations management and maintenance practices
- 4.3 Operational transition and contingency planning

ATM AUTOMATION SYSTEM IN INDONESIA

(Presented by Indonesia)

SUMMARY

This paper provides information regarding ATM automation system in Indonesia.

1. INTRODUCTION

1.1. Today, Indonesia has 14 ATM systems consist of 12 for main system dan 2 for back system. It's deployed to provide a surveillance air traffic control in 12 terminal and approach. The rest of them are included ATM system that provide area control services (Jakarta ACC and Ujung Pandang ACC).

No	Location	Manufacturer	System Status	ATS Unit
1	Balikpapan	Tern	Main	TMA & APP
2	Denpasar	Tern	Main	TMA & APP
3	Jakarta	Comsoft	Main	APP, TMA & ACC
		Hughes	Backup	APP, TMA & ACC
4	Medan	Indra	Main	TMA & APP
5	Palembang	Indra	Main	TMA & APP
6	Pekanbaru	Indra	Main	TMA & APP
7	Pontianak	Indra	Main	TMA & APP
8	Sentani	Indra	Main	TMA & APP
9	Surabaya	Tern	Main	TMA & APP
10	Tanjungpinang	Indra	Main	TMA & APP
11	Yogyakarta	Tern	Main	TMA & APP
12	Ujung Pandang	Thales	Main	APP, TMA & ACC
		Comsoft	Backup	APP, TMA & ACC

Tabel 1. ATM System in Indonesia

2. ATM AUTOMATION SYSTEM IMPLEMENTATION.

2.1. System Plan and Design.

- Plan and design of ATM System adjusted to planning the airspace structure and services in Indonesia's airspace, which consists of 2 FIRs, FIR Jakarta and FIR Ujung Pandang.

2.2. System Installation and Commissioning.

- Hardware and software installation and commissioning procedures refer to the instruction document and system manual of each ATM system.

2.3. Systems Operations Management and Maintenance Practices.

- Hardware and software maintenance refers to the system operating procedure (SOP) document which is compiled based on the instructions and manuals of each ATM system as well as the depth of training obtained by technicians and specialists.

- Maintenance of adaptation data needs to be done when there are additions, changes and even subtractions related to operational needs. For adaptation data operations are performed by an ATC System Specialist.

- For maintenance related to techniques such as start-up / shut-down system, installation of HP COTS baseline software upgrades, system maintenance (servers, recording, external communications, etc.) is carried out by technical who have a rating of this system.

2.4. Operational Transition.

- The transition method from the old system to the new system is carried out in parallel, where the two systems are used together for a certain time. The operational transition is carried out in several phase:

  a) Dry Shadow Phase.
  The old system is used by the user for guiding operations, while the new system is used by the user to synchronize the active data from the old system.

  b) Wet Shadow Phase.
  The new system is used by the user for guiding operations, while the old system will continue to run as a shadow.

  c) Cut Over.
  The new system will be used for the main system after the new system is certified by Directorat Air Navigation while the old system as a backup.

2.5. Contingency Plan.

2.5.1. During Transition Period.
When a failure occurs when using the new system, it will roll over to the old system.

2.5.2. During Operational period.
Contingency during the operational period depends on the conditions below

2.5.2.1. ATC System with Backup System

a) Failure on either Server A or Server B.
If there is a failure on one of the servers, the ATC system will automatically switch over to the other server. Operations will continue as usual without changing services.

b) Failure on both Server, Server A and B.
In the event of a failure on both servers, operations will still run using Radar Bypass Server, as usual without changes in services.

c) Main System Failure.
If a failure occurs in the Main System, operations will still run using the back up system. The controller performs a rollback procedure using KVM.

d) Main and Back up System Failure. (Total Failure)
If there is a failure in the Main System and Back up, the operation will proceed in a procedural manner.

2.5.2.2. ATC System without Backup System

a) Failure on either Server A or Server B.
If there is a failure on one of the servers, the ATC system will automatically switch over to the other server. Operations will continue as usual without changing services.

b) Failure on both Server, Server A and B.
In the event of a failure on both servers, operations will still run using Radar Bypass Server, as usual without changes in services.

c) Main System Failure. (Total Failure)
If there is a failure in the Main System and Back up, the operation will proceed in a procedural manner.

3. ACTION BY THE MEETING

3.1. The meeting is invited to:

a) note the information contained in this paper; and

b) discuss any relevant matter as appropriate

– – – – – – – – – – – – –