



| ICAO

CAPACITY & EFFICIENCY

OVERVIEW REDDIG II NETWORK

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- ATN ARCHITECTURE IN THE SAM REGION
- REGIONAL NETWORK REDDIG II
- MEVAIII REDDIG II INTERCONNECTION
- REDDIG II OPERATION
- REDDIG II PROCESS IMPLEMENTATION



GENERAL CONSIDERATION

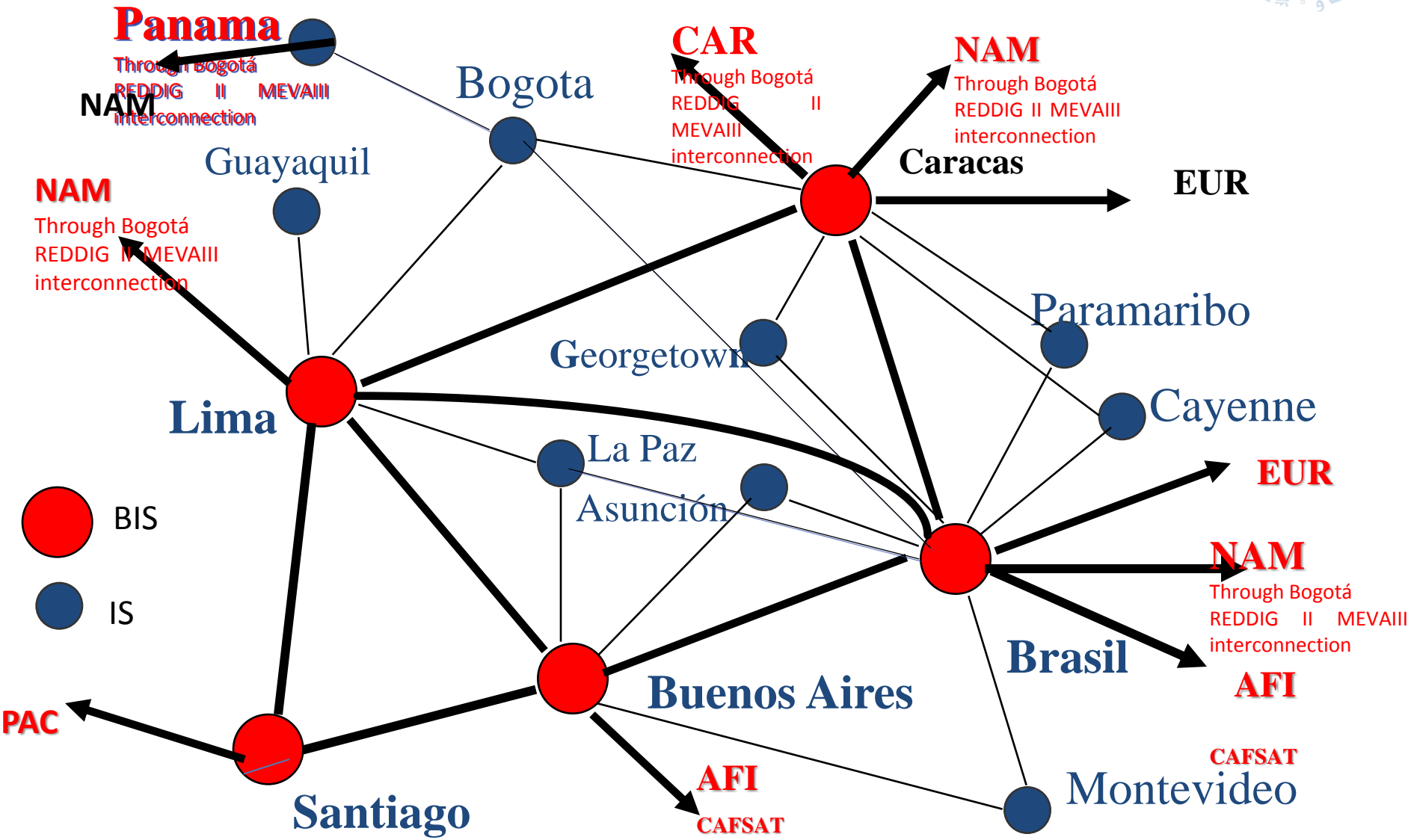
- The architecture of ATN routers using the AFTN infrastructure for positioning of equipment (routers) ATN
- ATN routers architecture is designed primarily for ground ground applications the air ground application it can be introduced in the medium and long term
- The core structure of the ATN (Backbone) in the SAM regions is based on the concentration of traffic on major node.
- The geographical location of the main nodes of the ATN backbone coincides with the main AFTN centers defined in the table CNS II-1 of the eANP.
- Routers in the main Backbone nodes switched data intra and interregional

TABLE CNS II-2 – AERONAUTICAL TELECOMMUNICATION NETWORK (ATN) INFRASTRUCTURE ROUTING PLAN

Administration and Location	Type of Router	Type of Interconnection	Connected Router	Bandwidth	Network Protocol	Via	Remarks
1	2	3	4	5	6	7	8
Argentina/Buenos Aires	BIS	Inter-Regional	AFI/ South Africa (Johannesburg)	64K	IPv6	CAFSAT	
		Intra-Regional	Bolivia (La Paz)	64K	IPv4	REDDIG	
		Intra-Regional	Chile (Santiago)	64K	IPv4	REDDIG	
		Intra-Regional	Brazil (Brasilia)	64K	IPv4	REDDIG	
		Intra-Regional	Paraguay (Asunción)	64K	IPv4	REDDIG	
		Intra-Regional	Peru (Lima)	64K	IPv4	REDDIG	
Bolivia/La Paz	IS	Intra-Regional	Argentina (Buenos Aires)	64K	IPv4	REDDIG	
Brazil/Brasilia	BIS	Intra-Regional	Brazil (Brasilia)	64K	IPv4	REDDIG	
		Intra-Regional	Peru (Lima)	64K	IPv4	REDDIG	
		Intra-Regional	Argentina (Buenos Aires)	64K	IPv4	REDDIG	
		Intra-Regional	Bolivia (La Paz)	64K	IPv4	REDDIG	
		Intra-Regional	Colombia (Bogotá)	64K	IPv4	REDDIG	
		Intra-Regional	Guyana (Georgetown)	64K	IPv4	REDDIG	
		Intra-Regional	Guyana Francesa (Cayenne)	64K	IPv4	REDDIG	
		Intra-Regional	Paraguay (Asunción)	64K	IPv4	REDDIG	
		Intra-Regional	Peru (Lima)	64K	IPv4	REDDIG	
		Intra-Regional	Surinam (Paramaribo)	64K	IPv4	REDDIG	
		Intra-Regional	Uruguay (Montevideo)	64K	IPv4	REDDIG	
		Intra-Regional	Venezuela (Caracas)	64K	IPv4	REDDIG	
		Intra-Regional	AFI/ Senegal (Dakar)	64K	IPv6	CAFSAT	
Inter-Regional	EUR/ Spain (Madrid)	64K	IPv6	CAFSAT			
Inter-Regional	NAM / United States (Atlanta)	64K	IPv4	MEVA / REDDIG	Via Bogota		
Chile/Santiago	IS	Intra-Regional	Argentina (Buenos Aires)	64K	IPv4	REDDIG	
		Intra-Regional	Peru (Lima)	64K	IPv4	REDDIG	
Colombia/Bogotá	IS	Intra-Regional	Ecuador (Guayaquil)	64K	IPv4	REDDIG	
		Intra-Regional	Brazil (Brasilia)	64K	IPv4	REDDIG	
		Intra-Regional	Panama (Panama)	64K	IPv4	MEVA /REDDIG	
		Intra-Regional	Peru (Lima)	64K	IPv4	REDDIG	
		Intra-Regional	Venezuela (Caracas)	64K	IPv4	REDDIG	
		Intra-Regional	Jamaica, Kingston	64K	IPv4	MEVA	
		Intra-Regional	Haiti, Port au Prince	64K	IPv4	MEVA	
Inter-Regional	NAM/ United States (Atlanta)	64K	IPv4	MEVA			
Ecuador/Guayaquil	IS	Intra-Regional	Colombia (Bogotá)	64K	IPv4	REDDIG	
		Intra-Regional	Peru (Lima)	64K	IPv4	REDDIG	
		Intra-Regional	Venezuela (Caracas)	64K	IPv4	REDDIG	
French Guiana/Cayenne	IS	Intra-Regional	Brazil (Brasilia)	64K	IPv4	REDDIG	
		Intra-Regional	Surinam (Paramaribo)	64K	IPv4	REDDIG	



ATN ARCHITECTURE IN THE SAM REGION





USE OF IP PROTOCOL

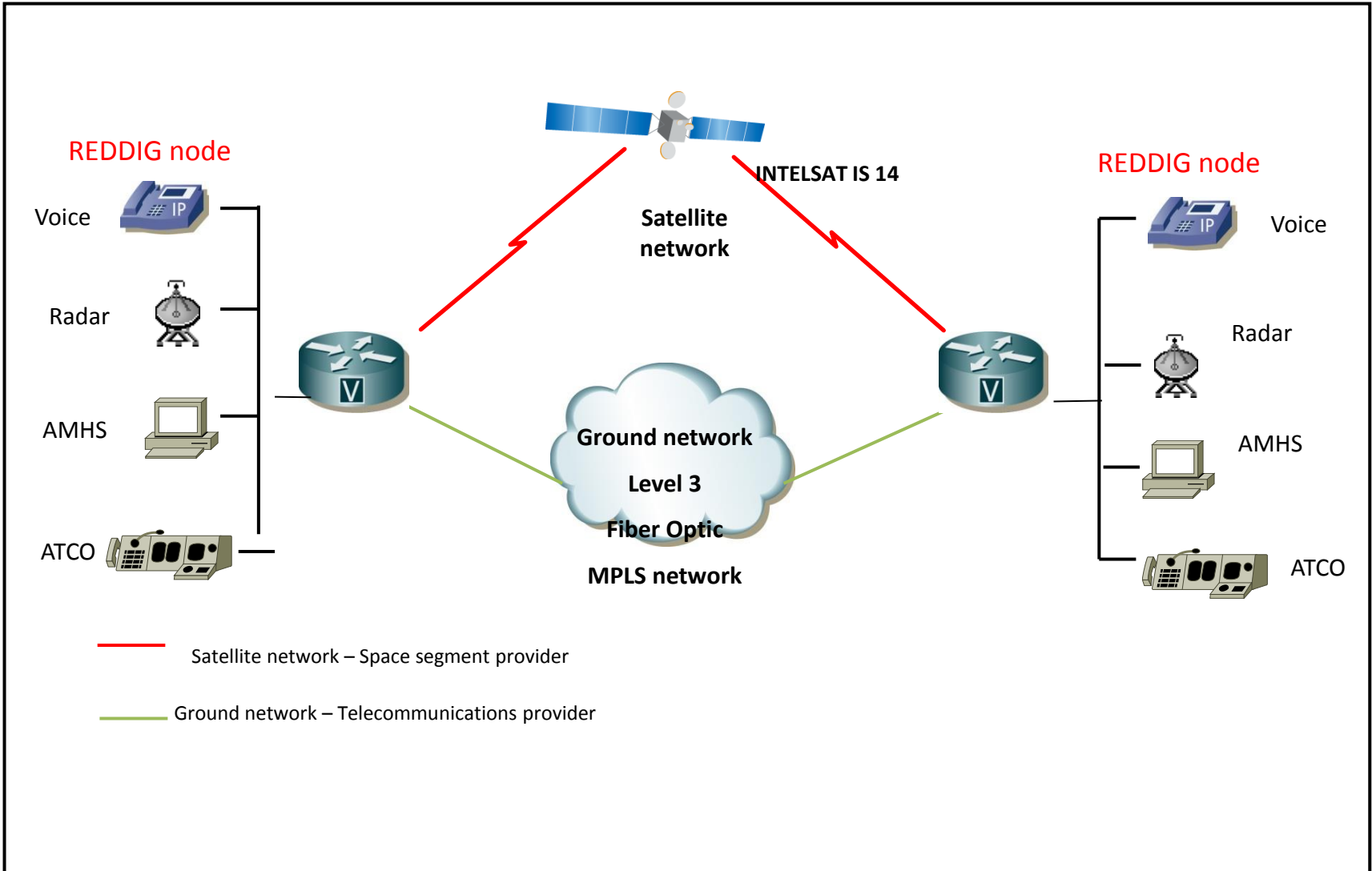
- Use of Internet Protocol Version 4 (IPv4) to speed the implementation of the Air Traffic Services Message Handling Services (AMHS) in the CAR/SAM Regions, during the initial stage
- Use of IPv6 to establish inter-regional connectivity
- A transition phase is proposed, using a double set transition mechanism, which entails that IPv4 and IPv6 be implemented in the AMHS, towards an eventual IPv6-only based network, thus disabling IPv4



**TABLE CNS II-5
ATN IPv4 ADDRESSING SCHEME**

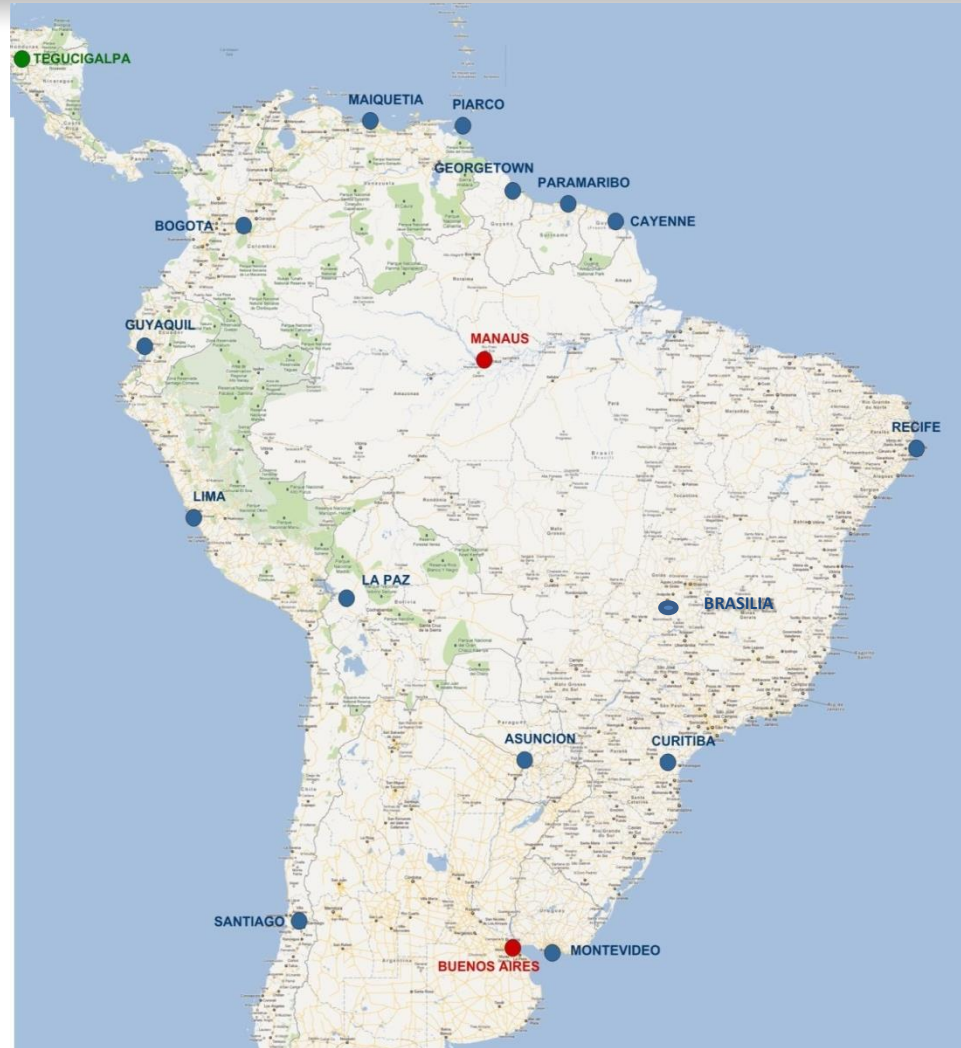
REGION	State/Territ	Network	Use address	Decimal Code	Binary code				
					REGION	State territory	Host's		
SAM	Argentina	10.0.0.0 / 19	First	10 . 0 . 0 . 1	0 0 0 0 0 1 0 1 0 .	0 0 0 0 0 0 0 0 0 .	0 0 0 0 0 0 0 0 0 .	0 0 0 0 0 0 0 0 1	
			-	-	-	-	-	-	-
			Last	10 . 0 . 31 . 254	0 0 0 0 0 1 0 1 0 .	0 0 0 0 0 0 0 0 0 .	0 0 0 1 1 1 1 1 1 .	1 1 1 1 1 1 1 1 0	
	Chile	10.0.32.0 / 19	First	10 . 0 . 32 . 1	0 0 0 0 0 1 0 1 0 .	0 0 0 0 0 0 0 0 0 .	0 0 1 0 0 0 0 0 0 .	0 0 0 0 0 0 0 0 1	
			-	-	-	-	-	-	-
			Last	10 . 0 . 63 . 254	0 0 0 0 0 1 0 1 0 .	0 0 0 0 0 0 0 0 0 .	0 0 1 1 1 1 1 1 1 .	1 1 1 1 1 1 1 1 0	
	Brasil	10.0.64.0 / 19	First	10 . 0 . 64 . 1	0 0 0 0 0 1 0 1 0 .	0 0 0 0 0 0 0 0 0 .	0 1 0 0 0 0 0 0 0 .	0 0 0 0 0 0 0 0 1	
			-	-	-	-	-	-	-
			Last	10 . 0 . 95 . 254	0 0 0 0 0 1 0 1 0 .	0 0 0 0 0 0 0 0 0 .	0 1 0 1 1 1 1 1 1 .	1 1 1 1 1 1 1 1 0	
	Uruguay	10.0.96.0 / 19	First	10 . 0 . 96 . 1	0 0 0 0 0 1 0 1 0 .	0 0 0 0 0 0 0 0 0 .	0 1 1 0 0 0 0 0 0 .	0 0 0 0 0 0 0 0 1	
			-	-	-	-	-	-	-
			Last	10 . 0 . 127 . 254	0 0 0 0 0 1 0 1 0 .	0 0 0 0 0 0 0 0 0 .	0 1 1 1 1 1 1 1 1 .	1 1 1 1 1 1 1 1 0	
	Paraguay	10.0.128.0 / 19	First	10 . 0 . 128 . 1	0 0 0 0 0 1 0 1 0 .	0 0 0 0 0 0 0 0 0 .	1 0 0 0 0 0 0 0 0 .	0 0 0 0 0 0 0 0 1	
			-	-	-	-	-	-	-
			Last	10 . 0 . 159 . 254	0 0 0 0 0 1 0 1 0 .	0 0 0 0 0 0 0 0 0 .	1 0 0 1 1 1 1 1 1 .	1 1 1 1 1 1 1 1 0	
	Bolivia	10.0.160.0 / 19	First	10 . 0 . 160 . 1	0 0 0 0 0 1 0 1 0 .	0 0 0 0 0 0 0 0 0 .	1 0 1 0 0 0 0 0 0 .	0 0 0 0 0 0 0 0 1	
			-	-	-	-	-	-	-
			Last	10 . 0 . 191 . 254	0 0 0 0 0 1 0 1 0 .	0 0 0 0 0 0 0 0 0 .	1 0 1 1 1 1 1 1 1 .	1 1 1 1 1 1 1 1 0	
	Peru	10.0.192.0 / 19	First	10 . 0 . 192 . 1	0 0 0 0 0 1 0 1 0 .	0 0 0 0 0 0 0 0 0 .	1 1 0 0 0 0 0 0 0 .	0 0 0 0 0 0 0 0 1	
			-	-	-	-	-	-	-
			Last	10 . 0 . 223 . 254	0 0 0 0 0 1 0 1 0 .	0 0 0 0 0 0 0 0 0 .	1 1 0 1 1 1 1 1 1 .	1 1 1 1 1 1 1 1 0	
	Ecuador	10.0.224.0 / 19	First	10 . 0 . 224 . 1	0 0 0 0 0 1 0 1 0 .	0 0 0 0 0 0 0 0 0 .	1 1 1 0 0 0 0 0 0 .	0 0 0 0 0 0 0 0 1	
			-	-	-	-	-	-	-
			Last	10 . 0 . 255 . 254	0 0 0 0 0 1 0 1 0 .	0 0 0 0 0 0 0 0 0 .	1 1 1 1 1 1 1 1 1 .	1 1 1 1 1 1 1 1 0	
	Colombia	10.1.0.0 / 19	First	10 . 1 . 0 . 1	0 0 0 0 0 1 0 1 0 .	0 0 0 0 0 0 0 0 1 .	0 0 0 0 0 0 0 0 0 .	0 0 0 0 0 0 0 0 1	
			-	-	-	-	-	-	-
			Last	10 . 1 . 31 . 254	0 0 0 0 0 1 0 1 0 .	0 0 0 0 0 0 0 0 1 .	0 0 0 1 1 1 1 1 1 .	1 1 1 1 1 1 1 1 0	
	Venezuela	10.1.32.0 / 19	First	10 . 1 . 32 . 1	0 0 0 0 0 1 0 1 0 .	0 0 0 0 0 0 0 0 1 .	0 0 1 0 0 0 0 0 0 .	0 0 0 0 0 0 0 0 1	
			-	-	-	-	-	-	-
			Last	10 . 1 . 63 . 254	0 0 0 0 0 1 0 1 0 .	0 0 0 0 0 0 0 0 1 .	0 0 1 1 1 1 1 1 1 .	1 1 1 1 1 1 1 1 0	
Guyana	10.1.64.0 / 19	First	10 . 1 . 64 . 1	0 0 0 0 0 1 0 1 0 .	0 0 0 0 0 0 0 0 1 .	0 1 0 0 0 0 0 0 0 .	0 0 0 0 0 0 0 0 1		
		-	-	-	-	-	-	-	
		Last	10 . 1 . 95 . 254	0 0 0 0 0 1 0 1 0 .	0 0 0 0 0 0 0 0 1 .	0 1 0 1 1 1 1 1 1 .	1 1 1 1 1 1 1 1 0		
Surinam	10.1.96.0 / 19	First	10 . 1 . 96 . 1	0 0 0 0 0 1 0 1 0 .	0 0 0 0 0 0 0 0 1 .	0 1 1 0 0 0 0 0 0 .	0 0 0 0 0 0 0 0 1		
		-	-	-	-	-	-	-	
		Last	10 . 1 . 127 . 254	0 0 0 0 0 1 0 1 0 .	0 0 0 0 0 0 0 0 1 .	0 1 1 1 1 1 1 1 1 .	1 1 1 1 1 1 1 1 0		
Guyana Francesa (Francia)	10.1.128.0 / 19	First	10 . 1 . 128 . 1	0 0 0 0 0 1 0 1 0 .	0 0 0 0 0 0 0 0 1 .	1 0 0 0 0 0 0 0 0 .	0 0 0 0 0 0 0 0 1		
		-	-	-	-	-	-	-	
		Last	10 . 1 . 159 . 254	0 0 0 0 0 1 0 1 0 .	0 0 0 0 0 0 0 0 1 .	1 0 0 1 1 1 1 1 1 .	1 1 1 1 1 1 1 1 0		
Panamá	10.1.160.0 / 19	First	10 . 1 . 160 . 1	0 0 0 0 0 1 0 1 0 .	0 0 0 0 0 0 0 0 1 .	1 0 1 0 0 0 0 0 0 .	0 0 0 0 0 0 0 0 1		
		-	-	-	-	-	-	-	
		Last	10 . 1 . 191 . 254	0 0 0 0 0 1 0 1 0 .	0 0 0 0 0 0 0 0 1 .	1 0 1 1 1 1 1 1 1 .	1 1 1 1 1 1 1 1 0		

REDDIG II CONFIGURATION



REDDIG Nodes:

- 17 nodes
- 14 countries
- 1 MEVA interconnection node
(Tegucigalpa-COCESNA)
- 2 Master stations
(Manaus & Ezeiza)





REDDIG II Node Architecture

- Fully redundant
- Two chains
- Baseband switch for analog, serial and Eth interfaces
- Divided in 4 sections:
 - Outdoor Unit (Antenna, RF, IFL)
 - Indoor Unit (BB SW, Routers, Eth SW, SatModems)
 - NMS (Network Management System & WUG)
 - Back-up Ground Network (Level 3 router)
- Full mesh configuration
- 3.7 m antenna, C band, INTELSAT 1S 14 satellite transponder (3c/4c), linear polarizacion, 4.4 Mhz leased bandwidth,
- Three carriers: one modulated at 955KBauds another at 679KBauds and the last one 847kB
- TDMA IP satellite access
- NMS monitoring and control



Services on the REDDIG II

The following services are transported on REDDIG II network

- **AFTN and AMHS** → Async. for AFTN, Eth/IP for AMHS
- **RADAR and ADS** → Serial and Eth/IP
- **ATS – telephony** → FXS, FXO, E&M, E1
- **NMS system** → Eth/IP
- **Future services over IP** → Eth/IP

The network must transport legacy data (serial and analog lines) as well as new IP-based services.

REDDIG CURRENT AND FUTURE BANDWIDTH REQUIREMENTS DATA SERVICES

State	Location	Service (each in Kbps)			
		AFTN	Radar	AMHS	ADS-B
Argentina	Ezeiza	19.2	76.8	28.8	19.2
Bolivia	La Paz	8.4	115.2	14.4	19.2
Brazil	Curitiba	9.6	76.8	19.2	19.2
	Brasilia	2.4		52.8	
	Manaus	21.6	134.4	33.6	19.2
	Recife	2.4		4.8	19.2
Chile	Santiago	4.8	57.6	9.6	19.2
Colombia	Bogotá	31.2	76.8	38.4	19.2
Ecuador	Guayaquil	7.2	38.4	14.4	19.2
French Guiana	Rochambeau	4.8	38.4	9.6	19.2
Guyana	Georgetown	9.6	57.6	19.2	19.2
Paraguay	Asunción	7.2	57.6	9.6	19.2
Peru	Lima	28.8	96	43.2	19.2
Suriname	Paramaribo	7.2	76.8	14.4	19.2
Trinidad and Tobago	Piarco	4.8	19.2	9.6	19.2
Uruguay	Montevideo	4.8	19.2	9.6	19.2
Venezuela	Maiquetía	24	76.8	38.4	19.2

REDDIG II – IP LAN for Nodes' equipment

Station	ICAO CODE	LAN (XX)
Manaus	SBMN	36
Ezeiza	SAEZ	20
Recife	SBRE	38
Curitiba	SBCT	30
Brasilia	SBBR	34
Chile	SCEL	40
Asuncion	SGAS	55
La Paz	SLLP	25
Lima	SPIM	60
Guayaquil	SEGU	50
Bogota	SKED	45
Maiquetia	SVMI	80
Piarco	TTZP	91
Georgetown	SYGC	90
Cayenne	SOCA	92
Paramaribo	SMPM	94
Montevideo	SUMU	65
Tegucigalpa	MHTG	21

Device	Device number	LAN IP address	mask	gateway
NMS server	10	10.100.XX.10	255.255.255.0	10.100.XX.254
NMS printer	20	10.100.XX.20	255.255.255.0	10.100.XX.254
Modem VSAT A	31	10.100.XX.31	255.255.255.0	10.100.XX.254
Modem VSAT B	32	10.100.XX.32	255.255.255.0	10.100.XX.254
BUC A	41	10.100.XX.41	255.255.255.0	10.100.XX.254
BUC B	42	10.100.XX.42	255.255.255.0	10.100.XX.254
Rx Redundancy System	43	10.100.XX.43	255.255.255.0	10.100.XX.254
IP Switch A	51	10.100.XX.51	255.255.255.0	10.100.XX.254
IP Switch B	52	10.100.XX.52	255.255.255.0	10.100.XX.254
VPN	60	10.100.XX.60	255.255.255.0	10.100.XX.254
Analogic Switch 1	71	10.100.XX.71	255.255.255.0	10.100.XX.254
Analogic Switch 2	72	10.100.XX.72	255.255.255.0	10.100.XX.254
GPS	80	10.100.XX.80	255.255.255.0	10.100.XX.254
MPLS Router	90	10.100.XX.90	255.255.255.0	10.100.XX.254
VSAT Router 1A	101	10.100.XX.101	255.255.255.0	10.100.XX.254
VSAT Router 1B	102	10.100.XX.102	255.255.255.0	10.100.XX.254
VSAT Router 2A	103	10.100.XX.103	255.255.255.0	10.100.XX.254
VSAT Router 2B	104	10.100.XX.104	255.255.255.0	10.100.XX.254
GBB Router 1	121	10.100.XX.121	255.255.255.0	10.100.XX.254
GBB Router 2	122	10.100.XX.122	255.255.255.0	10.100.XX.254
IP to serial converter	130	10.100.XX.130	255.255.255.0	10.100.XX.254

REDDIG II – Sub-networks for IP services

Station	ICAO CODE	Network	AMHS	RADAR IP	AIDC
Manaus	SBMN	10.0.64.0 /22	10.0.64.0 /24	10.0.65.0 /24	10.0.66.0 /24
Ezeiza	SAEZ	10.0.0.0 /19	10.0.0.0 /24	10.0.1.0 /24	10.0.2.0 /24
Recife	SBRE	10.0.72.0 /22	10.0.72.0 /24	10.0.73.0 /24	10.0.74.0 /24
Curitiba	SBCT	10.0.80.0 /22	10.0.80.0 /24	10.0.81.0 /24	10.0.82.0 /24
Brasilia	SBBR	10.0.88.0 /22	10.0.88.0 /24	10.0.89.0 /24	10.0.90.0 /24
Chile	SCEL	10.0.32.0 /19	10.0.32.0 /24	10.0.33.0 /24	10.0.34.0 /24
Asuncion	SGAS	10.0.128.0 /19	10.0.128.0 /24	10.0.129.0 /24	10.0.130.0 /24
La Paz	SLLP	10.0.160.0 /19	10.0.160.0 /24	10.0.161.0 /24	10.0.162.0 /24
Lima	SPIM	10.0.192.0 /19	10.0.192.0 /24	10.0.193.0 /24	10.0.194.0 /24
Guayaquil	SEGU	10.0.224.0 /19	10.0.224.0 /24	10.0.225.0 /24	10.0.226.0 /24
Bogota	SKED	10.1.0.0 /19	10.1.0.0 /24	10.1.1.0 /24	10.1.2.0 /24
Maiquetia	SVMI	10.1.32.0 /19	10.1.32.0 /24	10.1.33.0 /24	10.1.34.0 /24
Piarco	TTZP	10.18.96.0 /19	10.18.96.0 /24	10.18.97.0 /24	10.18.98.0 /24
Georgetown	SYGC	10.1.64.0 /19	10.1.64.0 /24	10.1.65.0 /24	10.1.66.0 /24
Cayenne	SOCA	10.1.128.0 /19	10.1.128.0 /24	10.1.129.0 /24	10.1.130.0 /24
Paramaribo	SMPM	10.1.96.0 /19	10.1.96.0 /24	10.1.97.0 /24	10.1.98.0 /24
Montevideo	SUMU	10.0.96.0 /19	10.0.96.0 /24	10.0.97.0 /24	10.0.98.0 /24

IP Services	VLAN
AMHS	100
RADAR	101
AIDC	102

REDDIG II – Dial Plan Rules

	Site code	Prefix
Argentina	SAEZ	20.....
Bolivia	SLLP	25.....
Brazil (Curitiba)	SBCT	30.....
Brazil (Manaus)	SBMN	36.....
Brazil (Recife)	SBRF	38.....
Chile	SCEL	40.....
Colombia	SKED	45.....
Ecuador	SEGU	50.....
French Guiana	SOCA	92.....
Guyana	SYGC	90.....
Paraguay	SGAS	55.....
Peru	SPIM	60.....
Suriname	SMPM	94.....
Trinidad and Tobago	TTZP	91.....
Uruguay	SUMU	65.....
Venezuela	SVMI	80.....
<i>Honduras</i>	<i>MHTG</i>	<i>21.....</i>

Operational calls: ATS, ATS/DS

→ prefix: 1

Administration calls: Reddig Admin phone,
Maintenance calls between Reddig nodes

→ prefix: 2

→ Transparent for users

→ Dial plan profile by port: clear separation between operational and administrative calls

→ Routing by ICAO code (20 for Ezeiza, 36 for Manaus, etc.)

→ Digits regeneration and forward digits

→ Auto-numeration numbers: for hotlines

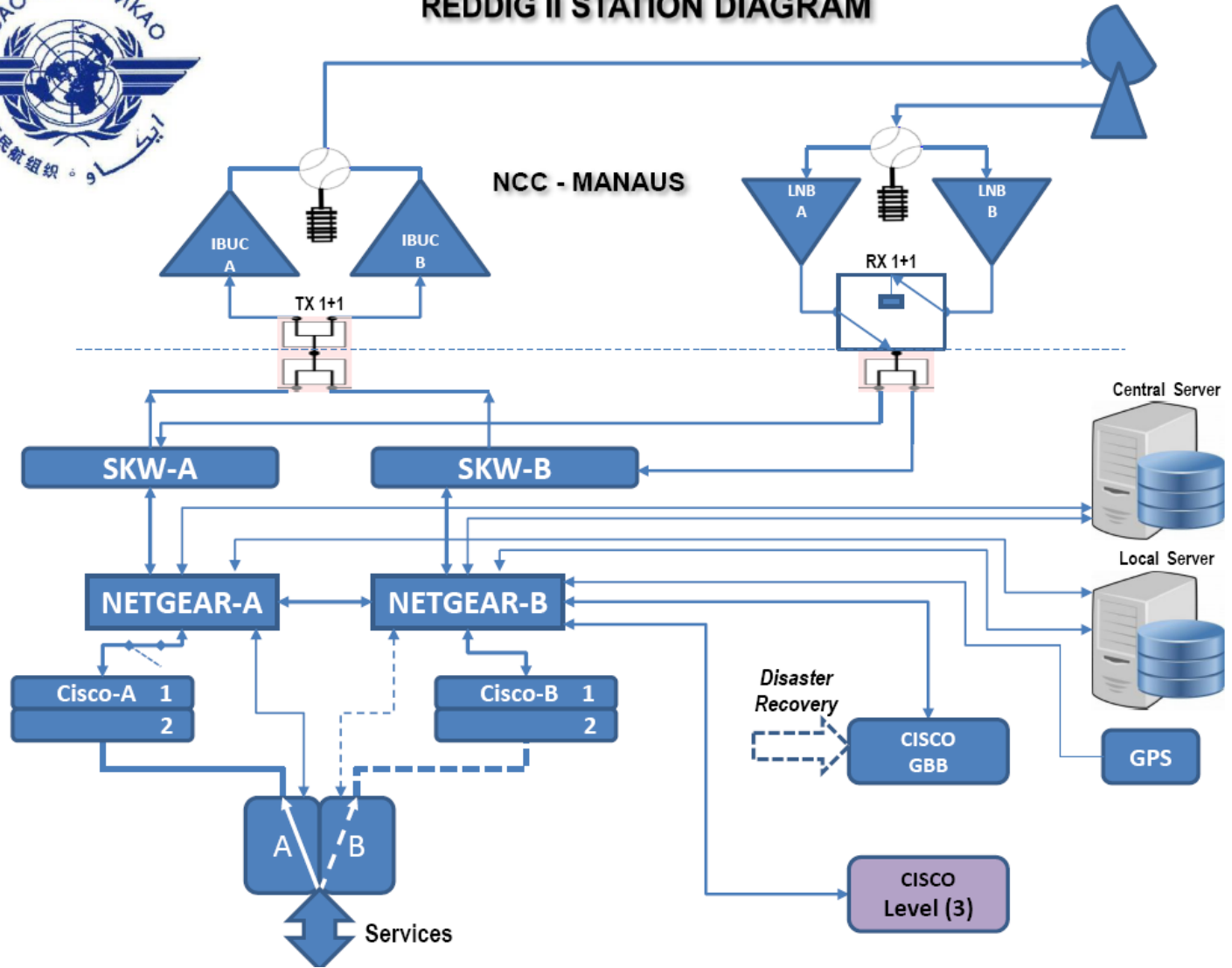
ATS switched	Dialled number	Fowarded digits
Argentina	20..	720XX
Bolivia	25..	2XX
	2553	None
Brazil (Curitiba)	30..	7XX
Brazil (Manaus)	36..	XX
	3612	None
Brazil (Recife)	38..	68XX
Chile	40..	XX
Colombia		45XX
Ecuador	5051	2318
	5052	2319
	5053	2324
	5060	2322
	5071	2128
French Guiana	9251	None
	9253	None
Guyana	90..	90XX
	9051	None
	9053	None
	9060	None
Paraguay	5551	None
Peru	60..	60XX
Suriname	9451	None
	9452	None
	94..	94XX
Trinidad and Tobago	-	
Uruguay	6551	None
	6552	None

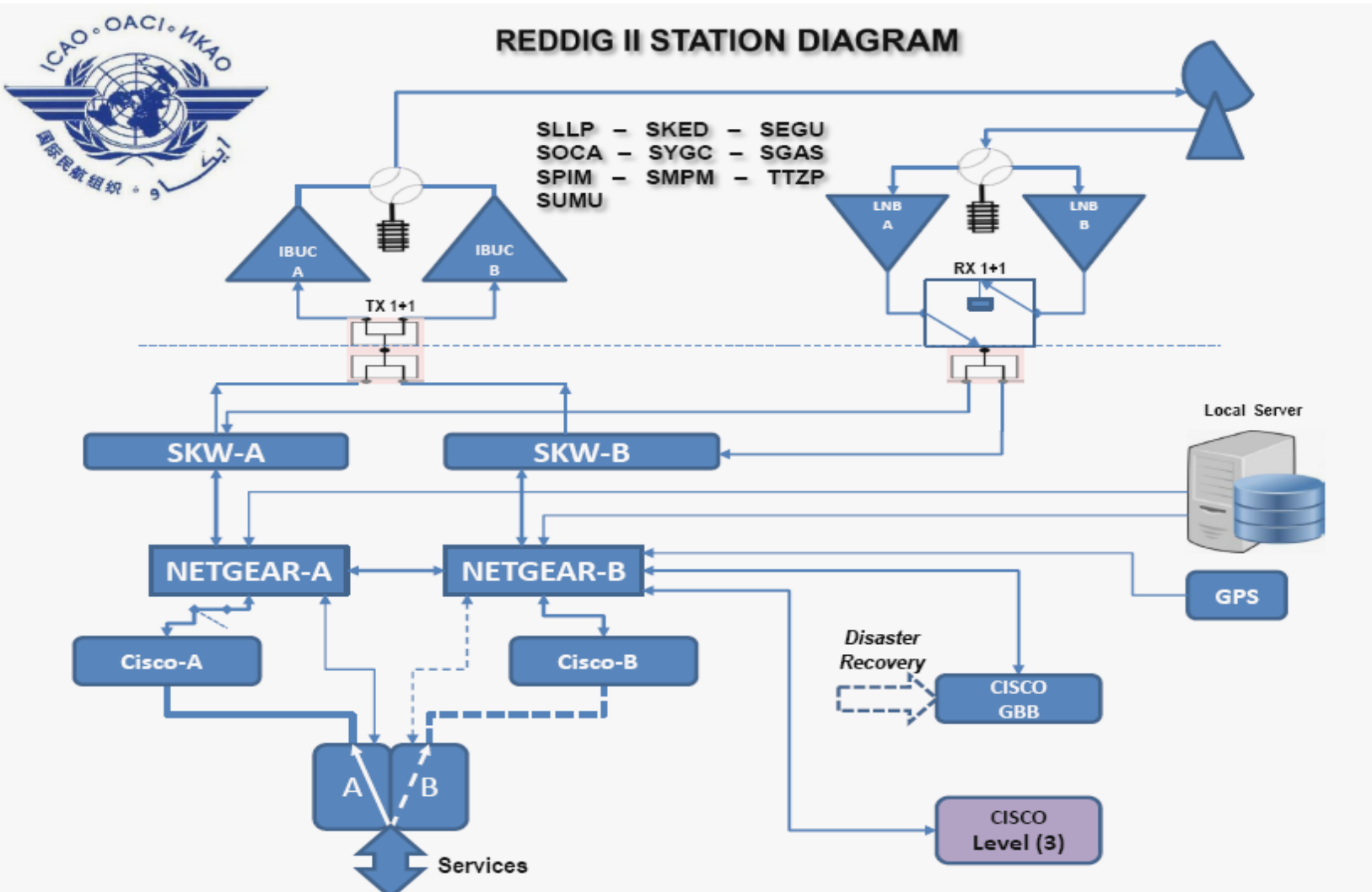
REDDIG II – Dial Plan Rules Example

- Number regeneration
- Translation-rules
- Forward digits



REDDIG II STATION DIAGRAM





REDDIG II EQUIPMENT



SKYWAN IDU10170

(satellite modem in all the REDDIG II nodes with the exception of Manaus and Ezeiza)



LNB Norsat



TERRASAT C band IBUC 4
40Watts/80Watts



SKYWAN IDU 7000



CISCO 2901/2911

Routers VSAT network



Netgear

Switch Manageable ProSafe
24 ports 10/100

BACKUP GROUND NETWORK

In each node, the backup ground network is composed of a REDDIG gateway router (A or B or GBB) and a Level 3 MPLS access router.

The gateway router is used to gather all the aeronautical services converted to IP protocol and bring them automatically to the MPLS access router in case there is no satellite access at the node.

This backup ground service is provided by Level 3 through its ground backbone network.



MPLS GROUND NETWORK

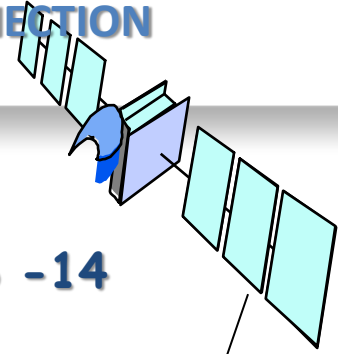




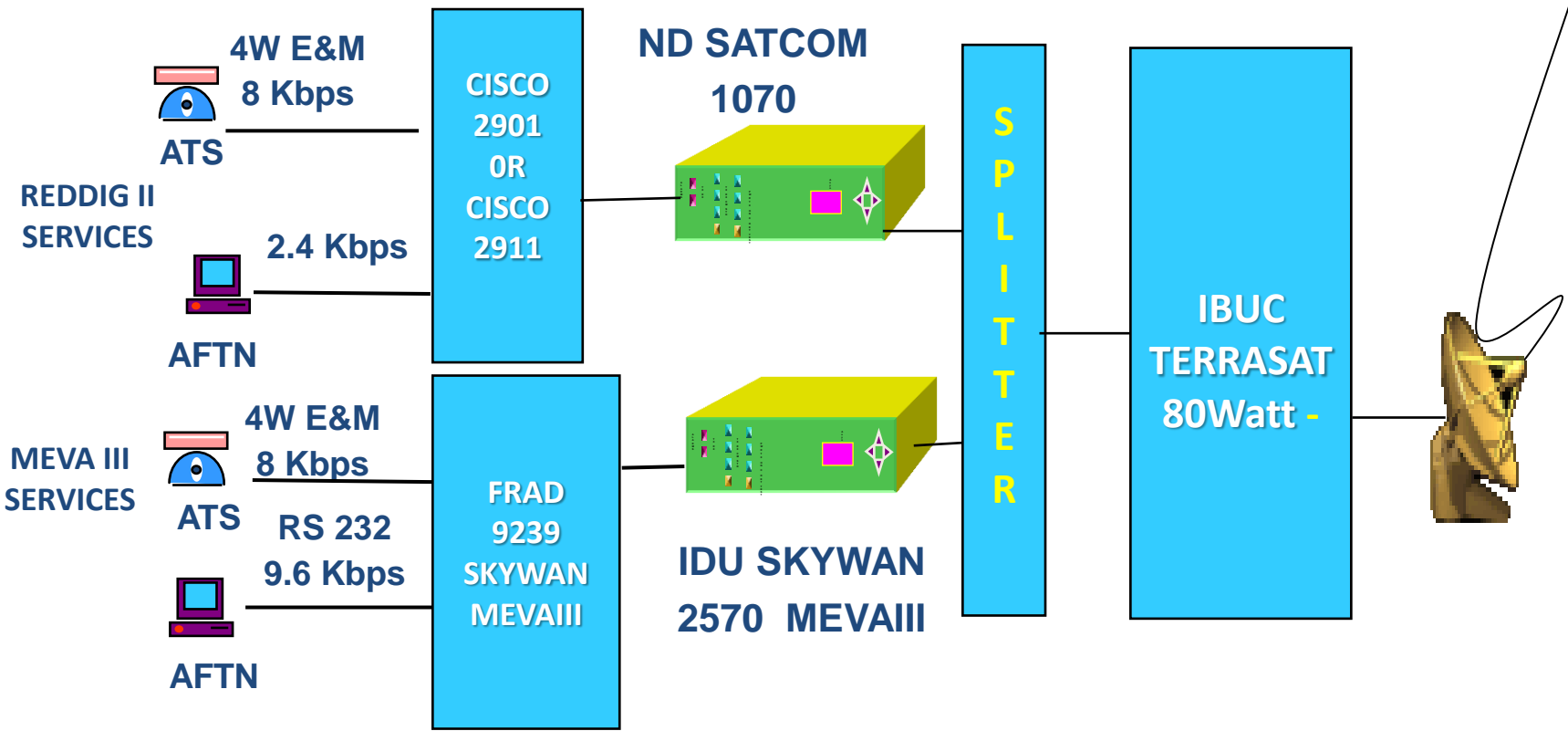
MPLS GROUND NETWORK

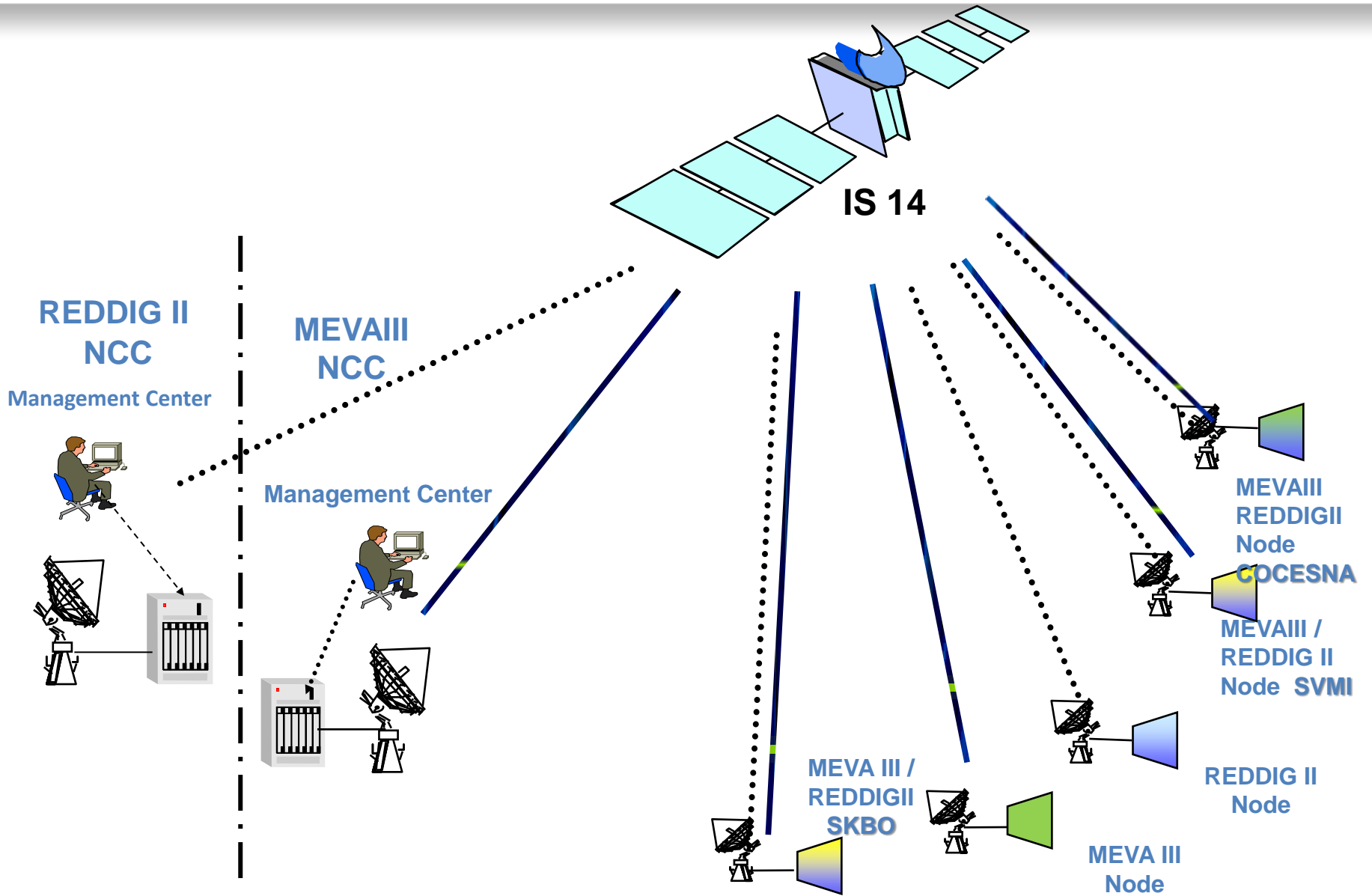
STATE	NODE	7910 ID	SPEED	CPE	POP
Argentina	Ezeiza	SAEZ	256 Kbps	1921	Teleport BBAA
Bolivia	La Paz	SLLP	256 Kbps	1921	NAP USA
Brazil	Manaus	SBMN	256 Kbps	1921	Teleport Rio
Brazil	Recife	SBRE	256 Kbps	1921	Recife
Brazil	Curitiba	SBCT	256 Kbps	1921	Teleport Curitiba
Colombia	Bogota	SKED	256 Kbps	1921	Teleport Bogotá
Chile	Santiago	SCSC	256Kbps	1921	Santiago Teleport
Ecuador	Guayaquil	SEGU	256 Kbps	1921	Teleport Guayaquil
Guyana	Georgetown	SYGC	256 Kbps	1921	Teleport Miami
French Guiana	Cayenne	SOCA	256 Kbps	1921	Teleport Miami
Paraguay	Asunción	SGAS	256 Kbps	1921	Teleport BBAA
Perú	Lima	SPIM	256 Kbps	1921	Teleport
Suriname	Paramaribo	SMPM	256 Kbps	1921	Teleport Miami
Trinidad & Tobago	Piarco	TTZP	256 Kbps	1921	Trinidad y Tobago
Uruguay	Montevideo	SUMU	256 Kbps	1921	Teleport BBAA
Venezuela	Maiquetía	SVMI	256 Kbps	1841	La Urb

MEVA III / REDDIGII NODE CONFIGURATION



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MEMORANDUM OF UNDERSTANDING BETWEEN STATES/TERRITORIES/INTERNATIONAL ORGANISATIONS MEMBERS OF MEVA III AND REDDIG II PROJECT ORGANISATION

SECTION 1. INTRODUCTION AND PURPOSE OF THIS DOCUMENT

INTRODUCTION

With the aim of effectively and efficiently fulfilling aeronautical telecommunications requirements in these regions, the members of the MEVA II and REDDIG VSAT networks decided to interconnect the two networks. For this purpose, the Members agreed to establish this Memorandum of Understanding (MoU). This Agreement is being established jointly under coordination of the ICAO North American, Central American, and Caribbean (NACC) Office in Mexico City, Mexico and the ICAO South American (SAM) Office, in Lima, Peru.

The Third MEVA II / REDDIG Coordination Meeting (MR/3) concluded that the interconnection implementation will operate for a five-year period, as an initial basis, after finalising the implementation.

The First MEVA III / REDDIG II Coordination Meeting concluded that the interconnection implementation will be renewed for five initial year period, after finalizing the implementation.

The main body of this document consists of four (4) sections and 2 Appendices. The content of the sections and appendices is summarised below: In accordance with the interconnection development, when considered necessary, and if the interested Parties of both networks agree to do so, other Appendices could be added as necessary.

Section 1.0:	Presents a brief overview and statement of purpose.
Section 2.0:	Provides an explanation of the Technical Cooperative Agreement process.
Section 3.0:	Describes the technical terms of reference.
Section 4.0:	Describes the financial responsibilities of the parties to this agreement.
Appendix A:	A list of reference documents used in support of this Agreement.
Appendix B:	Technical-operational coordination agreement for the establishment of VSAT MEVA III and REDDIG II networks interconnection



REDDIG is **regional network implemented** and **managed** by an **ICAO technical cooperation project (RLA/03/901)**.

The member States are **owners of the nodes** and are in **charge of their maintenance** under a **coordination of a network management** in **Manaus NCC (Network Control Center)**

Each node counts with **full- or part-time participation of professionals** for maintenance and operation (Minimum **three people** for node with the exception of the NCC Manaus and Ezeiza that count with a minimum of **5 people**).

Annual training programme are **conducted** to address the specific characteristics of REDDIG equipment

For continued network operation, **annual budgets are approved**, which contemplate the procurement of **spare parts , training, satellite service provider , MPLS ground service provider** and **network management administration**



REDDIG operations **started in 2003** providing **service excellence** to member States.

REDDIG equipment **reached the end of its life cycle**, lack of availability of node equipment (as **FRAD Multiplexer** and **Satellite Modem**) and presents limitations in supporting **new services**.

Study was prepared on the implementation of the new digital network **REDDIG II** (2010)

The **Twelfth Meeting of Civil Aviation Authorities of the SAM Region** (RAAC/12), after a **financial, operational, and technical evaluation** for REDDIG II implementation, **unanimously approved same**, urging that the **implementation process** start through the **ICAO Technical Cooperation Bureau, Purchasing Section**. (2011)

The **tender process** was completed at the end of **June 2012** with the designation of the winner.

REDDIG II starts its **operation** end of **January 2015**

New **MEVA III REDDIG II** interconnection **April 2015**



ICAO

CAPACITY & EFFICIENCY



- North American Central American and Caribbean (NACC) Office
Mexico City
- South American (SAM) Office
Lima
- ICAO Headquarters
Montreal
- Western and Central African (WACAF) Office
Dakar
- European and North Atlantic (EUR/NAT) Office
Paris
- Middle East (MID) Office
Cairo
- Eastern and Southern African (ESAF) Office
Nairobi
- Asia and Pacific (APAC) Office
Bangkok

Thank You

