



**Agenda Item 4: Technical aspects**

**TECHNICAL ASPECTS FOR THE IMPLEMENTATION OF ADDITIONAL NODES**

(Presented by the Secretariat)

<b>SUMMARY</b>	
This working paper presents information on the technical aspects related to the implementation of additional nodes in the REDDIG II (MPLS) backup network by States/organisations of other Regions that do not participate in Regional Project RLA/03/901.	
<b>REFERENCES</b>	
<ul style="list-style-type: none"><li>• Report of the Twenty-Third Meeting of the SAM Implementation Group (SAM/IG/23) – Lima, 20-24 May 2019.</li><li>• Report of the Thirty-Fourth Meeting of the MEVA Technical Management Group (MEVA/TMG/34) – Miami, 11-13 June 2019.</li></ul>	
<b>ICAO strategic objectives:</b>	<i>A – Safety</i> <i>C – Environmental protection and sustainable development of air transport</i>

**1. Background**

1.1 The meeting of the SAM Implementation Group (SAM/IG/23 – Lima, 20-24 May 2019) analysed the proposal for the implementation of additional nodes in the REDDIG II MPLS network by States/organisations not participating in Regional Project RLA/03/901. Network access would be hired directly from the telecommunication provider CenturyLink at no cost for project participants. The objective is to establish more direct and better-quality communications with SAM States, providing redundancy to the existing connection through the MEVA III – REDDIG II interconnection.

1.2 The SAM/IG/23 meeting considered that the proposal was appropriate, and requested the Secretariat to refer this matter to the Coordination Committee of Project RLA/03/901 (REDDIG).

1.3 The FAA has expressed interest in the proposal, since, in case of failure of the MEVA III – REDDIG II interconnection, communications would be lost with three main COM centres of the SAM Region (Brasilia, Caracas, and Lima).

## 2. Discussion

### *General technical aspects*

2.1 The acquisition, installation and maintenance of the equipment to be used in the additional node of the ground network of REDDIG II will be the sole responsibility of the State/organisation interested in accessing the network.

2.2 The States/organisations interested in implementing additional nodes shall acquire equipment of the models specified by the ICAO South American Regional Office and by the REDDIG II Administrator (or higher-performance models).

2.3 Likewise, the States/organisations interested in implementing additional nodes must take network security (cybersecurity) measures to protect the nodes, and must demonstrate such measures to the ICAO South American Regional Office before accessing the network.

2.4 Figure 1 presents the concept underlying the implementation of an additional node.

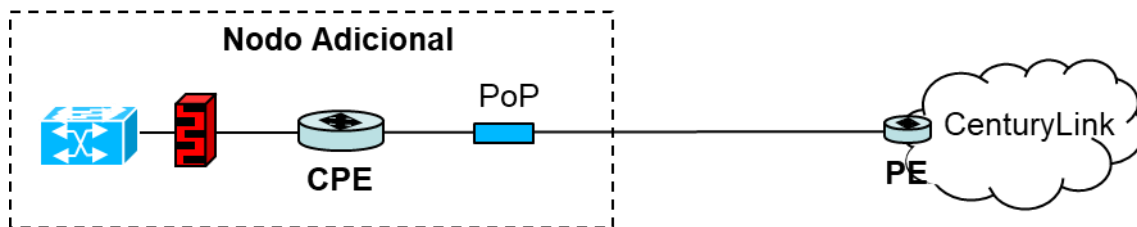


Figure 1 – Implementation of additional node

2.5 The REDDIG II Administrator shall have access to the CPE (Customer Premise Equipment) in order to view the parameters of the equipment.

### *Specific technical aspects*

2.6 The implementation of additional nodes in Atlanta and Salt Lake City requested by the United States (FAA) would mainly provide AMHS communications between the FAA main and standby COM centres and the COM centres of Brasilia, Caracas, and Lima. It would also provide communications with Trinidad and Tobago, as an alternative to the ECAR network, and if COCESNA and Panama implement additional nodes in REDDIG II, it would provide communications with the COCESNA and Panama COM centres as an alternative to the MEVA network.

2.7 REDDIG nodes are assigned by area, as per Table 1 below. Numbering proposals for future additional nodes are shown in bold. The Tegucigalpa node would maintain the area number assigned for the REDDIG satellite network, in which COCESNA already participates.

2.8 Accordingly, the Atlanta node would be allocated area number 84 and Salt Lake City would be allocated area number 86.

**Table 1 – Assignment of area numbers to ground network (MPLS) nodes**

<b>Node</b>	<b>Area</b>
Ezeiza (Argentina)	20
<b>Tegucigalpa (COCESNA)</b>	<b>21</b>
La Paz (Bolivia)	25
Curitiba (Brazil)	30
Brasilia (Brazil)	34
Manaus (Brazil)	36
Recife (Brazil)	38
Santiago (Chile)	40
Bogotá (Colombia)	45
Guayaquil (Ecuador)	50
Asunción (Paraguay)	55
Lima (Peru)	60
Montevideo (Uruguay)	65
Maiquetía (Venezuela)	80
<b>Atlanta (United States)</b>	<b>84</b>
<b>Salt Lake City (United States)</b>	<b>86</b>
<b>Panama (Panama)</b>	<b>88</b>
Georgetown (Guyana)	90
Piarco (Trinidad and Tobago)	91
Cayenne (French Guiana)	92
Paramaribo (Suriname)	94

**Table 2 – Additional nodes IP Address**

<b>Nodo</b>	<b>LAN/MASK</b>	<b>CenturyLink's equipment IP address</b>
Tegucigalpa (COCESNA)	10.100.21.0/24	10.100.21.90
Atlanta (Estados Unidos)	10.100.84.0/24	10.100.84.90
Salt Lake City (Estados Unidos)	10.100.86.0/24	10.100.86.90
Panamá (Panamá)	10.100.88.0/24	10.100.88.90

2.9 Basically, the Atlanta and Salt Lake City nodes require Fast Ethernet or Gigabit Ethernet interfaces for data traffic (mainly AMHS) and at least an FXS interface for the administrative/maintenance telephone network.

2.10 Details of the supported services and the required interfaces will be contained in an additional node implementation guide to be prepared by the REDDIG Administrator together with the States/organisations interested in the implementation of the nodes.

**3. Suggested action**

3.1 The Coordination Committee is invited to:

- a) take note of the information contained in this working paper; and
- b) approve the adoption of the technical aspects presented in this working paper.