



PoP-LAN deployment and configuration

CLARA Network Engineering Group

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This document presents the NEG proposal for the initial configuration of the auxiliary LAN equipment of RedCLARA PoPs

VERSION MANAGEMENT

This guide outlines the configuration of the LAN equipment to be installed in each PoP of RedCLARA. When new procedures are required or other changes made, it will be updated accordingly, and the new version release will be recorded in the table below.

Version	Modification description	Date	Reviewed by
preliminary	First draft	15-Jan-2005	Eriko Porto
1.0	Corrections and changes	23-Feb-2005	Eriko Porto
1.1	Corrections and changes	01-Jun-2005	Eriko Porto

Summary

1. Introduction.....	4
2. IPv4 address configuration.....	6
3. Switch configuration	7
4. Cisco 2610 configuration	10

1.

Introduction

In order to support the RedCLARA infrastructure in each of the LA countries where the PoPs are deployed, some additional equipment are available for configuration, performance and fault management of the main nodes, activities that are performed by the CLARA NOC group, which is responsible for the day-to-day operation of the network.

Each PoP has been configured with the following hardware beside the Cisco 12006 router (Figure 1):

- A Cisco Catalyst 3550 switch with 24 10/100base-TX ports and 2 GBIC-based Gigabit Ethernet ports configured with 1 GBIC SX mode for connection with the Cisco 12006 router.
- A Cisco 2610 One 10/100 Ethernet router configured with 16 port Asynchronous Module, 1 port Analog Modem and 1 port ISDN WAN (dial and leased line).
- Two PC Servers Pentium 4 - 3.4 GHz, each one configured with two Fast Ethernet adapters.
- Two Sentry Remote Power Management and Distribution modules. The first one is a 70 Amps module for providing power feed to the Cisco 12006, and the other one is a 35 Amps module to feed the other equipment

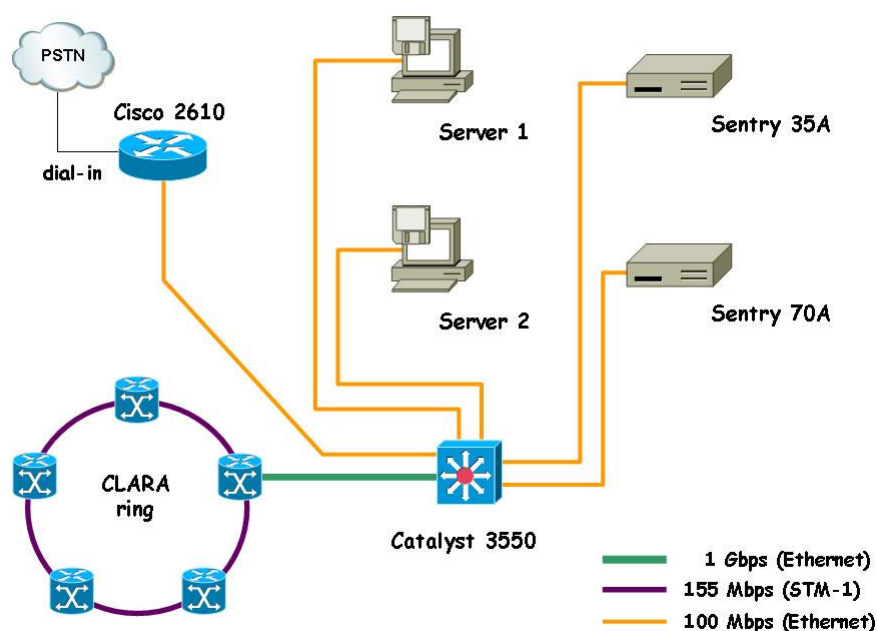


Figure 1 – Interconnection diagram of the PoP equipment

The switch will be used to deploy a Local Area Network (LAN) in the PoP facilities in order to achieve equipment interconnection for the purpose of in-band and out-of-band management, and network setup. The PC Servers will be installed with all the necessary software for network management and operation from the CLARA NOC. The Cisco 2610 router will be used mainly for out-of-band network operation and maintenance.

The router and the servers will be connected to the switch using the Fast Ethernet ports available in all equipment and the Cisco 12006 router is connected to the switch by a Gigabit Ethernet connection.

The Sentry modules provide DC power feed to the hardware of the PoP and allow remote access through TCP/IP, enabling remote power-up and power-down of the other hardware units in the PoP.

Figure 2 shows the layout of the RedCLARA racks with the position of the equipment inside the rack.

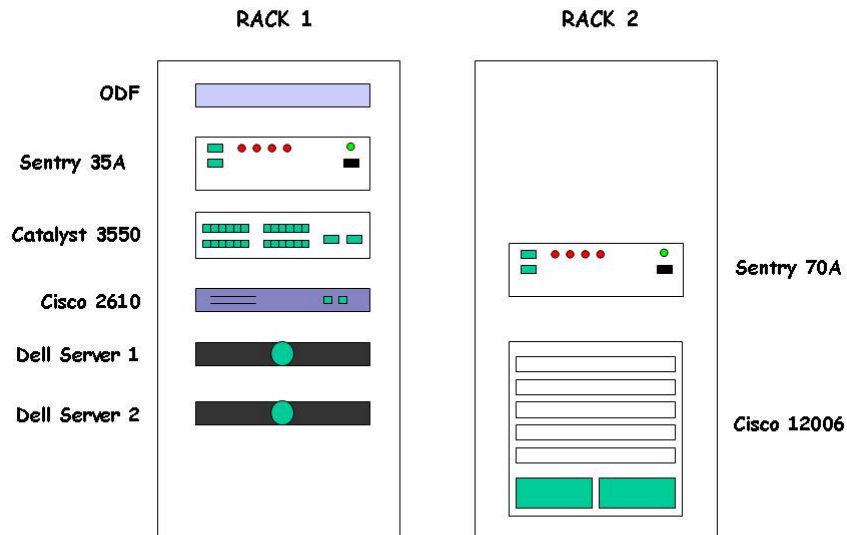


Figure 2 – Rack layout

Figure 3 shows the racks configuration at the PoP of RedCLARA in Sao Paulo (BR).



Figure 3 – Picture of the racks in Brazil

2.

IPv4 address configuration

Based on the IPv4 addressing and routing plan for RedCLARA document, the configuration of the IP addresses for the LAN equipment will adopt the following specification:

Table 1: IPv4 LAN addresses

Cat 3550 switch	first address of the block
Gigabit Ethernet port of Cisco 12006	second address of the block
Fast Ethernet port 0 of Cisco 2610	third address of the block
Ethernet NIC 0 of PC1	fourth address of the block
Ethernet NIC 0 of PC2	fifth address of the block
Sentry 70A Ethernet Interface	sixth address of the block
Sentry 35A Ethernet Interface	seventh address of the block
Tijuana PoP: Block – 200.0.206.0/28	
Cat 3550 switch	200.0.206.1
Gigabit Ethernet port of Cisco 12006	200.0.206.2
Fast Ethernet port 0 of Cisco 2610	200.0.206.3
Ethernet NIC 0 of PC1	200.0.206.4
Ethernet NIC 0 of PC2	200.0.206.5
Sentry 70A Ethernet Interface	200.0.206.6
Sentry 35A Ethernet Interface	200.0.206.7
Sao Paulo PoP: Block – 200.0.206.128/28	
Cat 3550 switch	200.0.206.129
Gigabit Ethernet port of Cisco 12006	200.0.206.130
Fast Ethernet port 0 of Cisco 2610	200.0.206.131
Ethernet NIC 0 of PC1	200.0.206.132
Ethernet NIC 0 of PC2	200.0.206.133
Sentry 70A Ethernet Interface	200.0.206.134
Sentry 35A Ethernet Interface	200.0.206.135
Buenos Aires PoP: Block – 200.0.206.160/28	
Cat 3550 switch	200.0.206.161
Gigabit Ethernet port of Cisco 12006	200.0.206.162
Fast Ethernet port 0 of Cisco 2610	200.0.206.163
Ethernet NIC 0 of PC1	200.0.206.164
Ethernet NIC 0 of PC2	200.0.206.165
Sentry 70A Ethernet Interface	200.0.206.166
Sentry 35A Ethernet Interface	200.0.206.167
Santiago PoP: Block – 200.0.206.192/28	
Cat 3550 switch	200.0.206.193
Gigabit Ethernet port of Cisco 12006	200.0.206.194
Fast Ethernet port 0 of Cisco 2610	200.0.206.195
Ethernet NIC 0 of PC1	200.0.206.196
Ethernet NIC 0 of PC2	200.0.206.197
Sentry 70A Ethernet Interface	200.0.206.198
Sentry 35A Ethernet Interface	200.0.206.199

Panama PoP: Block – 200.0.206.224/28	
Cat 3550 switch	200.0.206.225
Gigabit Ethernet port of Cisco 12006	200.0.206.226
Fast Ethernet port 0 of Cisco 2610	200.0.206.227
Ethernet NIC 0 of PC1	200.0.206.228
Ethernet NIC 0 of PC2	200.0.206.229
Sentry 70A Ethernet Interface	200.0.206.230
Sentry 35A Ethernet Interface	200.0.206.231

3.

Switch configuration

The basic configuration used in the Catalyst 3550 switch is detailed below. The configuration showed is the one of the switch at the PoP located in Sao Paulo – Brazil, the other switches are configured the same, changing only the IP address of the Vlan 1, hostname and the time zone.

```

!
version 12.1
no service pad
service timestamps debug uptime
service timestamps log uptime
service password-encryption
!
hostname sw-br
!
enable password 7 106D25393737532B
!
clock timezone BR -3
ip subnet-zero
!
no ip domain-lookup
!
spanning-tree mode pvst
spanning-tree extend system-id
!
!
!
!
interface FastEthernet0/1
switchport mode access
!
interface FastEthernet0/2
description Cisco 2610
switchport mode access
!
interface FastEthernet0/3
description server2
switchport mode access
!

```

```
interface FastEthernet0/4
  description server1
  switchport mode access
  !
interface FastEthernet0/5
  description sentry-75A
  switchport mode access
  !
interface FastEthernet0/6
  description sentry-35A
  switchport mode access
  !
interface FastEthernet0/7
  switchport mode access
  shutdown
  !
interface FastEthernet0/8
  switchport mode access
  shutdown
  !
interface FastEthernet0/9
  switchport mode access
  shutdown
  !
interface FastEthernet0/10
  switchport mode access
  shutdown
  !
interface FastEthernet0/11
  switchport mode access
  shutdown
  !
interface FastEthernet0/12
  switchport mode access
  shutdown
  !
interface FastEthernet0/13
  switchport mode access
  shutdown
  !
interface FastEthernet0/14
  switchport mode access
  shutdown
  !
interface FastEthernet0/15
  switchport mode access
  shutdown
  !
interface FastEthernet0/16
  switchport mode access
  shutdown
```



```
!  
interface FastEthernet0/17  
  switchport mode access  
  shutdown  
!  
interface FastEthernet0/18  
  switchport mode access  
  shutdown  
!  
interface FastEthernet0/19  
  switchport mode access  
  shutdown  
!  
interface FastEthernet0/20  
  switchport mode access  
  shutdown  
!  
interface FastEthernet0/21  
  switchport mode access  
  shutdown  
!  
interface FastEthernet0/22  
  switchport mode access  
  shutdown  
!  
interface FastEthernet0/23  
  switchport mode access  
  shutdown  
!  
interface FastEthernet0/24  
  switchport mode access  
  shutdown  
!  
interface GigabitEthernet0/1  
  description Cisco 12006  
  switchport mode dynamic desirable  
!  
interface GigabitEthernet0/2  
  switchport mode dynamic desirable  
  shutdown  
!  
interface Vlan1  
  ip address 200.0.206.129 255.255.255.240  
!  
  ip classless  
  no ip http server  
!  
!  
line con 0  
  exec-timeout 0 0  
  password 7 062523017E6E4839
```

```
login
line vty 0 4
exec-timeout 0 0
password 7 062523017E6E4839
login
line vty 5 15
no login
!
!
end
```

4.

Cisco 2610 configuration

The basic configuration used in the Cisco 2610 router is detailed below. The configuration showed is the one of the router located at the PoP in Sao Paulo – Brazil, the other routers are configured the same, changing the IP address of the Fast Ethernet interface, default gateway and route, dialer string, hostname and the time zone.

```
!
version 12.3
service timestamps debug datetime msec
service timestamps log datetime msec
service password-encryption
!
hostname br-comm-server
!
boot-start-marker
boot-end-marker
!
enable password 7 112A352525324A2C
!
clock timezone BR -3
no network-clock-participate slot 1
no network-clock-participate wic 0
no aaa new-model
ip subnet-zero
ip cef
!
!
no ip domain lookup
ip host gsr12006 2033 172.131.1.33
ip host cat3550 2034 172.131.1.34
ip host sentry35a 2035 172.131.1.35
ip host sentry70a 2036 172.131.1.36
ip host server1 2037 172.131.1.37
ip host server2 2038 172.131.1.38
ip host gsr-stdby 2039 172.131.1.39
!
```

```
ip address-pool local
!
!
!
!
interface Loopback0
ip address 172.131.1.33 255.255.255.255
!
interface Loopback1
ip address 172.131.1.34 255.255.255.255
!
interface Loopback2
ip address 172.131.1.35 255.255.255.255
!
interface Loopback3
ip address 172.131.1.36 255.255.255.255
!
interface Loopback4
ip address 172.131.1.37 255.255.255.255
!
interface Loopback5
ip address 172.131.1.38 255.255.255.255
!
interface Loopback6
ip address 172.131.1.39 255.255.255.255
!
interface FastEthernet0/0
ip address 200.0.206.131 255.255.255.240
duplex auto
speed auto
!
interface BRI0/0
no ip address
shutdown
!
interface Async1
no ip address
encapsulation ppp
dialer in-band
dialer string 1147770139
dialer-group 1
async mode interactive
peer default ip address pool 1
!
ip default-gateway 200.0.206.130
no ip http server
no ip http secure-server
ip classless
ip route 0.0.0.0 0.0.0.0 200.0.206.130
!
!
```

```
!  
!  
line con 0  
line 1  
  exec-timeout 0 0  
  password 7 072C0D6C7C295825  
  login  
  modem InOut  
  transport input all  
  autoselect ppp  
  stopbits 1  
  speed 115200  
  flowcontrol hardware  
line 33 48  
  session-timeout 10  
  exec-timeout 0 0  
  no exec  
  transport preferred telnet  
  transport input telnet  
  transport output telnet  
line aux 0  
line vty 0 4  
  exec-timeout 0 0  
  password 7 096F62292B255632  
  login  
!  
!  
!  
end
```