



LGW4000

Labcom Media Gateway

Overview

Version 03 – 08/08/2019

LGW4000

Labcom Media Gateway

- LGW4000 is a Media Gateway developed by Labcom Sistemas that allows the interconnection between SIP telephone network and TDM network via E1 interface.
 - Composed of up to 8 servers with up to 16 E1 each.
 - The LGW4000 allows flexibility and ease maintenance.
 - Low cost acquisition, installation and operation.
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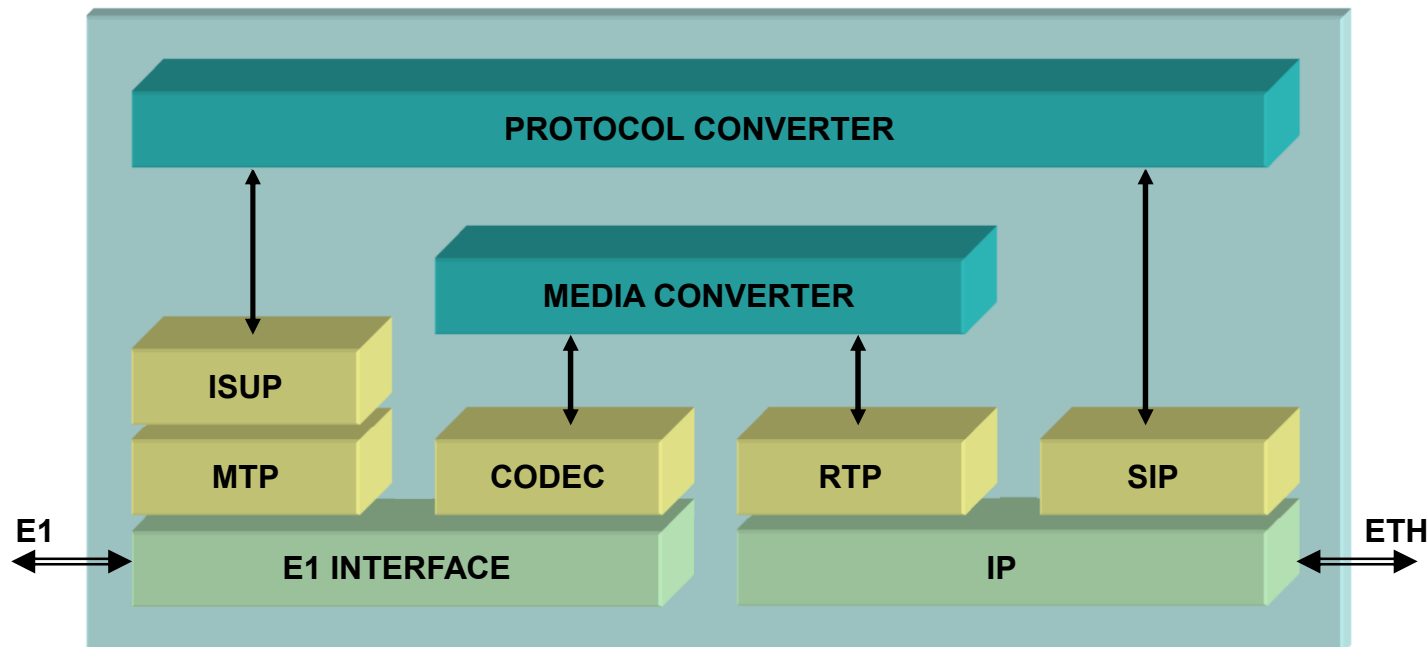
LGW4000

Main Features

- Interfaces (per server):
 - ❑ TDM: up to 16 E1 interfaces with RJ48 connection
 - ❑ Network: two Gigabit Ethernet interfaces with RJ45 connection
 - Protocols:
 - ❑ TDM: SS7 ISUP, ISDN-PRI or R2-Digital (on request)
 - ❑ IP: SIP
 - Voice CODEC:
 - ❑ G.711 (A Law e U Law)
 - ❑ G.729 (on request)
-

LGW4000

Server Features



- Converts between telephone signaling protocols (R2-Digital, ISDN-PRI, or SS7 ISUP) on E1 links and SIP protocol on the IP network.
- Converts the data on voice channels of E1 links by RTP packets and vice versa.

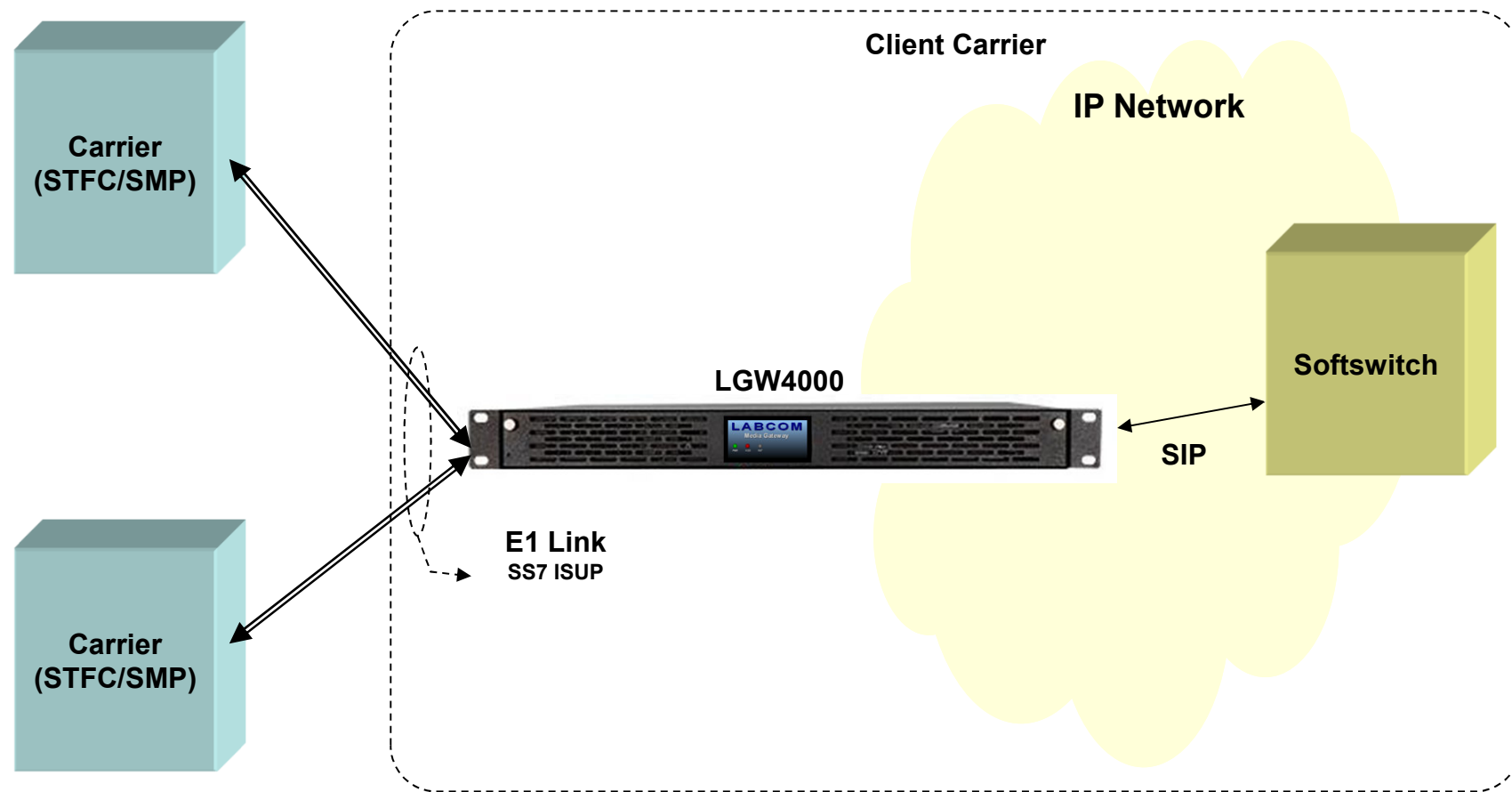
LGW4000

Applications

- The LGW4000 can be used for various applications such as:
 - Interconnection with PSTN/SMP Carriers;
 - Interconnection with VoIP Providers (SCM);
 - Central offices expansion with VoIP Subscribers.

LGW4000 – Applications

Interconnection with PSTN/SMP Carriers



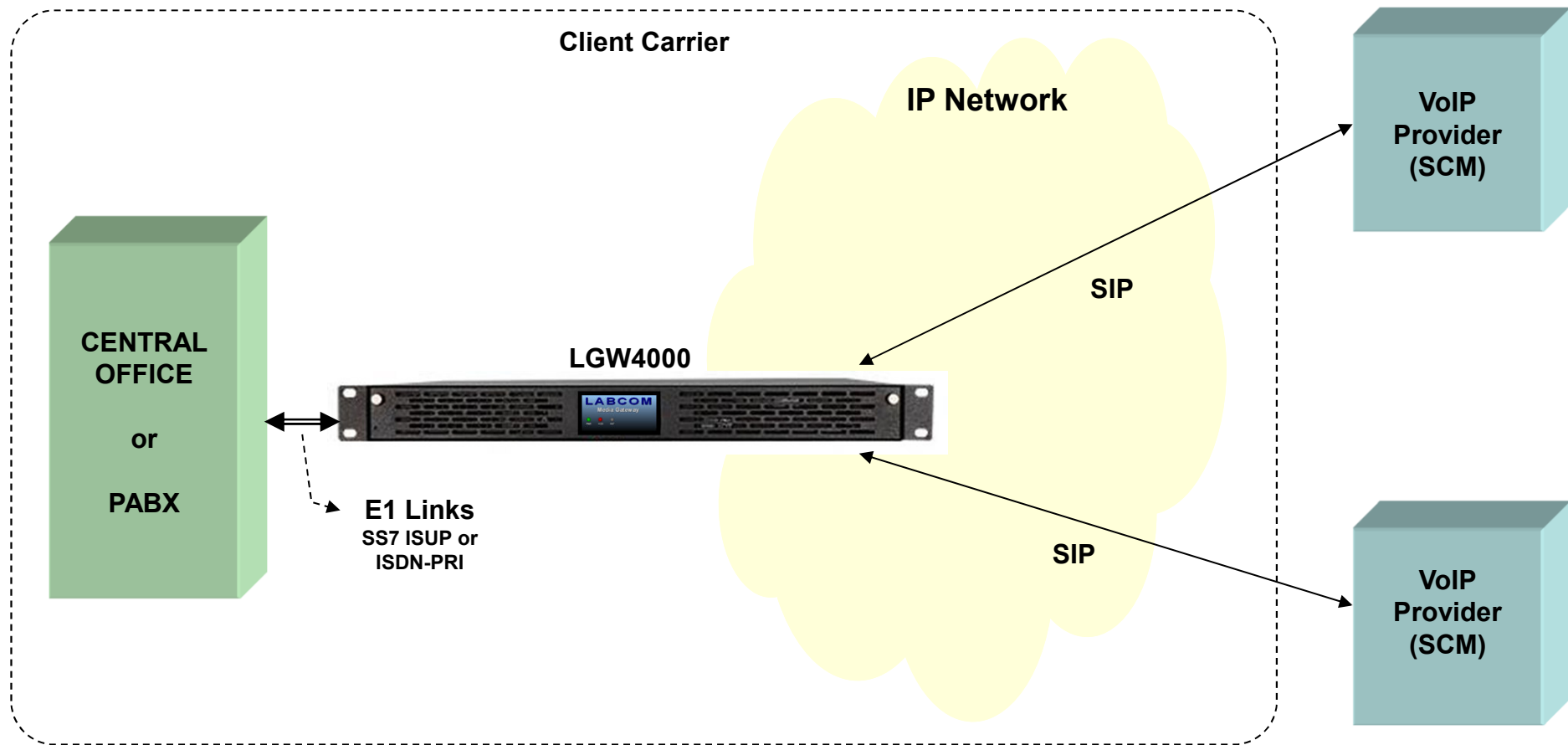
LGW4000 – Applications

Interconnection with PSTN/SMP Carriers

- Allows connection to other carriers (PSTN or SMP) in a specific location (point of presence).
 - Main advantages:
 - Allows creation of multiple points of presence while maintaining centralized management on a softswitch;
 - Low investment;
 - Highest capillarity.
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LGW4000 – Applications

Interconnection with VoIP Providers (SCM)



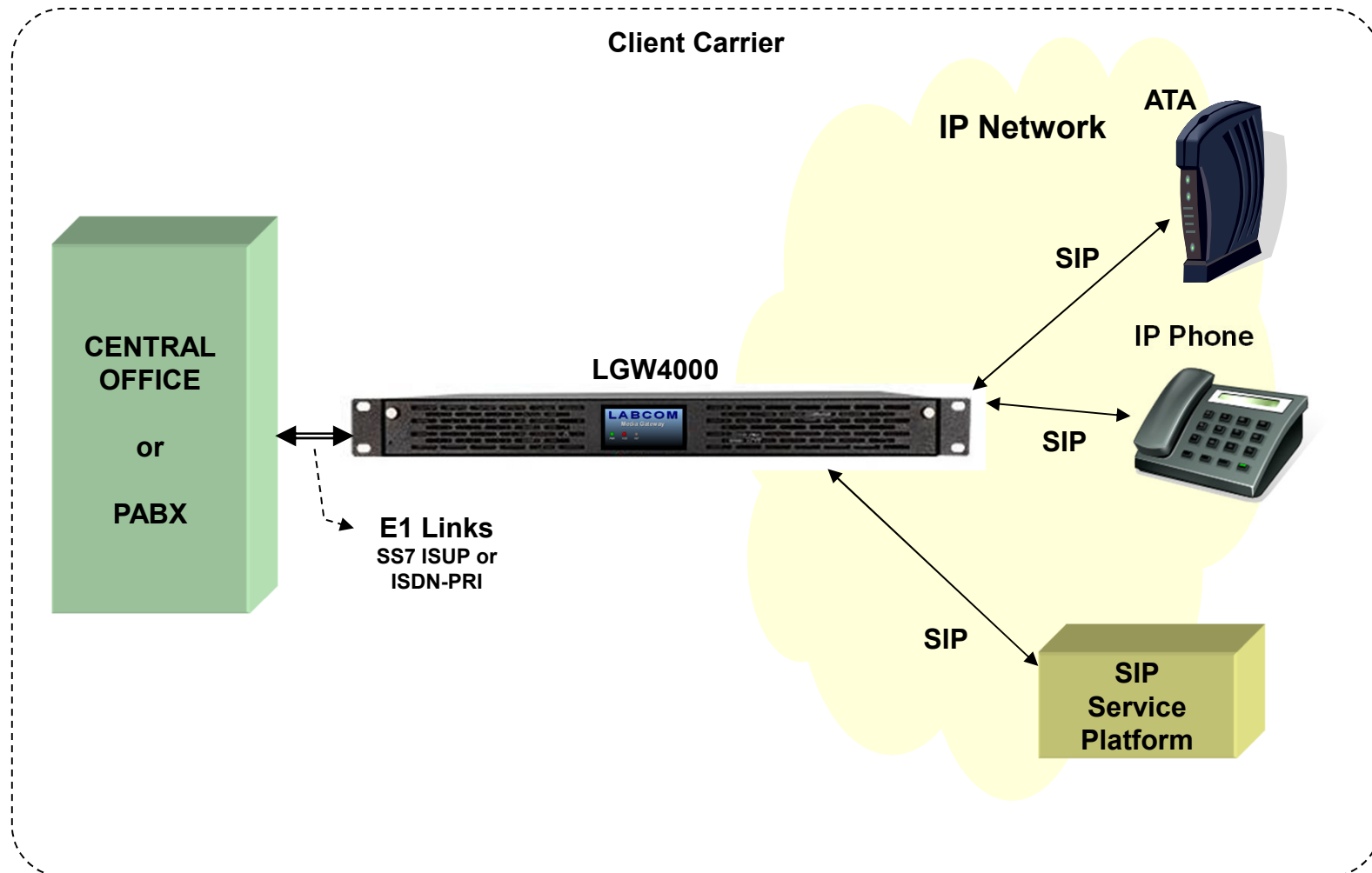
LGW4000 – Applications

Interconnection with VoIP Providers (SCM)

- Allows call routing through VoIP providers (SCM).
 - Main advantages:
 - Allows carriers to expand their interconnection network;
 - Low investment;
 - Highest capillarity.
-

LGW4000 – Applications

Central Offices Expansion with VoIP Subscribers



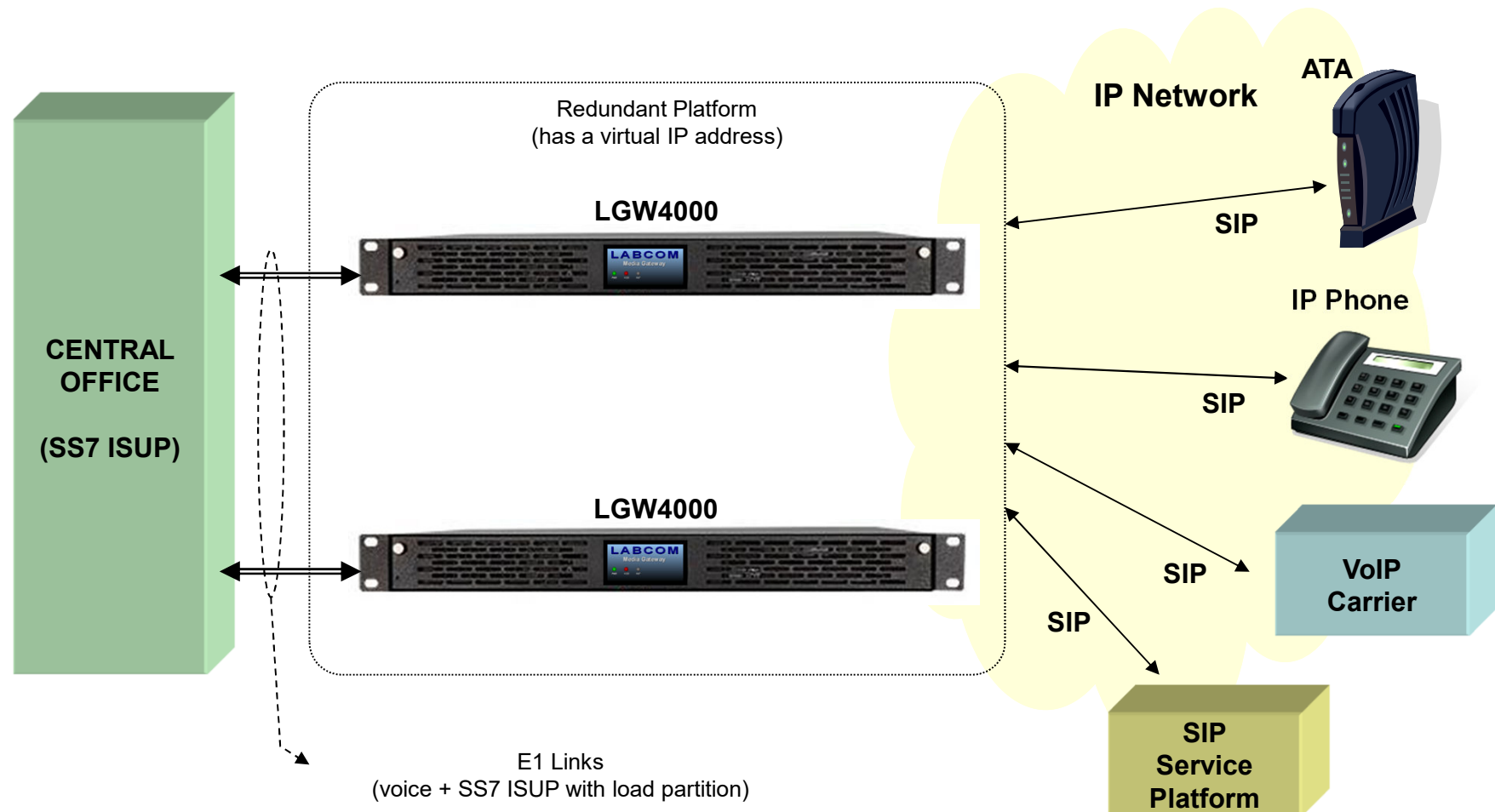
LGW4000 – Applications

Central Offices Expansion with VoIP Subscribers

- Allows adding VoIP subscribers using Analog Telephone Adapter (ATAs), IP Phones or Softphones with broadband internet access.
 - Main advantages:
 - Infrastructure cost savings to reach the users ("last mile");
 - Enables subscriber virtualization (subscriber can place / receive calls anywhere).
-

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Redundant Platform (SS7 ISUP)



LGW4000

Redundant Platform (SS7 ISUP)

- The Redundant Platform allows the use of two equipment with load-sharing.
 - Uses SIP Server with Virtual IP Address.
 - Main advantages :
 - High reliability and availability;
 - Allows equipment maintenance without interruption of services.
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LGW4000

Main Resources

- Echo cancellation.
 - Users authentication through password or password and IP address.
 - Automatic data call detection (FAX or MODEM).
 - Special destination numbers programming (eg credit card machine) for which echo cancellation should not be applied.
 - Online Protocol Analyzer.
 - CDR Generation (online generation with last 30 days storage).
 - Signaling History (last 30 days).
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LGW4000

Additional Resources (on request)

- Automatic email to registered customers reporting uncompleted calls to their numbers.
 - Integration with other Labcom Sistemas solutions such as:
 - Number portability;
 - Controlled call blocking by source and / or destination;
 - Call sequencing.
 - Redirect Server interface (SIP services platform).
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LGW4000

Models

- LGW4000 can be supplied in various configurations according to each customer needs.
- The main configuration options are:
 - Servers: 1, 2 (redundancy), ..., 8
 - E1 links per server: 1, 2, 4, 6, 8 or 16
 - Protocols:
 - TDM: SS7 ISUP, ISDN-PRI ou R2-Digital (on request)
 - IP: SIP
- CODEC:
 - G.711 (A Law e U Law)
 - G.729 (on

LGW4000

Technical Characteristics

- Linux operating system.
- Syslog agent to send alarms.
- Web interface (web browser access).

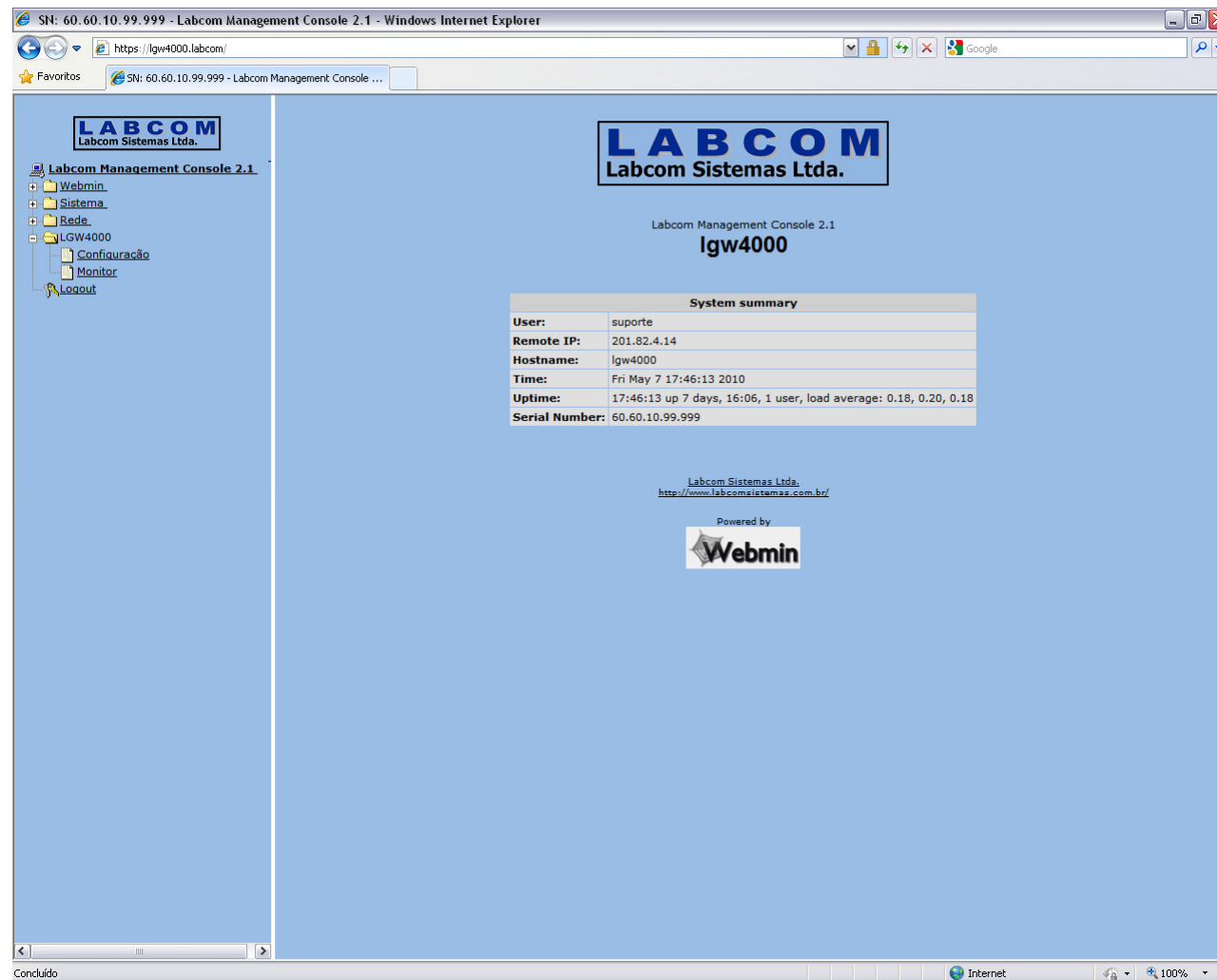
LGW4000

WEB Interface

- LGW4000 has a WEB interface that allows:
 - ❑ User interface configuration;
 - ❑ Server configuration and monitoring;
 - ❑ Applications configuration and monitoring;
 - ❑ System startup and shut down;
 - ❑ System update.

WEB Interface

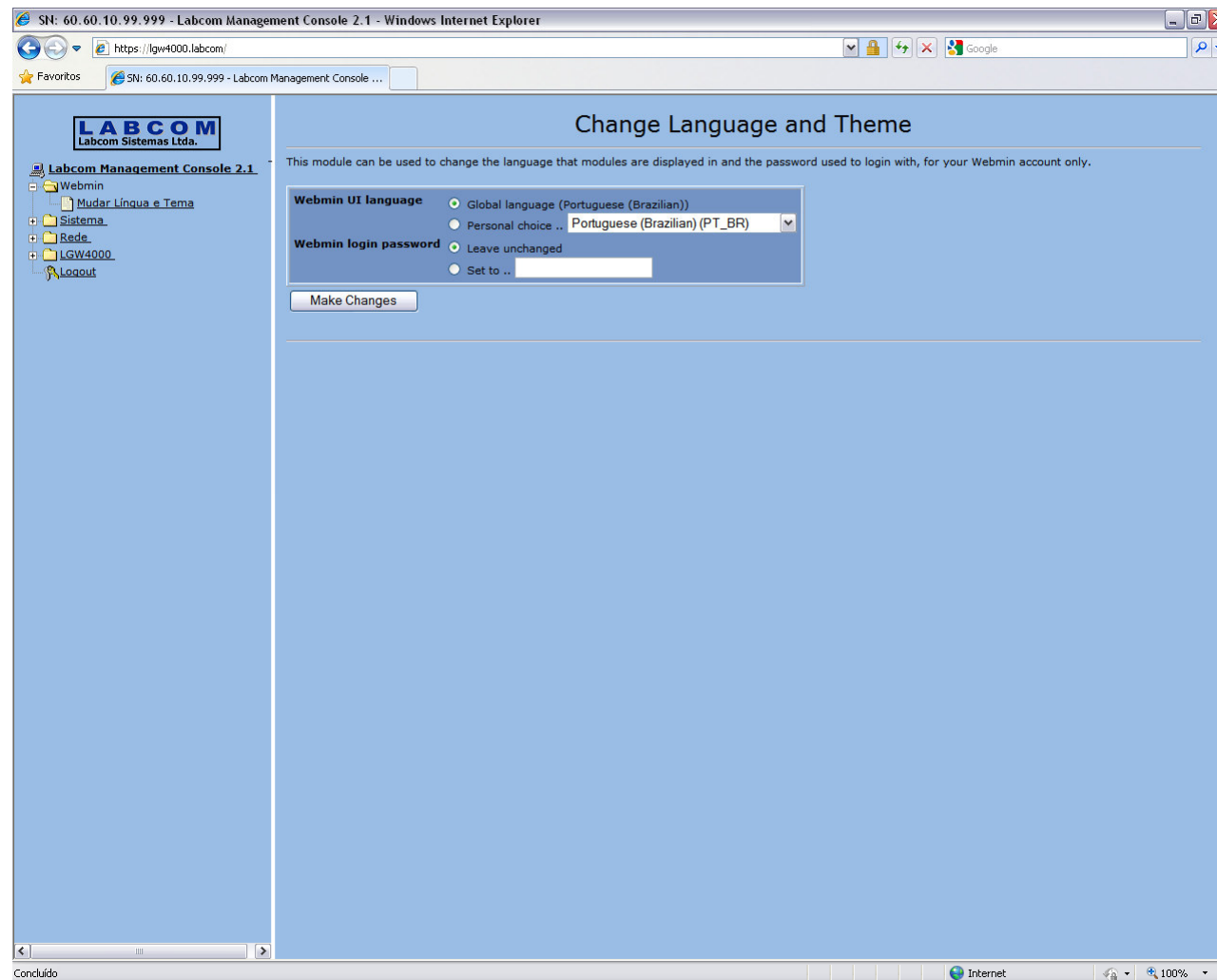
Labcom Management Console 2.1

The screenshot shows a web browser window titled "SN: 60.60.10.99.999 - Labcom Management Console 2.1 - Windows Internet Explorer". The address bar shows "https://lgw4000.labcom/". The interface has a blue background. On the left is a sidebar with a tree view containing "Webmin", "Sistema", "Rede", "LGW4000" (expanded), "Configuração", "Monitor", and "Logout". The main content area features the "LABCOM Labcom Sistemas Ltda." logo at the top. Below it, the text "Labcom Management Console 2.1" and "lgw4000" are displayed. A "System summary" table provides system details. At the bottom, it says "Labcom Sistemas Ltda." with a URL, "Powered by Webmin" with the Webmin logo, and a status bar at the very bottom showing "Concluido" and "Internet" connection status.

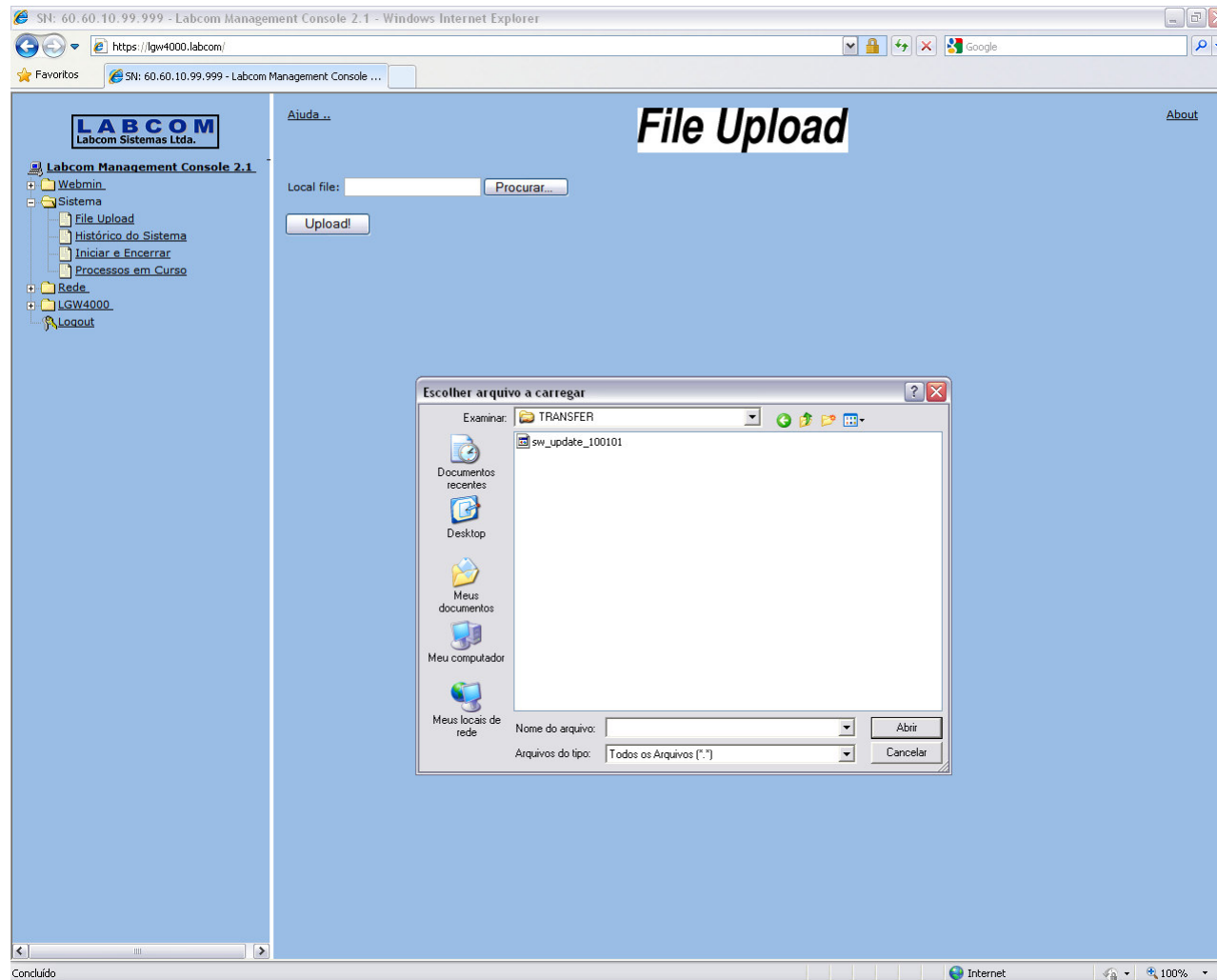
System summary	
User:	suporte
Remote IP:	201.82.4.14
Hostname:	lgw4000
Time:	Fri May 7 17:46:13 2010
Uptime:	17:46:13 up 7 days, 16:06, 1 user, load average: 0.18, 0.20, 0.18
Serial Number:	60.60.10.99.999

WEB Interface

Webmin – Change Language and Theme

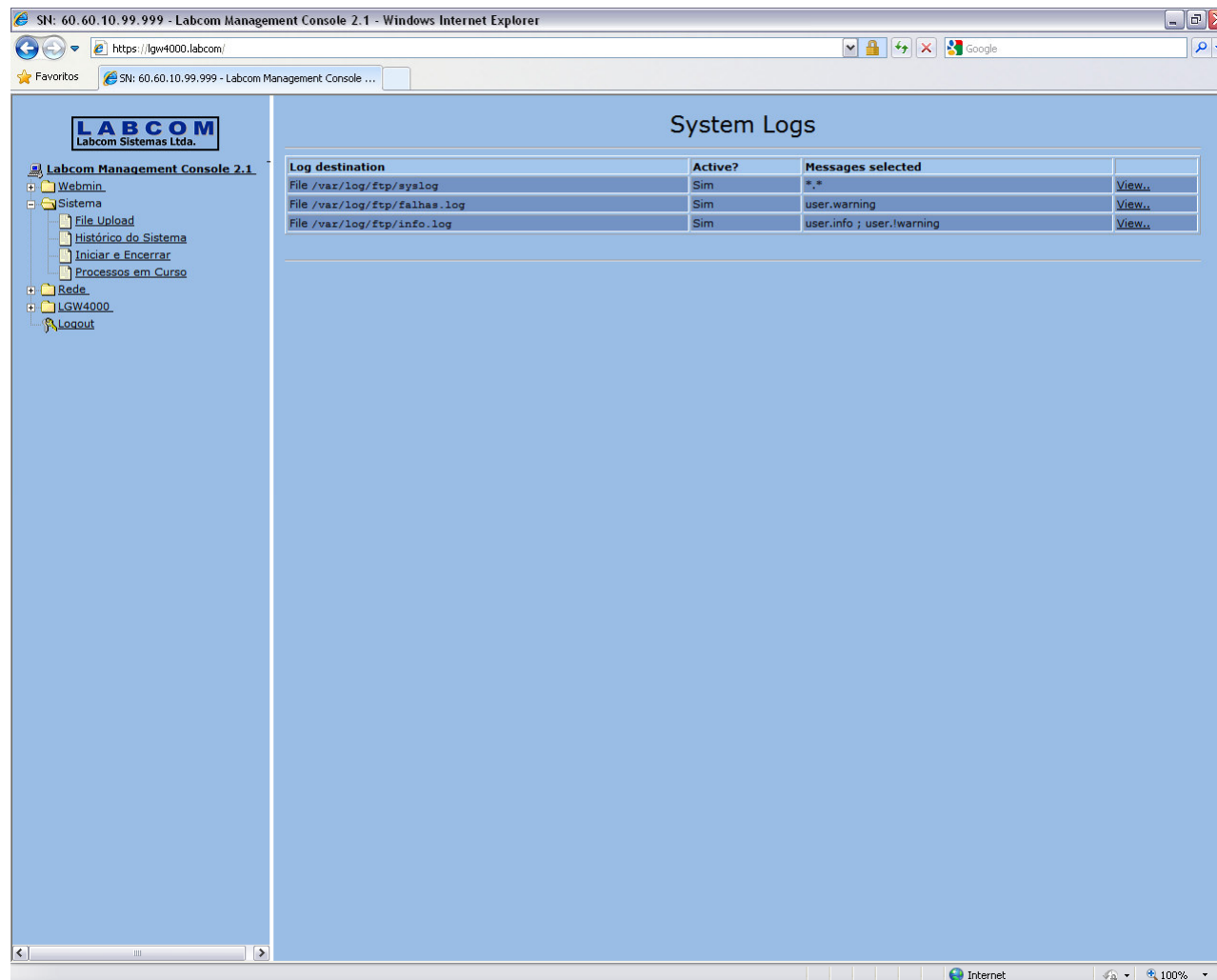


WEB Interface System – File Upload



WEB Interface

System – System Log



The screenshot shows a web browser window titled "SN: 60.60.10.99.999 - Labcom Management Console 2.1 - Windows Internet Explorer". The address bar shows "https://lgw4000.labcom/". The page content is divided into a left sidebar and a main area. The sidebar contains a tree view with the following items: "Webmin", "Sistema" (expanded), "File Upload", "Histórico do Sistema", "Iniciar e Encerrar", "Processos em Curso", "Rede", "LGW4000", and "Logout". The main area is titled "System Logs" and contains a table with the following data:

Log destination	Active?	Messages selected	
File /var/log/ftp/syslog	Sim	*,*	View..
File /var/log/ftp/falhas.log	Sim	user.warning	View..
File /var/log/ftp/info.log	Sim	user.info ; user.warning	View..

WEB Interface

System – View Logfile

SN: 60.60.10.99.999 - Labcom Management Console 2.1 - Windows Internet Explorer

https://lgw4000.labcom/

SN: 60.60.10.99.999 - Labcom Management Console ...

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Labcom Management Console 2.1

- Webmin
- Sistema
 - File Upload
 - Histórico do Sistema
 - Iniciar e Encerrar
 - Processos em Curso
- Rede
- LGW4000
- Logout

[Índice do Módulo](#)

View Logfile

/var/log/ftp/syslog

Last lines of /var/log/ftp/syslog Only show lines with text

May 7 10:30:01	lgw4000	cdriog: nCDR =	104	%OK = 57.7	%BF = 96.2
May 7 10:45:01	lgw4000	cdriog: nCDR =	105	%OK = 56.2	%BF = 98.1
May 7 11:00:01	lgw4000	cdriog: nCDR =	93	%OK = 49.5	%BF = 95.7
May 7 11:15:01	lgw4000	cdriog: nCDR =	120	%OK = 49.2	%BF = 97.5
May 7 11:30:01	lgw4000	cdriog: nCDR =	99	%OK = 60.6	%BF = 98.0
May 7 11:45:01	lgw4000	cdriog: nCDR =	75	%OK = 58.7	%BF = 100.0
May 7 12:00:01	lgw4000	cdriog: nCDR =	102	%OK = 54.9	%BF = 100.0
May 7 12:15:01	lgw4000	cdriog: nCDR =	103	%OK = 55.3	%BF = 90.3
May 7 12:30:01	lgw4000	cdriog: nCDR =	96	%OK = 67.7	%BF = 95.8
May 7 12:45:01	lgw4000	cdriog: nCDR =	137	%OK = 35.8	%BF = 97.8
May 7 13:00:01	lgw4000	cdriog: nCDR =	76	%OK = 51.3	%BF = 100.0
May 7 13:15:01	lgw4000	cdriog: nCDR =	100	%OK = 45.0	%BF = 99.0
May 7 13:30:01	lgw4000	cdriog: nCDR =	85	%OK = 64.7	%BF = 98.8
May 7 13:45:01	lgw4000	cdriog: nCDR =	102	%OK = 54.9	%BF = 96.1
May 7 14:00:01	lgw4000	cdriog: nCDR =	70	%OK = 52.9	%BF = 100.0
May 7 14:15:01	lgw4000	cdriog: nCDR =	76	%OK = 56.6	%BF = 98.7
May 7 14:30:01	lgw4000	cdriog: nCDR =	62	%OK = 54.8	%BF = 100.0
May 7 14:45:01	lgw4000	cdriog: nCDR =	74	%OK = 62.2	%BF = 100.0
May 7 15:00:01	lgw4000	cdriog: nCDR =	90	%OK = 47.8	%BF = 100.0
May 7 15:15:01	lgw4000	cdriog: nCDR =	73	%OK = 52.1	%BF = 98.6
May 7 15:30:01	lgw4000	cdriog: nCDR =	70	%OK = 62.9	%BF = 91.4
May 7 15:45:01	lgw4000	cdriog: nCDR =	79	%OK = 64.6	%BF = 93.7
May 7 16:00:01	lgw4000	cdriog: nCDR =	57	%OK = 71.9	%BF = 96.5
May 7 16:15:01	lgw4000	cdriog: nCDR =	68	%OK = 58.8	%BF = 98.5
May 7 16:30:01	lgw4000	cdriog: nCDR =	60	%OK = 46.7	%BF = 98.3
May 7 16:45:01	lgw4000	cdriog: nCDR =	70	%OK = 48.6	%BF = 98.6
May 7 17:00:01	lgw4000	cdriog: nCDR =	77	%OK = 53.2	%BF = 97.4
May 7 17:15:01	lgw4000	cdriog: nCDR =	82	%OK = 72.0	%BF = 98.8
May 7 17:30:01	lgw4000	cdriog: nCDR =	88	%OK = 50.0	%BF = 97.7
May 7 17:45:01	lgw4000	cdriog: nCDR =	85	%OK = 52.9	%BF = 91.8

Last lines of /var/log/ftp/syslog Only show lines with text

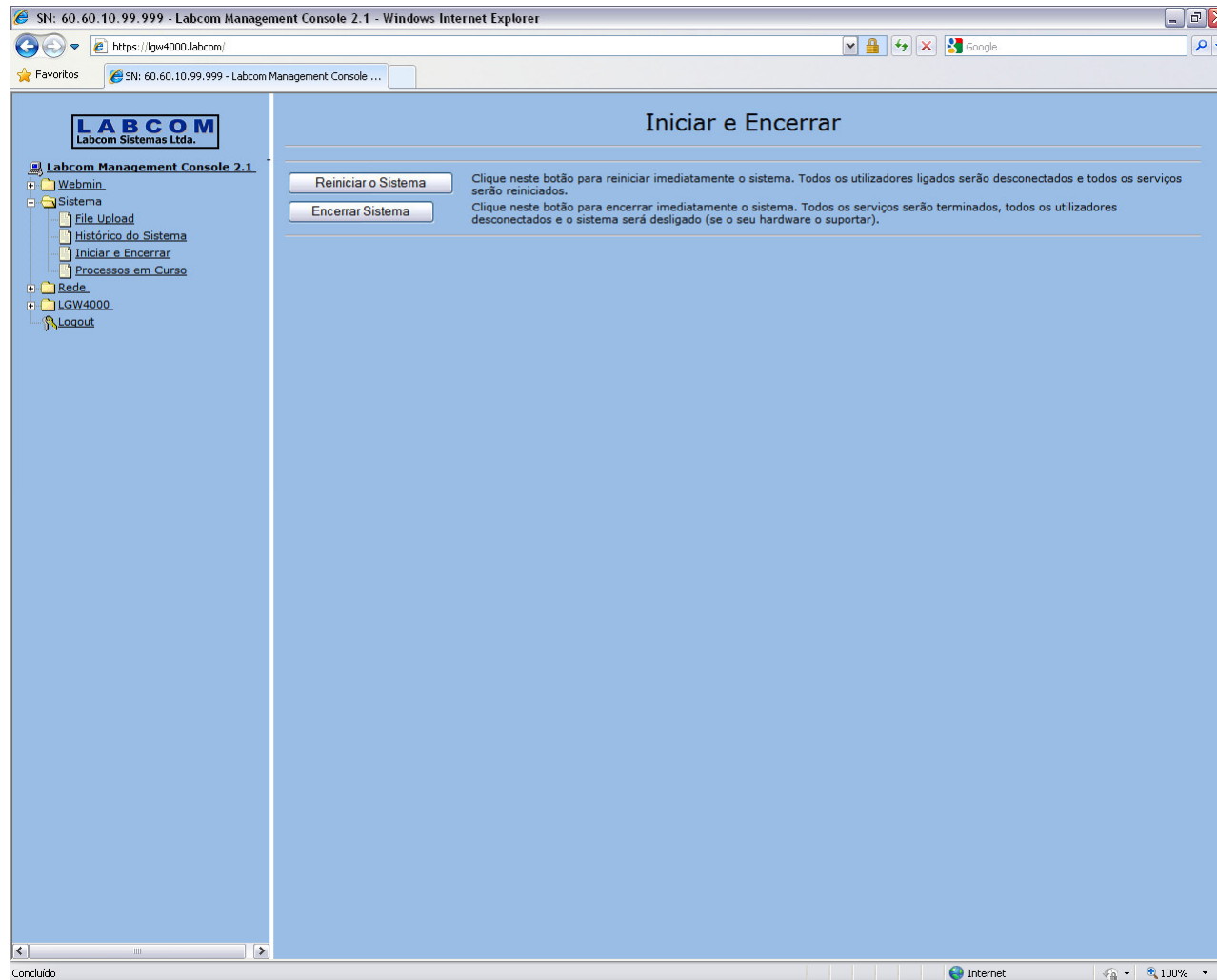
[Voltar à system logs](#)

Concluido

Internet 100%

WEB Interface

System – Startup and Shut Down



WEB Interface

System – Running Processes

SN: 60.60.10.99.999 - Labcom Management Console 2.1 - Windows Internet Explorer

https://lgw4000.labcom/

Favorites: SN: 60.60.10.99.999 - Labcom Management Console ...

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Labcom Management Console 2.1

- Webmin
- Sistema
 - File Upload
 - Histórico do Sistema
 - Iniciar e Encerrar
 - Processos em Curso
- Rede
- LGW4000
- Logout

Administrador de Processos

Mostrar : PID | Utilizador | Memória | CPU | Procurar

ID do processo	Proprietário	Started	Comando
1	root	Apr30	init [3]
1975	root	Apr30	/sbin/udev -d
2544	root	11:35	sendmail: accepting connections
2552	smmsp	11:35	sendmail: Queue runner@01:00:00 for /var/spool/clientmqueue
8242	root	Apr30	auditd
8244	root	Apr30	/sbin/audispd
8277	root	Apr30	syslogd -m 0
8280	root	Apr30	klogd -x
8302	rpc	Apr30	portmap
8330	dbus	Apr30	dbus-daemon --system
8346	root	Apr30	/usr/sbin/snmpd -Lsd -Lf /dev/null -p /var/run/snmpd.pid -a
8365	root	Apr30	/usr/sbin/sshd
7435	root	17:45	sshd: root@pts/0
7491	root	17:45	-bash
8382	root	Apr30	/usr/sbin/vsftpd /etc/vsftpd/vsftpd.conf
8430	root	Apr30	gpm -m /dev/input/mice -t exps2
8445	root	Apr30	crond
8474	xfx	Apr30	xfx -droppriv -daemon
8504	root	Apr30	/usr/sbin/atd
8524	root	Apr30	zhde -t -D -i -p 3000 16:X -1:Y
8525	root	Apr30	sdtsiga -x
8526	root	Apr30	tstp
8528	root	Apr30	g_dtsiga digium
8529	root	Apr30	s_dtsiga digium
8530	root	Apr30	traceload
8531	root	Apr30	uskg -p 5060
8532	root	Apr30	tstpx
8533	root	Apr30	sks -p 3001
8534	root	Apr30	teelabcom
8535	root	Apr30	sks -p 3011
8536	root	Apr30	grepX
8537	root	Apr30	sks -p 3020
8539	root	Apr30	prot_mtp2
8540	root	Apr30	prot_mtp3
8541	root	Apr30	prot_isup
8542	root	Apr30	sks -p 6100
8543	root	Apr30	dtsigalog ISUP
8544	root	Apr30	grepX
8545	root	Apr30	grepY
8546	root	Apr30	tstpx
8547	root	Apr30	sks -p 3021
8548	root	Apr30	prot_cin

Concluído

Internet 100%

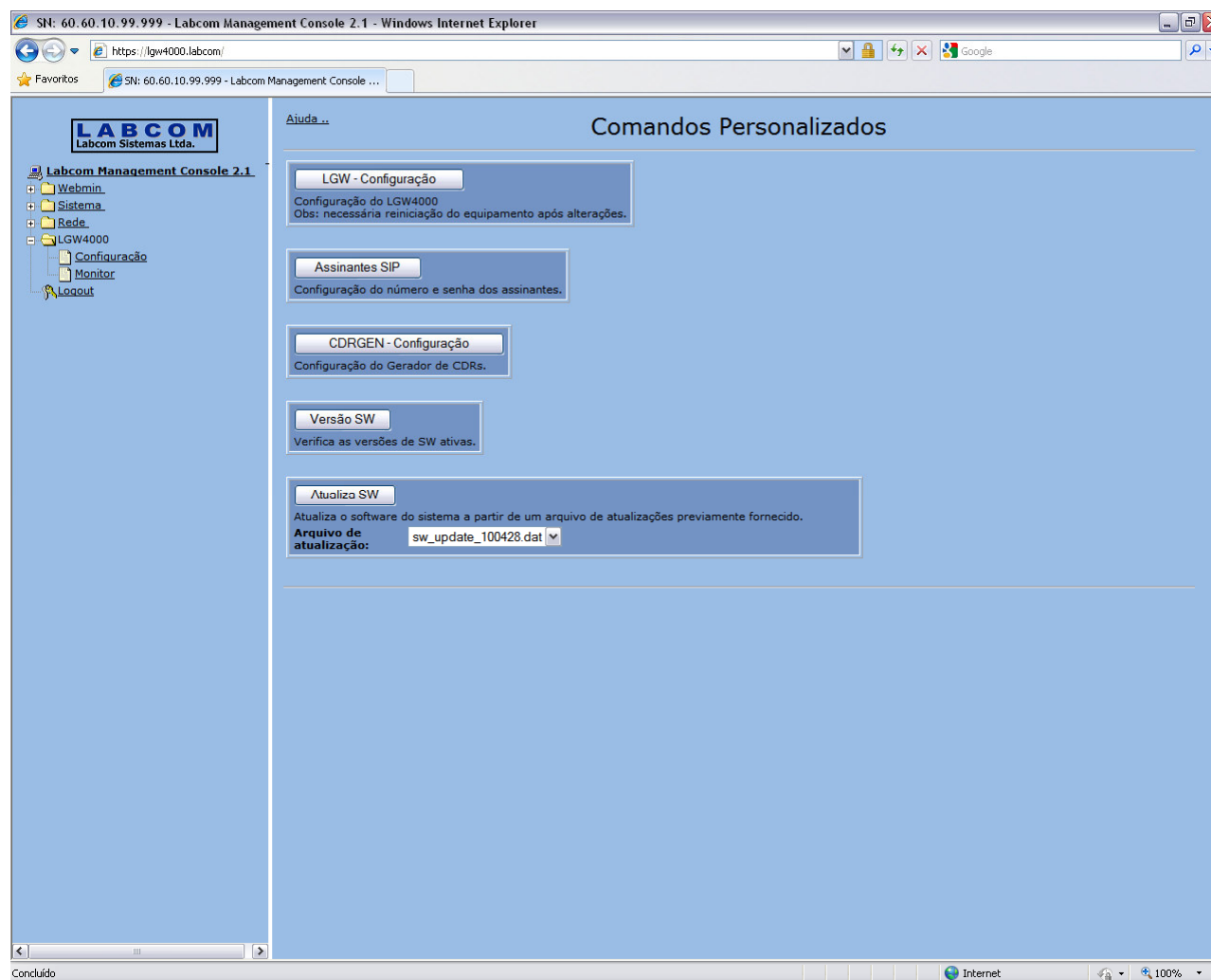
WEB Interface

Network – Network Configuration



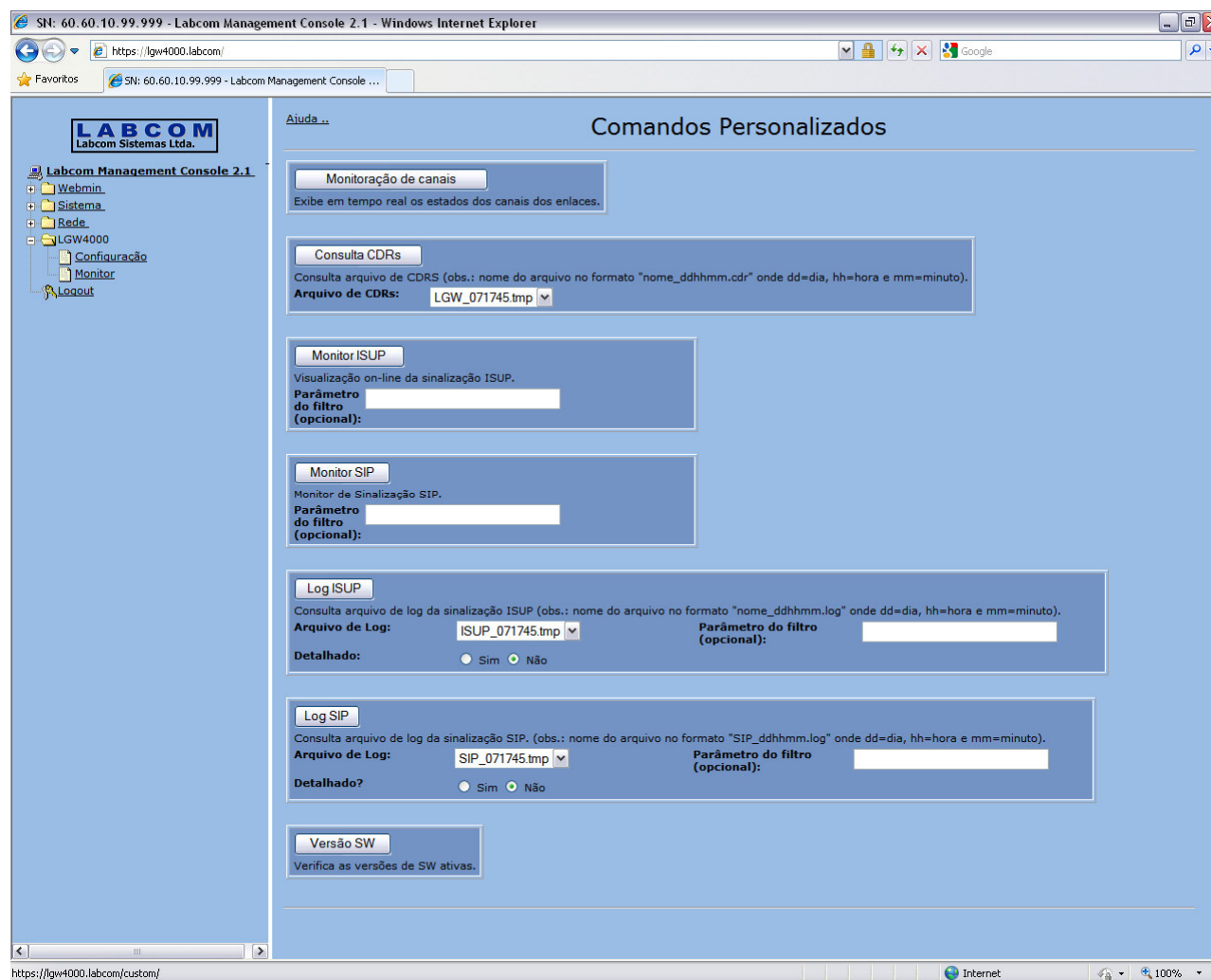
WEB Interface

LGW4000 – Configuration



WEB Interface

LGW4000 – Monitor



WEB Interface

LGW4000 – Channel Monitoring

SN: 60.60.10.99.999 - Labcom Management Console 2.1 - Windows Internet Explorer

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Labcom Management Console 2.1

- Webmin
- Sistema
- Rede
- LGW4000
 - Configuração
 - Monitor
 - Logout

Índice do Módulo
Ajuda...

Executar Comando
Monitoração de canais

Output from command ..

Pausar/Continuar Monitor Ativo

Atualizar

Monitoração de Canais

Uptime: 07/05/2010 17:48:43 up 7 days, 16:08, 1 user, load average: 0.30, 0.22, 0.18

ID Span 1: Card 0 Span 1 (MASTER) HDB3/CCS ClockSource

Canais ocupados: 3

1: LIVRE	2: OCUPADO	3: LIVRE	4: LIVRE
5: LIVRE	6: LIVRE	7: LIVRE	8: LIVRE
9: LIVRE	10: LIVRE	11: LIVRE	12: LIVRE
13: LIVRE	14: LIVRE	15: LIVRE	16: SIN
17: OCUPADO	18: OCUPADO	19: LIVRE	20: LIVRE
21: LIVRE	22: LIVRE	23: LIVRE	24: LIVRE
25: LIVRE	26: LIVRE	27: LIVRE	28: LIVRE
29: LIVRE	30: LIVRE	31: LIVRE	

ID Span 2: Card 0 Span 2 HDB3/CCS

Canais ocupados: 4

32: LIVRE	33: LIVRE	34: LIVRE	35: LIVRE
36: LIVRE	37: LIVRE	38: LIVRE	39: LIVRE
40: LIVRE	41: LIVRE	42: LIVRE	43: LIVRE
44: LIVRE	45: LIVRE	46: LIVRE	47: LIVRE
48: LIVRE	49: LIVRE	50: LIVRE	51: LIVRE
52: LIVRE	53: LIVRE	54: OCUPADO	55: LIVRE
56: LIVRE	57: OCUPADO	58: LIVRE	59: OCUPADO
60: OCUPADO	61: LIVRE	62: LIVRE	

ID Span 3: Card 0 Span 3 HDB3/CCS RED

Canais ocupados: 0

63: RED	64: RED	65: RED	66: RED
67: RED	68: RED	69: RED	70: RED
71: RED	72: RED	73: RED	74: RED
75: RED	76: RED	77: RED	78: RED
79: RED	80: RED	81: RED	82: RED
83: RED	84: RED	85: RED	86: RED
87: RED	88: RED	89: RED	90: RED
91: RED	92: RED	93: RED	

ID Span 4: Card 0 Span 4 HDB3/CCS RED

Canais ocupados: 0

94: RED	95: RED	96: RED	97: RED
98: RED	99: RED	100: RED	101: RED

Concluido

Internet 100%

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Labcom Media Gateway

LABCOM SISTEMAS LTDA

**Rua Jean Nassif Mokarzel, 67
Barão Geraldo – Campinas – SP – Brazil
Tel. +55 19 3579-9330**

**<http://www.labcomsistemas.com.br>
contato@labcomsistemas.com.br**
