



International Civil Aviation Organization
South American Regional Office – Regional Project RLA/03/901
REDDIG Management System and Satellite Segment Administration
Fourth Meeting on the Technical-Operational Implementation of the New REDDIG II Digital Network (RTO/4) and Specialized Course on WhatsUp Gold Software
Manaus, Brazil 20 to 24 April 2015

Agenda Item 2: Review of the procedures for the maintenance and operation of the REDDIG II

(Working paper presented by the Secretariat)

SUMMARY	
This Working Paper is related to the procedures to carry out the maintenance and operation of REDDIG II according to the new Operation Manual as well as the procedures for repair damaged equipment during the guarantee period.	
References	
<ul style="list-style-type: none">• Implementation of REDDIG II (Contract 22501200) by INEO & Level 3 Consortium.• Operation Manual developed by INEO & Level 3 Consortium.• RCC/18.	
<i>ICAO Strategic Objectives:</i>	<i>A – Safety Oversight B – Air navigation capacity and efficiency</i>

1. Background

1.1 REDDIG I was deactivated on 26 January 2015 to make way for the installation of the REDDIG II by INEO & Level 3 Consortium.

1.2 “Operational Readiness Demonstration (ORD)” period began on 6 February 2015 during which INEO & Level 3 Consortium should solve all the outstanding issues and problems presented since the beginning of this period.

1.3 The RCC/18 meeting approved the realization of the Fourth Meeting on the Technical-Operational Implementation of the New REDDIG II Digital Network (RTO/4) from 20 to 21 April 2015 in Manaus, Brazil, addressed to the staff in charge of the maintenance and operation of REDDIG II.

2. Description

2.1 Below are described the procedures to follow to report damage, repair of equipment and/or parts, maintenance of the station using the REDDIG II Operation Manual.

Report of damage

2.2 The general procedure will remain the same which has been used in REDDIG I. The Management Center -NCC in Manaus is to be informed of the failure or malfunction of a service, providing the precise information, example: the type of service (voice or data) and the corresponding physical or logical port.

2.3 The Management Center-NCC will open an occurrence file with the information

received and will make a diagnosis the failure with the technical team of the station to restore the operation of the service, main objective, doing specific procedures depending on the type of fault.

2.4 In case the Management Center–NCC finds a fault unless it has been reported, will perform in a similar way the general procedure by contacting the technician of the station for the diagnostic and restoration of the operation of the service.

2.5 The principal specific proceedings to restore the service operations are:

- a) Change on baseband equipment (Cisco router)
- b) Change on Skywan modem equipment (SKW)
- c) Change on satellite equipment (IBUC)
- d) Change on satellite reception equipment (LNB)
- e) Change of the satellite and terrestrial network
- f) Change to operation in disaster recovery mode
- g) Reload of the equipment configuration

Those proceedings are referred in the REDDIG II Operation Manual.

2.6 Within the ORD period and for the following six (6) months since the FNAT date, the REDDIG Administration will report the fault or malfunctioning, if applicable to the terrestrial network, to INEO & Level 3 Consortium.

2.7 Within the guarantee period of two (2) years from the date of the FNAT, the REDDIG Administration will report to INEO, if merited, the fault or irregularity of operation that the network presents, except in the terrestrial network specified in paragraph 2.6.

Repair of equipment and/or parts

2.8 During the ORD period and the two (2) years guarantee counted since the FNAT, if an equipment or part is diagnosed with a fault that should be repaired or replaced, the procedure below will be followed:

- 1) ICAO SAM Office will send, if available in the REDDIG warehouse, a new equipment or part to the node presenting the problem. The equipment or part will be send on loan as a temporary export.
- 2) In any case, whether or not existence of equipment or spare part in the warehouse, in parallel action, the node will send the equipment or part damaged to INEO for its repair or replacement by applying the clause 16 of Contract 22501200 referred to “Network/Equipment Warranty”.
- 3) Once the equipment or part returns from INEO to the node, the node will return it to ICAO SAM Office for its re-entry to the store.

Maintenance of the REDDIG node station

2.9 REDDIG II will continue using the current preventive maintenance programme structure for the station and due to the importance of its execution is then reiterated:

- 1) Energy
Verify on monthly basis than the AC voltage level is in its nominal value and that the difference in voltage between the neutral and terrestrial line is not greater than 1.0 VAC, being the recommended objective 0.5 VAC. This applies for both “indoor” and “outdoor” equipment.
- 2) Antenna

- Clean the reflector and the antenna pedestal every sixth (6) months.
 - Grease the mechanical system of movement in azimuth and elevation of the antenna every six (6) months
 - Check the alignment of the antenna every twelve (12) months and make adjustments if needed.
 - “Outdoor” Equipment
 - IBUC: Cleaning every twelve (12) months in full the air circulation system.
 - Antenna GPS and Cables IFL: check every six (6) months the condition of the cable and its connector, including the protective tape.
- 3) “Indoor” Equipment
- Rack(s): Check the air circulation system on monthly basis.
 - Patch panel: Monthly verification of adherence of voice services connectors (RJ45 / RJ11) and data (DB-25 / RJ45).

2.10 Refer to REDDIG II Operation Manual for operative maintenance information.

REDDIG II Operations Manual

2.11 Diagrams of the REDDIG II stations are presented in the **Appendix A** of this Working Paper in order to facilitate the understanding of its working, together with the updated plans that INEO will provide at the end of ORD period.

2.12 INEO & Level 3 Consortium developed the “User Manual” and delivered to each Node during the installation period, three hard copies in English and three in Spanish.

2.13 The Manual contains the following chapters:

- 1) GPS
- 2) Converter Serial to Ethernet
- 3) Terrasat
- 4) Switch Ethernet Netgear
- 5) ND SatCom
- 6) NMS – Whatsup Gold
- 7) Cisco Routers
- 8) VPN Netgear
- 9) SkyNMS

2.14 The setup procedures of equipment and sub-systems of the network that will be explained in this working paper, are presented in the above mentioned chapters.

2.15 The REDDIG website www1.lima.icao.int/reddig/ contains the electronic version of the Manual both English and Spanish.

3. Suggested actions

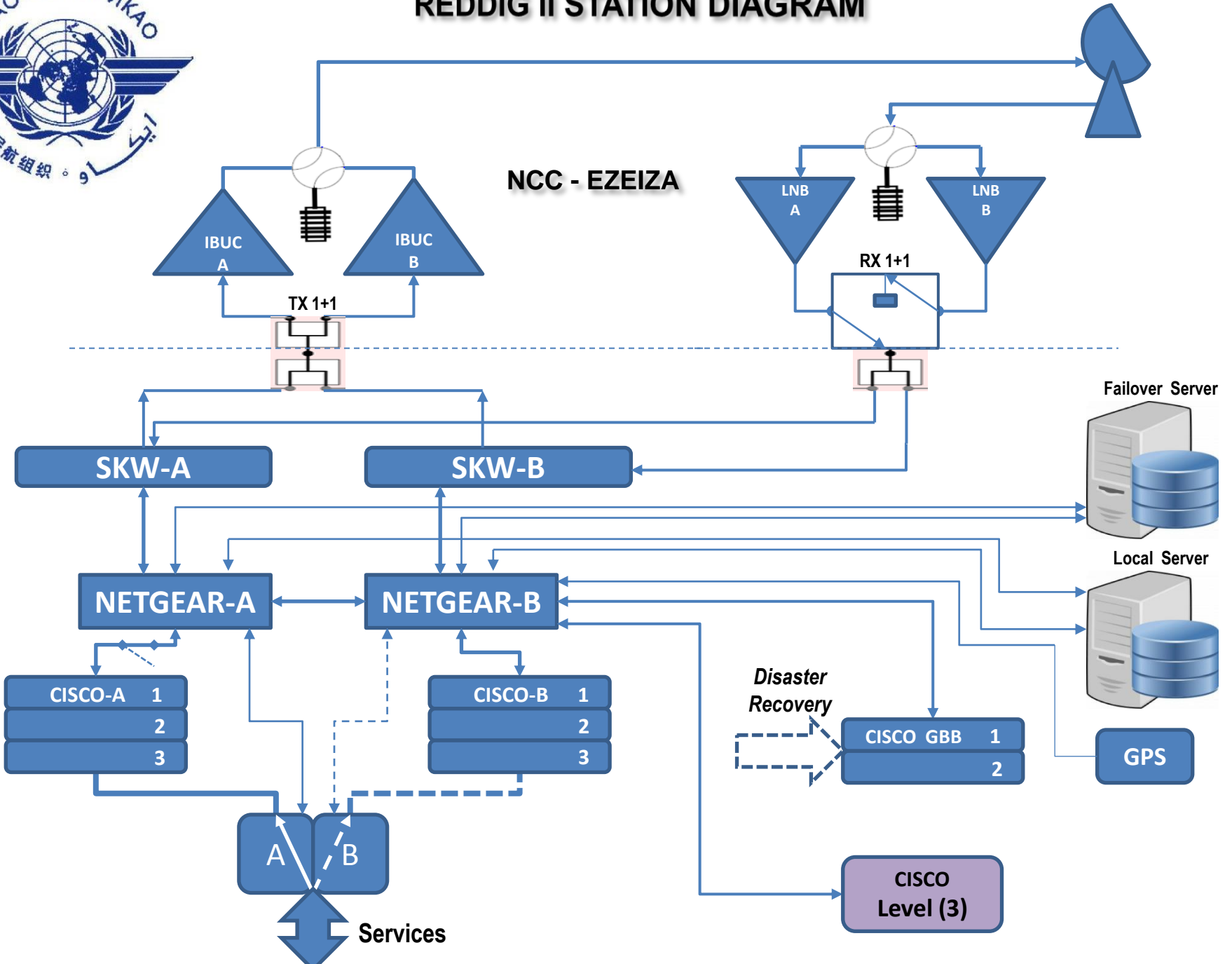
3.1 The Meeting is invited to:

- a) Take note on the information provided;
- b) analyze proceedings described in Section 2 and its corresponding implementation; and
- c) analyze any other matters considered necessary regarding this agenda item.

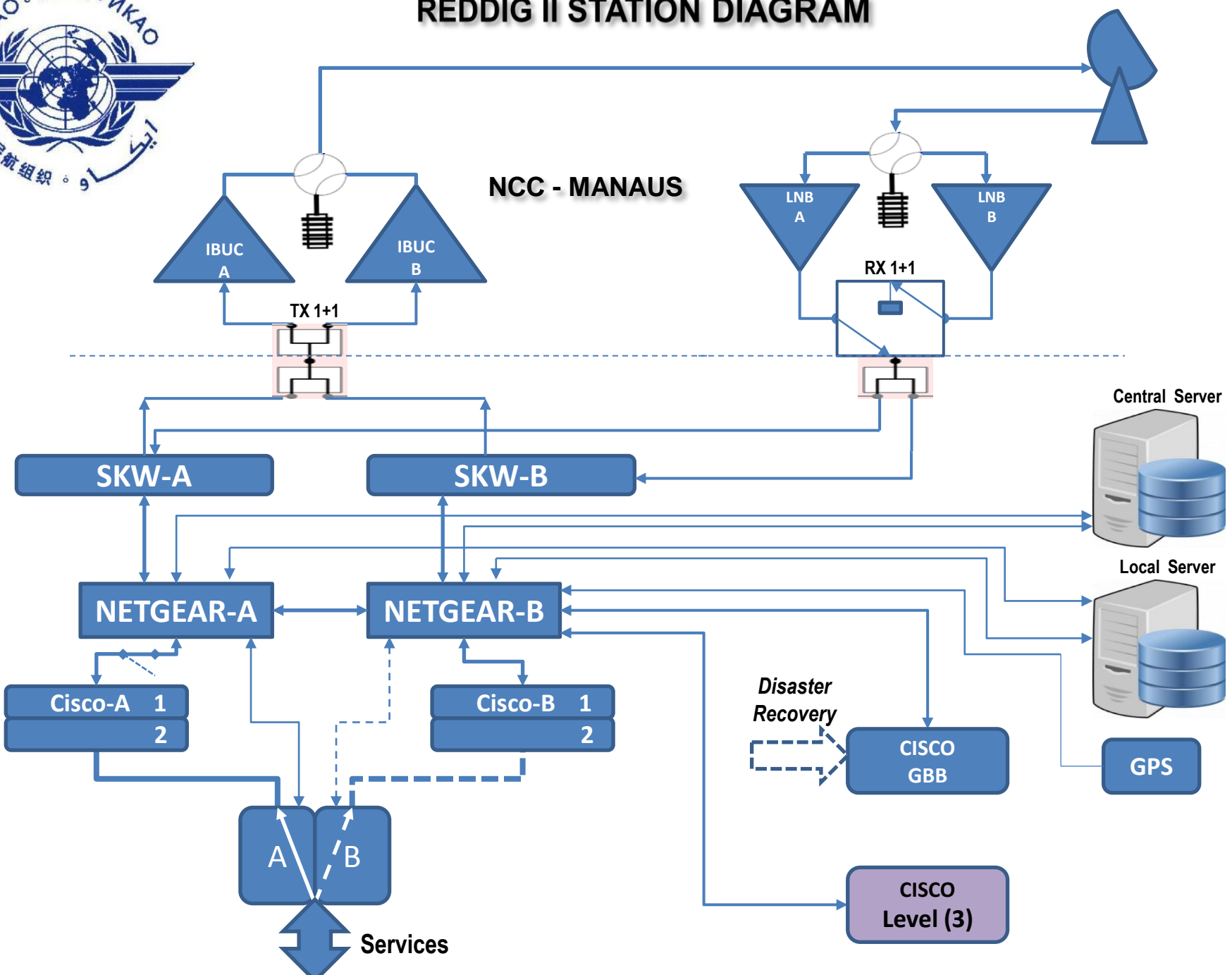
REDDIG II STATION DIAGRAM



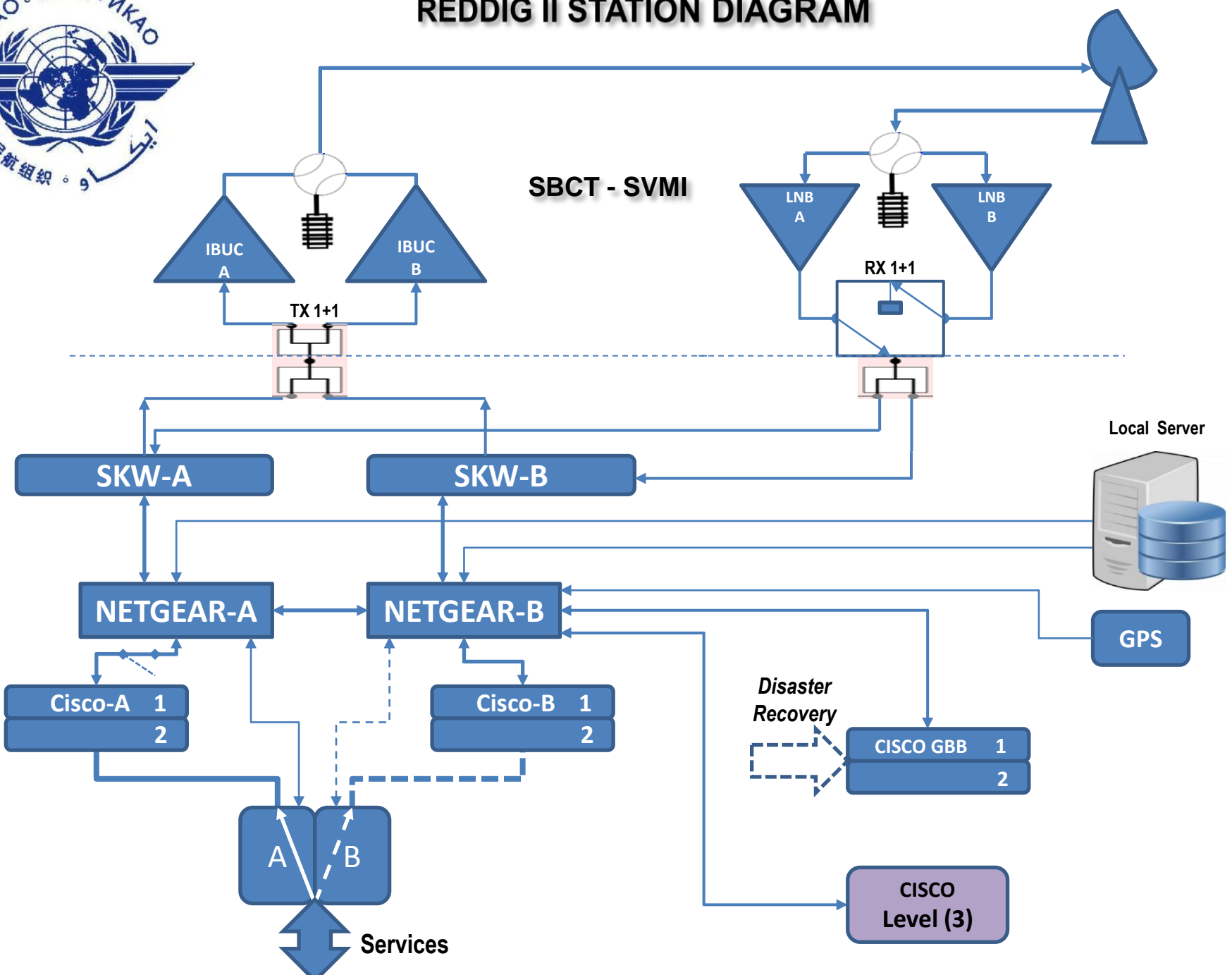
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REDDIG II STATION DIAGRAM



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