



MUM en Bolivia, Santa Cruz de la Sierra, Noviembre 12-13, 2014



Implementación de Router Cloud Core CCR1036-12G-4S para la red del campus universitario

presentado por Juan Pablo Ribotta

Presentación

Juan Pablo Ribotta

- Ing. De Redes y Telecomunicaciones
- MGS. en Dirección y Gestión Empresarial – MBA
- Diplomado en Gestión Estratégica de Procesos con Tecnología de la Información
- Experiencia en RouterOS desde 2010
- Jefe del Departamento de Tecnología de las Informaciones, UPSA
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UPSA

Caso de Estudio

Localizado en la ciudad de Santa Cruz de la Sierra, Santa Cruz, Bolivia

UPSA es una universidad Privada que posee 3000 estudiantes , 120 docentes y 150 Administrativo

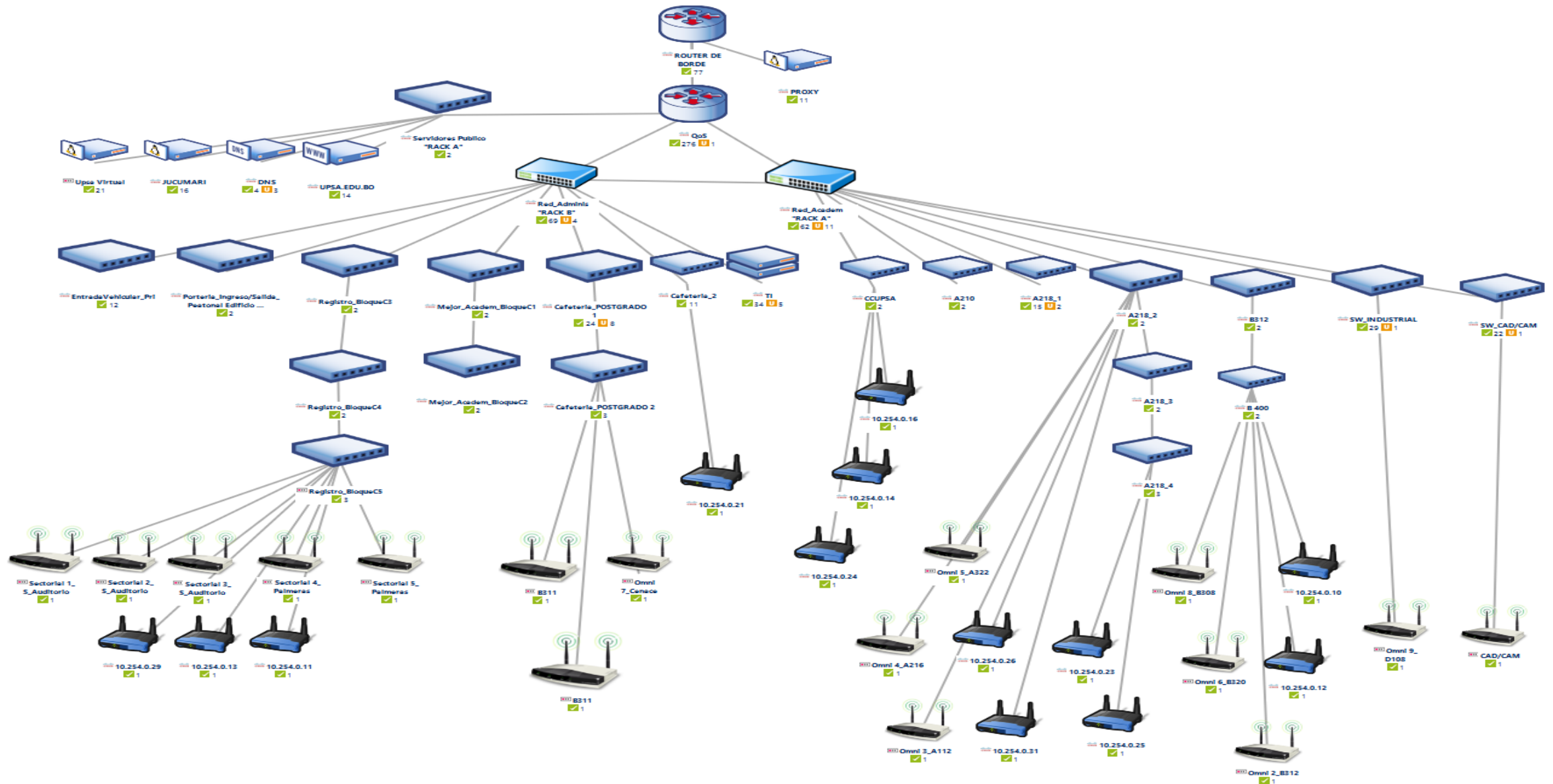
El campus universitario posee internet las 24 h.

El Departamento de Tecnología de las Informaciones es el encargado de administrar la infraestructura tecnológica del campus.

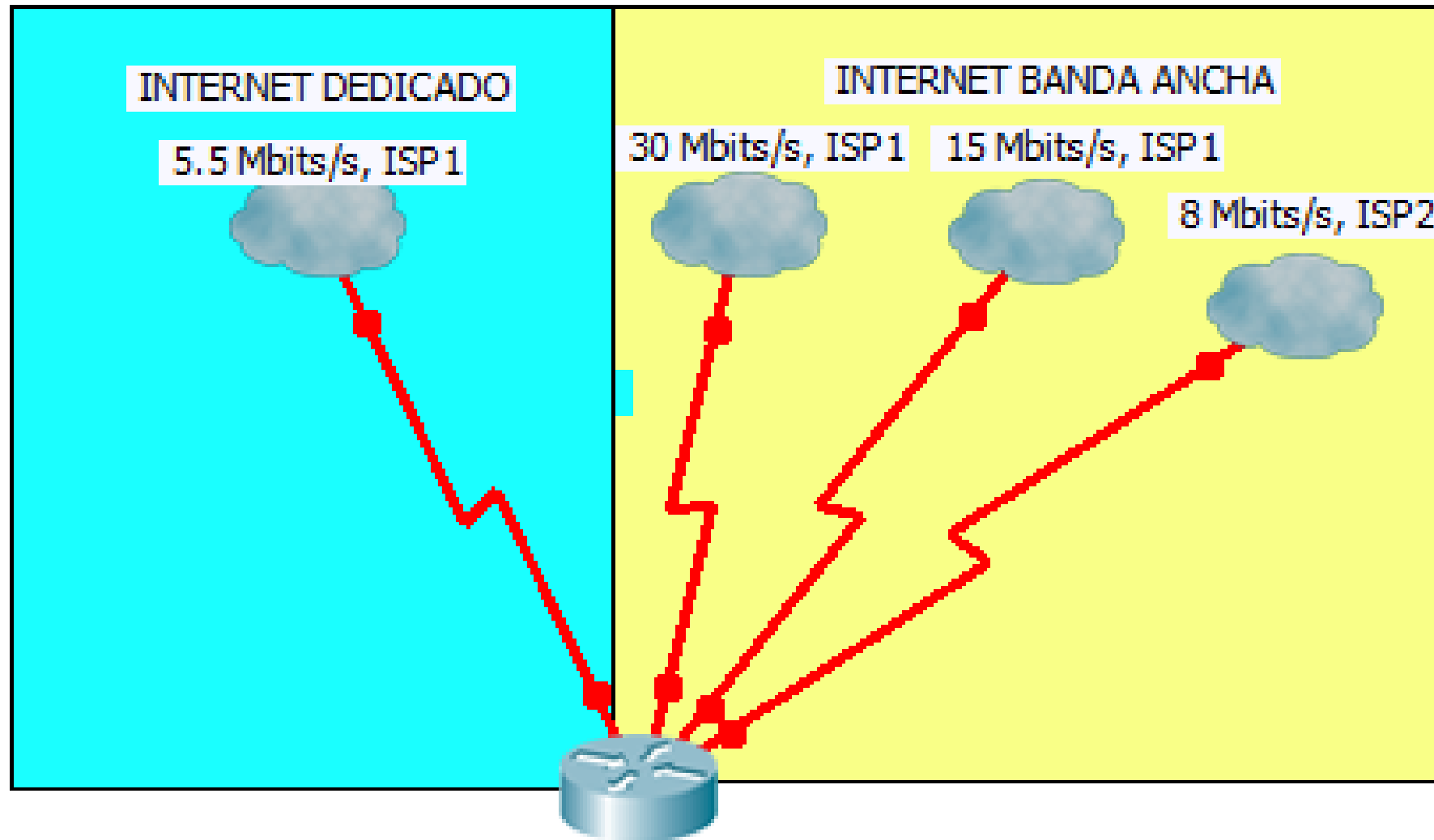
Objetivos de la Gerencia General UPSA

1. **División de ancho de banda por centros de costo (unidades de negocios)**
2. Navegación de Usuarios VIP por plan de Internet DEDICADO
3. Navegación de Usuarios NORMALES por plan de Internet BANDA ANCHA

Diseño LAN



Diseño WAN



Solución

1. Implementación de 2 Routers Cloud Core (Router de Borde y QoS)
2. Router de Borde
 - Diferenciación de Trafico por Origen y Destino (usuarios VIP y Normal, servidores externos)
 - Balanceador PCC
 - NAT 1:1
3. Router QoS
 - Firewall
 - Hostpot
 - Queue Tree

admin@192.168.254.1 (ROUTER BORDE) - WinBox v6.19 on CCR1036-12G-4S (tile)

Safe Mode

Date: Nov/13/2014 Time: 09:33:33 Uptime: 53d 17:04:13 CPU: 0% Memory: 3506.0 MiB ☒ Hide Passwords

Quick Set

Interfaces

Bridge

PPP

Mesh

IP

IPv6

MPLS

Routing

System

Queues

Files

Log

Radius

Tools

New Terminal

LCD

Partition

Make Supout.rif

Manual

Exit

Address List

Find

Address	Network	Interface
190.171.225.26/29	190.171.225.24	ether9 Cotas Prem1
190.171.225.35/29	190.171.225.32	ether10 pppoe-out1
190.181.11.237/24	190.181.11.0	ether11 AXS Nitro
190.186.233.65/28	190.186.233.64	unknown
190.186.233.67/28	190.186.233.64	unknown
192.168.225.34	200.58.162.173	ether10 pppoe-out1
192.168.254.1/24	192.168.254.0	LAN
200.58.165.242/28	200.58.165.240	ether7
192.168.254.0 - 192.168.254.255	192.168.254.0 - 192.168.254.255	ether8
200.119.214.2/24	200.119.214.0	unknown
200.119.214.3/24	200.119.214.0	ether6 Cotas IDedicado
200.119.214.4/24	200.119.214.0	ether6 Cotas IDedicado
200.119.214.5/24	200.119.214.0	ether6 Cotas IDedicado
200.119.214.6/24	200.119.214.0	unknown
200.119.214.7/24	200.119.214.0	unknown
200.119.214.8/24	200.119.214.0	ether6 Cotas IDedicado
200.119.214.9/24	200.119.214.0	unknown
200.119.214.10/24	200.119.214.0	ether6 Cotas IDedicado
200.119.214.11/24	200.119.214.0	unknown
200.119.214.12/24	200.119.214.0	unknown
200.119.214.13/24	200.119.214.0	unknown
200.119.214.14/24	200.119.214.0	unknown
200.119.214.15/24	200.119.214.0	unknown
200.119.214.16/24	200.119.214.0	unknown
200.119.214.17/24	200.119.214.0	unknown
200.119.214.18/24	200.119.214.0	unknown
200.119.214.19/24	200.119.214.0	unknown
200.119.214.20/24	200.119.214.0	unknown
200.119.214.21/24	200.119.214.0	unknown
200.119.214.22/24	200.119.214.0	unknown
200.119.214.23/24	200.119.214.0	unknown
200.119.214.24/24	200.119.214.0	unknown
200.119.214.25/24	200.119.214.0	unknown
200.119.214.26/24	200.119.214.0	unknown
200.119.214.27/24	200.119.214.0	unknown
200.119.214.28/24	200.119.214.0	unknown
200.119.214.29/24	200.119.214.0	unknown
200.119.214.30/24	200.119.214.0	ether6 Cotas IDedicado
200.119.214.31/24	200.119.214.0	ether6 Cotas IDedicado
200.119.214.32/24	200.119.214.0	unknown
200.119.214.33/24	200.119.214.0	unknown
200.119.214.34/24	200.119.214.0	unknown
200.119.214.35/24	200.119.214.0	unknown
200.119.214.36/24	200.119.214.0	unknown
200.119.214.37/24	200.119.214.0	unknown
200.119.214.38/24	200.119.214.0	unknown
200.119.214.39/24	200.119.214.0	unknown

262 items

RouterOS WinBox

admin@192.168.254.1 (ROUTER BORDE) - WinBox v6.19 on CCR1036-12G-4S (tile)

Safe Mode

Date:Nov/12/2014 Time:00:44:03 Uptime:52d 08:14:42 CPU:0% Memory:3509.4 MiB Hide Passwords

Quick Set

Interfaces

Bridge

PPP

Mesh

IP

IPv6

MPLS

Routing

System

Queues

Files

Log

Radius

Tools

New Terminal

LCD

Partition

Make Supout.rif

Manual

Exit

Firewall

Filter Rules

NAT

Mangle

Service Ports

Connections

Address Lists

Layer7 Protocols

Reset Counters

Reset All Counters

Find

all

#	Action	Chain	Src. ...	Dst. Address	Protocol	Src. Port	Dst. Port	In. Interface	Out. In...	Bytes	Packets
0	mark routing	prerouting								2855.1 ...	10 480
1	mark routing	prerouting								0 B	0
2	mark routing	prerouting								37.5 GiB	37 456
3	accept	prerouting		190.171.225.32/29				LAN		97.1 KiB	1 999
4	accept	prerouting		190.171.225.24/29				LAN		23.9 KiB	493
5	accept	prerouting		190.181.11.0/24				LAN		14.1 KiB	254
6	mark connection	prerouting						ether10 pppoe-out1		56.4 MiB	748 231
7	mark connection	prerouting						ether9 Cotas Prem1		33.4 MiB	145 156
8	mark connection	prerouting						ether11 AXS Nitro		14.4 MiB	193 456
9	mark connection	prerouting			6 (tcp)		80	LAN		12.8 MiB	223 787
10	mark connection	prerouting			6 (tcp)		80	LAN		9.9 MiB	173 742
11	mark connection	prerouting			6 (tcp)		80	LAN		37.4 MiB	654 296
12	mark connection	prerouting			6 (tcp)		80	LAN		10.1 MiB	176 061
13	mark connection	prerouting			6 (tcp)		80	LAN		12.6 MiB	219 765
14	mark connection	prerouting			6 (tcp)		80	LAN		11.1 MiB	194 667
15	mark connection	prerouting			6 (tcp)		80	LAN		13.9 MiB	241 242
16	mark connection	prerouting						LAN		37.9 MiB	519 416
17	mark connection	prerouting						LAN		29.6 MiB	432 104
18	mark connection	prerouting						LAN		21.4 MiB	319 439
19	mark connection	prerouting						LAN		23.2 MiB	370 942
20	mark connection	prerouting						LAN		21.8 MiB	346 179
21	mark connection	prerouting						LAN		36.7 MiB	501 677
22	mark connection	prerouting						LAN		27.4 MiB	438 441
23	mark routing	prerouting						LAN		22.5 GiB	115 103...
24	mark routing	prerouting						LAN		10.0 GiB	54 932 ...
25	mark routing	prerouting						LAN		5.1 GiB	33 241 ...
26	mark routing	output								1634.6 ...	16 693
27	mark routing	output								1820.9 ...	32 752
28	mark routing	output								65.2 KiB	1 140
29	change MSS	forward			6 (tcp)			all ppp		102.2 M...	1 886 321
30	change MSS	forward			6 (tcp)			all ppp		160.1 M...	2 881 624

Router de Borde

admin@192.168.254.1 (ROUTER BORDE) - WinBox v6.19 on CCR1036-12G-4S (tile)

Safe Mode

Date: Nov/12/2014 Time: 01:01:35 Uptime: 52d 08:32:14 CPU: 0% Memory: 3509.9 MiB Hide Passwords

Quick Set

Interfaces

Bridge

PPP

Mesh

IP

IPv6

MPLS

Routing

System

Queues

Files

Log

Radius

Tools

New Terminal

LCD

Partition

Make Supout.rif

Manual

Exit

Mangle Rule <80>

General

Advanced

Extra

Action

Statistics

Src. Address List

Dst. Address List

Layer7 Protocol

Content

Connection Bytes

Connection Rate

Per Connection Classifier

Src. MAC Address

Out. Bridge Port

In. Bridge Port

Ingress Priority

Priority

DSCP (TOS)

TCP MSS

Packet Size

Random

TCP Flags

ICMP Options

IPv4 Options

TTL

enabled

OK

Cancel

Apply

Disable

Comment

Copy

Remove

Reset Counters

Reset All Counters

Extra

Action

Statistics

src address

7

0

OK

Cancel

Apply

Disable

Comment

Copy

Remove

Reset Counters

Reset All Counters

Router de Borde

admin@192.168.254.1 (ROUTER BORDE) - WinBox v6.19 on CCR1036-12G-4S (tile)

Safe Mode Date: Nov/12/2014 Time: 00:56:59 Uptime: 52d 08:27:38 CPU: 0% Memory: 3509.8 MiB Hide

Quick Set Interfaces Bridge PPP Mesh IP IPv6 MPLS Routing System Queues Files Log Radius Tools New Terminal LCD Partition Make Supouttrif Manual Exit

Firewall Filter Rules NAT Mangle Service Ports Connections Address Lists Layer7 Protocols

+ - ✓ ✗ [] [] 00 Reset Counters 00 Reset All Counters Find

#	Action	Chain	Src. Address	Dst. Address	Prot...	Src. Port	Dst. Port	In. Inte...	Out. Interface	Bytes	Packets
0	masquerade	srcnat							ether11 AXS Nitro	631.2 M...	10 285 ...
1	masquerade	srcnat							ether9 Cotas Prem1	951.3 M...	15 075 ...
2	masquerade	srcnat							ether7	10.9 MiB	75 386
3	masquerade	srcnat							ether8	10.9 MiB	75 386
4	masquerade	srcnat							ether10 pppoe-out1	2164.4 ...	35 936 ...
5	masquerade	srcnat							ether6 Cotas IDedicado	4.7 GiB	61 534
Biblioteca Virtuales -> 200.119.214.4											
6	src-nat	srcnat								0 B	0
190.181.11.237 -> 172.16.30.1											
7	src-nat	srcnat	172.16.30.1							0 B	0
190.181.11.237 -> 172.16.30.1											
8	dst-nat	dstnat		190.181.11.237						46.6 MiB	448 086
192.168.100.30 -> 200.119.214.30											
9	src-nat	srcnat	192.168.100.30							0 B	0
192.168.100.10 -> 200.119.214.10											
10	src-nat	srcnat	192.168.100.10							0 B	0
192.168.100.88 -> 200.119.214.88											
11	src-nat	srcnat	192.168.100.88							0 B	0
192.168.100.31 -> 200.119.214.31											
12	src-nat	srcnat	192.168.100.31							0 B	0
192.168.100.95 -> 200.119.214.95											
13	src-nat	srcnat	192.168.100.95							0 B	0
192.168.100.3 -> 200.119.214.3											
14	src-nat	srcnat	192.168.100.3							0 B	0
200.119.214.254 -> 192.168.100.254											
15	dst-nat	dstnat		200.119.214.254						1551.0 ...	23 398
200.119.214.253 -> 192.168.100.253											
16	dst-nat	dstnat		200.119.214.253						0 B	0
200.119.214.252 -> 192.168.100.252											
17	dst-nat	dstnat		200.119.214.252						0 B	0
200.119.214.251 -> 192.168.100.251											
18	dst-nat	dstnat		200.119.214.251						0 B	0
200.119.214.250 -> 192.168.100.250											
19	dst-nat	dstnat		200.119.214.250						0 B	0
200.119.214.249 -> 192.168.100.249											
20	dst-nat	dstnat		200.119.214.249						0 B	0
200.119.214.248 -> 192.168.100.248											
21	dst-nat	dstnat		200.119.214.248						0 B	0
200.119.214.247 -> 192.168.100.247											
22	dst-nat	dstnat		200.119.214.247						0 B	0
200.119.214.246 -> 192.168.100.246											
23	dst-nat	dstnat		200.119.214.246						0 B	0
200.119.214.245 -> 192.168.100.245											
24	dst-nat	dstnat		200.119.214.245						0 B	0
200.119.214.244 -> 192.168.100.244											

200 items (1 selected)

Tabla de Rutas

admin@192.168.254.1 (ROUTER BORDE) - WinBox v6.19 on CCR1036-12G-4S (tile)

Safe Mode Date: Nov/13/2014 Time: 09:32:11 Uptime: 53d 17:02:51 CPU: 0% Memory: 3506.1 MiB Hide Passwords

Quick Set
Interfaces
Bridge
PPP
Mesh
IP
IPv6
MPLS
Routing
System
Queues
Files
Log
Radius
Tools
New Terminal
LCD
Partition
Make Supout.rif
Manual
Exit

Route List

Routes Nexthops Rules VRF

+ - ✓ ✗ [icon] [icon]

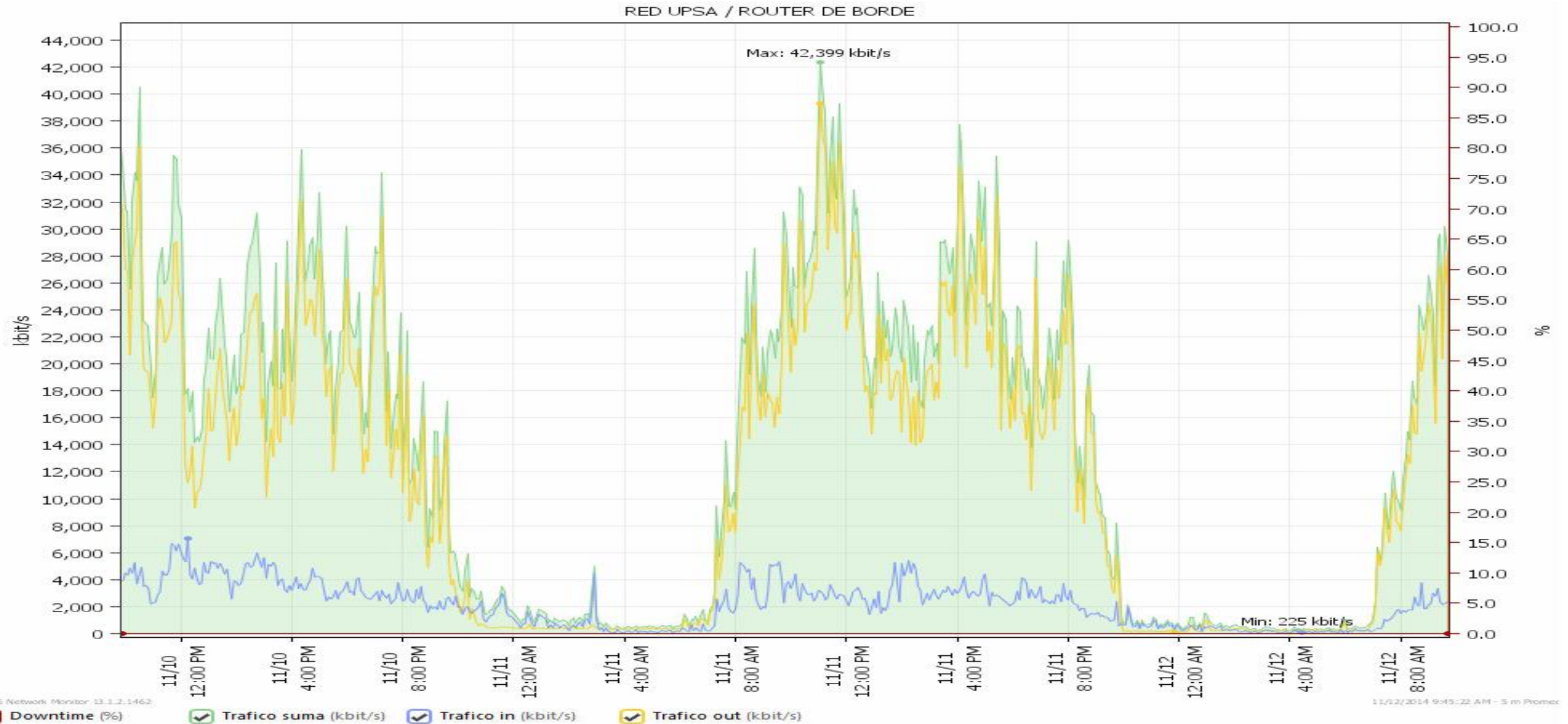
Find all

	Dst. Address	Gateway	Dista...	Routing Mark	Pref. Source
DAC	190.171.225.24/29	ether9 Cotas Prem1 reachable	0		190.171.225.26
DAC	190.171.225.32/29	ether10 pppoe-out1 reachable	0		190.171.225.35
DAC	190.181.11.0/24	ether11 AXS Nitro reachable	0		190.181.11.237
DAC	192.168.254.0/24	LAN reachable	0		192.168.254.1
DAC	200.58.162.173	ether10 pppoe-out1 reachable	0		192.168.225.34
DAC	200.58.165.240/28	ether7 reachable	0		200.58.165.242
DAC	200.58.166.16/28	ether8 reachable	0		200.58.166.18
DAC	200.119.214.0/24	ether6 Cotas IDedicado reachable	0		200.119.214.3
AS	0.0.0.0/0	190.181.11.1 reachable ether11 AXS Nitro	1		
::: DEDICADO -> Cotas					
AS	0.0.0.0/0	200.119.214.1 reachable ether6 Cotas IDedicado	1	mr_publicas	
AS	0.0.0.0/0	ether10 pppoe-out1 reachable	1	to ISP1	
AS	0.0.0.0/0	190.171.225.25 reachable ether9 Cotas Prem1	1	to ISP2	
AS	0.0.0.0/0	190.181.11.1 reachable ether11 AXS Nitro	1	to ISP3	
AS	0.0.0.0/0	200.58.165.241 reachable ether7	1	to upadi1	
AS	0.0.0.0/0	200.58.166.17 reachable ether8	1	to upadi2	
::: Internet -> LAN					
AS	10.5.0.0/16	192.168.254.2 reachable LAN	1		
::: Internet -> LAN					
AS	10.50.0.0/16	192.168.254.2 reachable LAN	1		
AS	10.255.0.0/16	192.168.254.2 reachable LAN	1		
AS	172.16.0.0/16	192.168.254.2 reachable LAN	1		
AS	192.168.100.0/24	192.168.254.2 reachable LAN	1		
::: Enrutamiento para Cisco -> 200.119.214.0					
AS	192.168.101.0/24	192.168.254.2 reachable LAN	1		
::: Enrutamiento para Cisco -> 200.119.214.0					
AS	192.168.102.0/24	192.168.254.2 reachable LAN	1		
::: Enrutamiento para Cisco -> 200.119.214.0					
AS	192.168.104.0/24	192.168.254.2 reachable LAN	1		
AS	192.168.200.0/24	192.168.254.2 reachable LAN	1		
::: Enrutamiento para Cisco -> 200.119.214.0					
AS	192.168.204.0/24	192.168.254.2 reachable LAN	1		
::: Enrutamiento para Cisco -> 200.119.214.0					
AS	192.168.220.0/24	192.168.254.2 reachable LAN	1		
S	0.0.0.0/0	190.171.225.25 reachable ether9 Cotas Prem1	2		
S	0.0.0.0/0	ether10 pppoe-out1 reachable	3		

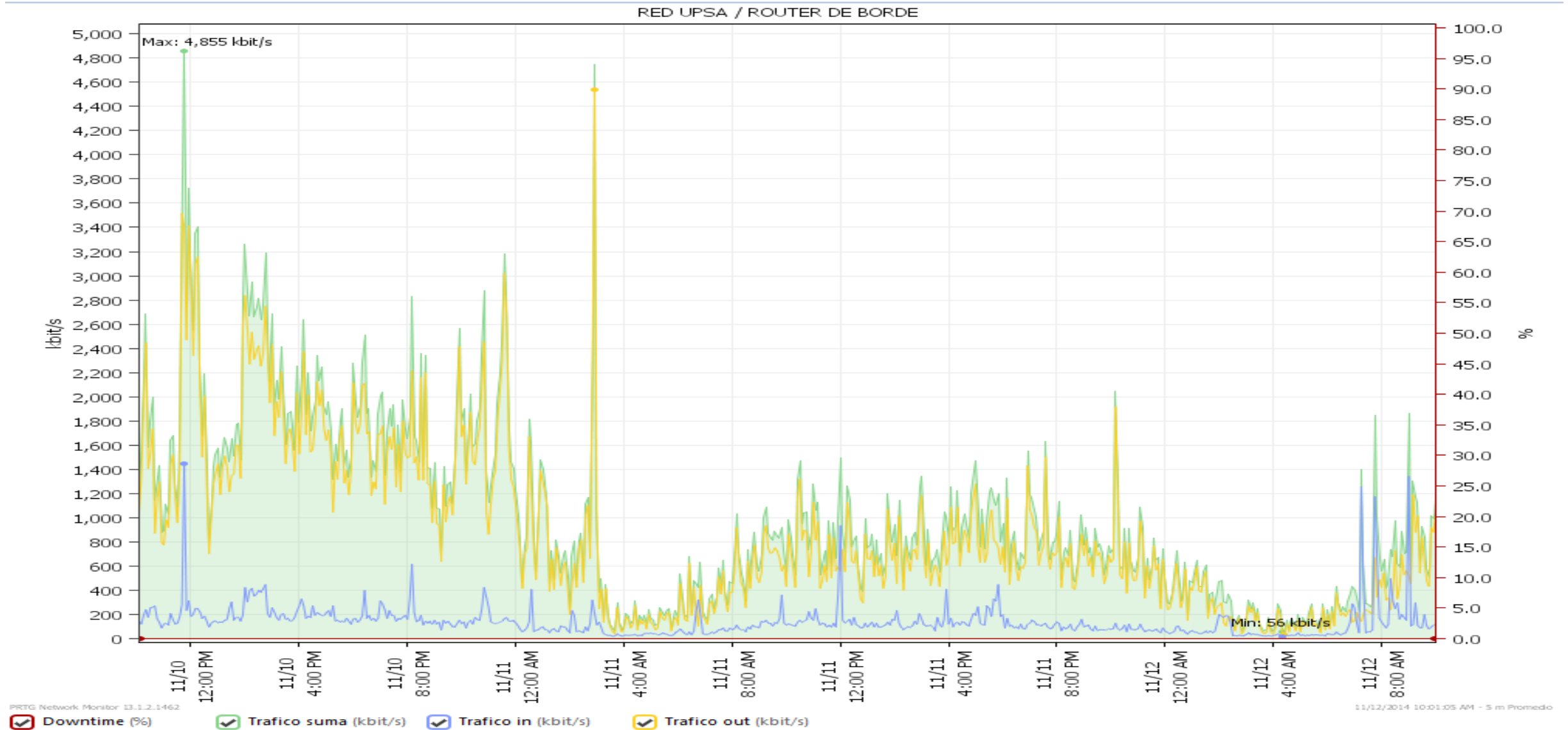
28 items

RouterOS WinBox

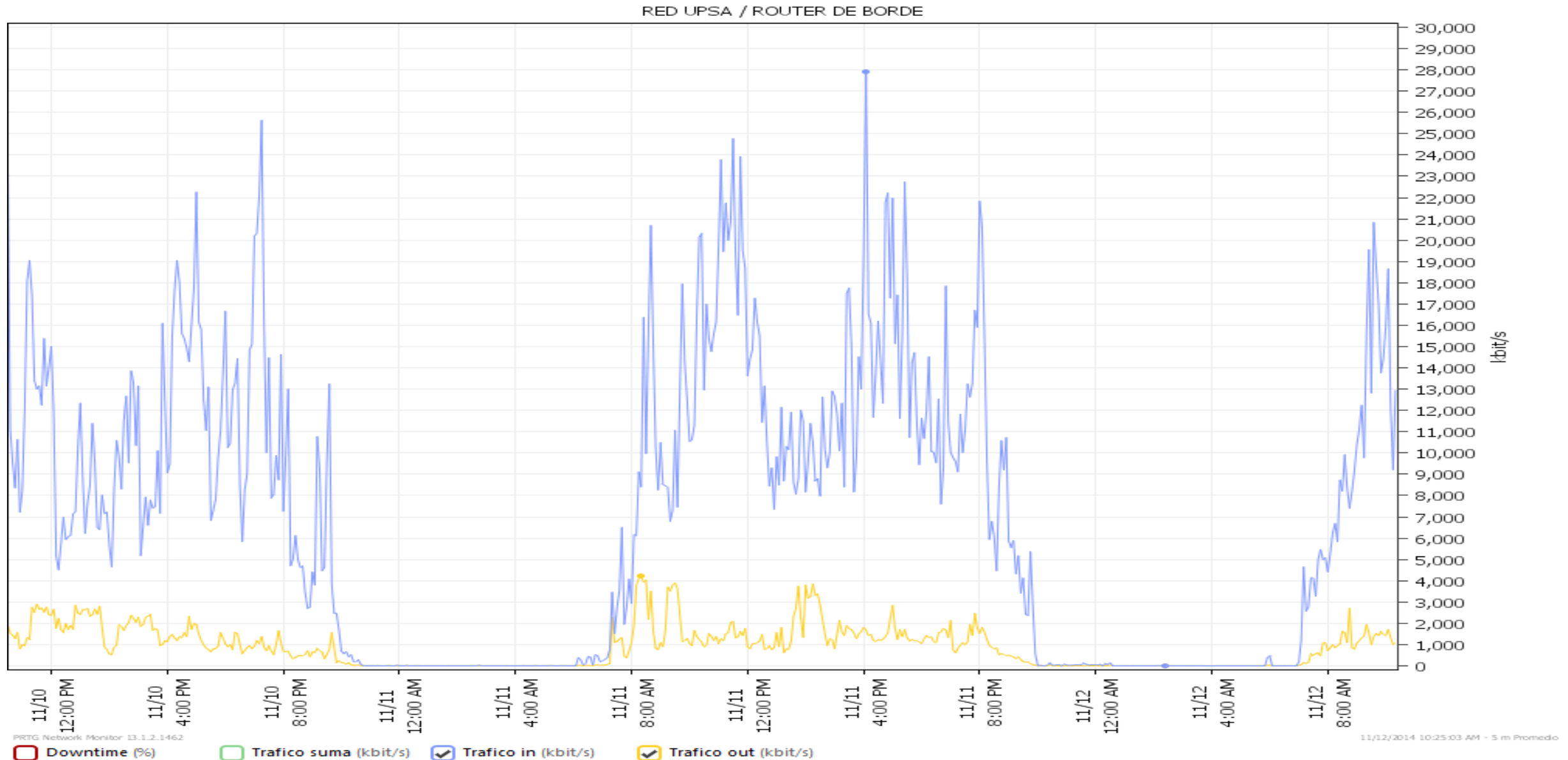
Router de Borde (LAN)



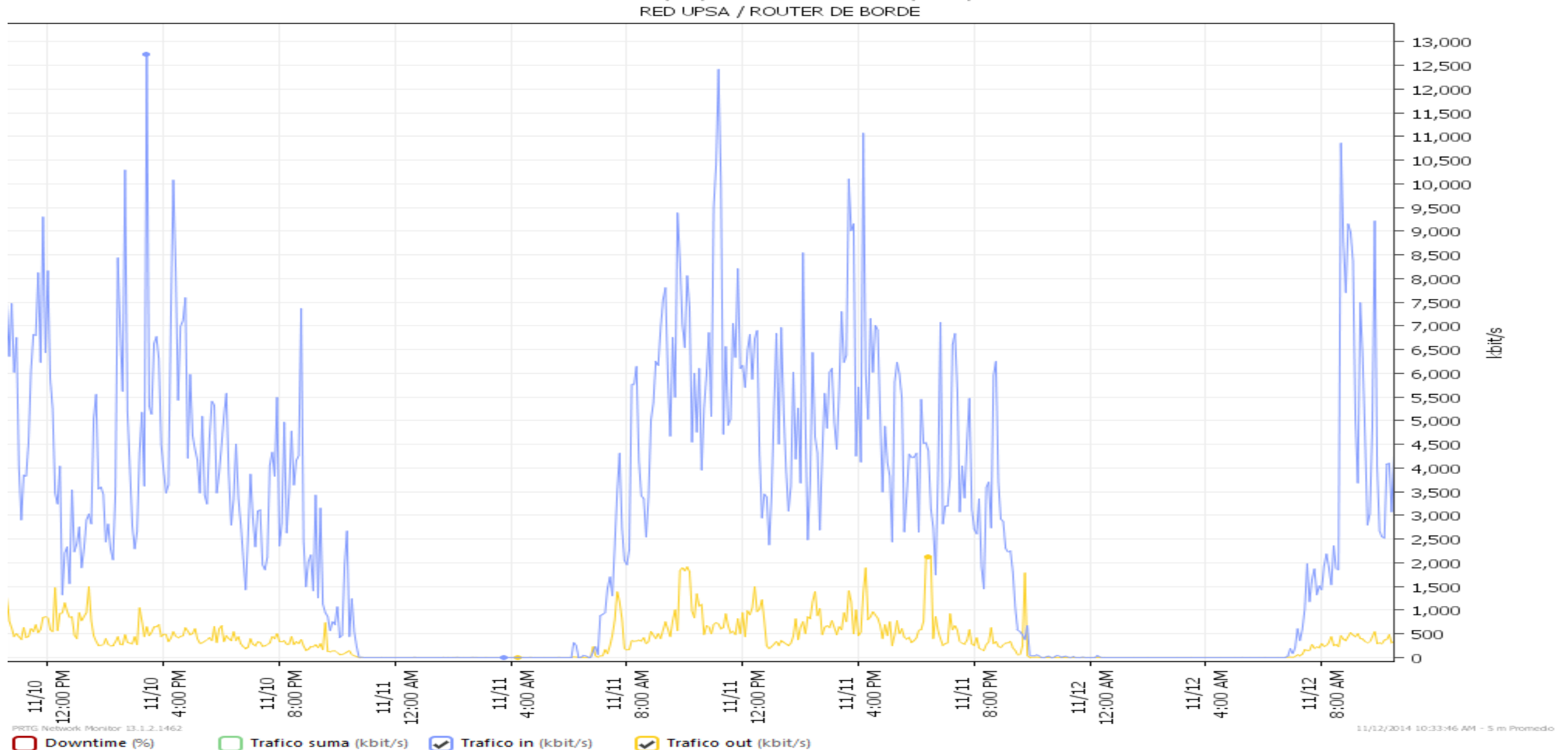
Router de Borde (Idedicado 5,5M)



Router de Borde (Ibanda Ancha 30M)

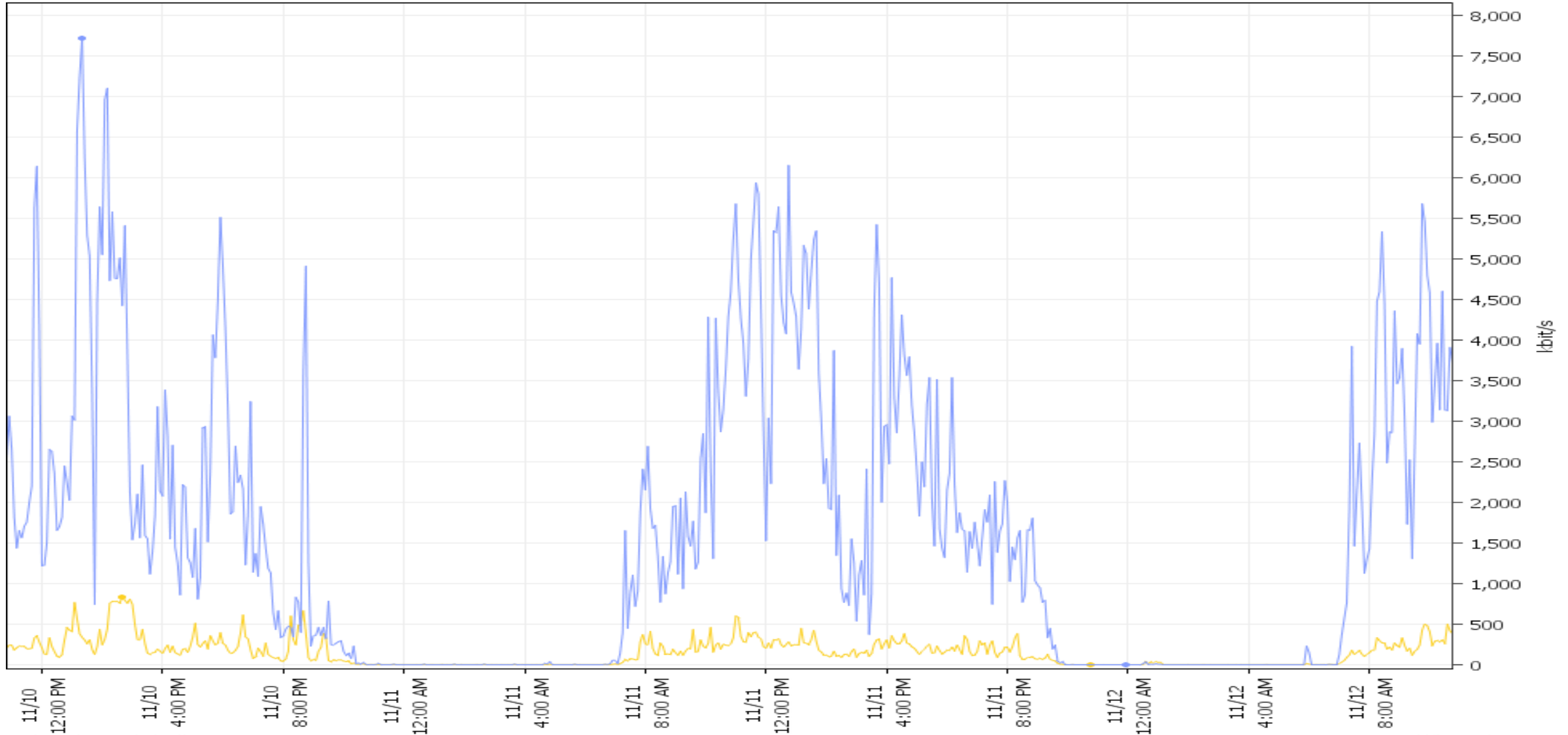


Router de Borde (Ibanda Ancha 15M)



Router de Borde (Ibanda Ancha 8M)

RED UPSA / ROUTER DE BORDE



PRGTG Network Monitor 13.1.2.1462

11/12/2014 10:46:41 AM - 5 m Promedio

Router QoS (Queue tree)

admin@10.50.255.254 (QoS) - WinBox v6.19 on CCR1036-12G-4S (tile)

Date: Nov/12/2014 Time: 11:30:38 Uptime: 26d 16:01:06 CPU: 1% Memory: 3474.4 MiB Hide Passwords

Safe Mode

Queue List

Simple Queues Interface Queues Queue Tree Queue Types

+ - ✓ ✗ 📁 📁 ⚙️ ⚙️ Reset Counters Reset All Counters Find

Name	Parent	Packet Marks	Priority	Limit At (bits/s)	Max Limit (bits/s)	Avg. Rate	Queued Bytes	Bytes	Packets
down BANDA ANCHA	global		8	42500k	42.3 Mbps	42.3 Mbps	0 B	2067.1 GiB	1974
down ADMINIS	down BANDA ANCHA		8	6M	40500k	5.7 Mbps	0 B	332.4 GiB	303 5
down BASICOS	down ADMINIS	BASICOS pack DOWN	7	1M	40500k	2.5 Mbps	0 B	159.5 GiB	145 5
down ESTANDAR	down ADMINIS	ESTANDAR pack DOWN	6	2M	40500k	3.1 Mbps	0 B	172.9 GiB	157 9
down PREMIUM	down ADMINIS	PREMIUM pack DOWN	1	3M	40500k	0 bps	0 B	0 B	0
down AULAS DOCENTES	down BANDA ANCHA	AULAS DOCENTES pack DOWN	4	3800k	40500k	0 bps	0 B	84.1 GiB	67 32
down CENACE	down BANDA ANCHA		8	1M	1M	1005.5 kbps	0 B	62.3 GiB	56 19
down CEN BASICO	down CENACE	CEN BASICO pack DOWN	7	512k	1M	954.1 kbps	90.3 KiB	61.7 GiB	54 74
down CEN ESTANDAR	down CENACE	CEN ESTANDAR pack DOWN	6	512k	1M	0 bps	0 B	557.7 MiB	1 45
down CISCO FURUKAWA	down BANDA ANCHA	CISCO FURUKAWA pack DOWN	2	660k	3M	738.3 kbps	0 B	95.2 GiB	78 79
down DENEGAR VIDEOS	down BANDA ANCHA	deneqar videos pack DOWN	8	1k	1k	0 bps	0 B	0 B	0
down DESCARGA LENTA	down BANDA ANCHA	DESCARGA LENTA pack DOWN	8	100k	1M	220.4 kbps	138.6 KiB	62.2 GiB	74 46
down EVENTO	down BANDA ANCHA		1	1M	2M	136 bps	0 B	28.4 GiB	27 76
down EVEN BASICO	down EVENTO	EVEN BASICO pack DOWN	3	300k	1M	136 bps	0 B	28.4 GiB	27 76
down EVEN ESTANDAR	down EVENTO	EVEN ESTANDAR pack DOWN	2	700k	1M	0 bps	0 B	0 B	0
down ICMP	down BANDA ANCHA	ICMP pack DOWN	1	40500k	40500k	86.4 kbps	0 B	48.8 GiB	76 26
down LAB COMPUTO	down BANDA ANCHA		8	10M	40500k	19.5 Mbps	0 B	264.8 GiB	246 1
down DOC LAB COMPU	down LAB COMPUTO	DOC LAB COMPU pack DOWN	4	8M	40500k	0 bps	0 B	4.8 GiB	4 73
down EST LAB COMPU	down LAB COMPUTO	EST LAB COMPU pack DOWN	5	2M	40500k	19.7 Mbps	10.1 KiB	259.9 GiB	241 3
down POSTGRADO WIFI	down BANDA ANCHA	POSTGRADO WIFI pack DOWN	2	220k	1800k	0 bps	0 B	0 B	0
down TI	down BANDA ANCHA	TI pack DOWN	8	1M	40500k	1560.2 kbps	4476 B	130.9 GiB	107 2
down WIFI	down BANDA ANCHA		8	15M	40500k	13.4 Mbps	0 B	958.1 GiB	937 1
down DOCENTE WIFI	down WIFI	DOC WIFI pack DOWN	4	8M	40500k	0 bps	0 B	0 B	0
down EST WIFI	down WIFI	EST WIFI pack DOWN	5	5M	40500k	13.4 Mbps	13.0 KiB	958.1 GiB	937 1
down DEDICADO	global		8	6500k	6500k	205.6 kbps	0 B	27.3 GiB	144 6
down IP VIPs	down DEDICADO	IP VIPs pack DOWN	1	1M	6500k	0 bps	0 B	120 B	0
down PAGI PROTOC RAPID	down DEDICADO	PAGI PROTOC RAPID pack DOWN	3	2M	6500k	109.7 kbps	0 B	4654.0 MiB	6 25
down SERVER LENT	down DEDICADO	SERVER LENT pack DOWN	4	512k	4500k	10.7 kbps	0 B	2864.7 MiB	38 17
down SERVER RAPID	down DEDICADO	SERVER RAPID pack DOWN	2	2M	4500k	85.1 kbps	0 B	19.9 GiB	100 1
up BANDA ANCHA	global		8	5300k	5300k	3.7 Mbps	0 B	208.3 GiB	1336
up ADMINIS	up BANDA ANCHA		8	1M	5M	334.4 kbps	0 B	24.6 GiB	197 4
up ADMINIS BASICO	up ADMINIS	BASICOS pack UP	7	250k	5M	99.7 kbps	0 B	10.8 GiB	92 52
up ADMINIS ESTANDAR	up ADMINIS	ESTANDAR pack UP	6	250k	5M	234.6 kbps	0 B	13.9 GiB	104 9
up ADMINIS PREMIUM	up ADMINIS	PREMIUM pack UP	1	500k	5M	0 bps	0 B	0 B	0
up AULAS DOCENTES	up BANDA ANCHA	AULAS DOCENTES pack UP	4	200k	5M	0 bps	0 B	2936.9 MiB	37 39
up CENACE	up BANDA ANCHA		8	1M	5M	245.8 kbps	0 B	6.5 GiB	40 93
up CENACE BASICO	up CENACE	CEN BASICO pack UP	6	500k	5M	245.8 kbps	0 B	6.1 GiB	39 80
up CENACE ESTANDAR	up CENACE	CEN ESTANDAR pack UP	6	500k	5M	0 bps	0 B	349.0 MiB	1 12
up CISCO FURUKAWA	up BANDA ANCHA	CISCO FURUKAWA pack UP	2	100k	128k	34.1 kbps	0 B	4266.8 MiB	51 3
up EVENTO	up BANDA ANCHA		8	700k	5M	256 bps	0 B	6.5 GiB	22 9
up EVENTO BASICO	up EVENTO	EVEN BASICO pack UP	3	200k	5M	256 bps	0 B	6.5 GiB	22 9
up EVENTO ESTANDAR	up EVENTO	EVEN ESTANDAR pack UP	2	500k	5M	0 bps	0 B	0 B	0
up ICMP	up BANDA ANCHA	ICMP pack UP	1	40500k	40500k	480 bps	0 B	241.4 MiB	2 48
up LAB COMPUTO	up BANDA ANCHA		8	1M	5M	686.5 kbps	0 B	17.6 GiB	159 0

59 items (1 selected) 256.6 KiB queued 185 packets queued 159 028 07

Router QoS (hotspot)

admin@10.50.255.254 (QoS) - WinBox v6.19 on CCR1036-12G-4S (tile)

Safe Mode Date: Nov/12/2014 Time: 11:41:17 Uptime: 26d 16:11:44 CPU: 1% Memory: 3472.4 MiB Hide Passwords

Hotspot

Server	User	Domain	Address	Login By	Uptime	Idle Time	Session Time Left	Bytes In	Bytes Out	Rx Rate	Tx Rate
R hotspot1	2009118928		10.255.62.80	http-chap	00:57:00	00:00:02		35.3 MiB	3878.0 KiB	833.1 kbps	14.5 kbps
R hotspot1	2014211752		10.255.61.194	http-chap	01:10:31	00:00:02		336.0 MiB	85.5 MiB	332.9 kbps	2.0 Mbps
R hotspot1	2014115923		10.255.55.155	http-chap	00:35:28	00:00:02		1131.2 KiB	4431.9 KiB	153.9 kbps	116.4 kbps
R hotspot1	2014113807		10.255.60.46	http-chap	01:28:49	00:00:02		2969.6 KiB	43.0 MiB	82.6 kbps	1146.2 kbps
R hotspot1	2012112358		10.255.63.46	http-chap	00:13:01	00:00:02		1338.8 KiB	16.5 MiB	54.0 kbps	3.2 Mbps
R hotspot1	2014110280		10.255.58.81	http-chap	02:50:31	00:00:02		3949.1 KiB	25.8 MiB	47.8 kbps	795.6 kbps
R hotspot1	2012115781		10.255.61.227	http-chap	00:58:50	00:00:02		2902.5 KiB	20.8 MiB	44.2 kbps	300.7 kbps
R hotspot1	2012114393		10.255.62.118	http-chap	00:52:06	00:00:02		1105.6 KiB	6.4 MiB	37.7 kbps	251.4 kbps
R hotspot1	2012116752		10.255.62.98	http-chap	00:44:38	00:00:02		26.2 MiB	979.3 MiB	34.6 kbps	2.0 Mbps
R hotspot1	2014113866		10.255.60.228	http-chap	01:21:32	00:00:02		2241.7 KiB	60.3 MiB	28.2 kbps	1065.2 kbps
R hotspot1	2011118042		10.255.62.225	http-chap	00:32:30	00:00:02		8.9 MiB	48.2 MiB	17.7 kbps	195.0 kbps
R hotspot1	2007110504		10.255.63.58	http-chap	00:06:07	00:00:02		1343.4 KiB	12.2 MiB	30.8 kbps	13.5 kbps
R hotspot1	2013112661		10.255.63.29	http-chap	00:18:46	00:00:02		757.9 KiB	3437.2 KiB	30.3 kbps	14.8 kbps
R hotspot1	2014110450		10.255.58.243	http-chap	02:32:27	00:00:02		11.9 MiB	83.7 MiB	17.3 kbps	19.0 kbps
R hotspot1	2012110541		10.255.60.197	http-chap	01:27:40	00:00:02		1569.6 KiB	27.8 MiB	10.6 kbps	0 bps
R hotspot1	2010110536		10.255.60.187	http-chap	01:28:54	00:00:02		25.3 MiB	1232.1 MiB	9.8 kbps	290.3 kbps
R hotspot1	2013114770		10.255.63.45	http-chap	00:13:28	00:00:02		1520.6 KiB	8.6 MiB	13.8 kbps	25.5 kbps
R hotspot1	2013114583		10.255.63.81	http-chap	00:00:41	00:00:02		214.7 KiB	4361.6 KiB	10.4 kbps	283.2 kbps
R hotspot1	2014113823		10.255.63.31	http-chap	00:01:18	00:00:03		62.6 KiB	891.7 KiB	12.9 kbps	3.6 kbps
R hotspot1	2014116270		10.255.63.24	http-chap	00:20:34	00:00:02		1981.1 KiB	34.1 MiB	12.6 kbps	18.0 kbps
R hotspot1	2011113806		10.255.63.32	http-chap	00:16:33	00:00:02		10.0 MiB	46.5 MiB	9.5 kbps	21.7 kbps
R hotspot1	2013210841		10.255.62.158	http-chap	00:46:00	00:00:03		2906.0 KiB	18.9 MiB	9.4 kbps	3.8 kbps
R hotspot1	2014113173		10.255.58.219	http-chap	02:34:17	00:00:03		12.6 MiB	139.9 MiB	9.2 kbps	323 bps
R hotspot1	2011117542		10.255.63.49	http-chap	00:11:28	00:00:03		698.8 KiB	6.5 MiB	8.7 kbps	3.3 kbps
R hotspot1	2011113326		10.255.63.62	http-chap	00:04:55	00:00:02		1739.8 KiB	5.1 MiB	7.9 kbps	3.8 kbps
R hotspot1	2013110405		10.255.63.43	http-chap	00:13:42	00:00:02		972.2 KiB	6.9 MiB	7.4 kbps	3.1 kbps
R hotspot1	2011116155		10.255.62.227	http-chap	00:19:32	00:00:02		2299.8 KiB	11.3 MiB	7.3 kbps	2.6 kbps
R hotspot1	2011110441		10.255.63.74	http-chap	00:02:03	00:00:02		359.0 KiB	142.1 KiB	7.2 kbps	10.3 kbps
R hotspot1	2013110278		10.255.61.184	http-chap	01:11:47	00:00:02		1437.5 KiB	6.8 MiB	5.9 kbps	28.3 kbps
R hotspot1	2013113919		10.255.63.28	http-chap	00:18:57	00:00:02		2438.7 KiB	20.3 MiB	5.7 kbps	115.0 kbps
R hotspot1	2014114587		10.255.55.44	http-chap	02:34:09	00:00:02		1240.6 KiB	4108.4 KiB	5.6 kbps	222.0 kbps
R hotspot1	2014210896		10.255.59.181	http-chap	00:52:32	00:00:02		534.4 KiB	2796.8 KiB	5.6 kbps	505 bps
R hotspot1	2013111240		10.255.59.12	http-chap	02:17:16	00:00:02		3861.2 KiB	42.9 MiB	4.5 kbps	74.4 kbps
R hotspot1	2014115320		10.255.58.157	http-chap	02:39:34	00:00:03		1373.5 KiB	7.7 MiB	4.0 kbps	4.8 kbps
R hotspot1	2013116527		10.255.57.180	http-chap	02:41:06	00:00:02		1275.1 KiB	9.6 MiB	3.5 kbps	1759 bps
R hotspot1	2012115349		10.255.62.116	http-chap	00:14:54	00:00:03		1525.2 KiB	14.5 MiB	3.3 kbps	1384 bps
R hotspot1	2013115695		10.255.55.238	http-chap	04:15:14	00:00:03		2592.9 KiB	31.5 MiB	3.2 kbps	2.9 kbps
R hotspot1	2012115021		10.255.62.38	http-chap	01:02:02	00:00:02		2362.3 KiB	14.7 MiB	3.1 kbps	97.6 kbps
R hotspot1	2013116217		10.255.62.122	http-chap	00:07:56	00:00:02		369.1 KiB	2162.3 KiB	3.0 kbps	19.2 kbps
R hotspot1	2014110107		10.255.60.27	http-chap	01:58:16	00:00:02		4482.3 KiB	27.1 MiB	2.8 kbps	9.7 kbps
R hotspot1	2014115109		10.255.63.10	http-chap	00:24:36	00:00:04		1005.7 KiB	12.6 MiB	2.4 kbps	964 bps
R hotspot1	2004110473		10.255.63.44	http-chap	00:13:29	00:00:02		2776.3 KiB	17.4 MiB	2.1 kbps	2.3 kbps
R hotspot1	2011115019		10.255.62.243	http-chap	00:29:19	00:00:02		1106.8 KiB	7.4 MiB	2.1 kbps	4.7 kbps
R hotspot1	2014211736		10.255.61.223	http-chap	01:08:05	00:00:02		3577.4 KiB	47.9 MiB	2.1 kbps	848 bps
R hotspot1	2014115648		10.255.58.253	http-chap	02:31:55	00:00:02		2963.0 KiB	7.4 MiB	1940 bps	2.1 kbps

206 items

RouterOS WinBox

admin@10.50.255.254 (QoS) - WinBox v6.19 on CCR1036-12G-4S (tile)

Safe Mode

Date: Nov/12/2014 Time: 11:47:46 Uptime: 26d 16:18:13 CPU: 0% Memory: 3472.3 MiB Hide Passwords

Quick Set

Interfaces

Bridge

PPP

Mesh

IP

MPLS

Routing

System

Queues

Files

Log

Radius

Tools

New Terminal

LCD

Partition

Make Supout.rif

Manual

Exit

Firewall

Filter RulesNATMangleService PortsConnectionsAddress ListsLayer7 Protocols

+ - ✓ ✕ ☞ ⚙

Reset CountersReset All Counters

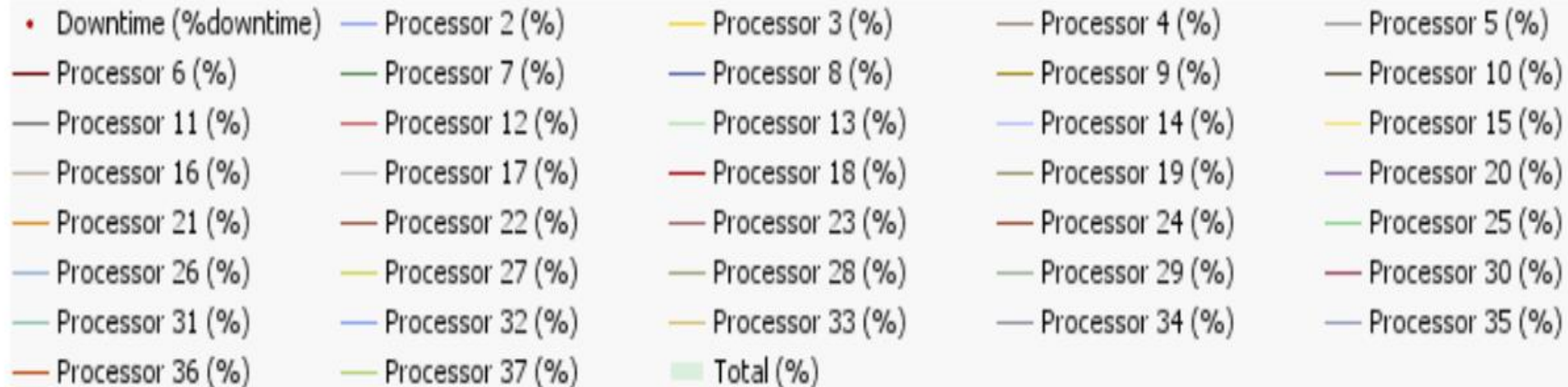
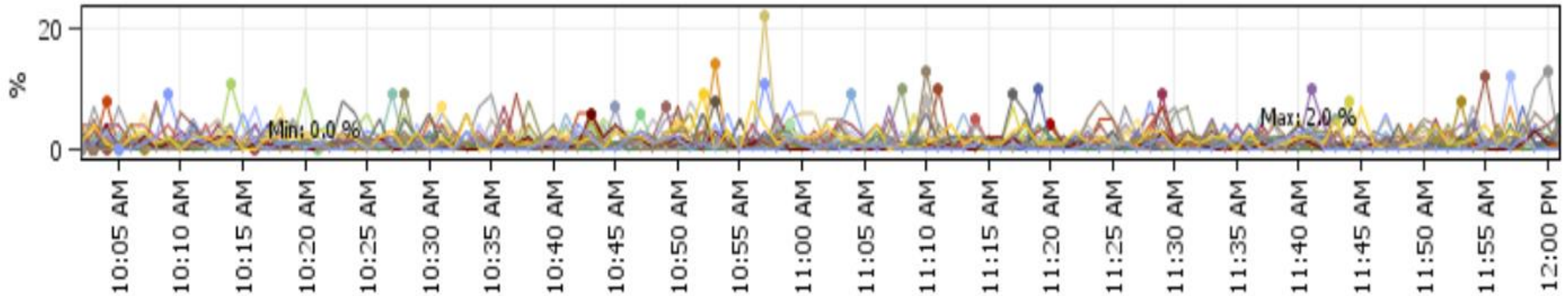
Findall

#	Action	Chain	Src. Address	Dst. Address	Protocol	Src. Port	Dst. Port	In. Inte...	Out. In...	Bytes	Packets
... Drop -> Conexion Invalida											
18	✕ drop	forward								133.4 MiB	1 855 910
19	✕ drop	forward	172.16.8.0/24							451.1 KiB	6 818
20	✓ ac...	forward	172.16.254.0/24	172.16.1.254						63.7 MiB	555 711
21	✓ ac...	forward		172.16.254.251						2457.9 MiB	1 728 189
22	✓ ac...	forward	172.16.254.251							200.1 MiB	2 692 958
23	✓ ac...	forward	172.16.0.0/24							3198.9 MiB	69 874 467
... Permitir todo TI a Internet y Laboratorios											
24	✓ ac...	forward	10.50.31.0/24							41.9 MiB	568 415
... Permitir todo LANADMINIS -> Laboratorios											
25	✓ ac...	forward	10.50.0.0/16	172.16.0.0/16						3656 B	77
... Permitir LAB->TI											
26	✓ ac...	forward	172.16.0.0/16	10.50.31.0/24						0 B	0
... ATENCION !!! ALTA SEGURIDAD..RED ACAD ->RED ADMINIS BLOQUEADA											
27	✕ drop	forward						ether4	ether5	1950.7 KiB	36 821
... ATENCION !!! ALTA SEGURIDAD..RED WIFI ->RED ADMINIS BLOQUEADA											
28	✕ drop	forward						ether10	ether5	5.7 MiB	104 849
... VideoConferencia Postgrado											
29	✓ ac...	forward	172.16.30.1							111.9 KiB	1 227
... VideoConferencia Postgrado											
30	✓ ac...	forward		172.16.30.1						0 B	0
... Consulta Biblioteca->web											
31	✕ drop	forward	10.50.6.100-10.50.6.110	192.168.100.3-192.168.100.10						5.6 MiB	121 057
... Servidor NTP											
32	✓ ac...	forward		192.168.100.0/24	17 (udp)		123			30.4 MiB	420 052
... Permitir todo EVENTO UPSA											
33	✓ ac...	forward	172.16.99.0/24	200.119.214.0/24						440.1 KiB	7 136
... Permitir toda la RED PUBLICA -> 0.0.0.0/0											
34	✓ ac...	forward	192.168.100.0/24							799.0 MiB	10 505 824
35	✓ ac...	forward	10.50.254.0/24	192.168.100.0/24						2562.1 KiB	39 530
36	✓ ac...	forward	95.0.0.0/8	192.168.100.0/24						21.7 MiB	320 914
37	✓ ac...	forward	10.50.100.0/24	192.168.100.0/24						1320 B	20
38	✓ ac...	forward	172.16.254.251	192.168.100.0/24						0 B	0
... KAV->RED UPSA											
39	✓ ac...	forward		192.168.100.176						394.0 MiB	2 970 300
... Admin UPSA.edubo											
40	✓ ac...	forward		192.168.100.5						99.7 KiB	2 068
... PERMIT-> ROUTER BORDE											
41	✓ ac...	forward		192.168.254.1						0 B	0
42	✓ ac...	forward	192.168.254.1							0 B	0
... A208											
43	✕ ac...	forward	172.16.1.0/24							0 B	0
... PERMIT-> PROXY											
44	✓ ac...	forward		192.168.254.9						0 B	0
... Permit DataX											

73 items

Router QoS (Rendimiento)

Sensor: SNMP Carga de CPU 3 (Grafico live, 2 horas)
RED UPSA / QoS



Agradecimiento....



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GRACIAS.....