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ALICE2 Project Equipment Deployment report



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Programme



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1. INTRODUCTION

CLARA deployed a tender process for the acquisition of equipments for the new version of the RedCLARA2 network. This tender process was not successful due to that the offers were compliant with the technical and financial requirements. CLARA's decision was to implement a temporary solution with the current routers and some bought interface cards and equipments. The above would permit the links' implementation, and save money for another equipment tender process in the next months. This Equipment Deployment report shows how this implementation was planned and its final result.

2. GLOSSARY

In this document are used the following conventions:

BOG: Bogota

BUE: Buenos Aires

CCS: Caracas

LIM: Lima

MAD: Madrid

MIA: Miami

MTV: Montevideo

NEG: Network Engineering Group

NOC: Network Operations Center

PTY: Panama City

TIJ: Tijuana

3. EQUIPMENT DEPLOYMENT REPORT

3.1. OVERALL SOLUTION DESCRIPTION

The implementation of the new version of RedCLARA2 includes the following links:

Link	Capacity
PAN-MAD	STM-4
PAN-MIA	STM-4
PAN-SCL	STM-4
PAN-TIJ	STM-1
PAN-BOG	STM-1
PAN-CCS	STM-1
SCL-LIM	STM-1
SCL-SP	STM-4

To implement the above links, the equipments infrastructure of RedCLARA had the following needs:

- The PAN's router requires 2 new STM-4 ports.

		
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- The SCL's router requires 2 STM-4 ports.
- The MIA's router requires 2 STM-4 ports.
- CLARA's must free a router slot in PAN's router.
- In Sao Paulo, the current CLARA's PoP location must be changed to another location called Barueri. The above due to the elevated costs of cross connections in the original location called Cotia.

All these changes were consigned in the Deployment Plan for RedCLARA2, and a summary of them is:

1. Acquire/loan a STM-4 card for the Cisco 7606 router in Miami
2. Acquire/loan a STM-4 card for the Cisco 12006 router in Panama
3. Loan a Cisco ONS 15454 for Santiago's PoP. With this Layer 2 equipment CLARA will be able to receive the STM-4 links and convert them to GigaEthernet.
4. Loan a Cisco ONS 15454 for Sao Paulo's PoP. With this Layer 2 equipment CLARA will be able to receive the STM-4 links and convert them to GigaEthernet.
5. The ONS in Sao Paulo did not have a STM-4 card with the appropriated SFP modules

According to the above lines, the following figure shows the required elements in each PoP:

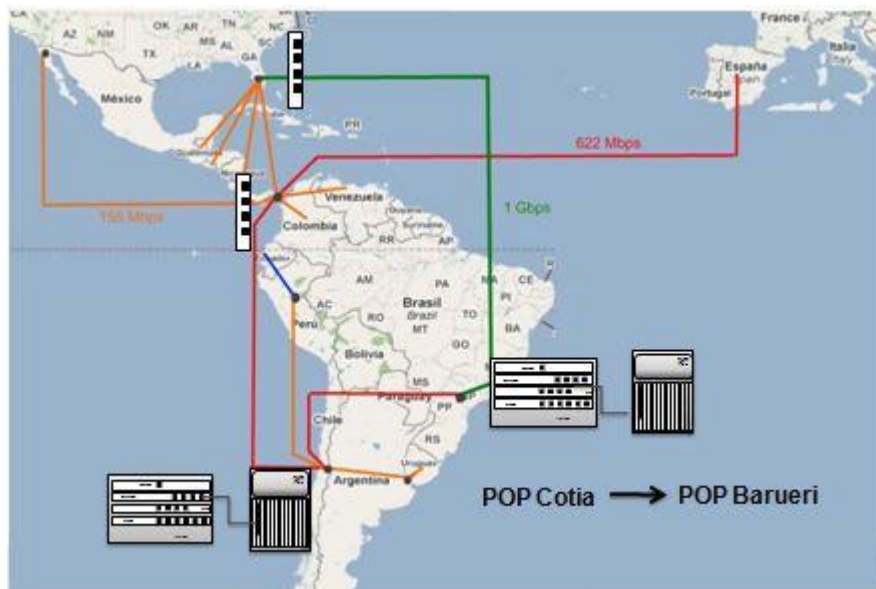


Figure no. 1. Required equipments and the new topology

3.2. EQUIPMENT DEPLOYMENT

		
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3.2.1. INSTALLATION OF A STM-4 CARD FOR MIAMI'S ROUTER

(Status: Completed)

The Cisco 7606 router in Miami required new STM-4 interfaces, and CLARA acquired two of them. The card's reference is:

Part number	Description
OSM-2OC12-POS-SI	2-port OC-12/STM-4 SONET/SDH OSM, SM-IR, with 4 GE

In July 27, CLARA bought 3 of these refurbished cards. This would permit the link's activation at lower cost.

In August 19, the technical team installed the cards in Miami's router, but it did not recognize them. The Technical Manager asked for provider's support. On the same day, the provider recommends the router's firmware (IOS version) change to: s72033-adventerprisek9_wan-mz.122-18.SXF16.bin.

In August 25, CLARA's technical team changed the router's firmware version and activated the new STM-4 cards. The Miami's router was ready to receive the connection from Panama.

3.2.2. STM-4 CARD MOVEMENT TO PANAMA

(Status: Completed)

Panama's Cisco 12006 router is the same reference as the router that CLARA has in Sao Paulo, and this last router already had a STM-4 card. With the goal of avoiding costs, CLARA asked to RNP if they could loan an additional STM-4 card for the router in Sao Paulo, so CLARA could free the current card and send it to Panama. RNP agreed to CLARA's proposal.

In August 19, CLARA replaced the STM-4 card in the Sao Paulo's with a card lent from RNP. Alex Soares (NEG) sent the card to Panama in August 22, and CLARA's technical team installed in August 27.

3.2.3. SAO PAULO'S DEPLOYMENT (ONS 15454 ACTIVATION)

(Status: Phase 2 of 3)

Florencio Utreras, the Executive Director of CLARA, negotiated with the Florida International University (FIU) the loan of a Cisco ONS 15454 that was in Cotia. The FIU agreed to loan the equipment if CLARA transport a small link for AURA's project between Santiago and Miami. The advantage of the deal is that CLARA avoided investments for the

		
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new links' connections. The CLARA's objective is to wait for the second equipment tender process to achieve a better upgraded solution.

CLARA had to move the loan ONS15454 to a new location called Barueri, and the process would be done in 3 phases. The deployment plan contains the details of these phases, and the following figures resume them:

Phase 1: Connect CLARA to LILA at NAP-BR (Barueri) through RNP DWDM links

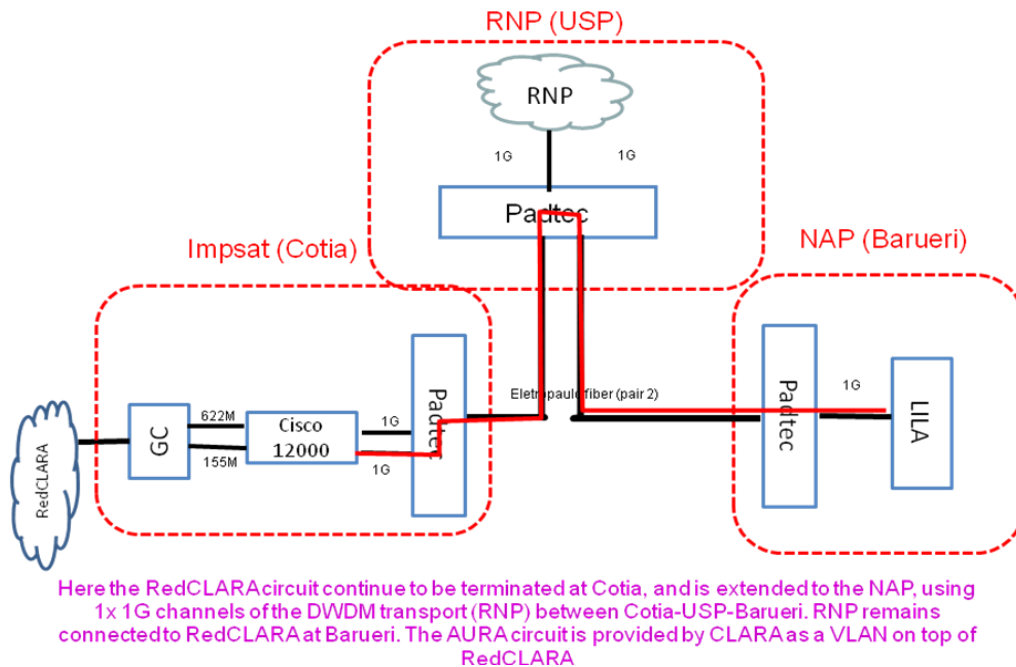


Figure no 2. Changes in Sao Paulo, phase 1

Phase 1.5: Install racks at NAP-BR Barueri (at ANSP collocation space in Barueri)

		
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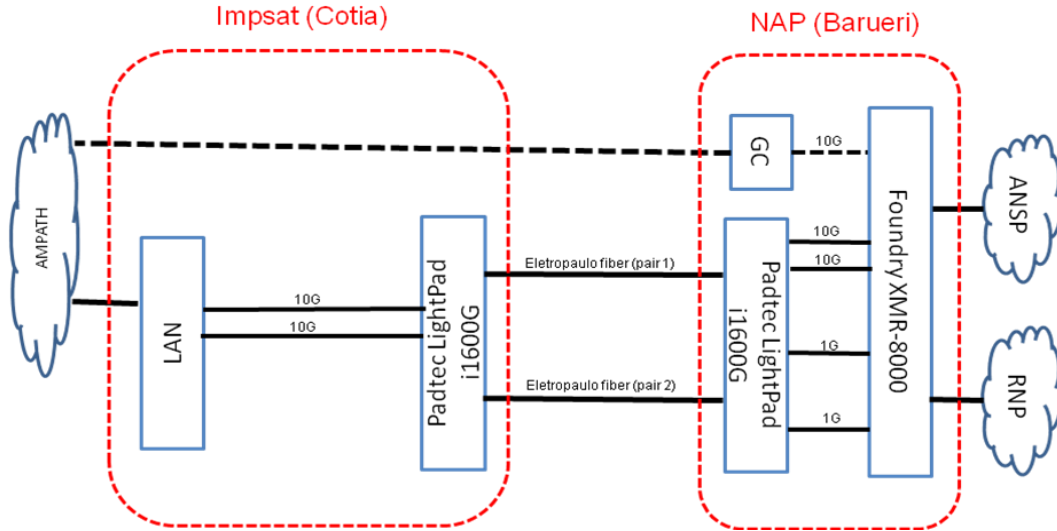
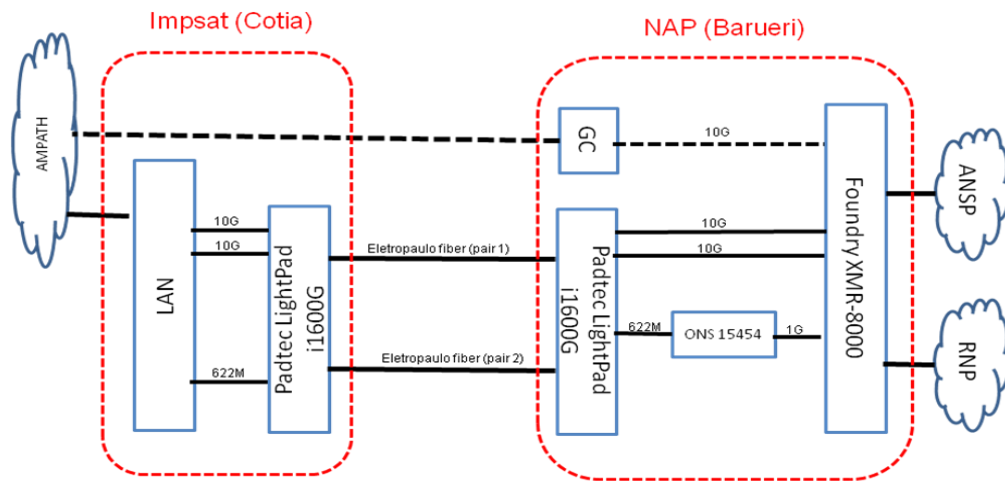


Figure no 3. Changes in Sao Paulo, phase 1.5

Phase 2: Temporarily connect WAN links at new NAP-BR (Sao Paulo) infrastructure

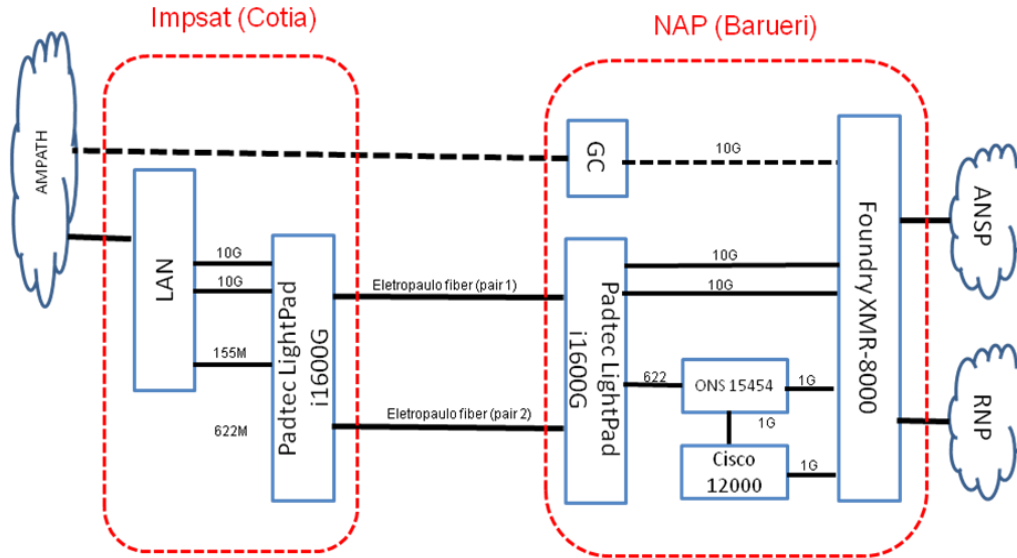


Here the SDH circuit provided by GC arriving at Cotia stays connected to the Cisco 12000 while the new LAN provided STM-4 to Santiago is extended to the NAP using 2x 1G channels of the DWDM transport.

Figure no 3. Changes in Sao Paulo, phase 2

Phase 3: Move Cisco 12K router from GBLX (Cotia) to NAP-BR (Barueri)

		
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Here the Cisco 12000 is connected to the ONS and RNP's IP traffic goes thru the 12000 into RedCLARA South

Figure no 4. Changes in Sao Paulo, phase 3

At September 10, CLARA was in the phase 2 of the migration from Cotia to Barueri. With phase 2 finalized, CLARA had moved the ONS 15454 to Barueri and connected the new STM-4 link SCL-SP. The remaining phase 3 is planned to the week between September 21 and September 25. The figure no. 5 shows the current connections in the new PoP in Barueri location.

		
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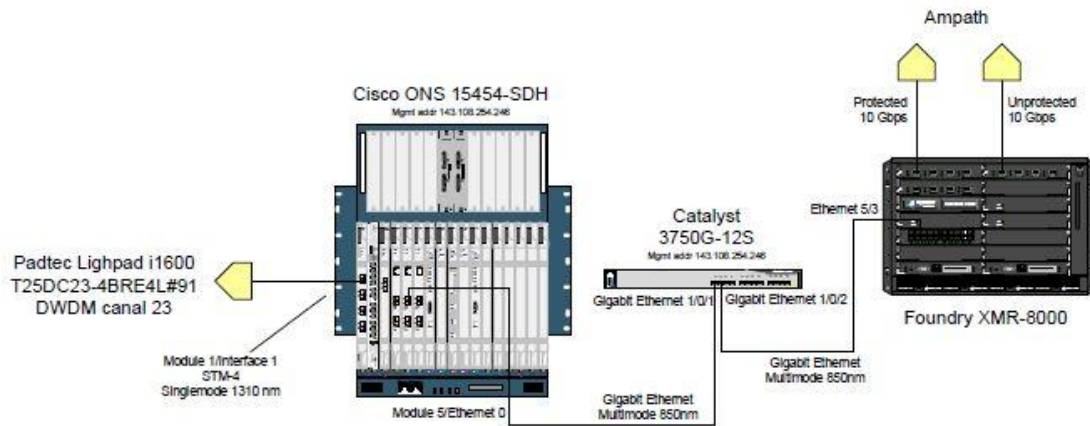


Figure no. 5. Connections in new PoP location (Barueri)

3.3. SANTIAGO'S DEPLOYMENT (ONS 15454 ACTIVATION AND STM-4 CARD INSTALLATION)

(Status: Completed)

The work in Santiago, as it was in Sao Paulo's implementation, needed the use of a Cisco ONS 15454 to receive the STM-4 links and transform them to GigaEthernet. One of the planned STM-4 links (SCL-PTY) was impossible to do with the ONSs. The reason was that in PTY the receiving equipment is a Cisco 12006 router and the ONS can only be connected to equipments of the same kind. To install the 2 STM-4 links in Santiago, CLARA had to buy a STM-4 card for the Cisco 12006 router.

The Santiago's ONS was already installed and configured. CLARA only had to made the cross connections and configure the equipments for the new links. CLARA completed these tasks in September 3/2009.

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In September 8/2009, the STM-4 card for Santiago’s router arrived and CLARA’s technical team installed it. The final configuration of the Santiago’s PoP is described in the following figure:

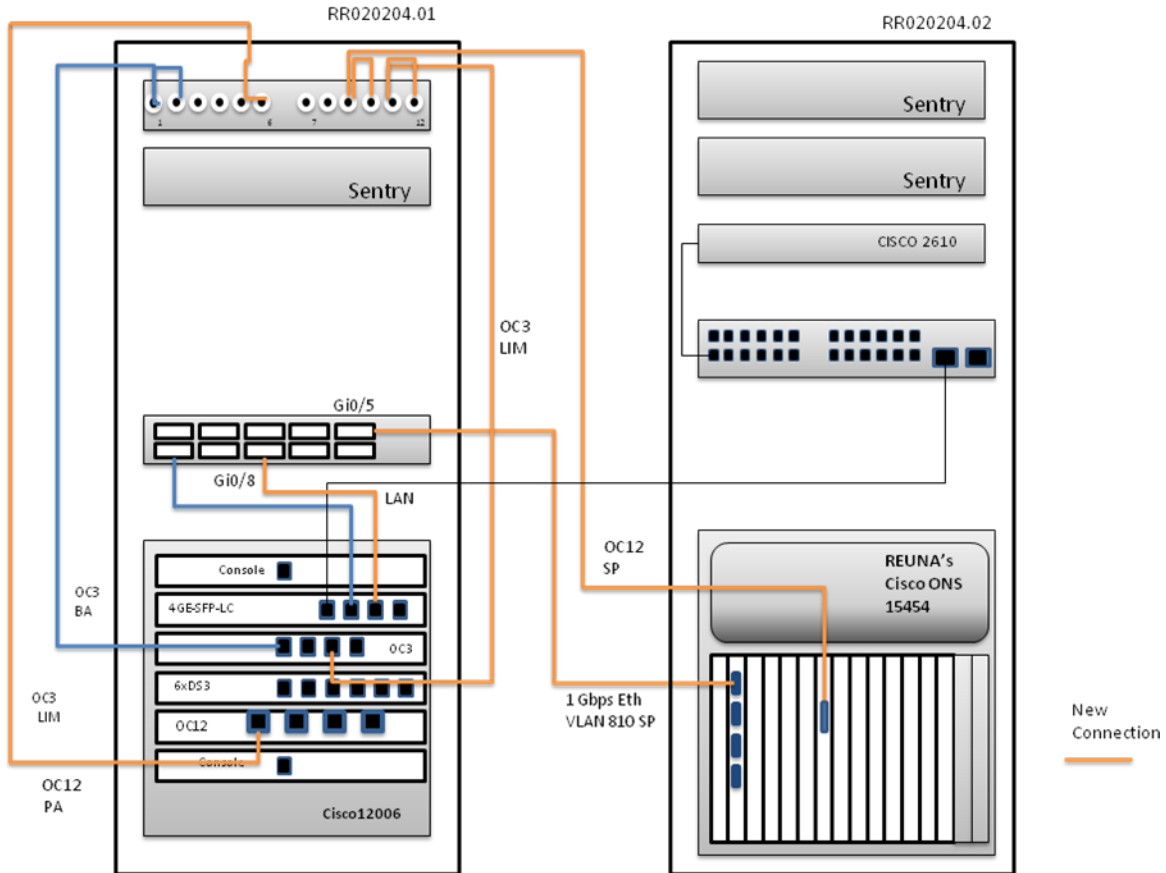


Figure no. 6. New status of Santiago’s PoP

		
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