International Civil Aviation Organization
South American Regional Office - Regional Project RLA/03/901
REDDIG Management System and Satellite Segment Administration
Nineteenth Meeting of the Coordination Committtee (RCC/19)
Lima, Peru, 7 to 9 March 2016

Agenda Item 4: Work plan for 2016

ACTIVITES FORESEEN FOR THE PERIOD 2016

(Presented by the Secretariat)

SUMMARY	
This paper presents information related to the activities foreseen by the project RL/03/901 - *REDDIG Management System and Satellite Segment Administration*Progress for year 2016.	
Reference	
• Sixteenth Workshop/Meeting of the SAM Implementation Group (19 to 23 October 2015).	
ICAO Strategic Objectives:	*A - Safety* *B – Air navigation capacity and efficiency*

1. Background

1.1 The main activities scheduled for 2016 are:

a) REDDIG II training programme; and
b) REDDIG II operation and analysis to the implementation of new services.

2. Analysis

REDDIG II TRAINING PROGRAMME

2.1 The following courses are planned for year 2016:

a) Basic course on CISCO routers and IP switch, Part II
b) REDDIG II Operation and management Course

Basic course on CISCO routers and IP switch, Part II

2.2 To complete the basic course on CISCO routers and IP switch, on 4 – 8 April 2016 will be carried out the second course "*Interconnecting Cisco Devices Part 2 (ICND2)"*. The cost of the course ICDN2 for a maximum of 16 participants is of USD 7,200.00 (seven thousand two hundred US dollars) approximately. In addition to this cost it should be considered simultaneous interpretation services, the cost of a mission (tickets and travel expenses of the administrator of the REDDIG) from Manaus to Lima and the cost of fellowships by node.

2.3 The course is addressed to the staff in charge of the operation and maintenance of the REDDIG that has attended the first course of *"Interconnecting Cisco Network Devices Part 1"* (ICND1) participants preferably must have firm background in data networking and some experience in management of routers and CISCO switches.

2.4 Upon completing this course, the participants will be able to:

- Operate a medium-sized LAN with multiple switches, supporting VLANs, trunking and spanning three
- Troubleshoot IP connectivity
- Configure and troubleshoot EIGRP in an IPv4 environment, and configure EIGRP for IPv6
- Configure and troubleshoot OSPF in an IPv4 environment, and configure OSPF for IPv6
- Define characteristics, functions and components of a WAN
- Describe SNMP, syslog and NetFlow, and manage Cisco device configurations, Cisco IOS images and licenses.

2.5 The **Appendix A** to this paper summarizes the content of the ICND2 course.

REDDIG II Operation and management Course

2.6 A course on operation and maintenance of the REDDIG II has been planned for the technical staff of the REDDIG II Member States who have not attended the courses of operation and maintenance of REDDIG II carried out in 2015.

2.7 This course will be delivered in Spanish language from 5 to 9 September 2016 in a member State from the SAM Region and in English language from 26 to 30 September 2016 in Georgetown, Guyana. The content of the course is presented as **Appendix B** of this working paper.

2.8 Costs of both courses include for each of them: mission (ticket and travel expenses for the REDDIG Administrator) from Manaus to the site of the course and a fellowship per node.

REDDIG II operations and analysis of the implementation of new services

REDDIG II operations

Activities to resolve REDDIG II pending matters

2.9 As detailed described in WP/03, is expected to solve the random freezing at some of the satellite modems in 2016. The solution has been suggested by the manufacturer of the ND MODEMs, SATCOM.

2.10 The activities to solve the freezing problem are programmed to be completed in March 2016. In case the problem is solved, the final acceptance test of the REDDIG II (FSAT) will take place.

FSAT Tests

2.11 To complete the final acceptance tests of the REDDIG II (FSAT) the supplier of the REDDIG II (INEO) according to the REDDIG II contract (2250120) shall submit to the management of the project a test protocol and the implementation date for the final acceptance tests. The preliminary test FSAT Protocol was presented by the Consortium INEO LEVEL 3 as part of the design documentation of the REDDIG II (SDD) and is presented as **Appendix C** to this working paper. This document should be updated by INEO in view that the FSAT will be made only for the satellite network since the FSAT for the ground network was already made.

Ground network performance (LEVEL 3)

2.12 With the implementation of the Amendment IV to the REDDIG II contract, and as is

also described in WP/03, the final acceptance test of the ground network performance proceeded. In this sense on 31 December 2015 concluded the six-month ground network services (Level 3) established in the REDDIG II contract.

2.13 Consequently on 1 January 2016 started the fifty-four months period of direct service between ICAO on behalf of REDDIG member States, and LEVEL 3 Peru.

2.14 **Appendix D** to this working paper presents the Service Level Agreement (SLA) included as Appendix XI to in the REDDIG II contract. Taking into account that this SLA corresponds to the first six-month of service, the Meeting should evaluate the performance in order to decide if the next period can be operated in the same way.

2.15 Level 3 informed to the project management that on monthly basis they will presented a report on the service availability in the ground network. The December report of Level 3 is presented as **Appendix E** to this working paper showing the availability of December 2015.

2.16 Likewise Level 3 reported that the website pertaining to our ground network as well as the report failure process is under revision and the results will be informed in due course. The access to the Level 3 web is through: http://latam.ucommand.com/nm/InfoViewApp/logon.jsp / user name: *icao* / password: *level 3.*

Implementation of the Brasilia node

2.17 The new Brasilia node started operations on 4 February 2016. The acceptance tests were carried out and signed on 5 February 2016. The results of the acceptance test and the certificate are shown in **Appendix F** to this working paper. In these acceptance tests the IBUC and LNB switching test failed. AFTN, hot lines, IP telephony tests remained pending as well as the test with the terrestrial network services for not being available.

2.18 On this respect INEO reported that tests on pending aspects will take place on the date at which LEVEL 3 will complete the connection of their network with to the node of Brasilia which is estimated by the end of the month of March 2016.

Relocation of the Bogota node

2.19 On 13 October 2015, the focal point of Colombia requested through the management of the REDDIG II, a quotation to INEO & LEVEL 3 CONSORTIUM to relocate the current Bogota node to a new location where the equipment of the new Centro de Gestión Aeronáutico de Colombia (CGAC) will be installed, inside the internal areas of the International Airport of Bogota with coordinates 4°42’21” N – Long. 74°09’11” W Lat.

2.20 The activities initially considered for the relocation of the Bogotá node are presented as **Appendix G** of this working paper, in it INEO is requested to analyze the possibility of using an antenna belonging to Colombia (Andrew model C37T c-band of 3. 7 m in diameter) in order to expedite the work of transfer minimizing interruptions of the services on the node.

2.21 On this respect, INEO presented on 8 February 2016 an economic proposal for the relocation of Bogota node with two options, one including the installation of a new antenna and the other considering the installation of the current REDDIG antenna of Bogota node. The use of the antenna Andrew was disregarded by INEO due to the risks involved, but informed that if Colombia assumes the responsibility of installing such antenna, INEO prior verification of its operation would complete the transfer task. As **Appendix H** to this paper, a copy of the proposal is presented.

2.22 The proposal is under analysis by Colombia as is expected that during the meeting the results will be known.

REDDIG II New services

2.23 The implementation of new AMHS circuits us foreseen for 2016. The **Appendix I** presents a chart with the circuits o be implemented and the estimated date. At early 2016, the AMHS circuit between Brazil and Peru begin operating.

3. **Suggested action**

3.1 The Coordination Committee is invited to:

a) Take note of the information provided;
b) Review the activities planned for 2016 described in Section 2, and Appendices A to I ofthis working paper; and
c) Analyse any other aspect deemed necessary for REDDIG RLA/03/901 project for 2016.

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Interconnecting Cisco Network Devices Part 2 (ICND2)

Quién debería asistir

ICND2 is designed for those who have a firm background in data networking, have some hands-on experience with Cisco routers and switches, and are looking to increase their knowledge of installation, maintaining, and troubleshooting medium-sized switched and routed networks or for those who are looking to achieve the first level of Cisco certification, the CCNA.

We strongly recommend that other students start with ICND1.

Prerrequisitos

Before taking Interconnecting Cisco Network Devices Part 2 (ICND2), students should take:

- Interconnecting Cisco Network Devices Part 1 (ICND1)

Objetivos del curso

Upon completing this course, you will be able to meet these objectives:

- Operate a medium-sized LAN with multiple switches, supporting VLANs, trunking, and spanning tree
- Troubleshoot IP connectivity
- Configure and troubleshoot EIGRP in an IPv4 environment, and configure EIGRP for IPv6
- Configure and troubleshoot OSPF in an IPv4 environment, and configure OSPF for IPv6
- Define characteristics, functions, and components of a WAN
- Describe SNMP, syslog, and NetFlow, and manage Cisco device configurations, Cisco IOS images, and licenses

Esquema Detallado del Curso

Module 1: Implementing Scalable Medium-Sized Networks

- Lesson 1: Troubleshooting VLAN Connectivity
- Lab 1-1: Troubleshooting VLANs and Trunks
- Lesson 2: Building Redundant Switched Topologies
- Lab 1-2: Optimizing STP
- Lesson 3: Improving Redundant Switched Topologies with EtherChannel
- Lab 1-3: Configuring EtherChannel
- Lesson 4: Understanding Layer 3 Redundancy
- Module 2: Troubleshooting Basic Connectivity
- Lesson 1: Troubleshooting IPv4 Network Connectivity
- Lab 2-1: Troubleshooting IP Connectivity
- Lesson 2: Troubleshooting IPv6 Network Connectivity

Module 3: Implementing an EIGRP-Based Solution

- Lesson 1: Implementing EIGRP
- Lab 3-1: Implementing EIGRP
- Lesson 2: Troubleshooting EIGRP
- Lab 3-2: Troubleshooting EIGRP
- Lesson 3: Implementing EIGRP for IPv6
- Lab 3-3: Implementing EIGRP for IPv6
- Lesson 4: Module Summary
- Lesson 5: Module Self-Check

Module 4: Implementing a Scalable, Multi-area Network, OSPF Based Solution

- Lesson 1: OSPF Overview
- Lesson 2: Multiarea OSPF IPv4 Implementation
- Lab 4-1: Configuring Multiarea OSPF
- Lesson 3: Troubleshooting Multiarea OSPF
- Lab 4-2: Troubleshooting Multiarea OSPF
- Lesson 4: Examining OSPFv3
- Lab 4-3: Configuring OSPF for IPv6
- Lesson 5: Module Summary
- Lesson 6: Module Self-Check

Module 5: Wide-Area Networks

- Lesson 1: Understanding WAN Technologies
- Lesson 2: Configuring Serial Encapsulation
- Lab 5-1: Configuring and Troubleshooting a Serial Connection
- Lesson 3: Establishing a WAN Connection Using Frame Relay
- Lab 5-2: Establishing a Frame Relay WAN
- Lesson 4: Introducing VPN Solutions
- Lesson 5: Configuring GRE Tunnels
- Lab 5-3: Establishing a GRE Tunnel
- Lesson 6: Module Summary
- Lesson 7: Module Self-Check

Interconnecting Cisco Network Devices Part 2 (ICND2)

Module 6: Network Device Management

- Lesson 1: Configuring Network Devices to Support Network Management Protocols
- Lab 6-1: SNMP and Syslog Basic Configuration
- Lab 6-2: Analyzing NetFlow Data
- Lesson 2: Managing Cisco Devices
- Lesson 3: Licensing
- Lab 6-3: Managing Cisco Devices and Licensing

Module S: ICND2 Superlab

- Lab S-2: ICND2 Superlab

APPENDIX B

REDDIG II Operation and management Course

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1. Architecture of the REDDIG II

- Satellite network
- Support ground network
- Global Plan for Addressing IP

2. REDDIG II Nodes

- Types and Components
- Local IP Addressing Plan

3. RF Equipment

- IBUC + Redundancy
- LNB + Redundancy
- HHT and TCP/IP (Web) Access

4. Modem Skywan

- Model 7000
- Model 1070
- Redundancy
- 'Telnet" and "Line-up Manager" Access
- Performance

5. Ethernet Switch Netgear

6. Router Cisco

- Interfaces
- VRRP redundancy protocol
- OSPF routing protocol
- VLANs
- Commands on line
- Interfaces monitoring
- Settings

7. Baseband Commuter (RSS) and "Patch Panel"

8. NMS – WhatsUp Gold

- NMS Central Server
- NMS Remote Server (Local)
- Web access
- Modules and displays
- Monitors
    - Active Monitor
    - Performance Monitor
- Alarms

Final Site Acceptance Test

Reference :	**ICAO REQUEST FOR TENDER : ST-22501200**
File :	**FSAT NT 2022-2141166R rev B.doc**
Project :	**NEW TRANSPORTATION NETWORK OF THE REGIONAL AERONAUTICAL TELECOMMUNICATION NETWORK (REDDIG II)**
Portion:	**Final Site Acceptance Test**

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1 INTRODUCTION

This document presents the procedure for the Final Site Acceptance Test of the REDDIG II network. The test will be centralized from one of the central sites (Manaus or Ezeiza). If some tests are to be achieved on different sites, they will be achieved by local staff, under remote assistance from Manaus or Ezeiza.

The following tests must only be achieved if they resulted faulty during the PSAT / NAT.

Tests will be processed as follows:

- Check of outdoor equipment capabilities
- Check of communications links between the sites
- Check of indoor equipment capabilities
- Check of the monitoring system

2 PSAT TESTS

The following tests must only be achieved if they resulted faulty during the PSAT / NAT.

2.1 OUTDOOR UNITS TESTS

2.1.1 Tx Switch

The IBUC (Intelligent Block Up Converter) are in a redundant configuration on every site. This test will validate the redundancy of the C-band power amplifiers.

Check that the LEDs are green.
Check that there are no alarms on the site with the IBUC webpage. Disconnect one RF cable from the online IBUC and check that the standby transmit chain becomes active.

In order to test the switching is working both way, do the test for the other IBUC.

Test	Results (Ok/Nok)
IBUC A to B	
IBUC B to A	
Comments:	

Figure 1 - TX switch test

2.1.2 Rx Switch

This test will validate the redundancy of the low noise amplifiers (LNB).

Check that the LEDs are green.
Check that there are no alarms on the LNB. Disconnect the cable from the online LNB and check that the standby chain becomes active.

Do the test for the other LNB.

Test	Results (Ok/Nok)
LNB A to B	
LNB B to A	
Comments:	

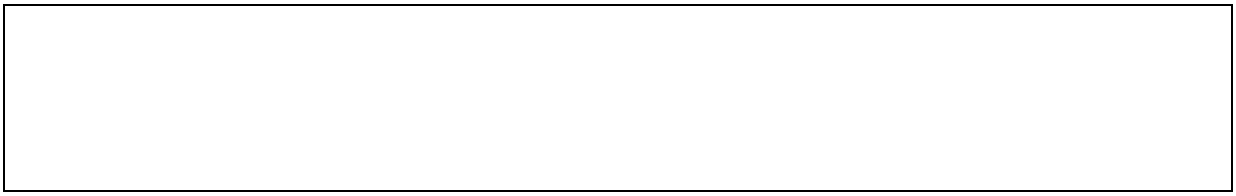


Figure 2 - RX switch test

2.2 COMMUNICATION TESTS

THE TESTS TO BE ACHIEVED IN THIS SECTION ARE THE ONE THAT DID NOT PASS THE PSAT EXAM.

THERE IS NO NEED TO MAKE ONCE AGAIN THE TESTS THAT WHERE ALREADY SUCCESSFUL DURING PSAT.

2.2.1 RADAR and ASterix

There are two types of RADAR:

- Serial
- IP based.

2.2.1.1 Serial RADAR

For serial RADAR, the bandwidth will be already assigned, as it corresponds to existing systems. Serial RADAR will be tested using synchronous testers. Bisync will not be tested, as this protocol is old and not supported by testers.

The serial RADAR is used between Chile, Argentina, and Uruguay:

RADAR	Argentina	Uruguay
Argentina	---	2 (TX, RX)
Uruguay	2 (TX, RX)	---

RADAR - chain A	Argentina	Uruguay
Argentina	---	
Uruguay		---

RADAR - chain B	Argentina	Uruguay
Argentina	---	
Uruguay		---

Figure 3- Serial RADAR tests

2.2.2 ATS/DS circuits

All ATS/DS calls are auto-dialed. The communication is established after the user hangs the phone.

The test will consist of using the associated end-user phone, hang-it up and make a conversation to the other end of the line.

ATHS Hot line	Argentina	Bolivia	Brazil (Curitiba)	Brazil (Manaus)	Brazil (Recife)	Chile	Colombia	Ecuador	French Guiana	Guyana	Paraguay	Peru	Suriname	Trinidad and Tobago	Uruguay	Venezuela	*Tegucigalpa*
Argentina																	
Bolivia																	
Brazil (Curitiba)																	
Brazil (Manaus)																	
Brazil (Recife)																	
Chile																	
Colombia																	
Ecuador																	
French Guiana																	
Guyana																	
Paraguay																	
Peru																	
Suriname																	
Trinidad and Tobago																	

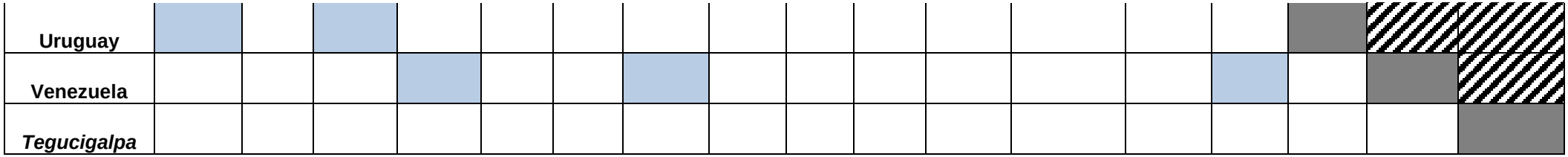


Figure 4 – ATS/DS cross matrix – chain A

ATHS Hot line	Argentina	Bolivia	Brazil (Curitiba)	Brazil (Manaus)	Brazil (Recife)	Chile	Colombia	Ecuador	French Guiana	Guyana	Paraguay	Peru	Suriname	Trinidad and Tobago	Uruguay	Venezuela	*Tegucigalpa*
Argentina																	
Bolivia																	
Brazil (Curitiba)																	
Brazil (Manaus)																	
Brazil (Recife)																	
Chile																	
Colombia																	
Ecuador																	
French Guiana																	
Guyana																	

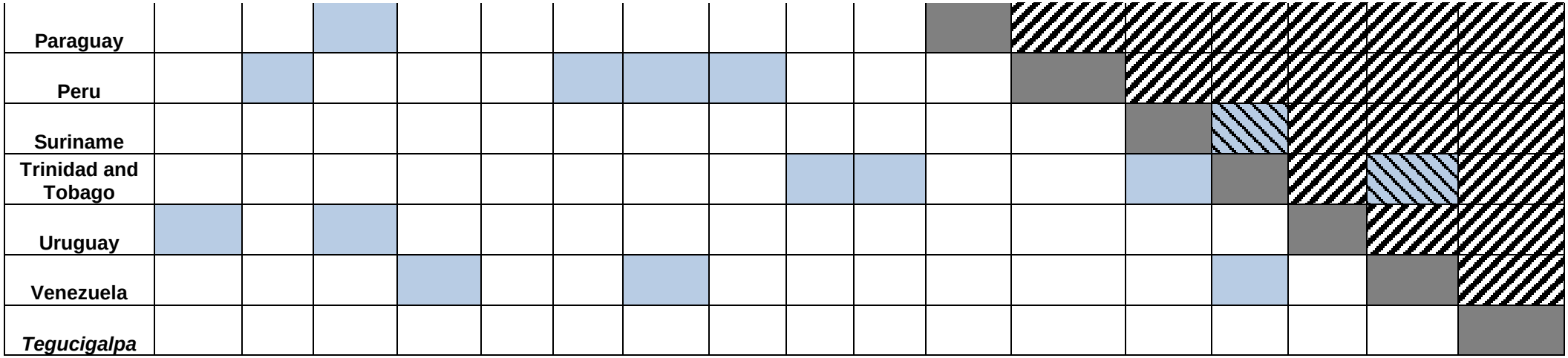


Figure 5 – ATS/DS cross matrix – chain B

2.2.3 ATS switeched circuits

ATS switched calls are dialed. The communication is established after the user hangs up the phone and dials the remote dial number.

The test will consist of using the associated end-user phone, hang-it up, dial any remote dial number and make a conversation to the other end of the line.

The MEVA II interconnection will be tested during this phase.

ATS switched	Argentina	Bolivia	Brazil (Curitiba)	Brazil (Manaus)	Brazil (Recife)	Chile	Colombia	Ecuador	French Guiana	Guyana	Paraguay	Peru	Suriname	Trinidad and Tobago	Uruguay	Venezuela	*Tegucigalpa*
Argentina																	
Bolivia																	
Brazil (Curitiba)																	
Brazil (Manaus)																	
Brazil (Recife)																	
Chile																	
Colombia																	
Ecuador																	
French Guiana																	
Guyana																	
Paraguay																	
Peru																	
Suriname																	
Trinidad and Tobago																	

Uruguay																	
Venezuela																	
Tegucigalpa																	

Figure 6 - ATS switched cross matrix – chain A

ATS switched	Argentina	Bolivia	Brazil (Curitiba)	Brazil (Manaus)	Brazil (Recife)	Chile	Colombia	Ecuador	French Guiana	Guyana	Paraguay	Peru	Suriname	Trinidad and Tobago	Uruguay	Venezuela	*Tegucigalpa*
Argentina																	
Bolivia																	
Brazil (Curitiba)																	
Brazil (Manaus)																	
Brazil (Recife)																	
Chile																	
Colombia																	
Ecuador																	
French Guiana																	
Guyana																	
Paraguay																	
Peru																	
Suriname																	
Trinidad and Tobago																	

Uruguay																	
Venezuela																	
Tegucigalpa																	

Figure 7 - ATS switched cross matrix – **chain B**

ATS switched	Local number	Dialled number
Argentina	20140 (5 ports)	20..
Bolivia	25100 (2 ports)	25..
	25153	2553
Brazil (Curitiba)	30140 (4 ports)	30..
Brazil (Manaus)	36140 (2 ports)	36..
	36112	3612
Brazil (Recife)	38140 (5 ports)	38..
Chile	40140 (4 ports)	40..
Colombia	45100 (7 ports)	
Ecuador	50151	5051
	50152	5052
	50153	5053
	50160	5060
French Guiana	92104	9252
	92141	9254
Guyana	90100	90..
	90102	9051
	90141	9053
Paraguay	55142	5551
Peru	60100 (5 ports)	60..
Suriname	94102	9451
	94100	94..
Trinidad and Tobago	-	-
Uruguay	65142	6550
	65102	6551
Venezuela	80141	8060
	80143	8051
	80144	8053
	8010001	*8001*
	8010002	*8002*
	8010003	*8003*
Tegucigalpa		

MEVA	Destination	Local number	Dialled number	Digits forwarded
Venezuela	Aruba	29..	29..	All
	Curaçao	22..	22..	All
	San Juan	18..	22..	All
Colombia	Curaçao	22..	22..	All
	Panama	39..	39..	All
	Kingston	30..	30..	All

MEVA	Destination	OK/KO	Comment
Venezuela	Aruba		
	Curaçao		
	San Juan		
Colombia	Curaçao		
	Panama		
	Kingston		

Figure 8 - MEVAII test - chain A

MEVA	Destination	OK/KO	Comment
Venezuela	Aruba		
	Curaçao		
	San Juan		
Colombia	Curaçao		
	Panama		
	Kingston		

Figure 9 - MEVAII test – chain B

2.2.4 Administrative voice

The administrative voice is a closed network, that is only able to call a remote administrative voice and the local ATS phone.

The test will consist in selecting a site and try several connections to a remote administrative voice and local ATS.

Admin	Quantity of ports	Local number	Dialled number
Argentina	2	20201	2001
		20241	20..
Bolivia	3	25201	2501
		25240 (2 ports)	25..
Brazil (Curitiba)	3	30200 (2 ports)	30..
		30201	3001
Brazil (Manaus)	4	36211	3611
		36201	3601
		36202	3602
		3620001	*3603*
Brazil (Recife)	3	38200 (2 ports)	38..
		38241	3801
Chile	2	40200 (2 ports)	40..
Colombia	2	45200 (2 ports)	45..
Ecuador	3	50200 (2 ports)	50..
		50203	5003
French Guiana	2	92201	9201
		92202	9202
Guyana	1	90201	90201
Paraguay	4	55200 (3 ports)	55..
		55201	5501
Peru	3	60200 (3 ports)	60..
Suriname	1	94201	9401
		94240	94..
Trinidad and Tobago	2	91201	9101
		91240	91..
Uruguay	2	65201	6501
		65241	6541
Venezuela	1	80201	8001
Tegucigalpa	1	2101	2101

Admin	Argentina	Bolivia	Brazil (Curitiba)	Brazil (Manaus)	Brazil (Recife)	Chile	Colombia	Ecuador	French Guiana	Guyana	Paraguay	Peru	Suriname	Trinidad and Tobago	Uruguay	Venezuela	*Tegucigalpa*
Argentina																	
Bolivia																	
Brazil (Curitiba)																	
Brazil (Manaus)																	
Brazil (Recife)																	
Chile																	
Colombia																	
Ecuador																	
French Guiana																	
Guyana																	
Paraguay																	
Peru																	
Suriname																	
Trinidad and Tobago																	

Uruguay																	
Venezuela																	
Tegucigalpa																	

Figure 10 - Administrative cross matrix – chain A

Admin	Argentina	Bolivia	Brazil (Curitiba)	Brazil (Manaus)	Brazil (Recife)	Chile	Colombia	Ecuador	French Guiana	Guyana	Paraguay	Peru	Suriname	Trinidad and Tobago	Uruguay	Venezuela	*Tegucigalpa*
Argentina																	
Bolivia																	
Brazil (Curitiba)																	
Brazil (Manaus)																	
Brazil (Recife)																	
Chile																	
Colombia																	
Ecuador																	
French Guiana																	
Guyana																	
Paraguay																	
Peru																	
Suriname																	
Trinidad and Tobago																	

Uruguay																	
Venezuela																	
Tegucigalpa																	

Figure 11 - Administrative cross matrix – **chain B**

2.2.5 Teleconference

Teleconference service is achieved using Cisco's Communication Manager with 25 users license. The teleconference will be centralized from Manaus and Ezeiza. Those sites will be the only ones to have the 25 seats license. The other stations will be "clients" to this service, which means that a permanent dial number will be present for the organization of conference call (it will be different between Ezeiza and Manaus), and states will join the conference call dialing this number. The maximum number of participants for one DSP is 16.

Teleconference proposed numbers are:

- 20300 in Ezeiza
- 36300 in Manaus
-

Establish a conference with at least 3 members.

Teleconference	OK/KO	Comment
Sites participating:		
Comments		

Figure 12 - Teleconference - chain A

Teleconference	OK/KO	Comment
Sites participating:		
Comments		

Figure 13 - Teleconference - chain B

2.2.6 AFTN circuits

The test will consist of connecting a PC to the AFTN port at the back of the rack (with the right speed and configuration 8/N/1) and close the serial interface at the other end of the circuit (loop). With the PC launch the *winssd* program and start the BER test. Run the test for 5 minutes and check that there are only a few errors .

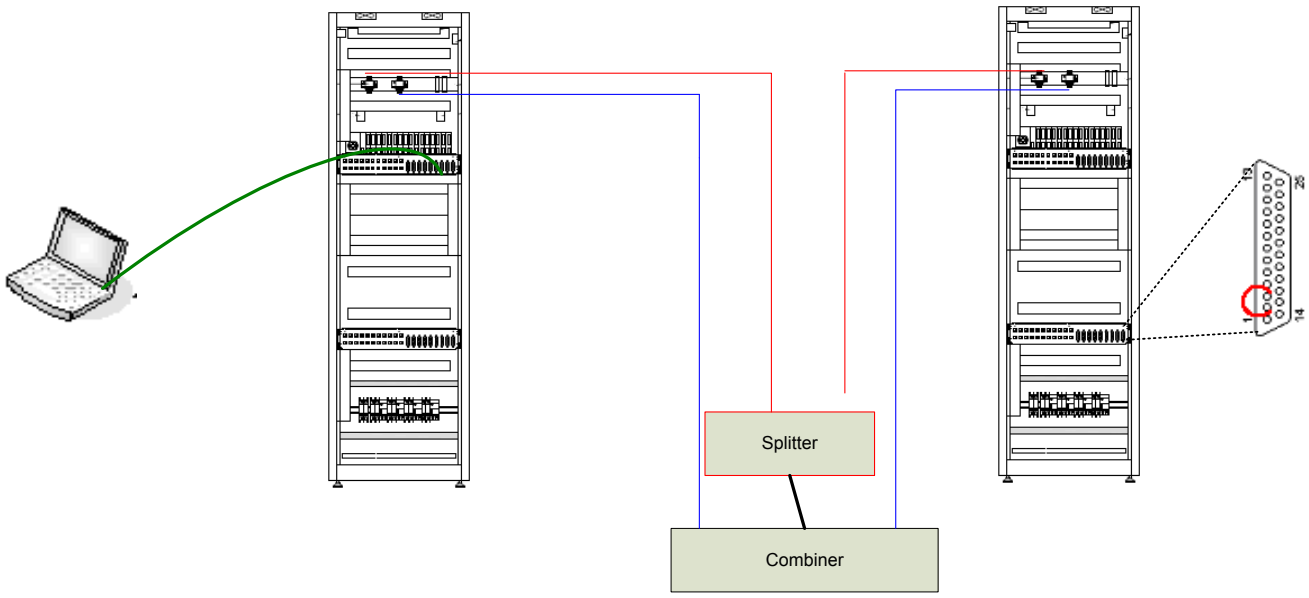


Figure 14 - AFTN test mounting

AFTN	Argentina	Bolivia	Brazil (Curitiba)	Brazil (Manaus)	Brazil (Recife)	Chile	Colombia	Ecuador	French Guiana	Guyana	Paraguay	Peru	Suriname	Trinidad and Tobago	Uruguay	Venezuela	*Tegucigalpa*
Argentina		2	1			1					2	2 (3)			1		
Bolivia	2		1									1					
Brazil (Curitiba)	1	1									1				1		
Brazil (Manaus)							2			1		1	1				
Brazil (Recife)																1	
Chile	1											1					
Colombia				2								2				1	
Ecuador							1					1				1	
French Guiana				1												1	
Guyana				1									1			1	
Paraguay	2		1														
Peru	2 (3)	1		1		1	2	1								1	
Suriname				1						1						1	
Trinidad and Tobago										1						1	
Uruguay	1		1														
Venezuela					1		1	1	1	1		1	1	1			
Tegucigalpa																	

Figure 15 - AFTN interfaces

AFTN	Argentina	Bolivia	Brazil (Curitiba)	Brazil (Manaus)	Brazil (Recife)	Chile	Colombia	Ecuador	French Guiana	Guyana	Paraguay	Peru	Suriname	Trinidad and Tobago	Uruguay	Venezuela	*Tegucigalpa*
Argentina																	
Bolivia																	
Brazil (Curitiba)																	
Brazil (Manaus)																	
Brazil (Recife)																	
Chile																	
Colombia																	
Ecuador																	
French Guiana																	
Guyana																	
Paraguay																	
Peru																	
Suriname																	
Trinidad and Tobago																	
Uruguay																	
Venezuela																	
Tegucigalpa																	

Figure 16 - AFTN tests results – chain A

AFTN	Argentina	Bolivia	Brazil (Curitiba)	Brazil (Manaus)	Brazil (Recife)	Chile	Colombia	Ecuador	French Guiana	Guyana	Paraguay	Peru	Suriname	Trinidad and Tobago	Uruguay	Venezuela	*Tegucigalpa*
Argentina																	
Bolivia																	
Brazil (Curitiba)																	
Brazil (Manaus)																	
Brazil (Recife)																	
Chile																	
Colombia																	
Ecuador																	
French Guiana																	
Guyana																	
Paraguay																	
Peru																	
Suriname																	
Trinidad and Tobago																	
Uruguay																	
Venezuela																	
Tegucigalpa																	

Figure 17 - AFTN tests results – **chain B**

2.2.7 AMHS and AIDC

AIDC is not in service now, and thus cannot be tested.

AMHS service is TCP/IP based. To test it:

- ping any remote equipment in the network according to the following cross matrix.
- Verify that the end user is exchanging information correctly.

AMHS	Argentina	Bolivia	Brazil (Curitiba)	Brazil (Manaus)	Brazil (Recife)	Chile	Colombia	Ecuador	French Guiana	Guyana	Paraguay	Peru	Suriname	Trinidad and Tobago	Uruguay	Venezuela	*Tegucigalpa*
Argentina		1	1			1					1	1			1		
Bolivia	1		1									1					
Brazil (Curitiba)	1	1									1				1		
Brazil (Manaus)							1		1	1		1	1				
Brazil (Recife)																1	
Chile	1											1					
Colombia				1				1				1				1	
Ecuador							1					1				1	
French Guiana				1												1	
Guyana				1									1	1		1	
Paraguay	1		1														
Peru	1	1		1		1	1	1								1	
Suriname				1						1						1	
Trinidad and Tobago										1						1	
Uruguay	1		1													1	
Venezuela					1		1	1	1	1		1	1	1			
Tegucigalpa																	

Figure 18 - AMHS cross matrix

AMHS	Argentina	Bolivia	Brazil (Curitiba)	Brazil (Manaus)	Brazil (Recife)	Chile	Colombia	Ecuador	French Guiana	Guyana	Paraguay	Peru	Suriname	Trinidad and Tobago	Uruguay	Venezuela	*Tegucigalpa*
Argentina																	
Bolivia																	
Brazil (Curitiba)																	
Brazil (Manaus)																	
Brazil (Recife)																	
Chile																	
Colombia																	
Ecuador																	
French Guiana																	
Guyana																	
Paraguay																	
Peru																	
Suriname																	
Trinidad and Tobago																	
Uruguay																	
Venezuela																	
Tegucigalpa																	

Figure 19 - AMHS test cross matrix – chain A

AMHS	Argentina	Bolivia	Brazil (Curitiba)	Brazil (Manaus)	Brazil (Recife)	Chile	Colombia	Ecuador	French Guiana	Guyana	Paraguay	Peru	Suriname	Trinidad and Tobago	Uruguay	Venezuela	*Tegucigalpa*
Argentina																	
Bolivia																	
Brazil (Curitiba)																	
Brazil (Manaus)																	
Brazil (Recife)																	
Chile																	
Colombia																	
Ecuador																	
French Guiana																	
Guyana																	
Paraguay																	
Peru																	
Suriname																	
Trinidad and Tobago																	
Uruguay																	
Venezuela																	
Tegucigalpa																	

Figure 20 - AMHS test cross matrix – **chain B**

2.3 REDUNDANCY TESTS

2.3.1 Master station failure test

Master Station Failure Test		
Purpose: To check that the backup master takes over correctly the master role in case of master failure.		
Test: On the test network, set up IP data (ping) connections. Check which station is running as a master (telnet screen or LEDs on the FPG board). Reset the active master. Check on that the former backup master switches over to master operation. Check that the connections are still running.		
Expected Results: The backup master takes over the master role. The connections are still up. All IDUs are still operational in the network.		
Results		
Site A (Master)	**Site B (Backup master)**	
Station #	Station #	
Stop the master operation.	Wait until the backup master takes over the master role.	
Has the switch-over from the master to backup master been performed correctly?	Y/N/Comments	
Are there all IDUs still operational in the network?	Y/N/Comments	
Are the voice connections still set up?	Y/N/Comments	
Are the IP connections still up and running?	Y/N/Comments	
Comments:		

Figure 21 - Master station failure test table

2.3.2 Equipment failure

The system must be in primary mode (Skywan A and Cisco A active) for each test. Check that the NMS detects the failure and present it to the user ("Supervision" test).

2.3.2.1 Cisco failure

Switch off one of the active Cisco. After life-time timeout of the SLA, the system commutes into backup mode (transmission over chain B and gateway is set to chain B).

Verify that the gateway is now on the chain B and that the communications are re-established following this procedure

Previous verifications		**Results**	
Gateway check			
RSS position			
Service on chain B	**Test**	**OK**	**NOK**
RADAR	Multicast flow check with wireshark		
Supervision	Visualisation of the state on the NMS		
AFTN	async BER test		
AMHS	ping		
ATS	phone call		
Maintenance	phone call		
Comments			

Figure 22 - Cisco redundancy test table

Switch on the Cisco A.
Once its reboot is finished, go into normal mode

Verify that the services are functional .

Previous verifications		**Results**	
Gateway check			
RSS position			
Service on chain A	**Test**	**OK**	**NOK**
RADAR	Multicast flow check with wireshark		
Supervision	Visualisation of the state on the NMS		
AFTN	async BER test		
AMHS	ping		
ATS	phone call		
Maintenance	phone call		
Comments			

Figure 23 - Cisco redundancy test table – going to normal

2.3.2.2 SkyWAN failure

Switch off the active SkywWAN. After life-time timeout of the monitored test, the system commutes into backup mode (chain B becomes active and have the gateway).

Verify that the communications are re-established following this procedure

Previous verifications		**Results**	
Gateway check			
RSS position			
Service on chain B	**Test**	**OK**	**NOK**
RADAR	Multicast flow check with wireshark		
Supervision	Visualisation of the state on the NMS		
AFTN	async BER test		
AMHS	ping		
ATS	phone call		
Maintenance	phone call		
Comments			

Figure 24 - Skywan redundancy test table

Switch on the equipment and go back to normal. Verify that the services are re-established with those tests:

Previous verifications		**Results**	
Gateway check			
RSS position			
Service on chain A	**Test**	**OK**	**NOK**
RADAR	Multicast flow check with wireshark		
Supervision	Visualisation of the state on the NMS		
AFTN	async BER test		
AMHS	ping		
ATS	phone call		
Maintenance	phone call		
Comments			

Figure 25 - Skywan redundancy test table – going to normal

2.3.2.3 IP switch failures

Switch off the IP switch of chain A. IP connections to this switch become naturally inactive. Verify that legacy and voice applications are not compromised, and that the system goes to B.

Previous verifications		**Results**	
Gateway check			
RSS position			
Service on chain B	**Test**	**OK**	**NOK**
RADAR (if not connected to switch A)	Multicast flow check with wireshark		
Supervision (if not connected to switch A)	Visualisation of the state on the NMS		
AFTN	async BER test		
AMHS (if not connected to switch A)	ping		
ATS	phone call		
Maintenance	phone call		
Comments			

Figure 26 - IP switch A failure test

The IP switch B carries the NMS and the equipments of chain B, so the chain B is still working. Normalize the situation on chain A. Check that the services are fine.

Previous verifications		**Results**	
Gateway check			
RSS position			
Service on chain A	**Test**	**OK**	**NOK**
RADAR	Multicast flow check with wireshark		
Supervision	Visualisation of the state on the NMS		
AFTN	async BER test		
AMHS	ping		
ATS	phone call		
Maintenance	phone call		
Comments			

Switch off the switch of chain B. The system remains on chain A. Check that the services are fine.

Previous verifications		**Results**	
Gateway check			
RSS position			
Service on chain A	**Test**	**OK**	**NOK**
RADAR (if not connected to switch B)	Multicast flow check with wireshark		
AFTN	async BER test		
AMHS (if not connected to switch B)	ping		
ATS	phone call		
Maintenance	phone call		
Comments			

When switch B recovers, the system can switch to B, as the monitoring system (which takes the decision to switch from A to B) as no communication to chain A and can detect this situation as chain B failure.

2.3.2.4 RSS switch failures

Switch off the power supply. Verify that the RSS stood still and that the communications are not affected:

Previous verifications		**Results**	
Gateway check			
RSS position			
Service	**Test**	**OK**	**NOK**
RADAR	Multicast flow check with wireshark		
Supervision	Visualisation of the state on the NMS		
AFTN	async BER test		
AMHS	ping		
ATS	phone call		
Maintenance	phone call		
Comments			

Figure 27 - RSS failure test table

2.4 GROUND BACKBONE TEST

2.4.1 backup test

Switch of both Skywan modems or disconnect their TX and RX cables. The system goes to B as this failure is seen at first sight as a chain A failure.

After dynamic routing process and routing re-establishment (this process takes several minutes), the services are re-routed to the ground backbone.

Verify that the services are operational, inside the leased bandwidth and that the other sites remain on VSAT as main link (only the services associated to the "down" station goes through the ground backbone).

Check that the gateway is now the GBB router.
For each service, verify with wireshark that the DSCP fields are correct.

Previous verifications		**Results**	
Gateway check			
RSS position			
Service	**Test**	**OK**	**NOK**
RADAR	Multicast flow check with wireshark		
	DSCP field AF41		
Supervision	Visualisation of the state on the NMS		
AFTN	async BER test		
	DSCP field AF31		
AMHS	ping		
	DSCP field AF31		
ATS	phone call		
	DSCP field EF		
Maintenance	phone call		
	DSCP field EF		
Comments			

Figure 28 - Backup test

For each service, verify with wireshark that the DSCP fields are correct.

Service	DSCP	ToS
RADAR and ADS	AF41	PAMA
Asterix	AF41	PAMA
Voice	EF	DAMA real time dynamic
AFTN	AF31	DAMA
AMHS	AF31	DAMA
AIDC	AF31	DAMA
NMS	AF21	DAMA

2.4.2 Dedicated links

The dedicated links are AFTN and switched voice.

2.4.2.1 AFTN

The AFTN devices connected to the GBB router are the same as the VSAT backbone, but in restricted quantity. Only some of them are present. To activate those interfaces, press the “B” button of the RSS switch on its front panel. Then proceed to the test.

AFTN	Argentina	Bolivia	Brazil (Curitiba)	Brazil (Manaus)	Brazil (Recife)	Chile	Colombia	Ecuador	French Guiana	Guyana	Paraguay	Peru	Suriname	Trinidad and Tobago	Uruguay	Venezuela	*Tegucigalpa*
Argentina																	
Bolivia	1																
Brazil (Curitiba)	1																
Brazil (Manaus)							1			1		1					
Brazil (Recife)																	
Chile	1																
Colombia				1				1				1					
Ecuador							1										
French Guiana																	
Guyana				1													
Paraguay	1																
Peru	1	1		1			1										
Suriname																1	
Trinidad and Tobago																	
Uruguay	1		1														
Venezuela					1		1		1				1	1			
Tegucigalpa																	

Figure 29 - AFTN - dedicated to GBB cross matrix

AFTN	Argentina	Bolivia	Brazil (Curitiba)	Brazil (Manaus)	Brazil (Recife)	Chile	Colombia	Ecuador	French Guiana	Guyana	Paraguay	Peru	Suriname	Trinidad and Tobago	Uruguay	Venezuela	*Tegucigalpa*
Argentina																	
Bolivia																	
Brazil (Curitiba)																	
Brazil (Manaus)																	
Brazil (Recife)																	
Chile																	
Colombia																	
Ecuador																	
French Guiana																	
Guyana																	
Paraguay																	
Peru																	
Suriname																	
Trinidad and Tobago																	
Uruguay																	
Venezuela																	
Tegucigalpa																	

Figure 30 - AFTN - dedicated to GBB test table

2.4.2.2 Voice

The dialed switched voice of the GBB router are dedicated to the GBB. They are used as emergency interfaces.

ATS switched	Local number	Dialled number
Argentina	2000101	2099
Bolivia	2500101	2599
Brazil (Curitiba)	3000101	3099
Brazil (Manaus)	3600101	3699
Brazil (Recife)	3800101	3899
Chile	4000101	4099
Colombia	4500101	4599
Ecuador	5000101	5099
French Guiana	9200101	9299
Guyana	9000101	9099
Paraguay	5500101	5599
Peru	6000101	6099
Suriname	9400101	9499
Trinidad and Tobago	9100101	9199
Uruguay	6500101	6599
Venezuela	8000101	8099

Figure 31 - Dedicated emergency numbers

A telephone must be manually connected to this interface.

2.5 NETWORK MANAGEMENT STATIONS (NMS) TESTS

2.5.1 NMS Equipment

The purpose of this test is to check the presence and the serial number of each NMS equipment.

Tests description:

Check the serial number of the following equipment.

Local NMS

Equipment	Test	Results	
		OK	NOK
NMS Server	Serial Number:		
Screen	Serial Number:		
Printer	Serial Number:		
Remote KVM	Serial Number:		
750W UPS	Serial Number:		
Comments:			

Failover Server

Equipment	Test	Results	
		OK	NOK
Failover Server	Serial Number:		
Screen	Serial Number:		
Printer	Serial Number:		
Remote KVM	Serial Number:		
750W UPS	Serial Number:		
Storage NAS	Serial Number:		
Comments:			

Central NMS

Equipment	Test	Results	
		OK	NOK
Central Server	Serial Number:		
Screen for central server	Serial Number:		
Printer	Serial Number:		
Remote KVM for central server	Serial Number:		
750W UPS for central server	Serial Number:		
Database Server 1	Serial Number:		
Screen for Database server 1	Serial Number:		
Remote KVM for Database server 1	Serial Number:		
750W UPS for Database server 1	Serial Number:		
Database Server 2	Serial Number:		
Screen for Database server 2	Serial Number:		
Remote KVM for Database server 2	Serial Number:		
750W UPS for Database server 2	Serial Number:		
Storage NAS	Serial Number:		
Comments:			

Figure 32 - NMS serial number table

2.5.2 IP Address

The purpose of this test is to check network configuration of NMS equipment.

Tests description:

Check IP address, Network Mask and Gateway for all NMS equipment.

Local NMS

Equipment	Test	Results	
		OK	NOK
NMS Server	IP Address: Mask: Gateway:		
Printer	IP Address: Mask: Gateway:		
Comments:			

Failover Server

Equipment	Test	Results	
		OK	NOK
Failover Server	IP Address: Mask: Gateway:		
Comments:			

Central Server

Equipment	Test	Results	
		OK	NOK
Central Server	IP Address: Mask: Gateway:		
Database Server 1	IP Address: Mask: Gateway:		
Database Server 2	IP Address: Mask: Gateway:		
Storage NAS	IP Address: Mask: Gateway:		
Comments:			

Figure 33 - NMS IP address

2.5.3 SUBMAP content configuration

The purpose of this test is to check the submap configuration.

Tests description:

From the thin client, connect to VSATWUG, and open WUG console, and within each submap check device color is green.
For each device, unplug ethernet cable to test alarm, device goes in with red color.

Local NMS

Device name	Description	IP Address	Results		Alarm test	
			OK	NOK	OK	NOK
#Manaus						
Cisco A1	CISCO					
Cisco A2	CISCO					
Cisco A3	CISCO					
Cisco B1	CISCO					
Cisco B2	CISCO					
Cisco B3	CISCO					
Switch A	SWITCH					
Switch B	SWITCH					
Skywan A	SKYWAN					
Skywan B	SKYWAN					
Ground Backbone	CISCO					
Ibuc A	IBUC					
Ibuc B	IBUC					
VPN	VPN					
LNB	LNB					
Switch AB	SWITCH RSS					
Comments:						

Figure 34 – NMS submap

2.5.4 Active monitoring

Tests description:

Connect to WhatsUp Gold web console. Following test will be done:

- Skywan
  - Wan State: disconnecting wan cable,
  - TDMA Frame Synchronization: disconnecting cable
- CISCO
  - Fan status: same as state displayed in equipment console
  - Temperature state: same as state displayed in equipment console
  - Serial port operational status: disconnecting serial cable
  - Digital port operational status: disconnection digital cable
  - Analogical voice card status: same as state displayed in equipment console
  - DSP state: same as state displayed in equipment console
- RSS Switch
  - Power supply status: same as state displayed in equipment console
- IBUC
  - Switch fault: same as state displayed in equipment console
  - Alarm temperature state: same as state displayed in equipment console
  - Input level high: same as state displayed in equipment console
  - Output level high: same as state displayed in equipment console
  - Input level low: disconnecting cable
  - Output level low: disconnecting cable
- LNB
  - Current Level High on A position: same as state displayed in equipment console
  - Current Level Low on A position: same as state displayed in equipment console
  - Voltage Level High on A position: same as state displayed in equipment console
  - Voltage Level Low on A position: same as state displayed in equipment console
  - Input Level Low on A position: disconnecting cable
  - Current Level High on B position: same as state displayed in equipment console
  - Current Level Low on B position: same as state displayed in equipment console
  - Voltage Level High on B position: same as state displayed in equipment console
  - Voltage Level Low on B position: same as state displayed in equipment console
  - Input Level Low on B position: disconnecting cable

On the device detail view, verify that information displayed is correct.

Local NMS

Interface tested	Results	
	OK	**NOK**
Skywan A		
• Wan state in red		
• TDMA Frame synchronization in red		
Skywan B		
• Wan state in red		
CISCO A		
• FAN State same state as displayed		
• Temperature State same state as displayed		
• Serial port operational status in red		
• Digital port operational status in red		
• Analogical voice card status same state as displayed		
• DSP state same state as displayed		
CISCO B		
• FAN State same state as displayed		
• Temperature State same state as displayed		
• Serial port operational status in red		
• Digital port operational status in red		
• Analogical voice card status same state as displayed		
• DSP state same state as displayed		
RSS Switch		
• Power supply state same state as displayed		
IBUC A		
• Switch fault same state as displayed		
• Alarm temperature same state as displayed		
• Input level high same state as displayed		
• Output level high same state as displayed		
• Input level low in red		
• Output level low in red		
IBUC B		
• Switch fault same state as displayed		
• Alarm temperature same state as displayed		
• Input level high same state as displayed		
• Output level high same state as displayed		
• Position of the IBUC on waveguide switch same state as displayed		
• Input level low in red		
• Output level low in red		

Interface tested	Results	
	OK	**NOK**
LNB		
• Current Level High (A) same state as displayed		
• Current Level Low (A) same state as displayed		
• Voltage level high (A) same state as displayed		
• Voltage level low (A) same state as displayed		
• Input level low (A) in red		
• Current Level High (B) same state as displayed		
• Current Level Low (B) same state as displayed		
• Voltage level high (B) same state as displayed		
• Voltage level low (B) same state as displayed		
• Input level low (B) in red		
Comments:		

Figure 35 – Local NMS active monitoring

2.5.5 Performance monitor

Tests description:

Connect to WhatsUp Gold web console. Following test will be done:

- Skywan
  - TDMA Frame Utilization Chanel 1 (on master station)
  - TDMA Frame Utilization Chanel 2 (on master station)
  - TDMA Frame Utilization Chanel 3 (on master station)
  - TDMA Es/No Own
- IBUC
  - Input Level
  - Output Level
  - Position of the IBUC on the waveguide switch
  - Position of the waveguide switch
- LNB
  - Current on A position
  - Input Level on A position
  - Current on B position
  - Input Level on B position
- Switch A/B
  - Cards positions

On the device detail view, verify that information displayed is the same that the one displayed in equipment interface.

Local NMS

Interface tested	Results	
	OK	NOK
Skywan A		
• TDMA Frame Utilization Chanel 1 (only master)		
• TDMA Frame Utilization Chanel 2 (only master)		
• TDMA Frame Utilization Chanel 3 (only master)		
• TDMA Es/No own		
Skywan B		
• TDMA Es/No own		
IBUC A		
• Input Level		
• Output Level		
• Position of the Ibuc on the waveguide switch		

Interface tested	Results	
	OK	**NOK**
• Postion of the waveguide switch		
IBUC B		
• Input Level		
• Output Level		
• Position of the Ibuc on the waveguide switch		
• Postion of the waveguide switch		
LNB		
• Current Level High (A) same state as displayed		
• Current Level Low (A) same state as displayed		
• Voltage level high (A) same state as displayed		
• Voltage level low (A) same state as displayed		
• Input level low (A) in red		
• Current Level High (B) same state as displayed		
• Current Level Low (B) same state as displayed		
• Voltage level high (B) same state as displayed		
• Voltage level low (B) same state as displayed		
• Input level low (B) in red		
Switch A/B		
• Each card position		
Comments:		

Figure 36 – Local NMS performance monitor

2.5.6 Switching from Chain A to Chain B

Tests description:

Connect to WhatsUp Gold web console. Be sure that Switch A/B is on chain A for all services. Following test will be done:

- Chain A Skywan
  - Ethernet state: disconnection Ethernet cable
  - Wan State: disconnecting wan cable,
  - TDMA Frame Synchronization: disconnecting cable
- Chain A CISCO
  - Ethernet state down: disconnection Ethernet cable
  - Serial port operational status: disconnecting serial cable
  - Digital port operational status: disconnection digital cable
- Chain A IP Switch
  - Ethernet state down: disconnection Ethernet cable

For each state, verify that Switch A/B is switching from chain A to chain B and go back to chain manually after each test.

Local NMS

Interface tested	Results	
	OK	**NOK**
Skywan A		
• Ethernet state down		
• Wan state down		
• Synchronization state down for 2 minutes		
CISCO A		
• Ethernet state down		
• Serial port state down for 2 minutes		
• Digital state down for 2 minutes		
Chain A IP Switch		
• Ethernet state down		
Comments:		

Figure 37 - Local NMS switching control

2.5.7 User access control

Tests description:
Test the right of users.

2.5.7.1 Ezeiza

Local NMS

Test	Results	
	OK	NOK
LocalUser		
• User **can** access device view, device details view and dashboard		
• User **can't** add/remove device of monitors on device		
• User **can't** add dashboard or modify dashboard		
• User **can't** change password		
• User **can't** add/remove user		
GlobalUser		
• User **can't** access device view, device details view and dashboard		
• User **can't** add/remove device of monitors on device		
• User **can't** add dashboard or modify dashboard		
• User **can't** change password		
• User **can't** add/remove user		
LocalAdmin		
• User **can** access device view, device details view and dashboard		
• User **can** add/remove device of monitors on device		
• User **can** add dashboard or modify dashboard		
• User **can** change password		
• User **can** add/remove user		
LocalAdmin		
• User **can't** access device view, device details view and dashboard		
• User **can't** add/remove device of monitors on device		
• User **can't** add dashboard or modify dashboard		
• User **can't** change password		
• User **can't** add/remove user		

Test	Results	
	OK	**NOK**
Comments:		

Failover Server

Test	Results	
	OK	**NOK**
LocalUser		
• User **can't** access device view, device details view and dashboard		
• User **can't** add/remove device of monitors on device		
• User **can't** add dashboard or modify dashboard		
• User **can't** change password		
• User **can't** add/remove user		
GlobalUser		
• User **can** access device view, device details view and dashboard		
• User **can't** add/remove device of monitors on device		
• User **can't** add dashboard or modify dashboard		
• User **can't** change password		
• User **can't** add/remove user		
LocalAdmin		
• User **can't** access device view, device details view and dashboard		
• User **can't** add/remove device of monitors on device		
• User **can't** add dashboard or modify dashboard		
• User **can't** change password		
• User **can't** add/remove user		
LocalAdmin		
• User **can** access device view, device details view and dashboard		
• User **can** add/remove device of monitors on device		

Test	Results	
	OK	**NOK**
• User **can** add dashboard or modify dashboard		
• User **can** change password		
• User **can** add/remove user		
Comments:		

2.5.7.2 Manaus

Local NMS

Test	Results	
	OK	NOK
LocalUser		
• User **can** access device view, device details view and dashboard		
• User **can't** add/remove device of monitors on device		
• User **can't** add dashboard or modify dashboard		
• User **can't** change password		
• User **can't** add/remove user		
GlobalUser		
• User **can't** access device view, device details view and dashboard		
• User **can't** add/remove device of monitors on device		
• User **can't** add dashboard or modify dashboard		
• User **can't** change password		
• User **can't** add/remove user		
LocalAdmin		
• User **can** access device view, device details view and dashboard		
• User **can** add/remove device of monitors on device		
• User **can** add dashboard or modify dashboard		
• User **can** change password		
• User **can** add/remove user		
LocalAdmin		
• User **can't** access device view, device details view and dashboard		
• User **can't** add/remove device of monitors on device		
• User **can't** add dashboard or modify dashboard		
• User **can't** change password		
• User **can't** add/remove user		

Test	Results	
	OK	**NOK**
Comments:		

Central Server

Test	Results	
	OK	**NOK**
LocalUser		
• User **can't** access device view, device details view and dashboard		
• User **can't** add/remove device of monitors on device		
• User **can't** add dashboard or modify dashboard		
• User **can't** change password		
• User **can't** add/remove user		
GlobalUser		
• User **can** access device view, device details view and dashboard		
• User **can't** add/remove device of monitors on device		
• User **can't** add dashboard or modify dashboard		
• User **can't** change password		
• User **can't** add/remove user		
LocalAdmin		
• User **can't** access device view, device details view and dashboard		
• User **can't** add/remove device of monitors on device		
• User **can't** add dashboard or modify dashboard		
• User **can't** change password		
• User **can't** add/remove user		
LocalAdmin		
• User **can** access device view, device details view and dashboard		
• User **can** add/remove device of monitors on device		
• User **can** add dashboard or modify dashboard		
• User **can** change password		

Test	Results	
	OK	**NOK**
• User **can** add/remove user		
Comments:		

Site Local NMS

Test	Results	
	OK	**NOK**
LocalUser		
• User **can** access device view, device details view and dashboard		
• User **can't** add/remove device of monitors on device		
• User **can't** add dashboard or modify dashboard		
• User **can't** change password		
• User **can't** add/remove user		
GlobalUser		
• User **can't** access device view, device details view and dashboard		
• User **can't** add/remove device of monitors on device		
• User **can't** add dashboard or modify dashboard		
• User **can't** change password		
• User **can't** add/remove user		
LocalAdmin		
• User **can** access device view, device details view and dashboard		
• User **can** add/remove device of monitors on device		
• User **can** add dashboard or modify dashboard		
• User **can** change password		
• User **can** add/remove user		
LocalAdmin		
• User **can't** access device view, device details view and dashboard		
• User **can't** add/remove device of monitors on device		
• User **can't** add dashboard or modify dashboard		

Test	Results	
	OK	**NOK**
• User **can't** change password		
• User **can't** add/remove user		
Comments:		

2.5.8 Central server

Tests description:

Test information displayed in Central server (Manaus).

Verify that all equipment and information are available in central server NMS and that the states or values displayed are the same that in each local NMS.

Test	Results	
	OK	NOK
#Ezeiza		
• Cisco A		
• Cisco B		
• Switch A		
• Switch B		
• Skywan A		
• Skywan B		
• Ground Backbone		
• Ibuc A		
• Ibuc B		
• VPN		
• LNB		
• Switch AB		
#Manaus		
• Cisco A		
• Cisco B		
• Switch A		
• Switch B		
• Skywan A		
• Skywan B		
• Ground Backbone		
• Ibuc A		
• Ibuc B		
• VPN		
• LNB		
• Switch AB		
#Remote site 1		
• Cisco A		
• Cisco B		
• Switch A		
• Switch B		
• Skywan A		
• Skywan B		

Test	Results	
	OK	**NOK**
• Ground Backbone		
• Ibuc A		
• Ibuc B		
• VPN		
• LNB		
• Switch AB		
#Remote site 2		
• Cisco A		
• Cisco B		
• Switch A		
• Switch B		
• Skywan A		
• Skywan B		
• Ground Backbone		
• Ibuc A		
• Ibuc B		
• VPN		
• LNB		
• Switch AB		
Comments:		

Figure 38 - Central server tests

2.5.9 Failover server

Tests description:

Test information displayed in Failover server (Ezeiza).

Disconnect the central server of the network. Verify that all equipment and information are available in central server NMS and that the states or values displayed are the same that in each local NMS.

Test	Results	
	OK	NOK
#Ezeiza		
• Cisco A		
• Cisco B		
• Switch A		
• Switch B		
• Skywan A		
• Skywan B		
• Ground Backbone		
• Ibuc A		
• Ibuc B		
• VPN		
• LNB		
• Switch AB		
#Manaus		
• Cisco A		
• Cisco B		
• Switch A		
• Switch B		
• Skywan A		
• Skywan B		
• Ground Backbone		
• Ibuc A		
• Ibuc B		
• VPN		
• LNB		
• Switch AB		
#Remote site 1		
• Cisco A		
• Cisco B		
• Switch A		

Test	Results	
	OK	**NOK**
• Switch B		
• Skywan A		
• Skywan B		
• Ground Backbone		
• Ibuc A		
• Ibuc B		
• VPN		
• LNB		
• Switch AB		
#Remote site 2		
• Cisco A		
• Cisco B		
• Switch A		
• Switch B		
• Skywan A		
• Skywan B		
• Ground Backbone		
• Ibuc A		
• Ibuc B		
• VPN		
• LNB		
• Switch AB		
Comments:		

Figure 39 - Failover server tests

2.5.10 Test of connection through serial port

Tests description:

Test the connection to equipment native console through serial port.

Local NMS

Test	Results	
	OK	**NOK**
#Local		
• Cisco A1		
• Cisco A2		
• Cisco A3		
• Cisco B1		
• Cisco B2		
• Cisco B3		
• Switch A		
• Switch B		
• Skywan A		
• Skywan B		
• Ground Backbone		
• Switch AB		
Comments:		

Central Server

Use terminal services to connect to local NMS and test the connection to equipment native console through serial port.

Test	Results	
	OK	NOK
• Cisco A1		
• Cisco A2		
• Cisco A3		
• Cisco B1		
• Cisco B2		
• Cisco B3		
• Switch A		
• Switch B		
• Skywan A		
• Skywan B		
• Ground Backbone		
• Switch AB		
Comments:		

Failover Server

Use terminal services to connect to local NMS and test the connection to equipment native console through serial port.

Test	Results	
	OK	NOK
• Cisco A1		
• Cisco A2		
• Cisco A3		
• Cisco B1		
• Cisco B2		
• Cisco B3		
• Switch A		
• Switch B		
• Skywan A		
• Skywan B		
• Ground Backbone		
• Switch AB		
Comments:		

2.5.11 Database

2.5.11.1 Database redundancy

Disconnect the database server 1 from the network. Verify that all equipment and information are still available in central server NMS.

Test	Results	
	OK	NOK
Database redundancy Server 2		
Comments:		

Connect the database server 1 on the network and wait 10 minutes.
Then disconnect the database server 2 from the network. Verify that all equipment and information are still available in central server NMS.

Test	Results	
	OK	NOK
Database redundancy Server 1		
Comments:		

Figure 40 – Database redundancy tests

2.5.11.2 Database backup

Verify that a database backup is available on NAS storage and that the backup file has been modified today or yesterday (depending of the time when the database backup is done).

Test	Results	
	OK	NOK
Database backup		
Comments:		

Figure 41 – Database redundancy tests

3 PSAT - LIST OF PARTICIPANTS

ENTERPRISE	NAME	RESPONSABILITY	SIGNATURE
INEO			

4 NETWORK ACCEPTANCE TESTS

Those tests are aimed to validate the network from a global point of view.

4.1 PSAT

Are all the PSAT successful in terms of services, with minor pending issues ?

Site	PSAT signed Y/N	Number of minor pending issues
Argentina		
Bolivia		
Brazil (Curitiba)		
Brazil (Manaus)		
Brazil (Recife)		
Chile		
Colombia		
Ecuador		
French Guiana		
Guyana		
Paraguay		
Peru		
Suriname		
Trinidad and Tobago		
Uruguay		
Venezuela		

Figure 42 - NAT - PSAT summary

4.2 LEVEL 3 - WEB MANAGEMENT SERVICE

Verify the access to LEVEL 3's web management page.

WEB management page	Results	
	OK	NOK
Check web management access		
Check information available		
Open a ticket		

Figure 43 - NAT - WEB management tests

4.3 GLOBAL NMS

4.3.1 Central server

Tests description:

Test information displayed in Central server (Manaus).

Verify that all equipment and information are available in central server NMS and that the states or values displayed are the same that in each local NMS.

Test	Results	
	OK	NOK
#Ezeiza		
• Cisco A		
• Cisco B		
• Switch A		
• Switch B		
• Skywan A		
• Skywan B		
• Ground Backbone		
• Ibuc A		
• Ibuc B		
• VPN		
• LNB		
• Switch AB		

Test	Results	
	OK	NOK
#La Paz		
• Cisco A		
• Cisco B		
• Switch A		
• Switch B		
• Skywan A		
• Skywan B		
• Ground Backbone		
• Ibuc A		
• Ibuc B		
• VPN		
• LNB		
• Switch AB		
#Manaus		
• Cisco A		
• Cisco B		
• Switch A		
• Switch B		
• Skywan A		
• Skywan B		
• Ground Backbone		
• Ibuc A		
• Ibuc B		
• VPN		
• LNB		
• Switch AB		
#Recife		
• Cisco A		
• Cisco B		
• Switch A		
• Switch B		
• Skywan A		
• Skywan B		
• Ground Backbone		
• Ibuc A		
• Ibuc B		
• VPN		
• LNB		
• Switch AB		
#Curitiba		
• Cisco A		
• Cisco B		

Test	Results	
	OK	**NOK**
• Switch A		
• Switch B		
• Skywan A		
• Skywan B		
• Ground Backbone		
• Ibuc A		
• Ibuc B		
• VPN		
• LNB		
• Switch AB		
#Santiago		
• Cisco A		
• Cisco B		
• Switch A		
• Switch B		
• Skywan A		
• Skywan B		
• Ground Backbone		
• Ibuc A		
• Ibuc B		
• VPN		
• LNB		
• Switch AB		
#Bogota		
• Cisco A		
• Cisco B		
• Switch A		
• Switch B		
• Skywan A		
• Skywan B		
• Ground Backbone		
• Ibuc A		
• Ibuc B		
• VPN		
• LNB		
• Switch AB		
#Guayaquil		
• Cisco A		
• Cisco B		
• Switch A		
• Switch B		
• Skywan A		

Test	Results	
	OK	NOK
• Skywan B		
• Ground Backbone		
• Ibuc A		
• Ibuc B		
• VPN		
• LNB		
• Switch AB		
#Georgetown		
• Cisco A		
• Cisco B		
• Switch A		
• Switch B		
• Skywan A		
• Skywan B		
• Ground Backbone		
• Ibuc A		
• Ibuc B		
• VPN		
• LNB		
• Switch AB		
#Cayenne		
• Cisco A		
• Cisco B		
• Switch A		
• Switch B		
• Skywan A		
• Skywan B		
• Ground Backbone		
• Ibuc A		
• Ibuc B		
• VPN		
• LNB		
• Switch AB		
#Asuncion		
• Cisco A		
• Cisco B		
• Switch A		
• Switch B		
• Skywan A		
• Skywan B		
• Ground Backbone		
• Ibuc A		

Test	Results	
	OK	**NOK**
• Ibuc B		
• VPN		
• LNB		
• Switch AB		
#Lima		
• Cisco A		
• Cisco B		
• Switch A		
• Switch B		
• Skywan A		
• Skywan B		
• Ground Backbone		
• Ibuc A		
• Ibuc B		
• VPN		
• LNB		
• Switch AB		
#Paramaribo		
• Cisco A		
• Cisco B		
• Switch A		
• Switch B		
• Skywan A		
• Skywan B		
• Ground Backbone		
• Ibuc A		
• Ibuc B		
• VPN		
• LNB		
• Switch AB		
#Piarco		
• Cisco A		
• Cisco B		
• Switch A		
• Switch B		
• Skywan A		
• Skywan B		
• Ground Backbone		
• Ibuc A		
• Ibuc B		
• VPN		
• LNB		

Test	Results	
	OK	**NOK**
• Switch AB		
#Montevideo		
• Cisco A		
• Cisco B		
• Switch A		
• Switch B		
• Skywan A		
• Skywan B		
• Ground Backbone		
• Ibuc A		
• Ibuc B		
• VPN		
• LNB		
• Switch AB		
#Maqueitia		
• Cisco A		
• Cisco B		
• Switch A		
• Switch B		
• Skywan A		
• Skywan B		
• Ground Backbone		
• Ibuc A		
• Ibuc B		
• VPN		
• LNB		
• Switch AB		
Comments:		

Figure 44 – NAT – Central NMS tests

4.3.2 Failover server

Tests description:

Test information displayed in Failover server (Ezeiza).

Disconnect the central server of the network. Verify that all equipment and information are available in central server NMS and that the states or values displayed are the same that in each local NMS.

Test	Results	
	OK	NOK
#Ezeiza		
• Cisco A		
• Cisco B		
• Switch A		
• Switch B		
• Skywan A		
• Skywan B		
• Ground Backbone		
• Ibuc A		
• Ibuc B		
• VPN		
• LNB		
• Switch AB		
#La Paz		
• Cisco A		
• Cisco B		
• Switch A		
• Switch B		
• Skywan A		
• Skywan B		
• Ground Backbone		
• Ibuc A		
• Ibuc B		
• VPN		
• LNB		
• Switch AB		
#Manaus		
• Cisco A		
• Cisco B		
• Switch A		
• Switch B		
• Skywan A		
• Skywan B		
• Ground Backbone		
• Ibuc A		
• Ibuc B		
• VPN		
• LNB		
• Switch AB		
#Recife		
• Cisco A		

Test	Results	
	OK	NOK
• Cisco B		
• Switch A		
• Switch B		
• Skywan A		
• Skywan B		
• Ground Backbone		
• Ibuc A		
• Ibuc B		
• VPN		
• LNB		
• Switch AB		
#Curitiba		
• Cisco A		
• Cisco B		
• Switch A		
• Switch B		
• Skywan A		
• Skywan B		
• Ground Backbone		
• Ibuc A		
• Ibuc B		
• VPN		
• LNB		
• Switch AB		
#Santiago		
• Cisco A		
• Cisco B		
• Switch A		
• Switch B		
• Skywan A		
• Skywan B		
• Ground Backbone		
• Ibuc A		
• Ibuc B		
• VPN		
• LNB		
• Switch AB		
#Bogota		
• Cisco A		
• Cisco B		
• Switch A		
• Switch B		

Test	Results	
	OK	**NOK**
• Skywan A		
• Skywan B		
• Ground Backbone		
• Ibuc A		
• Ibuc B		
• VPN		
• LNB		
• Switch AB		
#Guayaquil		
• Cisco A		
• Cisco B		
• Switch A		
• Switch B		
• Skywan A		
• Skywan B		
• Ground Backbone		
• Ibuc A		
• Ibuc B		
• VPN		
• LNB		
• Switch AB		
#Georgetown		
• Cisco A		
• Cisco B		
• Switch A		
• Switch B		
• Skywan A		
• Skywan B		
• Ground Backbone		
• Ibuc A		
• Ibuc B		
• VPN		
• LNB		
• Switch AB		
#Cayenne		
• Cisco A		
• Cisco B		
• Switch A		
• Switch B		
• Skywan A		
• Skywan B		
• Ground Backbone		

Test	Results	
	OK	NOK
• Ibuc A		
• Ibuc B		
• VPN		
• LNB		
• Switch AB		
#Asuncion		
• Cisco A		
• Cisco B		
• Switch A		
• Switch B		
• Skywan A		
• Skywan B		
• Ground Backbone		
• Ibuc A		
• Ibuc B		
• VPN		
• LNB		
• Switch AB		
#Lima		
• Cisco A		
• Cisco B		
• Switch A		
• Switch B		
• Skywan A		
• Skywan B		
• Ground Backbone		
• Ibuc A		
• Ibuc B		
• VPN		
• LNB		
• Switch AB		
#Paramaribo		
• Cisco A		
• Cisco B		
• Switch A		
• Switch B		
• Skywan A		
• Skywan B		
• Ground Backbone		
• Ibuc A		
• Ibuc B		
• VPN		

Test	Results	
	OK	**NOK**
• LNB		
• Switch AB		
#Piarco		
• Cisco A		
• Cisco B		
• Switch A		
• Switch B		
• Skywan A		
• Skywan B		
• Ground Backbone		
• Ibuc A		
• Ibuc B		
• VPN		
• LNB		
• Switch AB		
#Montevideo		
• Cisco A		
• Cisco B		
• Switch A		
• Switch B		
• Skywan A		
• Skywan B		
• Ground Backbone		
• Ibuc A		
• Ibuc B		
• VPN		
• LNB		
• Switch AB		
#Maqueitia		
• Cisco A		
• Cisco B		
• Switch A		
• Switch B		
• Skywan A		
• Skywan B		
• Ground Backbone		
• Ibuc A		
• Ibuc B		
• VPN		
• LNB		
• Switch AB		

Test	Results	
	OK	NOK
Comments:		

Figure 45 – NAT – Failover NMS tests

5 LIST OF PARTICIPANTS

ENTERPRISE	NAME	RESPONSABILITY	SIGNATURE
INEO			
ICAO			

APPENDIX D / APÉNDICE D

IPVPN SPECIFIC TERMS AND CONDITIONS AND SERVICE LEVEL AGREEMENT

Level 3 IPVPN. These are the Service Terms and Service Level Agreements for Level 3's IPVPN Service ("The Service") which apply to IPVPN Service provided by Level 3 ("Service Terms"), that make part of the contract 22501200 executed between ICAO – INEO and Level 3 ("Contract"). Initial capitalized terms not defined in these terms and conditions have the meanings given to them in the Contract. All references to the Customer herein will be understood to be made in reference to the REDDIG II Member States.

1. Description of Services

1.1. Service Description: Level 3 Converged IP Services provide end-to-end voice, data and multimedia/collaboration applications that are managed and delivered on Level 3's MPLS-based IP Network at designated speeds, subject to availability at individual Level 3 access points, enabling the Customer to transport voice, data and multimedia/collaboration applications among two or more customer designated locations ("Sites").

1.2. Customer shall execute Order Form(s) for the Service which will designate the following elements: (i) Converged Connection type (IPVPN, (ii) Service Application, (iii) Service speed, (iv) Point(s) of Presence ("POPs") at which Customer will access the Level 3 IP Network, (v) local access circuit requirements (if any), (vi) pricing, (vii) length of Initial Term for the Service(s), (viii) Class of Service ("CoS") levels (Basic, Enhanced or Premium) applying at each IP VPN port (if applicable), and (ix) optional services selected by Customer, if any (including Internet Access).

2. Converged Connection Type:

2.1. IP VPN Service: Level 3 IP VPN Service provides data transportation among two or more customer sites, through Level 3 IP VPN Network at designated speeds, and at the Class of Service ("CoS") chosen by Customer. The following three CoS levels are available at each IP VPN Converged Connection Type.

- Basic (standard or bronze)
- Enhanced (Preferred or silver)
- Premium (real time or gold)

2.2. Billing Options: The IP VPN Service includes the following billing components:

Monthly Recurring Charge ("MRC Charge"): a monthly recurrent charge applied for a specified bandwidth level and CoS configuration for each Site.
In addition to the above billing components, per event charges apply for logical and/or physical service change requests, including (but not limited to) changes in routing protocols, encapsulation, bandwidth, rate limits or CoS level. Change Order Charges are set out in the Order Form for the Service or agreed with Customer at the time the charge order request is received from Customer.

3. Service Level Agreement (SLA)

Service Delivery Guarantee Date applied to IPVPN (the below Article 3.1 does not apply and is for information purposes only. Level 3 will coordinate directly with INEO to respect the implementation schedule of Contract 22501200).

If for reasons attributable to Level 3, Service was unavailable for Customer use at the "Ready for Service Date" (RFSD) agreed between Level 3 and the Customer; the Customer shall be entitled to claim a credit on the Non Recurring Charge for installation on the affected site.

3.1. Delivery Service Delay Credits

Number of delayed days further to the RFSD	RFSD Credits [Percentage of the NRC for installation on the affected site]
1 to 10	10%
11 to 20	30%
21 to 30	50%
31 to 45	70%
Above 46	100%

Exclusions: The Customer shall not be entitled to any credit based on nonfulfillment of Delivery Date under the following circumstances:

- If the Customer has hired local accesses directly from third parties, or
- If the pre-scheduled RFSD was changed further to the request order; or was delayed for reasons to which Level 3 is alien.

Expected Delivery Time is of Sixty (60) days for all Customer Sites at On-Net locations (as defined in Section 6), effective as from acceptance by Level 3 of a Customer valid Service Order.

Expected Delivery Time is of Ninety (90) days for all Customer Sites at Off-Net locations or connected to a Virtual PoP ("VPOP") (as defined in Section 6), effective as from acceptance by Level 3 of a Customer valid Service Order.

3.2. Service Availability for IPVPN

3.2.1. Expected Service Availability

Service availability as well as credits specified below shall apply only to those On-Net Customer Sites (as defined in Section 6) with CPE's (Customer Premise Equipment) managed by Level 3.
Level 3 backbone POP to POP availability: Level 3 target backbone POP to POP availability is **99.99%.**
Level 3 POP to VPOP availability: Level 3 target availability for PoP to VPOP is of **99.8%.**
Last Mile links availability: Customers Last Mile Links Availability comes to **99.7% for On Net sites and to 99.5% for VPOPs.** This availability will be measured by the CPE (Customer Premise Equipment).

Availability for a given Site is calculated as:

$P = (A - B) / A * 100$

Where
P: Service Availability (%)
A: Amount of Minutes in a given month.
B: Amount of minutes when service is unavailable (as defined below)

3.2.2. Service Unavailability Credits

If the actual service fails to meet the expected availability as defined in Section 3.2.1, in a given month, for a given site due to problems reasonably attributable to Level 3, the Customer will be entitled to request a credit of the applicable MRC for the affected Site port as provided in Section 5 hereunder.

Level 3 accept the discounts and penalties as described in the technical specifications Section C, Article 5.13., however the discounts and penalties described therein shall be limited to 100% of the monthly price per site, except for the sites in Guyana, French Guiana, Surinam and Trinidad & Tobago, which are limited to 30% of the monthly price per site.

3.2.3. Service Unavailability

- Any Customer Site will be deemed unavailable when data are not received or sent from and to Level 3 backbone subject to the conditions specified in Section 5 hereunder.
- If Customer Site fails to accomplish a performance as described in Section 3.2.2, though data are sent and received from or to Level 3 backbone, then this Customer site will be considered to be available.
- During the unavailability period of any Service, performance credits shall not apply.

3.3. Service Performance only applicable to IPVPN

3.3.1. Round Trip Delay

- Round Trip Delay (RTD) is measured in milliseconds (ms) among Level 3 PoPs and VPOPs (as defined in Section 6). Average RTD for a packet will be measured every five (5) minutes in order to consistently obtain an average monthly performance level.

- Average Round Trip Delay for any given packet, measured among Level 3 PoPs and VPOPs are shown below. These magnitudes are measured in "ms" and may differ in 10%.

APPENDIX E

Report on availability December 2015

Level 3

Network Management

Service Support

Trouble Tickets

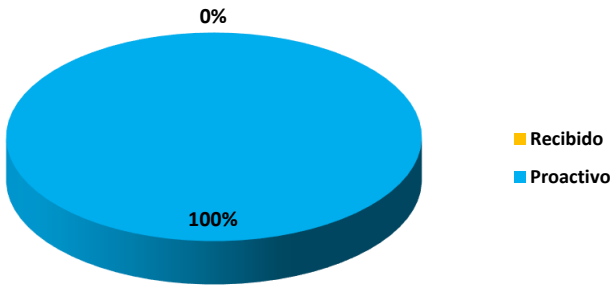
INTERNATIONAL CIVIL AVIATION

DICIEMBRE 2015

http://latam.ucommand.com

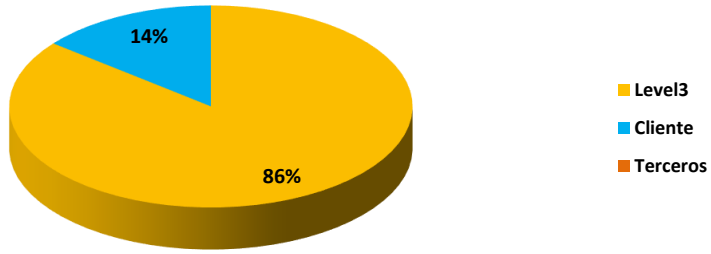
Trouble tickets del período:DICIEMBRE 2015

Distribución de trouble tickets según su orígen



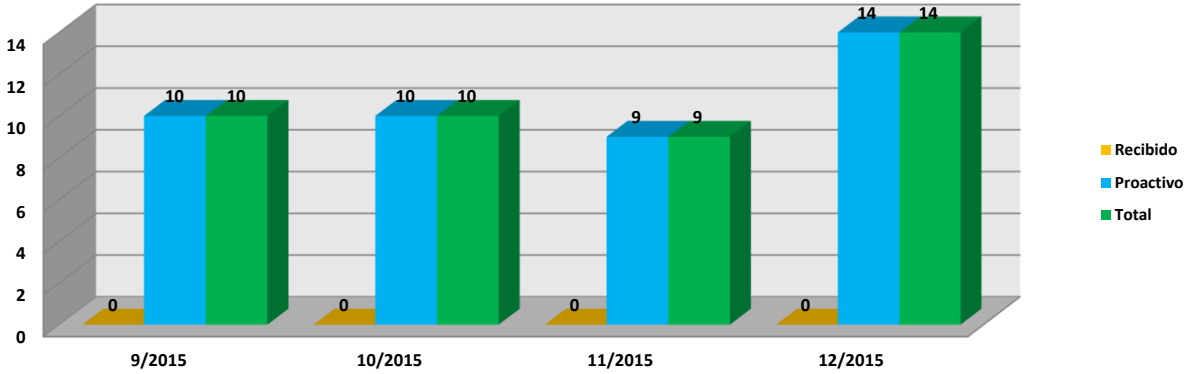
Total	Recibido	Proactivo
14	0	14

Distribución de trouble tickets según el responsable



Level3	Cliente	Terceros
12	2	0

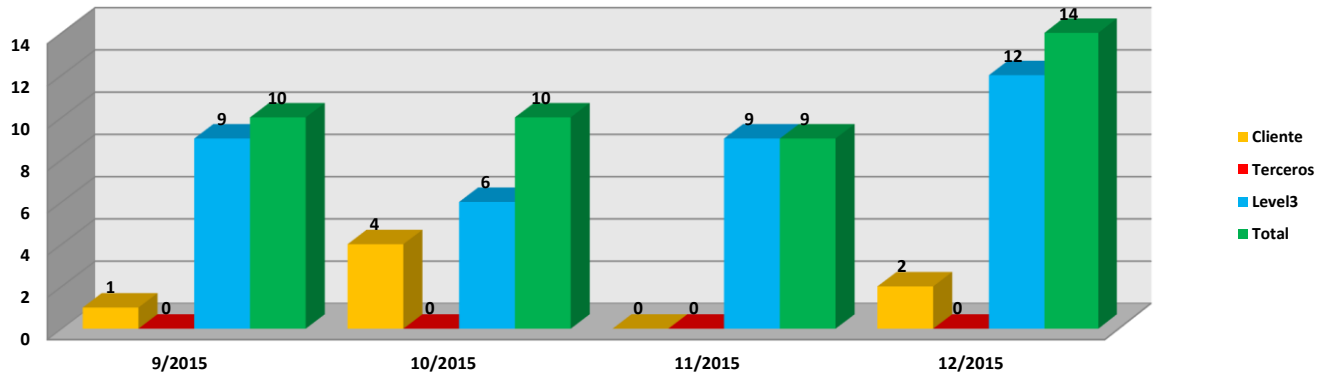
Evolución histórica de Trouble Tickets registrados según el generador.



Detalle:

Período	Recibido	Proactivo	Total
9/2015	0	10	10
10/2015	0	10	10
11/2015	0	9	9
12/2015	0	14	14

Evolución histórica de Trouble Tickets registrados según la fuente.



Detalle:

Período	Cliente	Terceros	Level3	Total
9/2015	1	0	9	10
10/2015	4	0	6	10
11/2015	0	0	9	9
12/2015	2	0	12	14

Disponibilidad de red

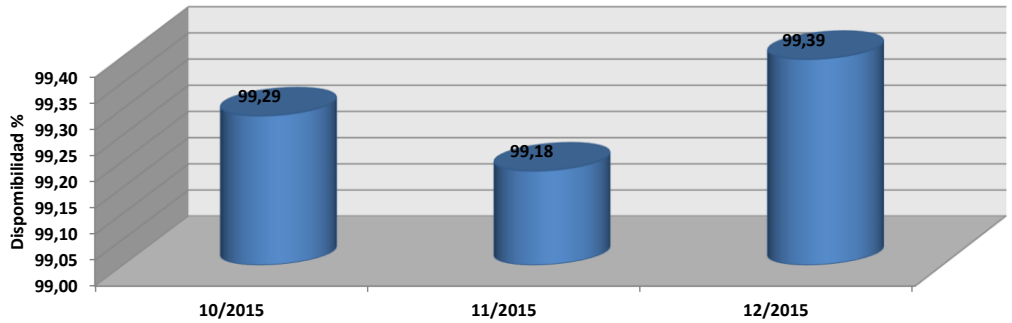
La disponibilidad de red es calculada usando la siguiente fórmula:

$$Total\_Network\_Availability = \left[\left(1 - \left(\frac{Total\_Minutes\_of\_Down\_time}{n \cdot Total\_Monthly\_Minutes}\right)\right)\right] * 100\%$$

Donde n = Número total de sitios donde Level 3 presta servicios.

Tiempo total de teporte [Min]	Tiempo de caida total [Min]	Disponibilidad de red total
44640	2975	99,39%

Evolución histórica de la disponibilidad de red



Disponibilidad de los sitios de la red - Responsabilidad Level 3

La disponibilidad de sitio es calculada usando la siguiente fórmula:

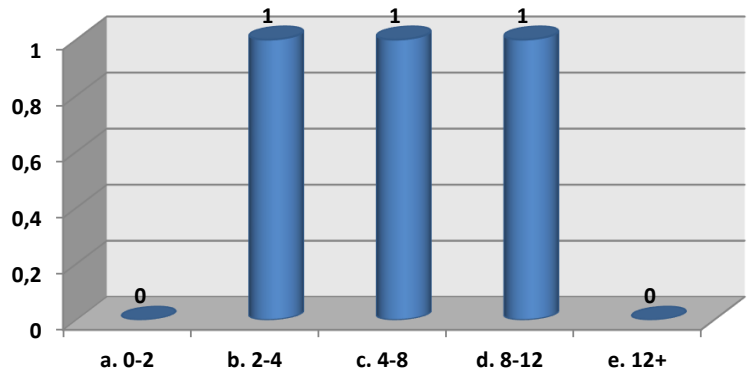
$$Availability = \left[1 - \left(\frac{Total\_Minutes\_of\_Network\_Down\_Time}{Total\_Monthly\_Minutes}\right)\right] * 100\%$$

Los sitios que no se incluyen en esta tabla tienen disponibilidad del 100%.

Sitio	Tickets	Tiempo de caida Total [Min]	Disponibilidad	MTTR
OACI-MANAUS	3	2205	95,06%	735
OACI-GUYANA FRANCESA	4	515	98,85%	129
OACI-VENEZUELA	1	255	99,43%	255
Total general	8	2975		

Disponibilidad de los sitios de la red - Responsabilidad Level 3

Distribución del MTTR - Responsabilidad Level 3



Trouble Tickets que afectan disponibilidad - Responsabilidad Level 3

Sitio	TT	Abierto	Tecnología	Tecnología que falla	Equipo que falla	Tiempo de caida [Min]
OACI-MANAUS	10081228	12/7/2015 2:25:15 AM	No Trouble Found	Unable To Reproduce Issue	Not Applicable	417
	10096292	12/9/2015 4:41:29 PM	No Trouble Found	Unable To Reproduce Issue	Not Applicable	945
	10153048	12/22/2015 6:03:47 PM	Cabling	Replaced	Optical Jumper	843
OACI-GUYANA FRANCESA	10045967	12/1/2015 12:02:33 AM	Hardware_6	See Closure Summary for Details	Not Applicable	277
	10120896	12/14/2015 10:40:06 PM	Power_6	Repaired	Not Applicable	14
	10124998	12/15/2015 7:02:04 PM	Hardware_6	See Closure Summary for Details	Not Applicable	53
	10158738	12/23/2015 8:50:53 PM	Trouble Cleared Before Network Isolation	Cleared Before Any Action Taken	Not Applicable	171
OACI-VENEZUELA	10161685	12/24/2015 5:44:44 PM	Trouble Cleared Before Element Isolation_6	Cleared Before Any Action Taken	Not Applicable	255

Disponibilidad Historica de los sitios de la red - Responsabilidad Level 3

Evolución histórica de la disponibilidad por sitio – Responsabilidad Level 3

Sitio	12/2015	11/2015	10/2015	9/2015
OACI-MANAUS	95,06%	96,53%	96,51%	99,31%
OACI-VENEZUELA	99,43%	98,41%	100.00 %	87,96%
OACI-GUYANA FRANCESA	98,85%	100.00 %	100.00 %	100,00%
OACI-CURITIBA	100.00 %	98,06%	100.00 %	100.00 %
OACI-GUAYAQUIL	100.00 %	98,65%	100.00 %	100.00 %
OACI-URUGUAY	100.00 %	99,34%	100.00 %	100.00 %
OACI-RECIFE	100.00 %	100.00 %	100.00 %	99,72%
OACI-CALLAO	100.00 %	100.00 %	96,63%	100.00 %
OACI-EZEIZA	100.00 %	100.00 %	100.00 %	100.00 %
OACI-TRINIDAD & TOBAGO	100.00 %	100.00 %	100.00 %	100.00 %
OACI-COLOMBIA	100.00 %	100.00 %	100.00 %	100.00 %
OACI-CHILE	100.00 %	100.00 %	100.00 %	100.00 %
OACI-GUYANA	100.00 %	100.00 %	100.00 %	100.00 %
OACI-SURINAME	100.00 %	100.00 %	100.00 %	99,81%
OACI-BOLIVIA	100.00 %	100.00 %	100.00 %	100.00 %
OACI-PARAGUAY	100.00 %	100.00 %	99,60%	97,06%
OACI-ARGENTINA	100.00 %	100.00 %	100.00 %	100.00 %

Disponibilidad de los sitios de la red - Responsabilidad cliente

La disponibilidad de sitio es calculada usando la siguiente fórmula:

$$Availability = \left[1 - \left(\frac{Total\_Minutes\_of\_Network\_Down\_Time}{Total\_Monthly\_Minutes}\right)\right] * 100\%$$

No se registraron tickets de responsabilidad de cliente para este periodo.

Disponibilidad de los sitios de la red - Responsabilidad cliente

No existen TT en el período que afecten disponibilidad.

Historico Disponibilidad de los sitios de la red - Responsabilidad cliente

Sitio	12/2015	11/2015	10/2015	9/2015
OACI-CURITIBA	100.00 %	100.00 %	100.00 %	100,00%
OACI-RECIFE	100.00 %	100.00 %	100.00 %	100,00%
OACI-CALLAO	100.00 %	100.00 %	100.00 %	100,00%
OACI-EZEIZA	100.00 %	100.00 %	100.00 %	100,00%
OACI-TRINIDAD & TOBAGO	100.00 %	100.00 %	100.00 %	100,00%
OACI-GUAYAQUIL	100.00 %	100.00 %	100.00 %	100,00%
OACI-COLOMBIA	100.00 %	100.00 %	100.00 %	100,00%
OACI-CHILE	100.00 %	100.00 %	100.00 %	100,00%
OACI-URUGUAY	100.00 %	100.00 %	100.00 %	100,00%
OACI-MANAUS	100.00 %	100.00 %	99,87%	100,00%
OACI-GUYANA	100.00 %	100.00 %	100.00 %	100,00%
OACI-GUYANA FRANCESA	100.00 %	100.00 %	99,87%	100,00%
OACI-VENEZUELA	100.00 %	100.00 %	100.00 %	100,00%
OACI-SURINAME	100.00 %	100.00 %	100.00 %	100,00%
OACI-BOLIVIA	100.00 %	100.00 %	100.00 %	100,00%
OACI-PARAGUAY	100.00 %	100.00 %	100.00 %	100,00%
OACI-ARGENTINA	100.00 %	100.00 %	100.00 %	100,00%

Listado de Trouble Tickets

En esta tabla se indican la totalidad de Trouble Tickets registrados como cerrados en el sistema CRM de Level 3 en el período considerado,correspondiente a todo tipo de fuente (Source), de responsabilidad (Responsability) diversa, y especificando el tipo de afectación (Affectation)

TT	Sitio	Abierto	Cerrado	Responsabilidad	Tiempo de caida [Min]	Afectación	Tecnología que falla	Equipo que falla
10046431	OACI-GUYANA FRANCESA	12/1/2015 4:34:11 AM	12/1/2015 6:47:49 AM	Level(3)	0	Impaired	Manually Created	Not Applicable
	Apreciados Señores, Cordial Saludo Se notifica la cancelación del Ticket <10046431> debido a que el evento se esta trabajando con el caso < 10045967>. Agradecemos su atención y esperamos no causar inconvenientes en su gestión.Cordial Saludo; GLORIA STELLA LINARES PEREZ Network Management Monitoring Engineer - Level 3e-mail:gloria.perez.ext@level3.com www.level3.comTel. Col. (57 1) 6118226 - 6119000 Ext. 4490 | Fax (57 1) 6119048 Col. 018000114266 - Arg. 08008004266 Ecu. 01800400404 - Per. 7004266 Ven. 2122049306 - USA 1-800-467-7288							
10045967	OACI-GUYANA FRANCESA	12/1/2015 12:02:33 AM	12/7/2015 10:51:46 PM	Leased Network/Tail Provider	277	Out-of-Service	See Closure Summary for Details	Not Applicable
	Dear Customer; Level 3 Communications informs about the close of the Ticket Customer Trouble 10045967 that was opened by our PROACTIVE process. Site Impacted: INTERNATIONAL CIVIL AVIATION ORGANIZATION Matoury 97351, French Guaina 97351, Cayena, France Type of Problem: Out-of-Service Symptom: Line or Circuit Down Access Type: Main linkRoot Cause: Circuit was affected by a faulty card in one of the LECs CORE equipment. Traffic was temporarily switched to another path. Once the card was replaced and reconfigured, the circuit was switched back to its main path.Ticket time: 0 minutes Unavailability applies: NO. After monitoring the service for 24 Hours we can confirm that operation has been restored and the fix applied is stable.Regards.ferrettr Network Management Monitoring Engineer - Level 3e-mail: servicedesknmpt@level3.comToll Free and Local numbers:Argentina: 0800-800-4266 Brasil: 0800-772-4266 / +55-11-3957-2415Chile: 01800-83-5481Colombia: 018000-11-4266 / +57-1-611-8226Ecuador: 01800-40-0404 (Opt 01)Peru: 0800-70862USA: 1-800-467-7288 Venezuela: 1-800-467-7288 / +58-212-204-9306							
10081228	OACI-MANAUS	12/7/2015 2:25:15 AM	12/8/2015 6:29:57 PM	Level(3)	417	Out-of-Service	Unable To Reproduce Issue	Not Applicable
	Boa tarde, Senhores Em contato com o cliente o Sr. Josemar o mesmo informou que o link esta normalizado e autorizou o encerramento desse chamado.Att,NOC Level(3)Juliana Correa							
10120896	OACI-GUYANA FRANCESA	12/14/2015 10:40:06 PM	12/17/2015 7:40:19 PM	Leased Network/Tail Provider	14	Out-of-Service	Repaired	Not Applicable
	Dear Customer; Level 3 Communications informs about the close of the Ticket Customer Trouble 10120896 that was opened by our PROACTIVE process. Site Impacted: INTERNATIONAL CIVIL AVIATION ORGANIZATION Matoury 97351, French Guaina 97351, Cayena, FranceType of Problem: Out-of-Service Symptom: Line or Circuit Down Access Type: Main linkRoot Cause: Our local provider indicates the circuit was affected by power issues at their POP. Issue was corrected and services restored.Ticket time: 14 minutes Unavailability applies: YES. After monitoring the service for 24 Hours we can confirm that operation has been restored and the fix applied is stable.Regards.ferrettr Network Management Monitoring Engineer - Level 3e-mail: servicedesknmpt@level3.comToll Free and Local numbers:Argentina: 0800-800-4266 Brasil: 0800-772-4266 / +55-11-3957-2415Chile: 01800-83-5481Colombia: 018000-11-4266 / +57-1-611-8226Ecuador: 01800-40-0404 (Opt 01)Peru: 0800-70862USA: 1-800-467-7288 Venezuela: 1-800-467-7288 / +58-212-204-9306							

10124998	OACI-GUYANA FRANCESA	12/15/2015 7:02:04 PM	12/17/2015 7:44:45 PM	Leased Network/Tail Provider	53	Out-of-Service	See Closure Summary for Details	Not Applicable
	Dear Customer; Level 3 Communications informs about the close of the Ticket Customer Trouble 10124998 that was opened by our PROACTIVE process. Site Impacted: INTERNATIONAL CIVIL AVIATION ORGANIZATION Matoury 97351, French Guaina 97351, Cayena, FranceType of Problem: Out-of-Service Symptom: Line or Circuit Down Access Type: Main linkRoot Cause: Our local provider indicates the circuit was affected by an issue their last mile provider had on their network which cause the outage on the traffic to some services. Issue was solved and circuit restored.Ticket time: 53 minutes Unavailability applies: YES. After monitoring the service for 24 Hours we can confirm that operation has been restored and the fix applied is stable.Regards. ferrettr Network Management Monitoring Engineer - Level 3e-mail: servicedesknmpt@level3.comToll Free and Local numbers:Argentina: 0800-800-4266 Brasil: 0800-772-4266 / +55-11-3957-2415Chile: 01800-83-5481Colombia: 018000-11-4266 / +57-1-611-8226Ecuador: 01800-40-0404 (Opt 01)Peru: 0800-70862USA: 1-800-467-7288 Venezuela: 1-800-467-7288 / +58-212-204-9306							
10130696	OACI-GUYANA FRANCESA	12/16/2015 8:02:17 PM	12/21/2015 7:55:46 AM	L3 Broadcast Group	0	Impaired	Network	Other
	Apreciado cliente Buen día De la manera mas atenta se notifica cierre del evento presentado por nuestros procesos de gestión proactiva. Sede afectada: OACI - GUYANA FRANCESA Tipo de Evento: caida Tipo de Canal: datos Causa: Fue necesario escalar el caso a nuestra area de expertos y el diagnóstico reveló: LEC indicates their last mile provider reset their demarc in order to restore services Tiempo: 0 minutosIndisponibilidad: no. Luego de mantener en observación el caso se verifica, operatividad y estabilidad del enlace y se procede con el cierre del caso. Agradecemos su atención y notificación ante cualquier inconveniente detectado.Gracias por su atención.Cordialmente.Cesar Augusto Melo SaavedraNetwork Management Monitoring Engineer - Level 3e-mail: cesar.melo@level3.com www.level3.comTel. Col. (57 1) 6118226 - 6119000 Ext. 4490 | Fax (57 1) 6119048							
10096292	OACI-MANAUS	12/9/2015 4:41:29 PM	12/10/2015 8:12:49 PM	Leased Network/Tail Provider	945	Out-of-Service	Unable To Reproduce Issue	Not Applicable
	Boa tarde, Senhores Em contato com o cliente o Sr. Luis Alejos o mesmo informou que o link esta normalizado e autorizou o encerramento desse chamado.O mesmo informou que esta havendo muitas quedas na sua rede nesses ultimos meses por causa da ultima milha.Att,NOC Level(3)Juliana Correa							
10158738	OACI-GUYANA FRANCESA	12/23/2015 8:50:53 PM	12/30/2015 9:10:53 PM	Level(3)	171	Out-of-Service	Cleared Before Any Action Taken	Not Applicable
	Circuit is operational, per LEC circuit normalized without technical intervention.							

10160024	OACI-GUYANA FRANCESA	12/24/2015 4:33:36 AM	12/24/2015 6:22:50 AM	Level(3)	0	Impaired	Manually Created	Not Applicable
	Apreciados Señores, Cordial Saludo Se notifica la cancelación del Ticket 10160024 debido a que el evento se esta trabajando con el caso 10158738 . Agradecemos su atención y esperamos no causar inconvenientes en su gestión.Cordialmente.Andres Camilo Ruiz CorrealNetwork Management Monitoring Engineer / Data & Internet Products Level 3. Latin AmericaAutopista norte 122-35Bogota, Colombiat: +57 1 6118226 ARG : 08008004266 ? COL : 018000114266 ECU : 01800400404 ? PERU : 7004266e: andres.ruiz.ext@level3.com							
10163020	OACI-VENEZUELA	12/25/2015 1:59:25 PM	12/28/2015 7:45:25 PM	Leased Network/Tail Provider	0	Impaired	Manually Created	Not Applicable
	Ticket duplicado. El seguimiento de este caso se esta realizando a traves del ticket No. 10161685.							
10122857	OACI-MANAUS	12/15/2015 1:58:20 PM	12/16/2015 2:02:06 AM	Customer	0	Impaired	System Generated	Not Applicable
	Ja temos o chamado : 10122913 para a tratativa deste caso.							
10134869	OACI-URUGUAY	12/17/2015 5:18:36 PM	1/6/2016 12:26:35 PM	Customer	0	Impaired	Unable To Reproduce Issue	Not Applicable
	Se reclama servicio de datos con intermitencias. Se realizan verificaciones de conectividad, sin encontrar inconvenientes por parte del proveedor Dedicado. Se comparten las pruebas con el cliente, quien confirma la operatividad actual, y evaluara por su parte las fallas en su red interna. Se acuerda el cierre del ticket.							
10153048	OACI-MANAUS	12/22/2015 6:03:47 PM	12/23/2015 8:41:58 PM	Leased Network/Tail Provider	843	Out-of-Service	Replaced	Optical Jumper
	Feito contato com Sandro 55-92-3652 5714, foi confirmado a normalizacio do link e autorizado encerrar o ticket.							
10161685	OACI-VENEZUELA	12/24/2015 5:44:44 PM	12/28/2015 7:52:42 PM	Leased Network/Tail Provider	255	Out-of-Service	Cleared Before Any Action Taken	Not Applicable
	Estimado cliente, De la manera mas atenta se notifica cierre del evento presentado por nuestros procesos de gestión proactiva. Sede afectada: Maiquetia. Tipo de Evento: Intermitencias.Tipo de Canal: PrincipalCausa: Falla en el circuito de última. Nuestro proveedor no logro determinar el origen de las intermitencias debido a que no registraron alarmas en el circuito.Tiempo: 4 horas y 15 minutos.Indisponibilidad: SI. Luego de mantener en observación el caso se verifica, operatividad y estabilidad del enlace y se procede con el cierre del caso. Agradecemos su atención y notificación ante cualquier inconveniente detectado.Gracias por su atención.Cordialmente,Victor Veloso							

Level(3)

Definiciones	
Sitio	Es el sitio del cliente en el cual Level 3 presta un servicio.
TT	Número de evento registrado (Trouble Ticket Number = Número de Ticket del Problema).
Abierto	Día y hora registrado en el sistema CRM de Level 3 como inicio del reclamo.
Recuperado	Día y hora en la cual se reestableció el servicio según lo registrado en el sistema CRM de Level 3.
Responsabilidad	Indica la responsabilidad por la falla del servicio. • Level 3 Last Mile: Falla o riesgo cuya responsabilidad es de Level 3 y fue producida por falla en el Last Mile de Level 3. • Level 3 Backbone: Falla o riesgo cuya responsabilidad es de Level 3 y fue producida por falla de Backbone. • Cliente: La responsabilidad de la caída o degradación o riesgo es del Cliente. • Tercero: Responsabilidad de un proveedor del Cliente distinto de Level 3. Por ejemplo un proveedor de PBX, un proveedor de enlaces, o un servidor en la red de Internet caído aunque el servicio de conexión a la red que da Level 3 este funcionando. Este estado entonces indica que la responsabilidad por la falla del servicio es del Cliente. • Fuerza Mayor: Desastre natural, o conmoción civil en la que Level 3 esta liberado de la responsabilidad sobre la caída. • Sin determinar: El Cliente reporta que el servicio fue afectado en el algún momento del pasado pero en el momento del reclamo el operador diagnostica que el servicio se encuentra activo y en funcionamiento normal. Se documenta el reclamo pero no puede determinarse al responsable de la caída.
Afectación	Indica el grado de afectación con el cual fue catalogado el reclamo. • Indisponible: el servicio no puede utilizarse. • Disponible degradado: el servicio puede utilizarse pero tiene una perfomance inferior a la definida. • En riesgo: no hay afectación de servicio pero existe riesgo considerable que se interrumpa el servicio o se genere una afectación colateral no deseada (por ejemplo afectación personal o edilicia) • Sin afectación: es un reclamo o pedido a Assurance por un motivo que no afecta ni pone en riesgo el servicio básico.
Tiempo de caida (Minutos)	Es el tiempo neto en el cual el servicio estuvo indisponible.
Descripción de cierre	Es la causa que originó el reclamo (TT), y que fuera registrada en el cierre del mismo.

NETWORK MANAGEMENT

CAPACIDAD Y RENDIMIENTO

Utilización de Memoria y CPU

INTERNATIONAL CIVIL AVIATION ORGANIZATION
1-7GO-1873

INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873

Level (3) COMMUNICATIONS

Connecting and Protecting the Networked World

Diciembre 2015

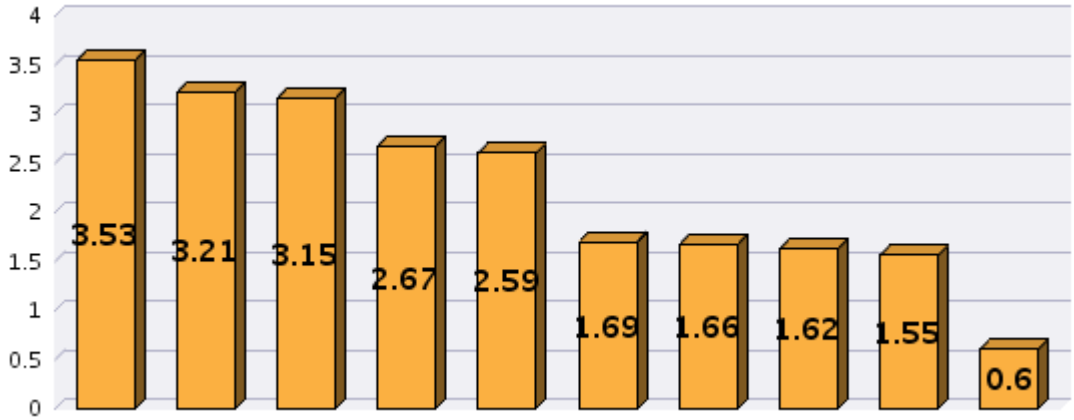
Reporte de Utilización de Memoria y CPU, Diciembre 2015

INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873

Level (3) COMMUNICATIONS
Connecting and Protecting the Networked World

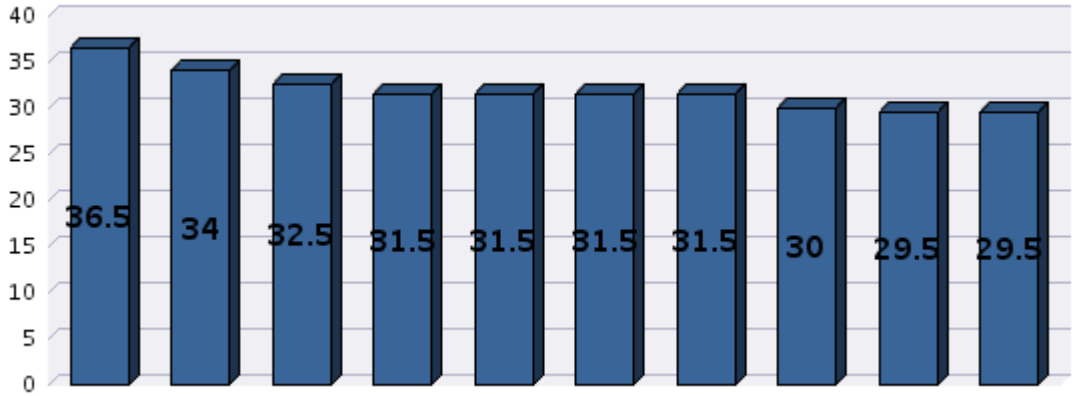
Top Promedio CPU (%)

OACI - TRINIDAD & TOBAGO // ICAO_TRINIDAD.yourdomain.com // 172.21.6.194	OACI - ECUADOR // ICAO_ECUADOR // 172.21.6.195	OACI - CHILE // ICAO_CHILE.yourdomain.com // 172.21.6.197	OACI - COLOMBIA // ICAO_COLOMBIA // 172.21.6.196	OACI - ARGENTINA // ICAO_ARGENTINA // 172.21.6.193	OACI - BRASIL RECIFE // ICAO_RECIFE // 172.20.26.62	OACI - BRASIL CURITIBA // ICAO_CURITIBA // 172.20.26.63	OACI - LIMA // ICAO_PERU // 172.20.26.50	OACI - URUGUAY // ICAO_URUGUAY // 172.21.6.198	OACI - PARAGUAY // ICAO_PARAGUAY.ineo.com.py // 172.21.6.199
3.53	**3.21**	**3.15**	**2.67**	**2.59**	**1.69**	**1.66**	**1.62**	**1.55**	**0.6**



Top Promedio MEM (%)

OACI - TRINIDAD & TOBAGO // ICAO_TRINIDAD.yourdomain.com // 172.21.6.194	OACI - PARAGUAY // ICAO_PARAGUAY.ineo.com.py // 172.21.6.199	OACI - CHILE // ICAO_CHILE.yourdomain.com // 172.21.6.197	OACI - ARGENTINA // ICAO_ARGENTINA // 172.21.6.193	OACI - GUYANA FRANCESA // ICAO_FR_GUYANA.eq.ignetworks.com // 172.21.6.201	OACI - LIMA // ICAO_PERU // 172.20.26.50	OACI - VENEZUELA // ICAO_VENEZUELA // 172.21.6.202	OACI - BRASIL RECIFE // ICAO_RECIFE // 172.20.26.62	OACI - GUYANA // ICAO_GUYANA.yourdomain.com // 172.21.6.200	OACI - SURINAME // ICAO_SURINAME.yourdomain.com // 172.21.6.203
36.5	**34**	**32.5**	**31.5**	**31.5**	**31.5**	**31.5**	**30**	**29.5**	**29.5**



Reporte de Utilización de Memoria y CPU, Diciembre 2015

INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873

Level (3) COMMUNICATIONS
Connecting and Protecting the Networked World℠

Resumen:

		Diciembre 2015			
Sede	**IP Loopback**	**Promedio de Utilización de CPU[%]**	**Min CPU[%]**	**Max CPU[%]**	**Promedio de Utilización de Memoria [%]**
OACI - ARGENTINA					
ICAO_ARGENTINA	172.21.6.193	2.59	2	5	31.5
OACI - BOLIVIA					
ICAO_BOLIVIA.tigo.net.bo	172.21.6.204	0.24	0	2	26.5
OACI - BRASIL CURITIBA					
ICAO_CURITIBA	172.20.26.63	1.66	1	5	14.5
OACI - BRASIL MANAUS					
ICAO_MANAUSBRASIL	172.21.6.192	0.4	0	3	13
OACI - BRASIL RECIFE					
ICAO_RECIFE	172.20.26.62	1.69	1	4	30
OACI - CHILE					
ICAO_CHILE.yourdomain.com	172.21.6.197	3.15	2	6	32.5
OACI - COLOMBIA					
ICAO_COLOMBIA	172.21.6.196	2.67	2	5	29
OACI - ECUADOR					
ICAO_ECUADOR	172.21.6.195	3.21	3	5	28.76
OACI - GUYANA					
ICAO_GUYANA.yourdomain.com	172.21.6.200	0.4	0	3	29.5
OACI - GUYANA FRANCESA					
ICAO_FR_GUYANA.eq.ignetworks.com	172.21.6.201	0.55	0	3	31.5
OACI - LIMA					
ICAO_PERU	172.20.26.50	1.62	1	4	31.5
OACI - PARAGUAY					
ICAO_PARAGUAY.ineo.com.py	172.21.6.199	0.6	0	2	34
OACI - SURINAME					
ICAO_SURINAME.yourdomain.com	172.21.6.203	0.42	0	3	29.5
OACI - TRINIDAD & TOBAGO					
ICAO_TRINIDAD.yourdomain.com	172.21.6.194	3.53	3	6	36.5
OACI - URUGUAY					
ICAO_URUGUAY	172.21.6.198	1.55	1	4	27.5
OACI - VENEZUELA					
ICAO_VENEZUELA	172.21.6.202	0.56	0	3	31.5

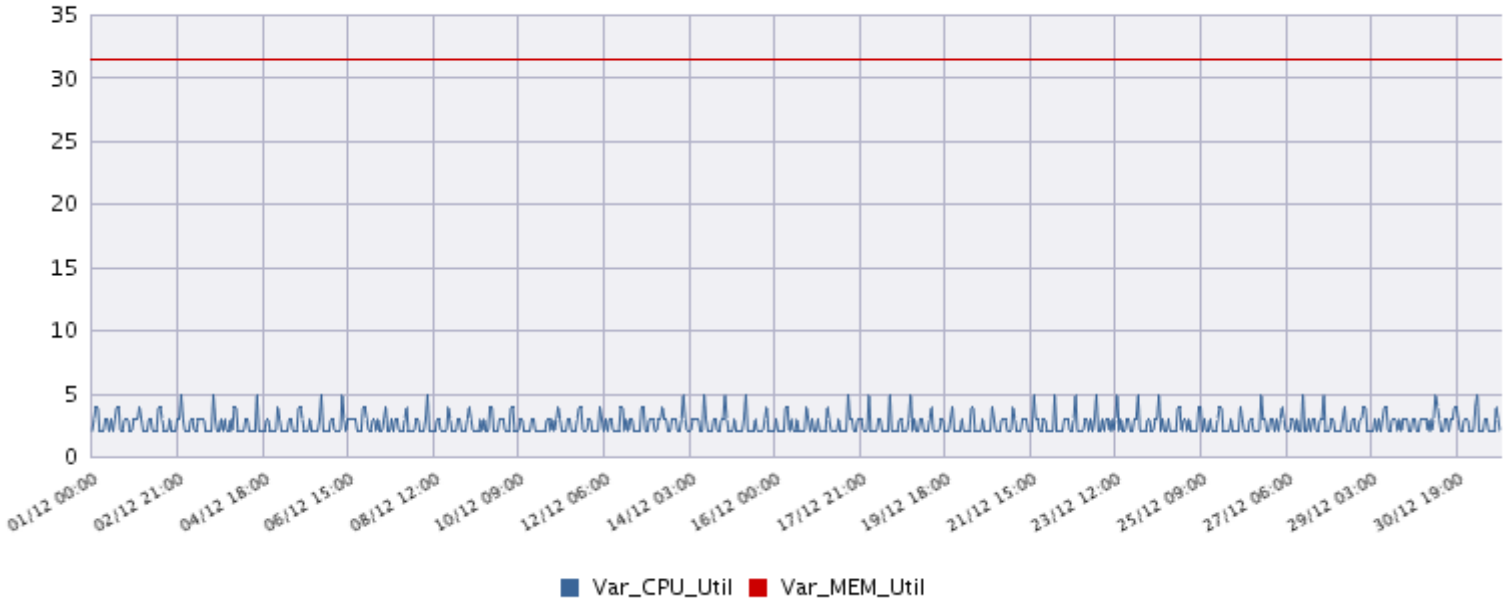
Reporte de Utilización de Memoria y CPU, Diciembre 2015

INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873

Level (3) COMMUNICATIONS
Connecting and Protecting the Networked World℠

Sede	**OACI - ARGENTINA**
Equipo	**ICAO_ARGENTINA**
Modelo	**Cisco1921k9**
IP de Gestión	**(172.21.6.193)**
Ciudad	**Ezeiza**

PROM (CPU: 2.59 | MEM: 31.5) [%]



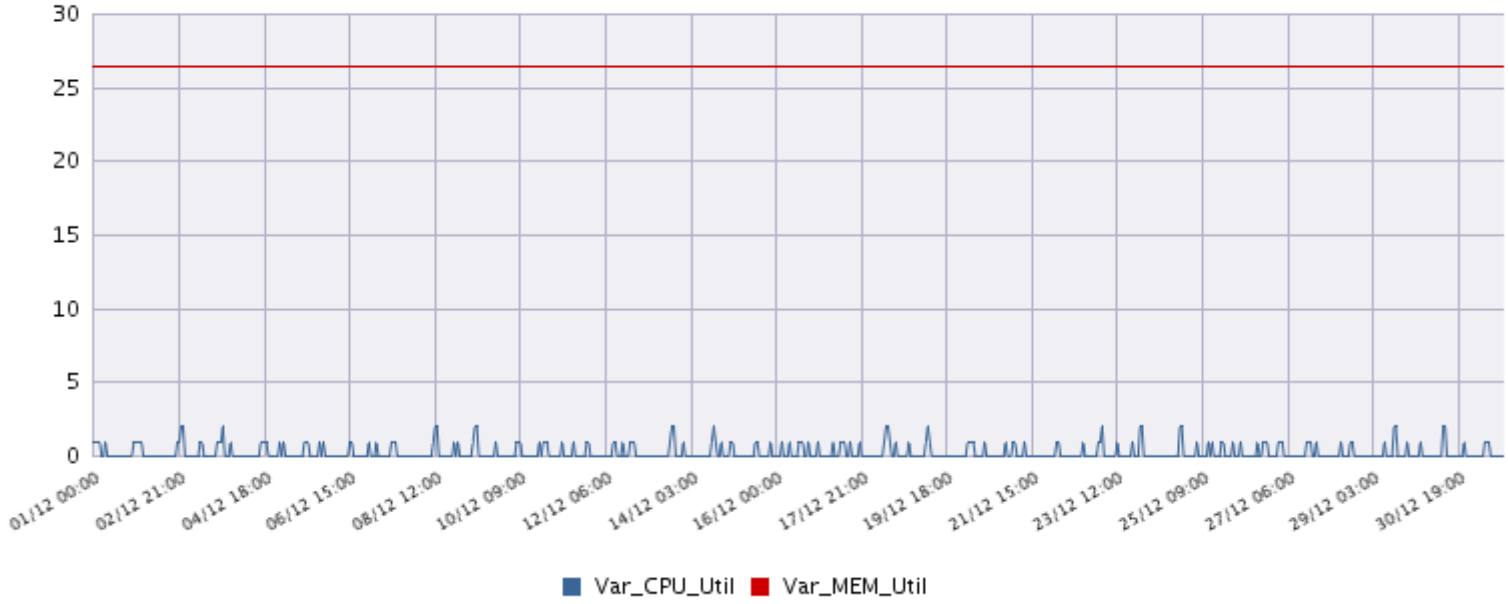
Reporte de Utilización de Memoria y CPU, Diciembre 2015

INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873

Level (3) COMMUNICATIONS
Connecting and Protecting the Networked World℠

Sede	**OACI - BOLIVIA**
Equipo	**ICAO_BOLIVIA.tigo.net.bo**
IP de Gestión	**(172.21.6.204)**
Modelo	**Cisco1921k9**
Ciudad	**La Paz**

PROM (CPU: 0.24 | MEM: 26.5) [%]



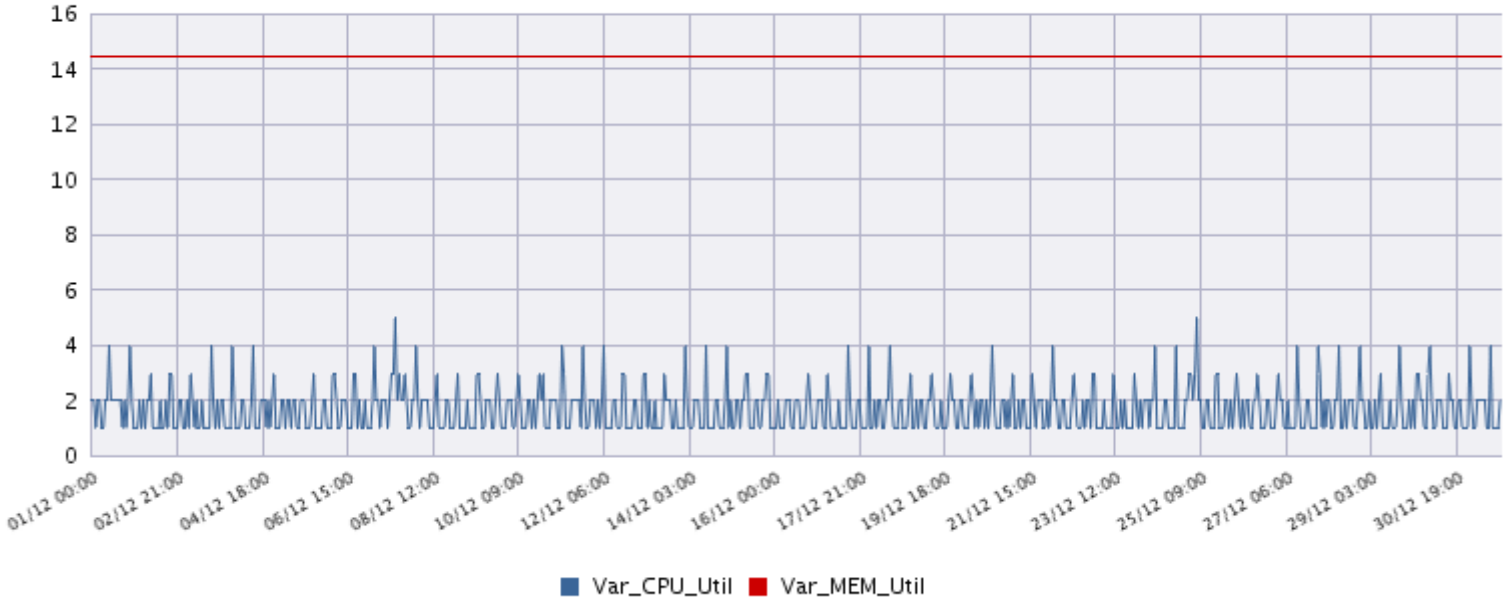
Reporte de Utilización de Memoria y CPU, Diciembre 2015

INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873

Level (3) COMMUNICATIONS
Connecting and Protecting the Networked World℠

Sede	**OACI - BRASIL CURITIBA**
Equipo	**ICAO_CURITIBA**
Modelo	**Cisco1921k9**
IP de Gestión	**(172.20.26.63)**
Ciudad	**Curitiba**

PROM (CPU: 1.66 | MEM: 14.5) [%]



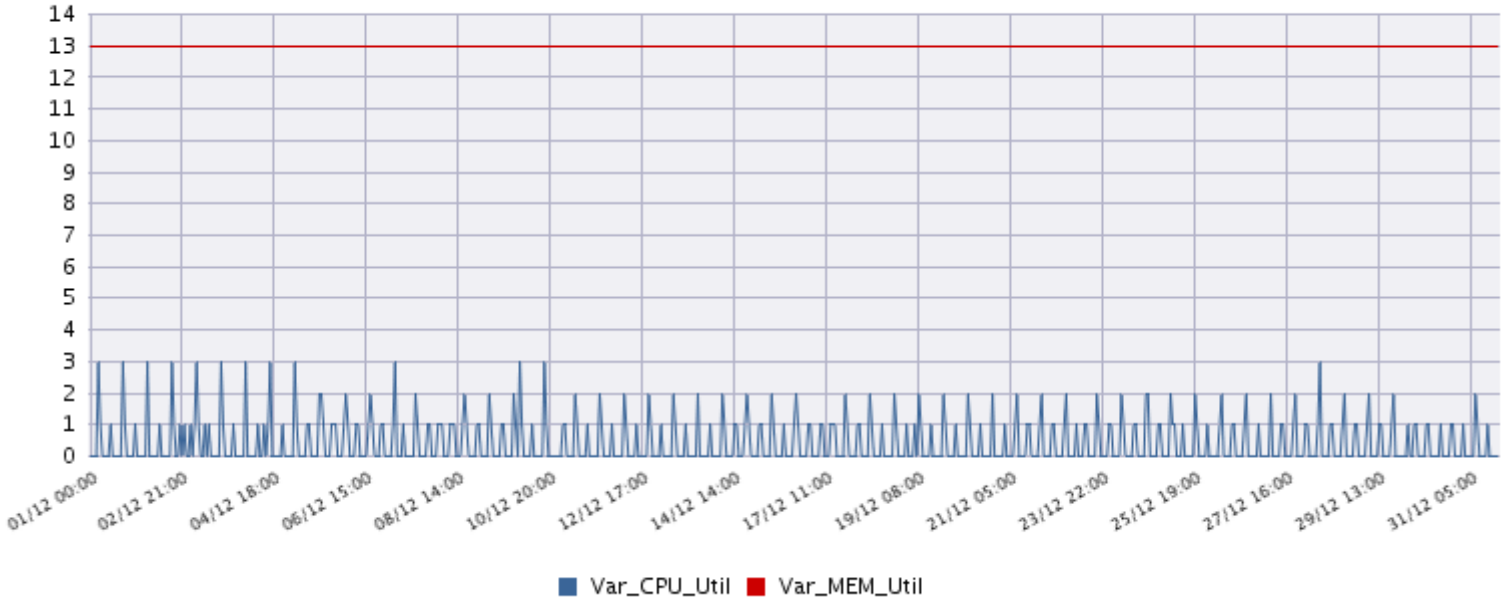
Reporte de Utilización de Memoria y CPU, Diciembre 2015

INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873

Level (3) COMMUNICATIONS
Connecting and Protecting the Networked World℠

Sede	**OACI - BRASIL MANAUS**
Equipo	**ICAO_MANAUSBRASIL**
Modelo	**Cisco1921k9**
IP de Gestión	**(172.21.6.192)**
Ciudad	**Manaus**

PROM (CPU: 0.4 | MEM: 13) [%]



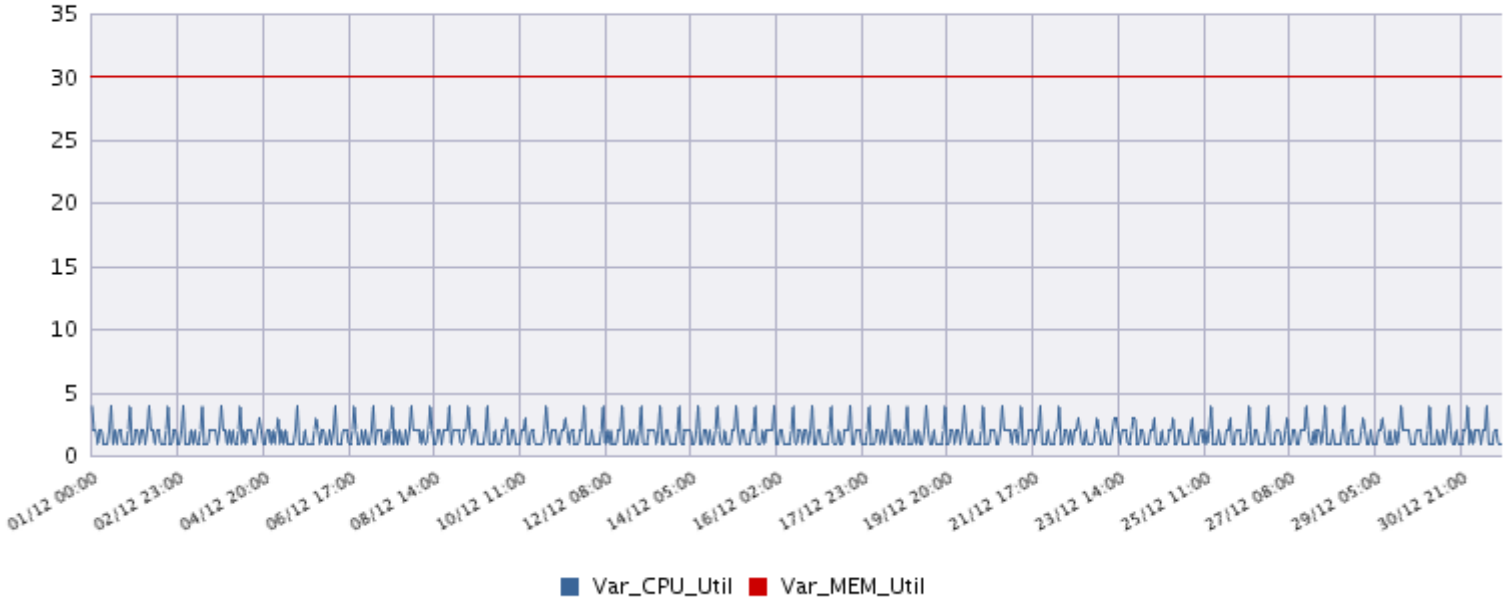
Reporte de Utilización de Memoria y CPU, Diciembre 2015

INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873

Level (3) COMMUNICATIONS
Connecting and Protecting the Networked World℠

Sede	**OACI - BRASIL RECIFE**
Equipo	ICAO_RECIFE
Modelo	Cisco1921k9
IP de Gestión	(172.20.26.62)
Ciudad	Recife

PROM (CPU: 1.69 | MEM: 30) [%]



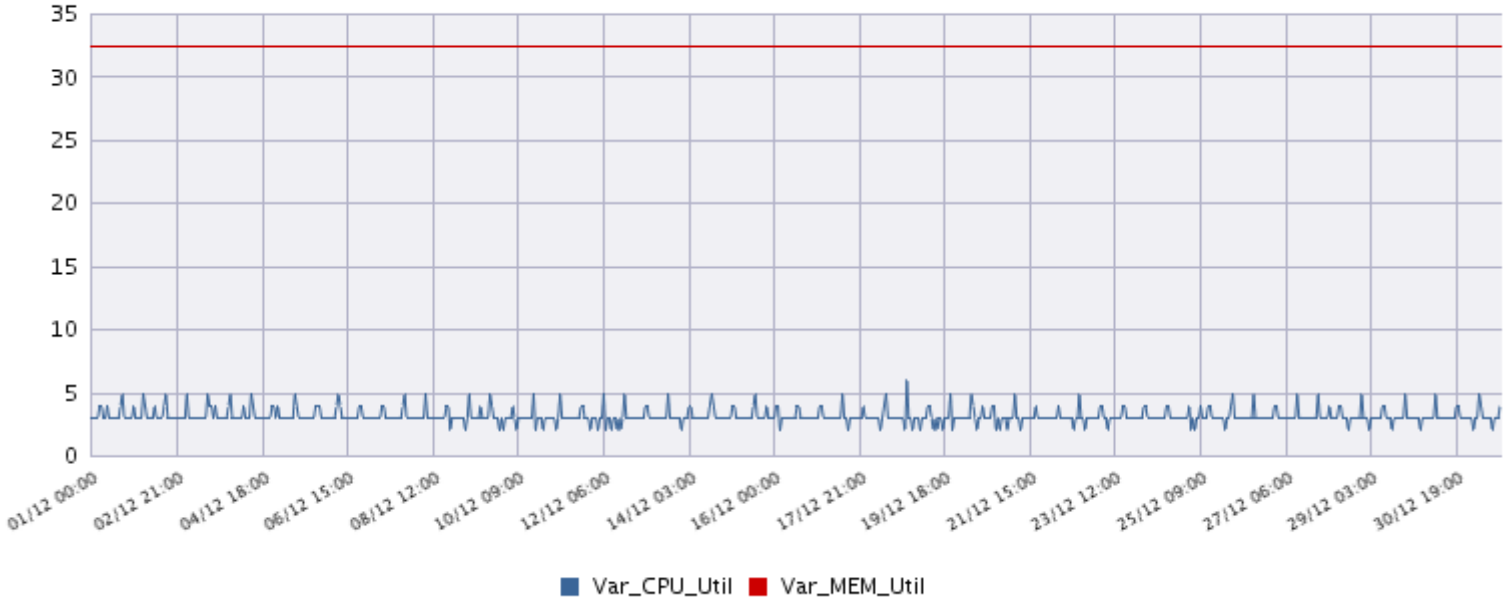
Reporte de Utilización de Memoria y CPU, Diciembre 2015

INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873

Level (3) COMMUNICATIONS
Connecting and Protecting the Networked World℠

Sede	**OACI - CHILE**
Equipo	**ICAO_CHILE.yourdomain.com**
IP de Gestión	**(172.21.6.197)**
Modelo	**Cisco1921k9**
Ciudad	**Santiago de Chile**

PROM (CPU: 3.15 | MEM: 32.5) [%]



Reporte de Utilización de Memoria y CPU, Diciembre 2015

INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873

Level (3) COMMUNICATIONS
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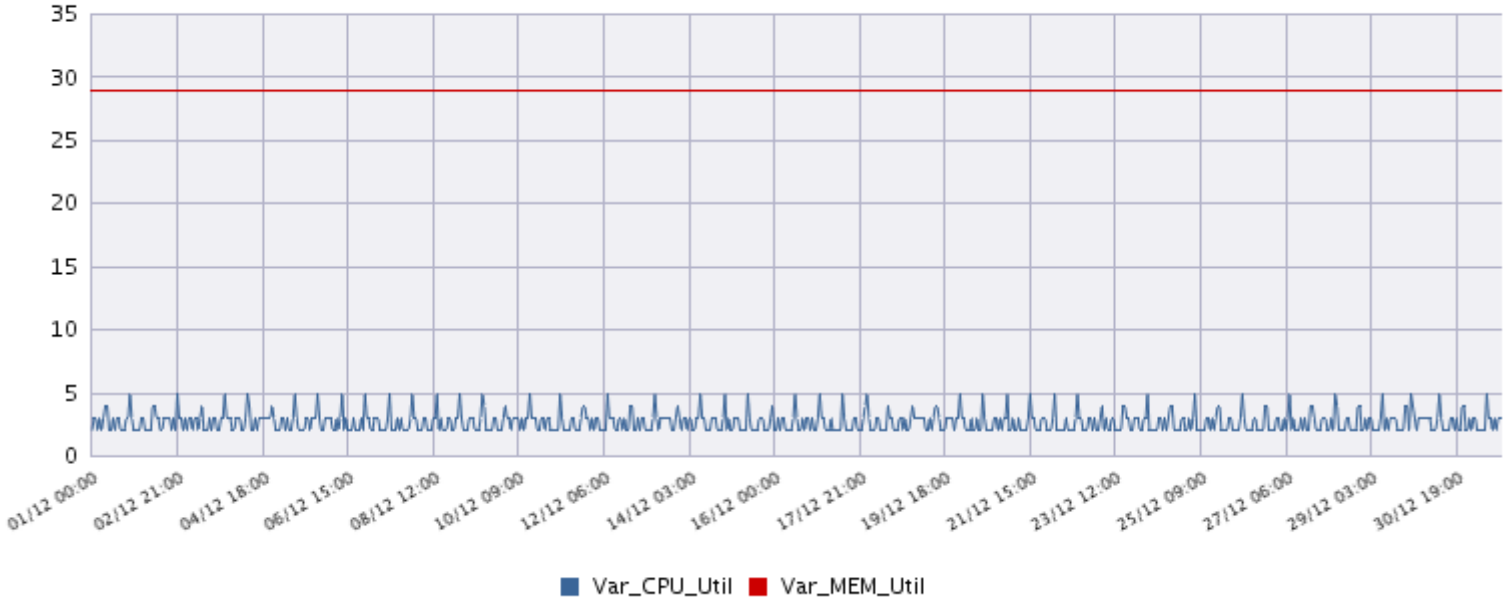
Sede	**OACI - COLOMBIA**
Equipo	**ICAO_COLOMBIA**
Modelo	**Cisco1921k9**
IP de Gestión	**(172.21.6.196)**
Ciudad	**Bogotá**

PROM (CPU: 2.67 | MEM: 29) [%]



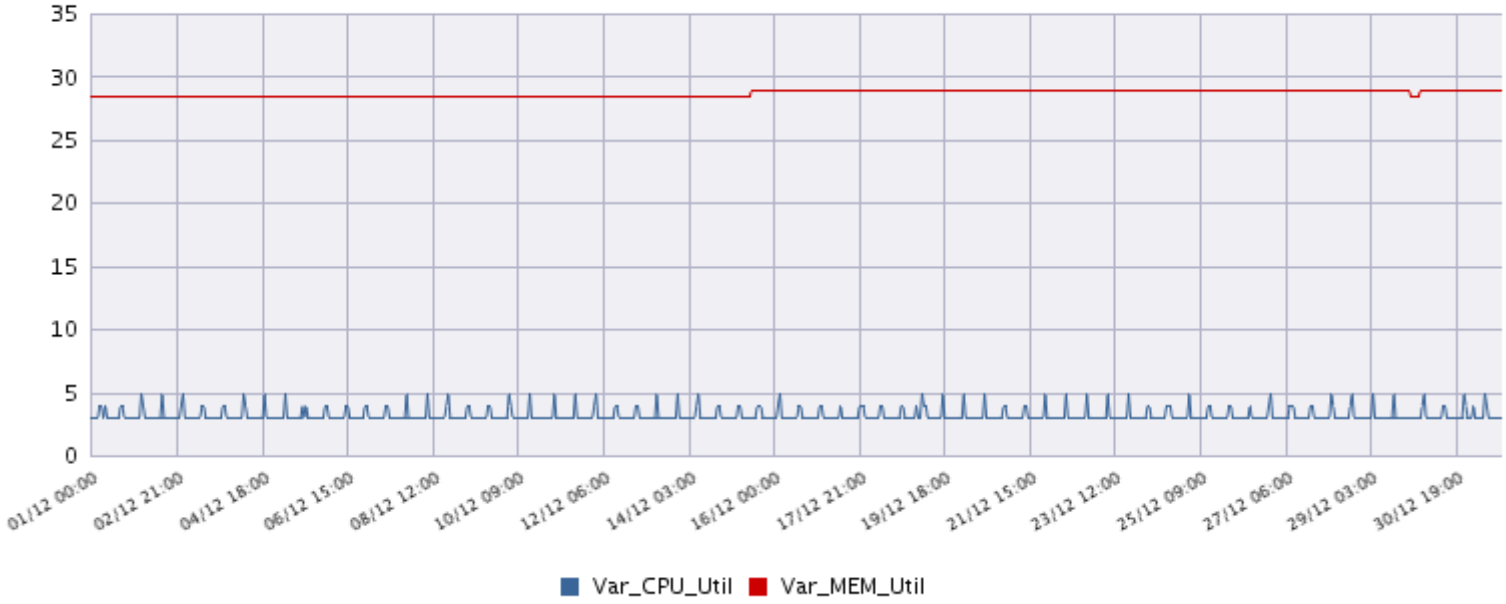
Reporte de Utilización de Memoria y CPU, Diciembre 2015

INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873

Level (3) COMMUNICATIONS
Connecting and Protecting the Networked World℠

Sede	**OACI - ECUADOR**
Equipo	**ICAO_ECUADOR**
Modelo	**Cisco1921k9**
IP de Gestión	**(172.21.6.195)**
Ciudad	**Guayaquil**

PROM (CPU: 3.21 | MEM: 28.76) [%]



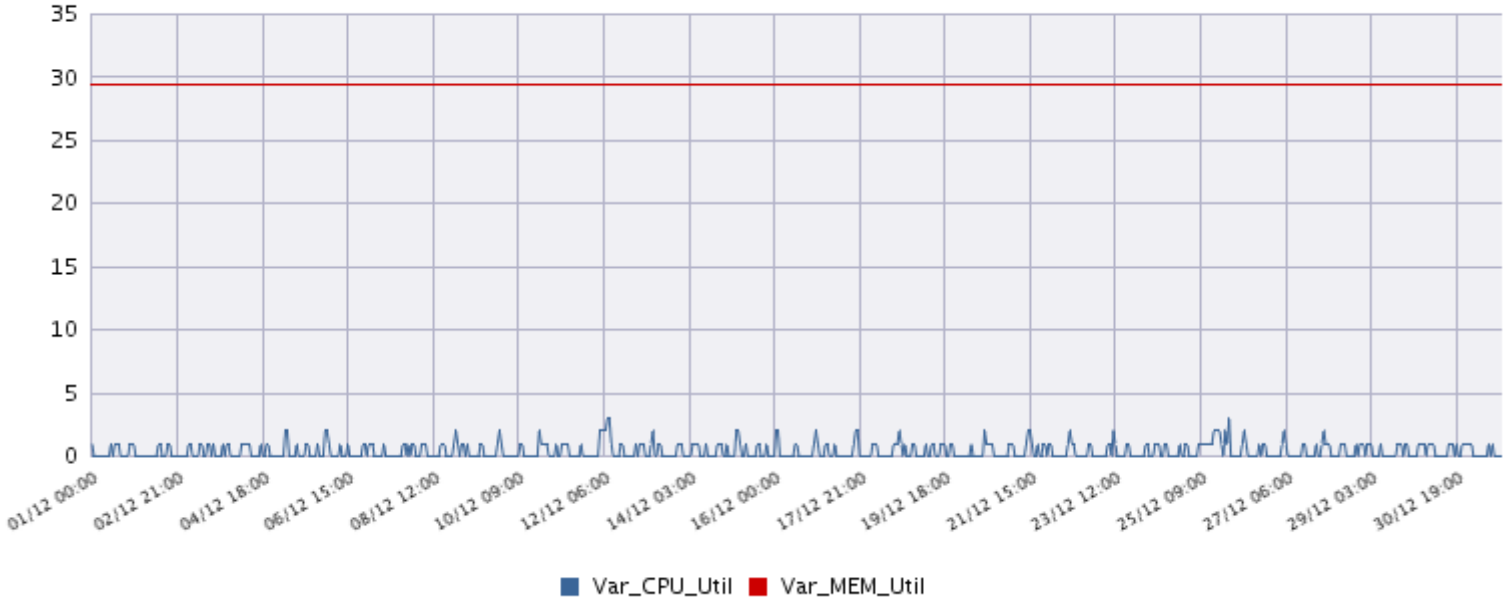
Reporte de Utilización de Memoria y CPU, Diciembre 2015

INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873

Level (3) COMMUNICATIONS
Connecting and Protecting the Networked World℠

Sede	**OACI - GUYANA**
Equipo	ICAO_GUYANA.yourdomain.com
IP de Gestión	(172.21.6.200)
Modelo	Cisco1921k9
Ciudad	Georgetown

PROM (CPU: 0.4 | MEM: 29.5) [%]



Reporte de Utilización de Memoria y CPU, Diciembre 2015

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Level (3) COMMUNICATIONS
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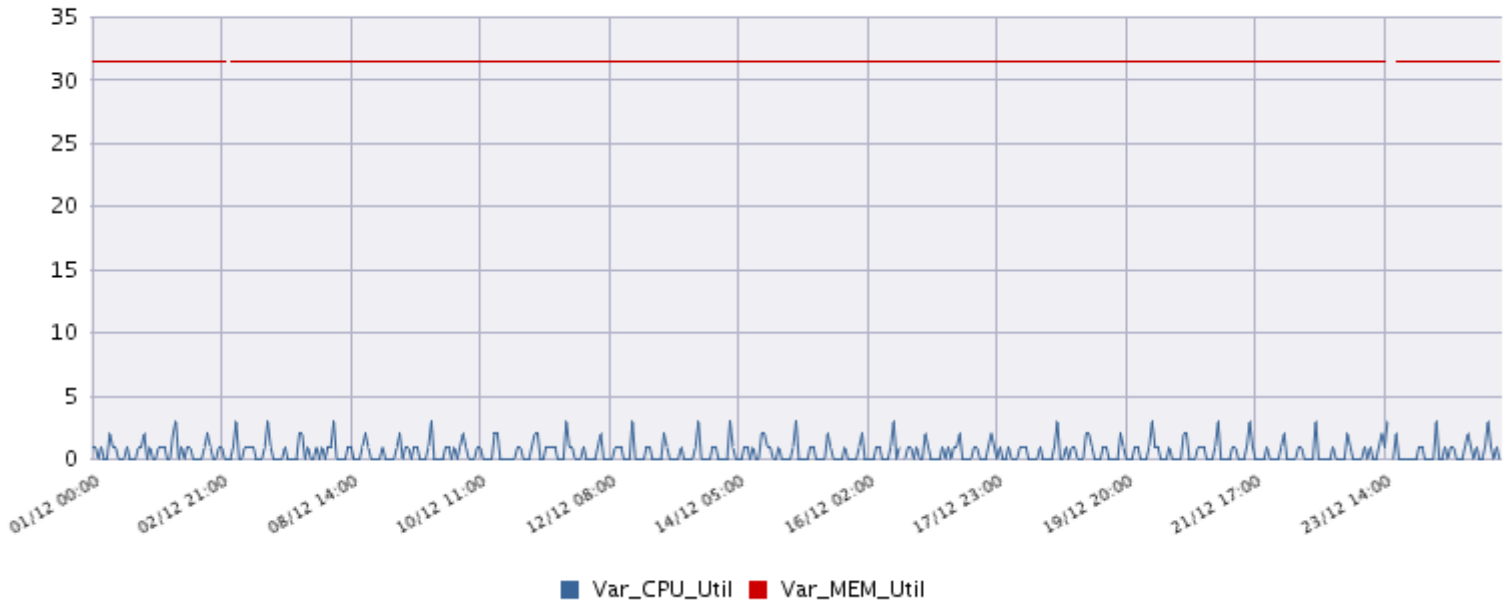
Sede	**OACI - GUYANA FRANCESA**
Equipo	ICAO_FR_GUYANA.eq.ignetworks.com
IP de Gestión	(172.21.6.201)
Modelo	Cisco1921k9
Ciudad	Cayena

PROM (CPU: 0.55 | MEM: 31.5) [%]



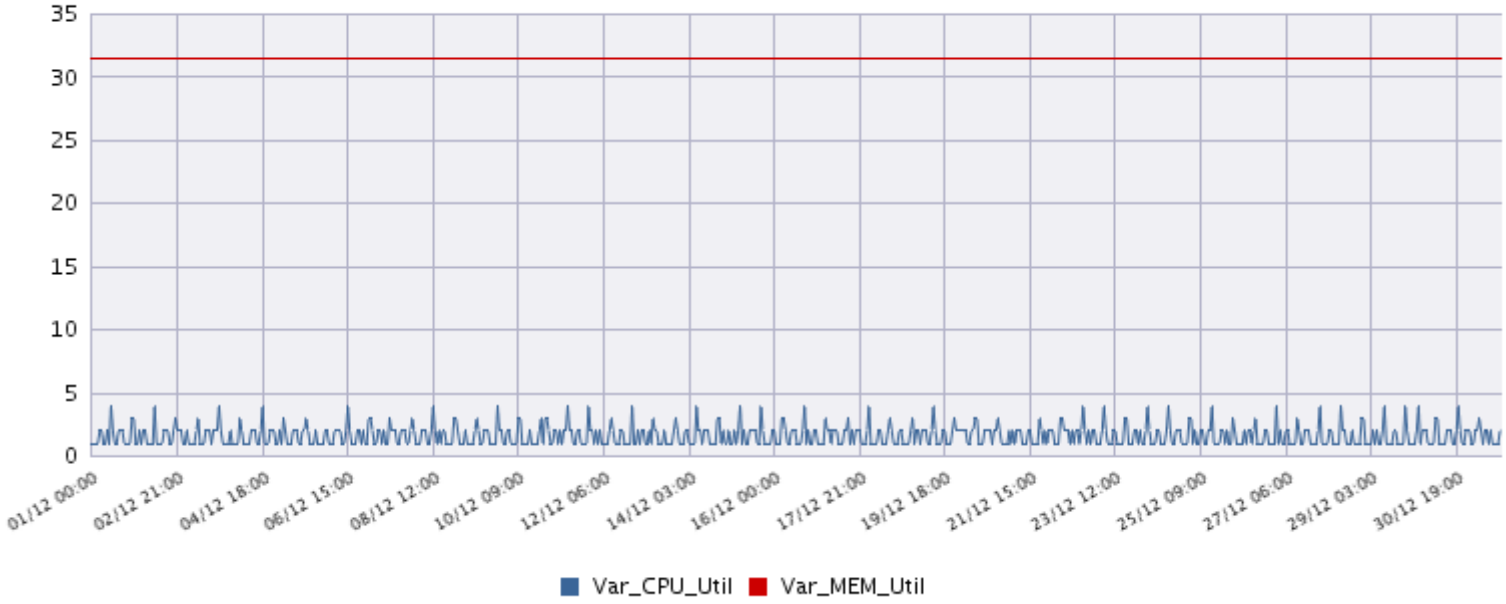
Reporte de Utilización de Memoria y CPU, Diciembre 2015

INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873

Level (3) COMMUNICATIONS
Connecting and Protecting the Networked World℠

Sede	**OACI - LIMA**
Equipo	**ICAO_PERU**
IP de Gestión	**(172.20.26.50)**
Modelo	**Cisco1921k9**
Ciudad	**Callao**

PROM (CPU: 1.62 | MEM: 31.5) [%]



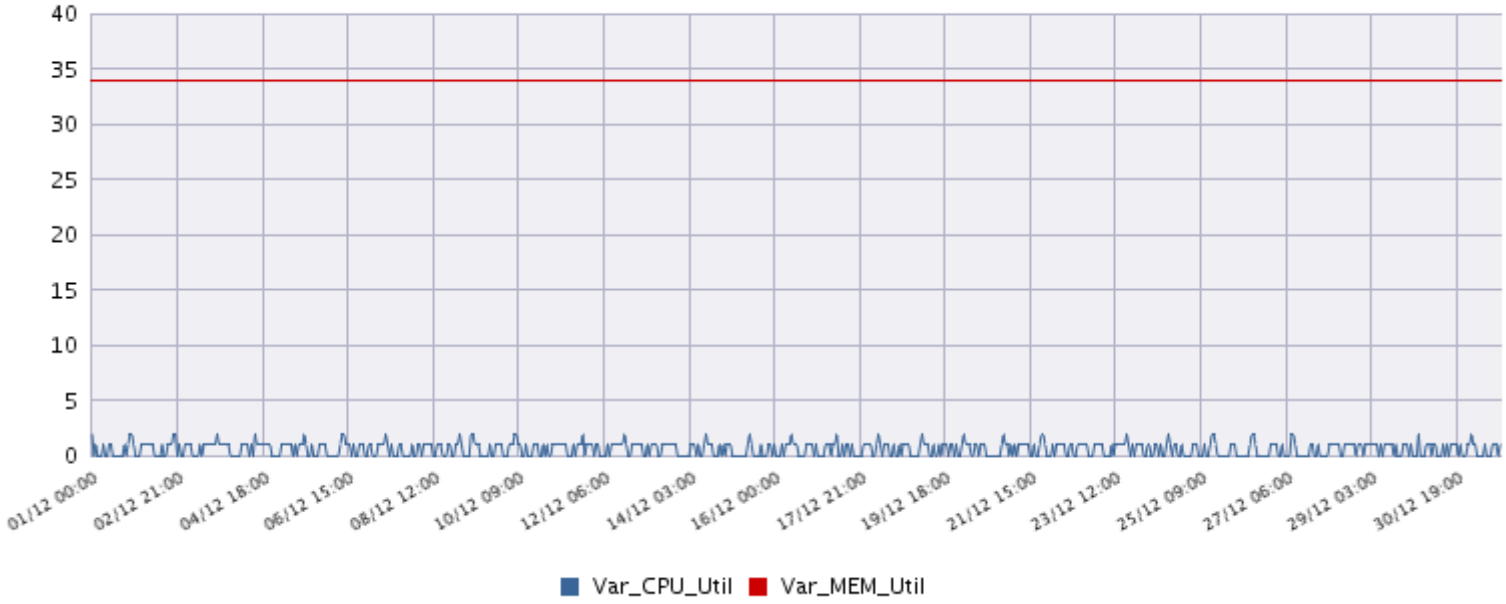
Reporte de Utilización de Memoria y CPU, Diciembre 2015

INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873

Level (3) COMMUNICATIONS
Connecting and Protecting the Networked World℠

Sede	**OACI - PARAGUAY**
Equipo	ICAO_PARAGUAY.ineo.com.py
IP de Gestión	(172.21.6.199)
Modelo	Cisco1941
Ciudad	Asunción

PROM (CPU: 0.6 | MEM: 34) [%]



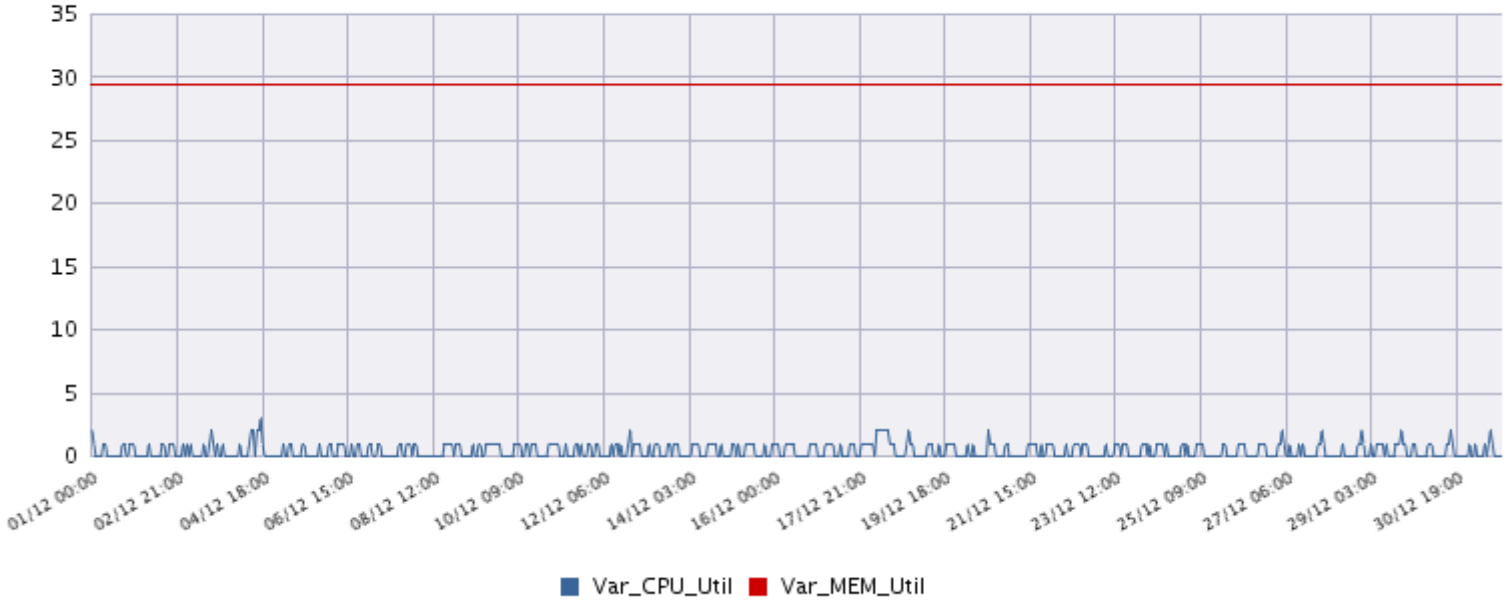
Reporte de Utilización de Memoria y CPU, Diciembre 2015

INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873

Level (3) COMMUNICATIONS
Connecting and Protecting the Networked World℠

Sede	**OACI - SURINAME**
Equipo	**ICAO_SURINAME.yourdomain.com**
IP de Gestión	**(172.21.6.203)**
Modelo	**Cisco1921k9**
Ciudad	**Paramaribo**

PROM (CPU: 0.42 | MEM: 29.5) [%]



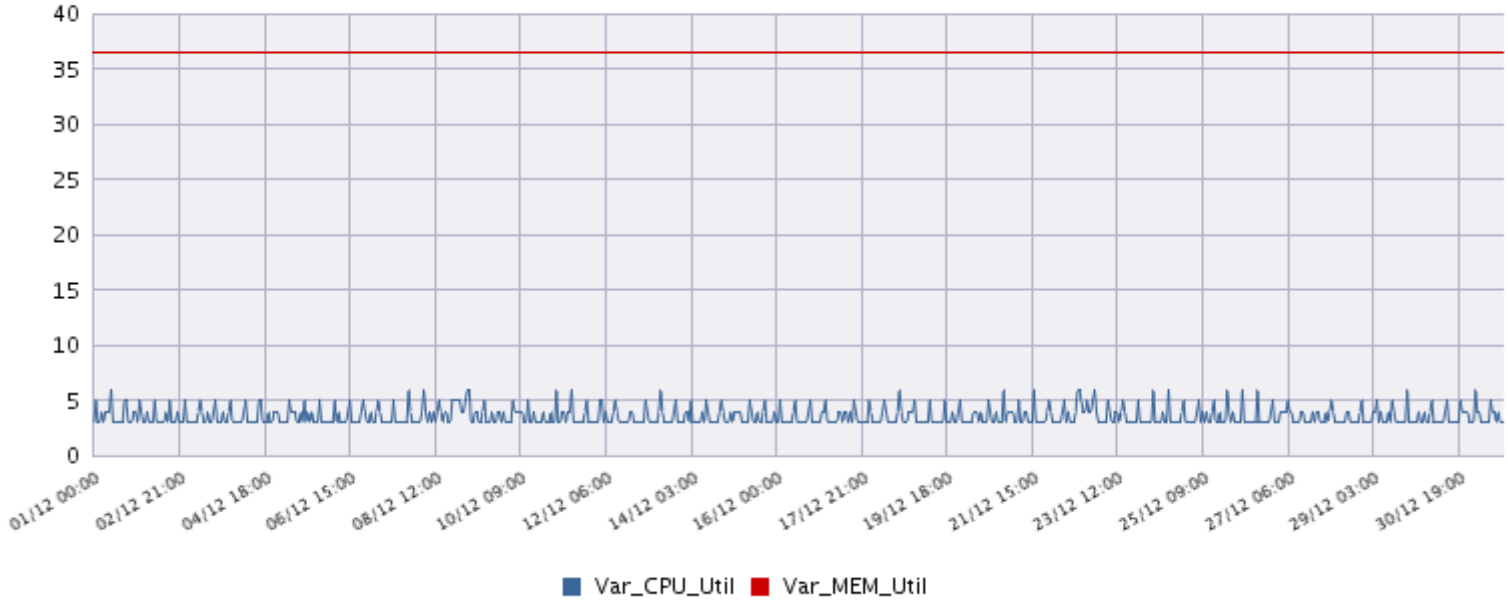
Reporte de Utilización de Memoria y CPU, Diciembre 2015

INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873

Level (3) COMMUNICATIONS
Connecting and Protecting the Networked World℠

Sede	**OACI - TRINIDAD & TOBAGO**
Equipo	**ICAO_TRINIDAD.yourdomain.com**
IP de Gestión	**(172.21.6.194)**
Modelo	**Cisco1921k9**
Ciudad	**Port of Spain**

PROM (CPU: 3.53 | MEM: 36.5) [%]



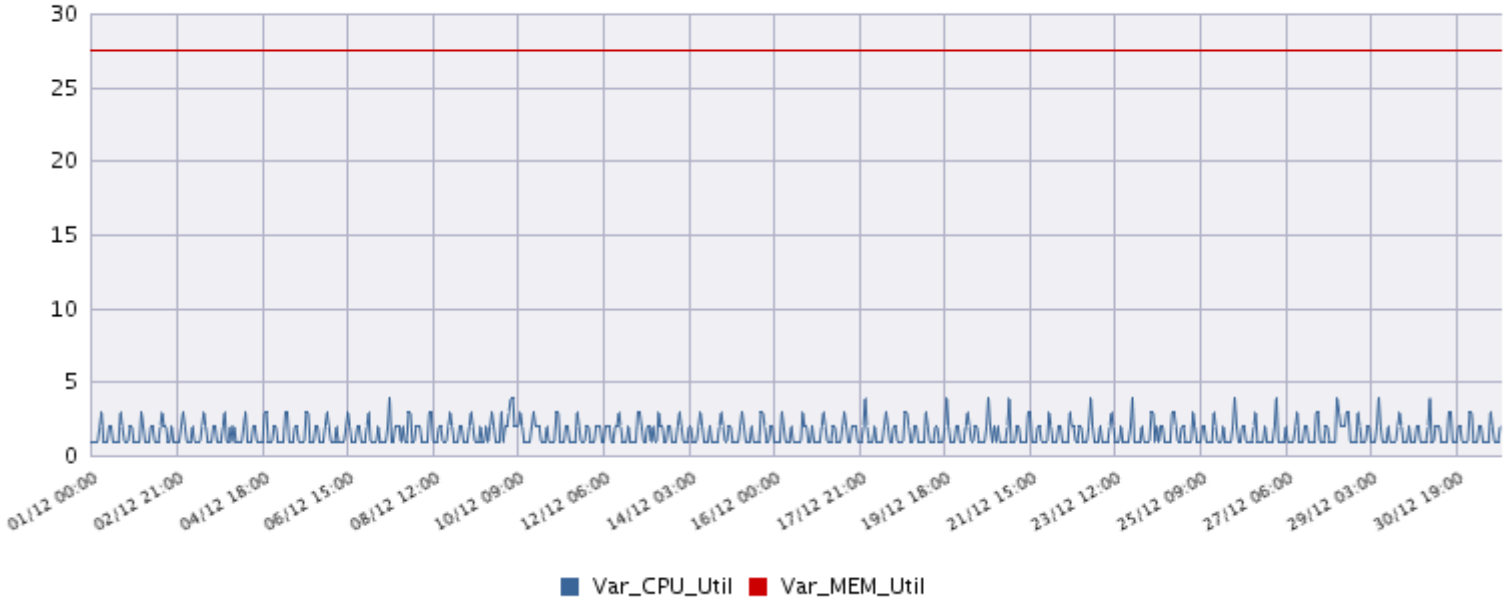
Reporte de Utilización de Memoria y CPU, Diciembre 2015

INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873

Level (3) COMMUNICATIONS
Connecting and Protecting the Networked World℠

Sede	**OACI - URUGUAY**
Equipo	**ICAO_URUGUAY**
Modelo	**Cisco1921k9**
IP de Gestión	**(172.21.6.198)**
Ciudad	**Montevideo**

PROM (CPU: 1.55 | MEM: 27.5) [%]



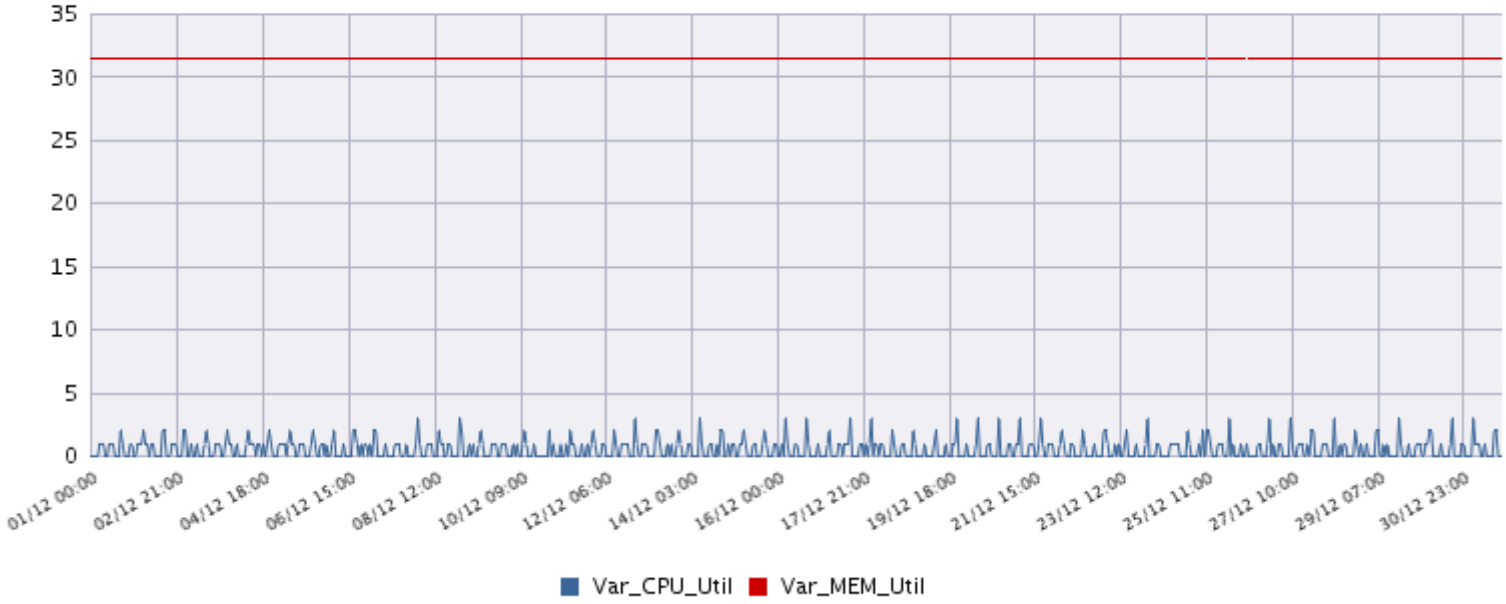
Reporte de Utilización de Memoria y CPU, Diciembre 2015

INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873

Level (3) COMMUNICATIONS
Connecting and Protecting the Networked World℠

Sede	**OACI - VENEZUELA**
Equipo	**ICAO_VENEZUELA**
Modelo	**Cisco1921k9**
IP de Gestión	**(172.21.6.202)**
Ciudad	**Maiquetía**

PROM (CPU: 0.56 | MEM: 31.5) [%]



Reporte de Utilización de Memoria y CPU, Diciembre 2015

INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873

Level (3) COMMUNICATIONS

Connecting and Protecting the Networked World℠

NETWORK MANAGEMENT

CAPACIDAD Y RENDIMIENTO

Delay, Jitter, Packet Loss

INTERNATIONAL CIVIL AVIATION ORGANIZATION
1-7GO-1873

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Level (3) COMMUNICATIONS

Connecting and Protecting
the Networked World

Diciembre 2015

Reporte de Delay, Jitter y Packet Loss, Diciembre 2015

INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873

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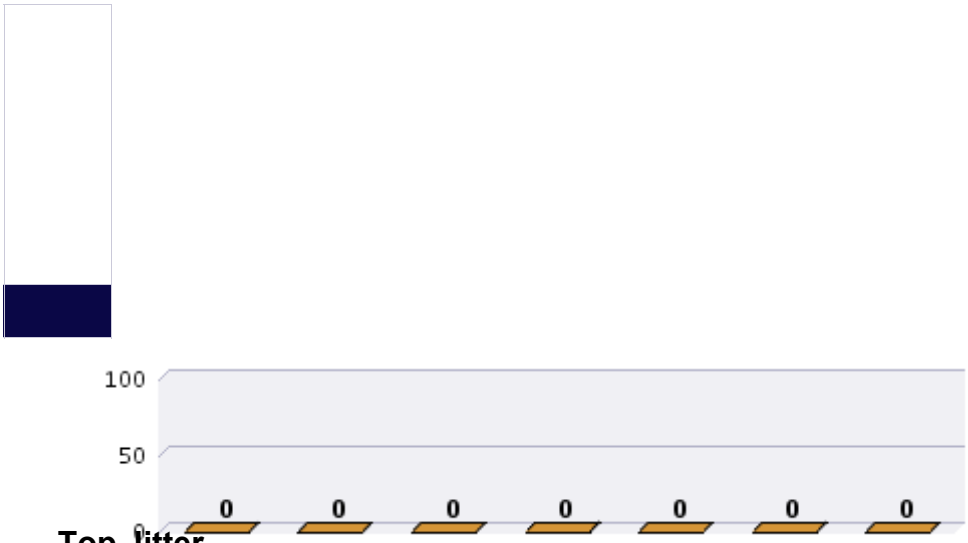
Top Delay



Top Jitter

Top Packet Loss

Reporte de Delay, Jitter y Packet Loss, Diciembre 2015

INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873

Level (3) COMMUNICATIONS
Connecting and Protecting the Networked World℠

Evolución histórica:

Sede	Diciembre 2015		
	Delay [ms] Promedio	Jitter [ms] Promedio	Packet Loss Porcentaje
OACI - ARGENTINA ICAO_ARGENTINA : (172.21.6.193)	0	0	0
OACI - BRASIL CURITIBA ICAO_CURITIBA : (172.20.26.63)	0	0	0
OACI - CHILE ICAO_CHILE.yourdomain.com : (172.21.6.197)	0	0	0
OACI - COLOMBIA ICAO_COLOMBIA : (172.21.6.196)	0	0	0
OACI - ECUADOR ICAO_ECUADOR : (172.21.6.195)	0	0	0
OACI - TRINIDAD & TOBAGO ICAO_TRINIDAD.yourdomain.com : (172.21.6.194)	0	0	0
OACI - URUGUAY ICAO_URUGUAY : (172.21.6.198)	0	0	0

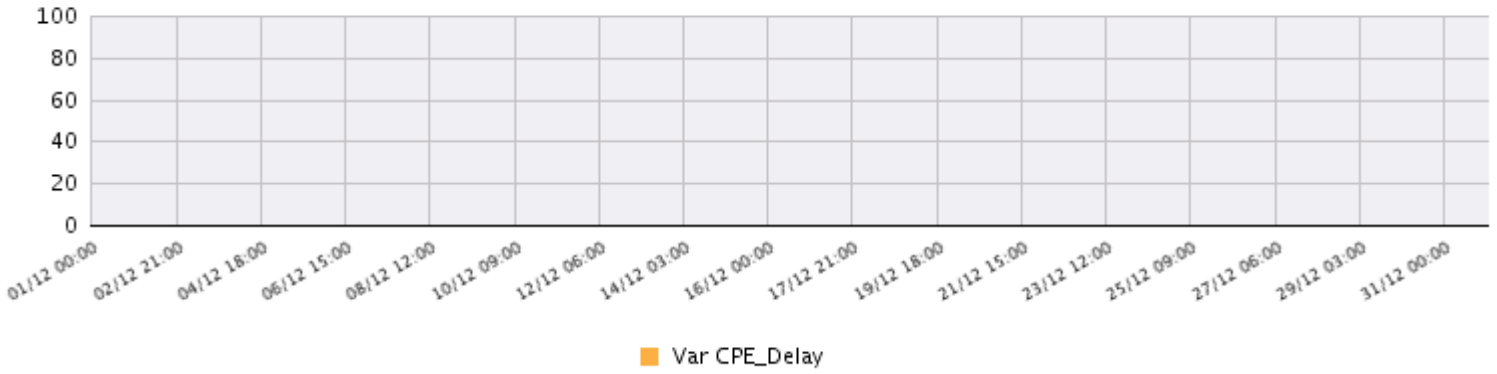
Reporte de Delay, Jitter y Packet Loss, Diciembre 2015

INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873

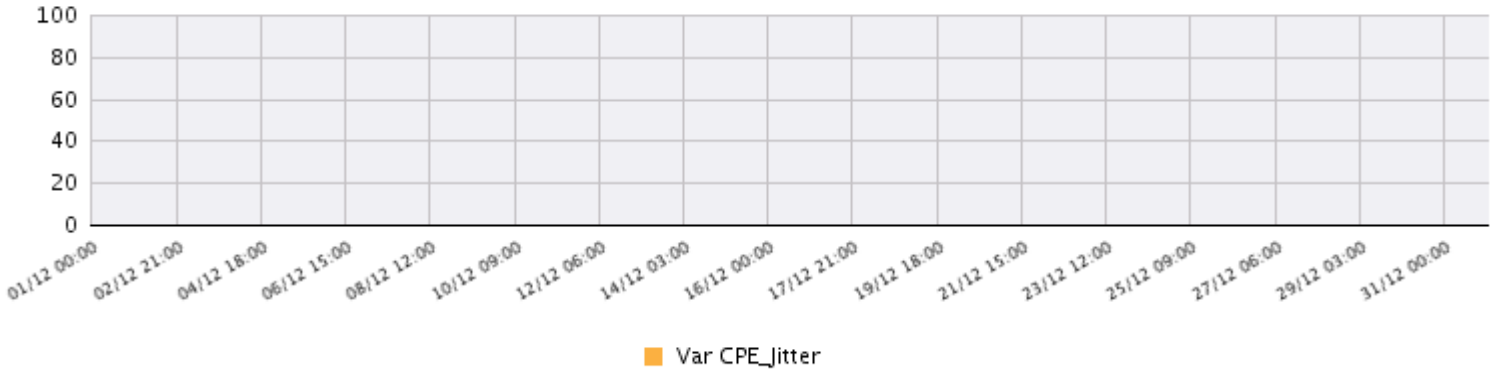
Level (3) COMMUNICATIONS
Connecting and Protecting the Networked World℠

Sede	**OACI - ARGENTINA**
Equipo	**ICAO_ARGENTINA**
Modelo	**cisco1921k9**
IP de Gestión	**(172.21.6.193)**
Ciudad	**Ezeiza**

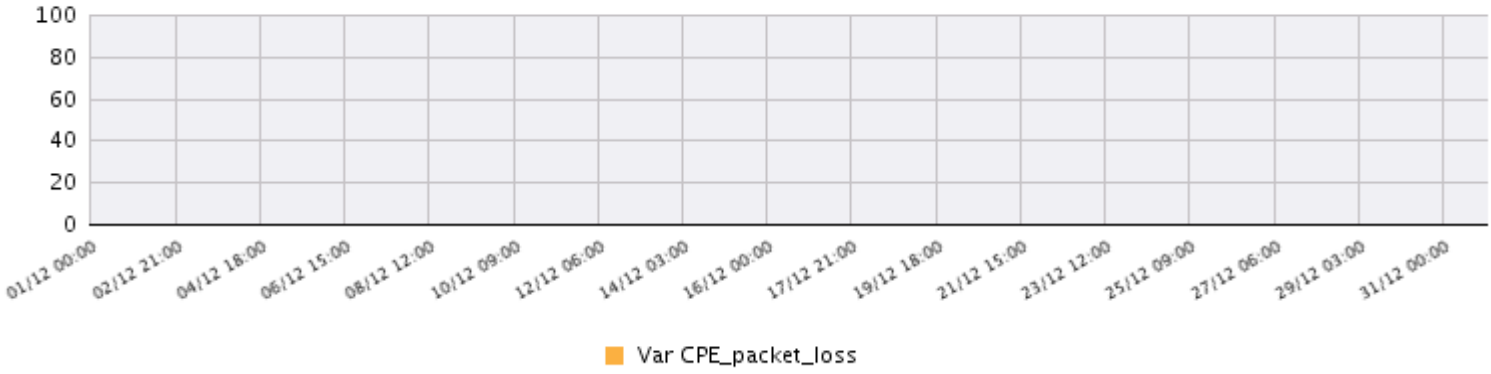
PROM: 0 [ms]



PROM: 0 [ms]



PROM: 0



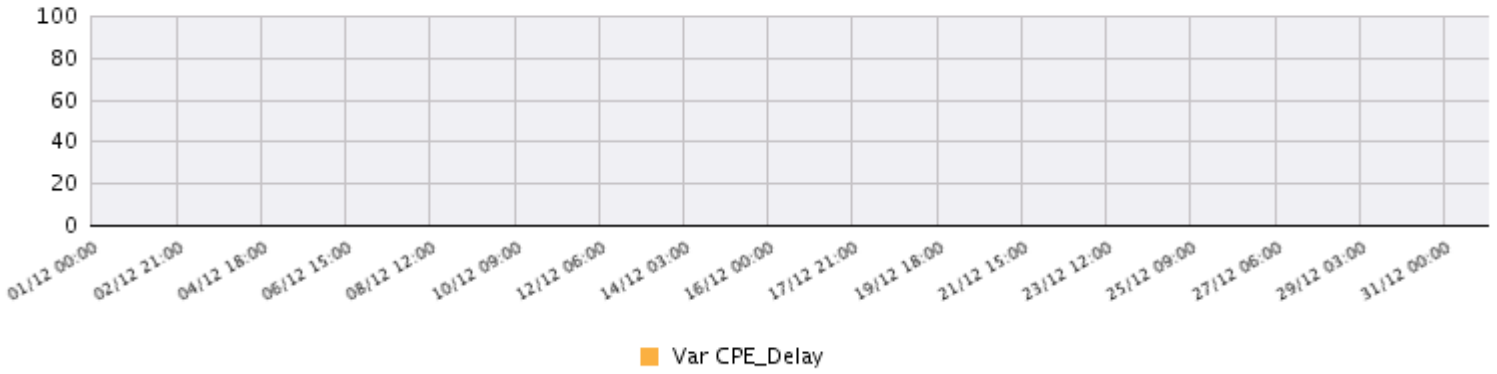
Reporte de Delay, Jitter y Packet Loss, Diciembre 2015

INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873

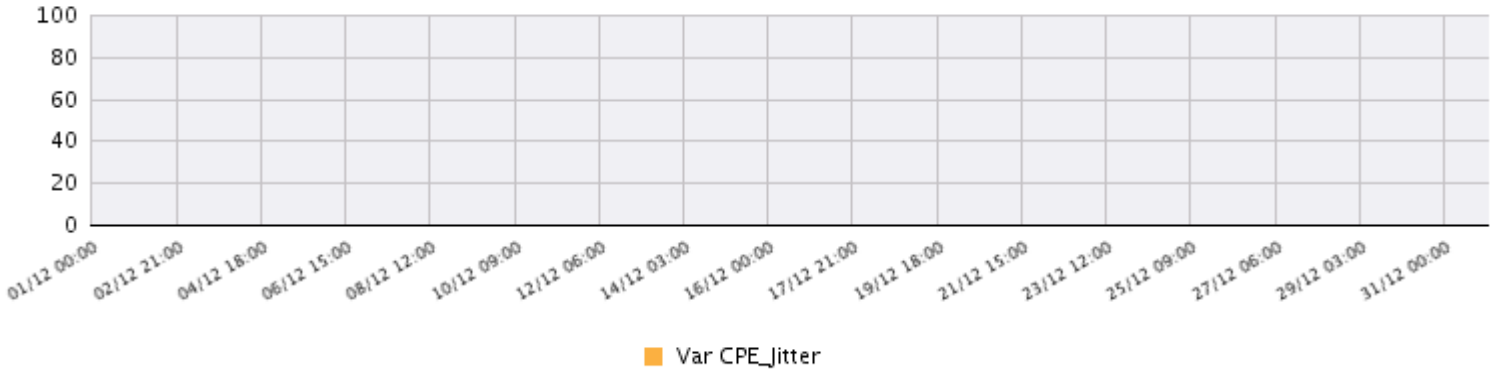
Level (3) COMMUNICATIONS
Connecting and Protecting the Networked World℠

Sede	**OACI - BRASIL CURITIBA**
Equipo	**ICAO_CURITIBA**
Modelo	**cisco1921k9**
IP de Gestión	**(172.20.26.63)**
Ciudad	**Curitiba**

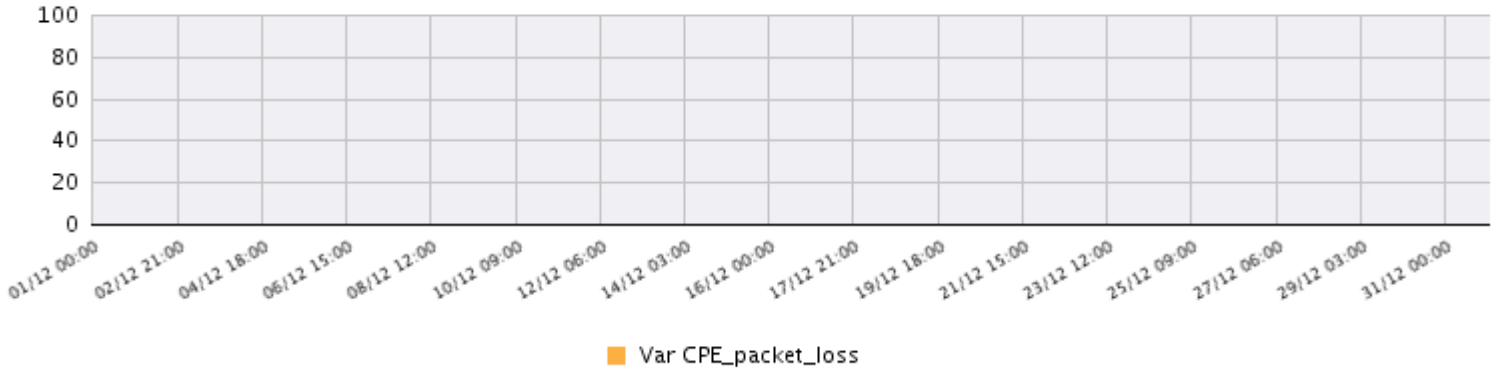
PROM: 0 [ms]



PROM: 0 [ms]



PROM: 0



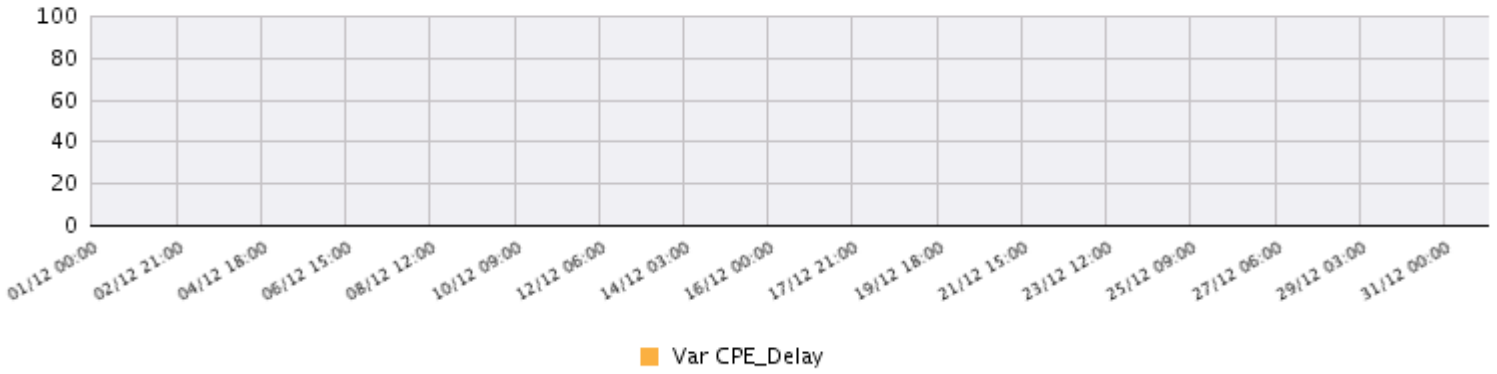
Reporte de Delay, Jitter y Packet Loss, Diciembre 2015

INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873

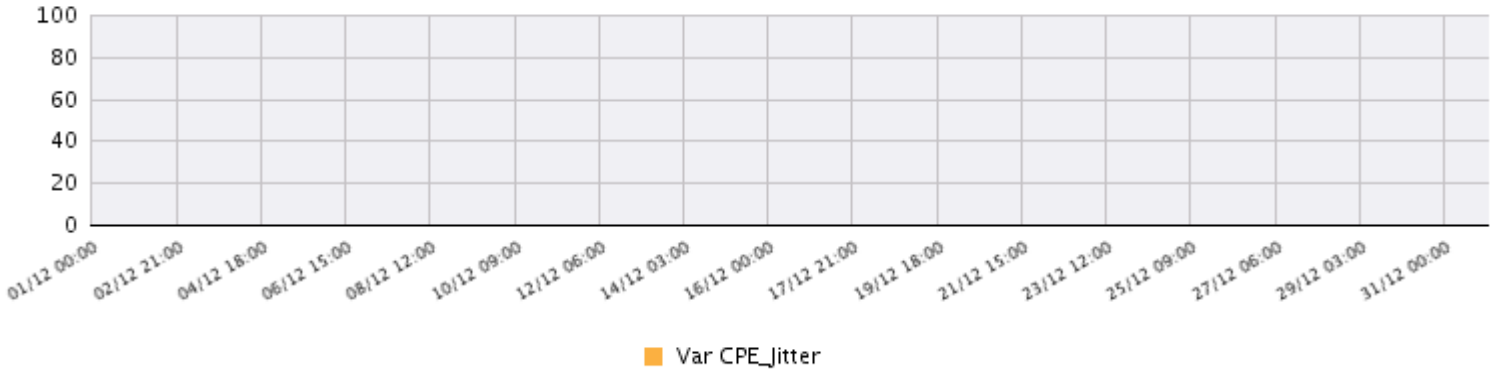
Level (3) COMMUNICATIONS
Connecting and Protecting the Networked World℠

Sede	**OACI - CHILE**
Equipo	ICAO_CHILE.yourdomain.com
Modelo	cisco1921k9
IP de Gestión	(172.21.6.197)
Ciudad	Santiago de Chile

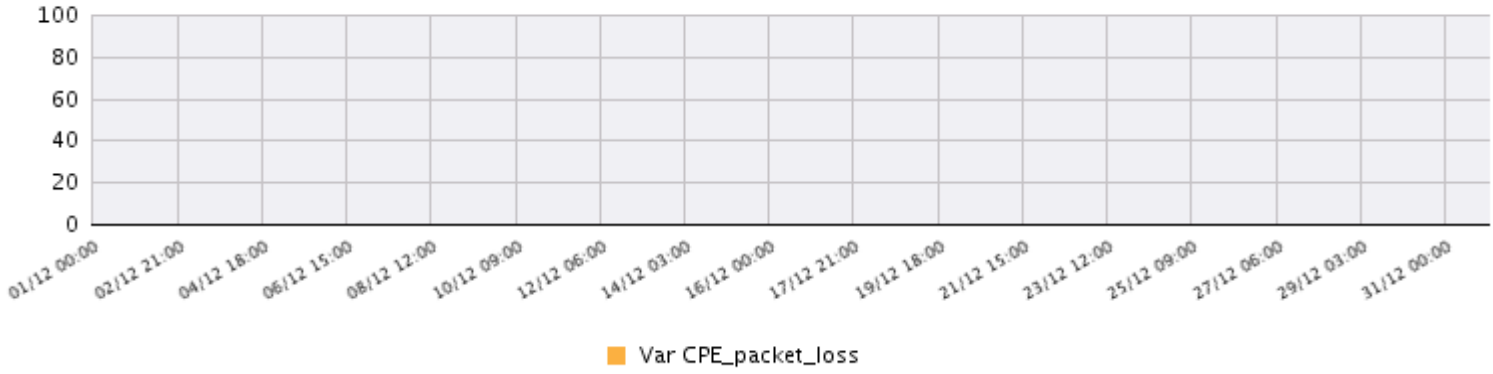
PROM: 0 [ms]



PROM: 0 [ms]



PROM: 0



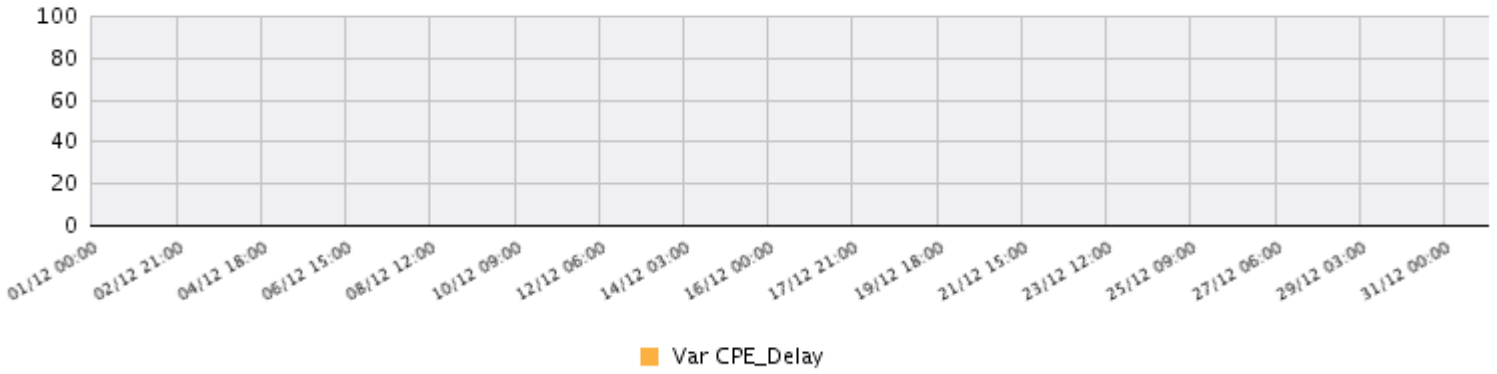
Reporte de Delay, Jitter y Packet Loss, Diciembre 2015

INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873

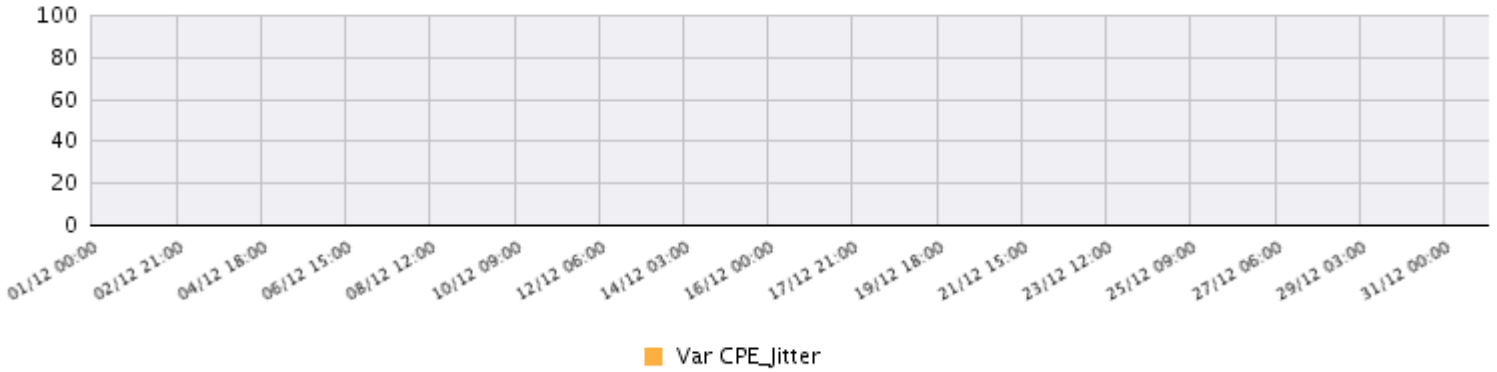
Level (3) COMMUNICATIONS
Connecting and Protecting the Networked World℠

Sede	**OACI - COLOMBIA**
Equipo	**ICAO_COLOMBIA**
Modelo	**cisco1921k9**
IP de Gestión	**(172.21.6.196)**
Ciudad	**Bogotá**

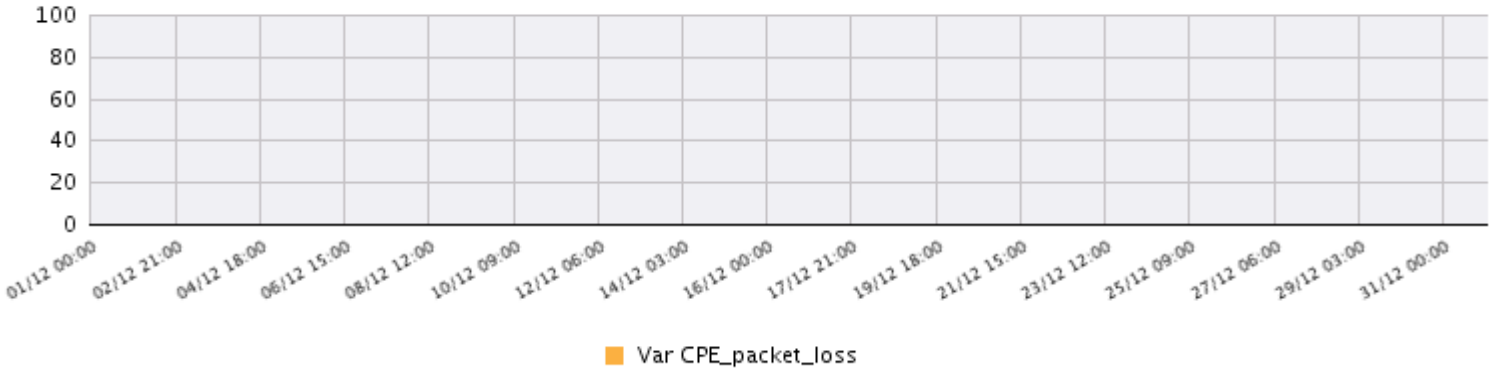
PROM: 0 [ms]



PROM: 0 [ms]



PROM: 0



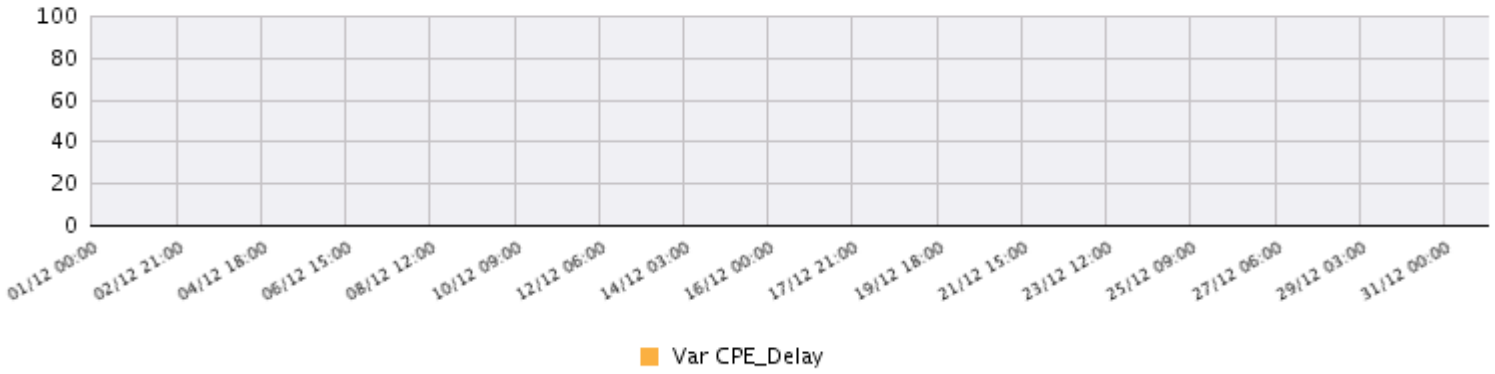
Reporte de Delay, Jitter y Packet Loss, Diciembre 2015

INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873

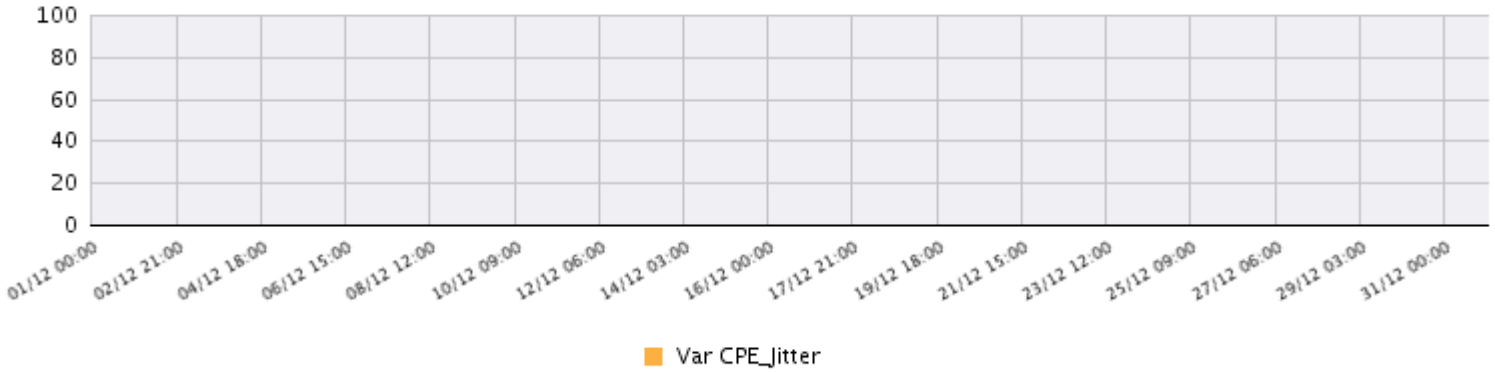
Level (3) COMMUNICATIONS
Connecting and Protecting the Networked World℠

Sede	**OACI - ECUADOR**
Equipo	**ICAO_ECUADOR**
Modelo	**cisco1921k9**
IP de Gestión	**(172.21.6.195)**
Ciudad	**Guayaquil**

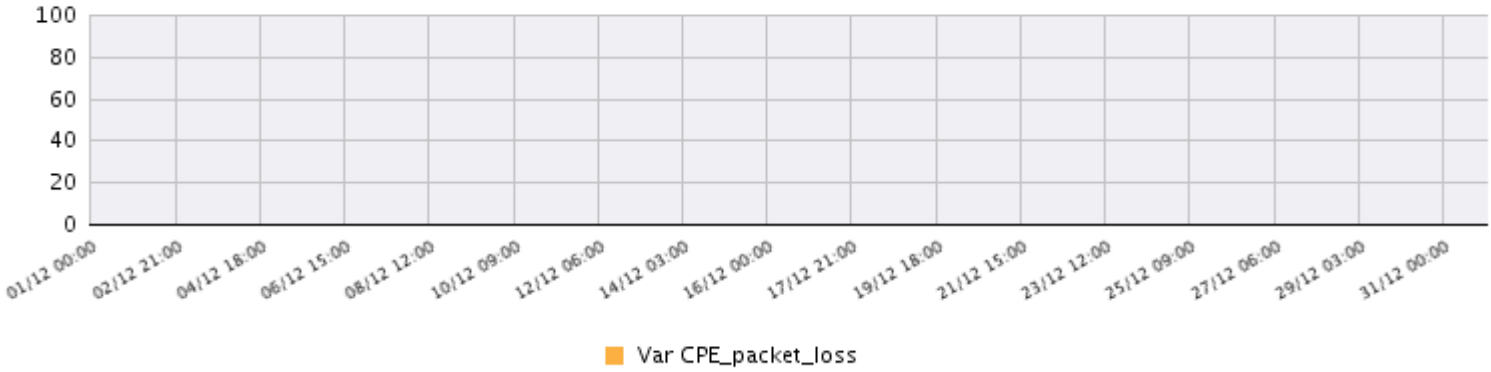
PROM: 0 [ms]



PROM: 0 [ms]



PROM: 0



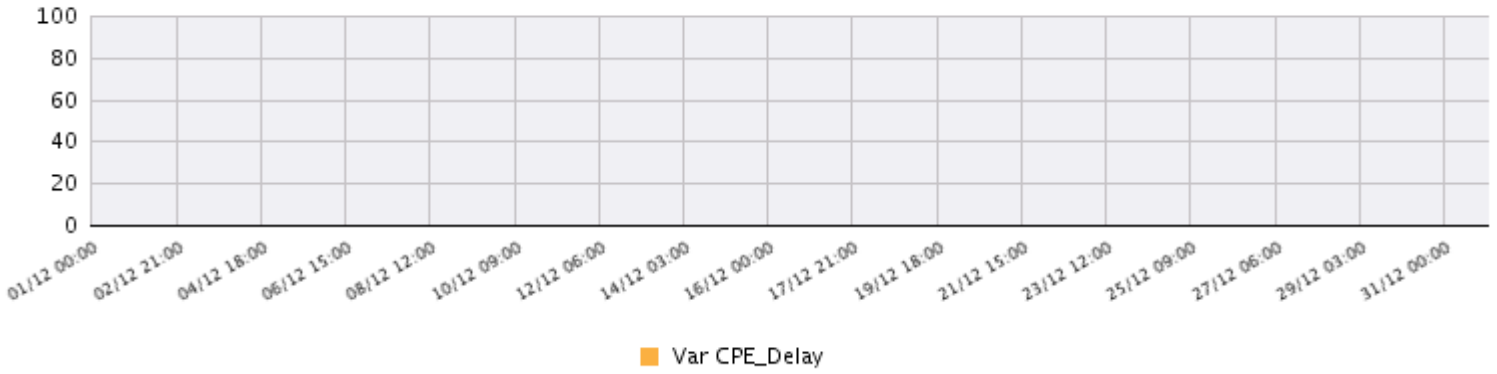
Reporte de Delay, Jitter y Packet Loss, Diciembre 2015

INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873

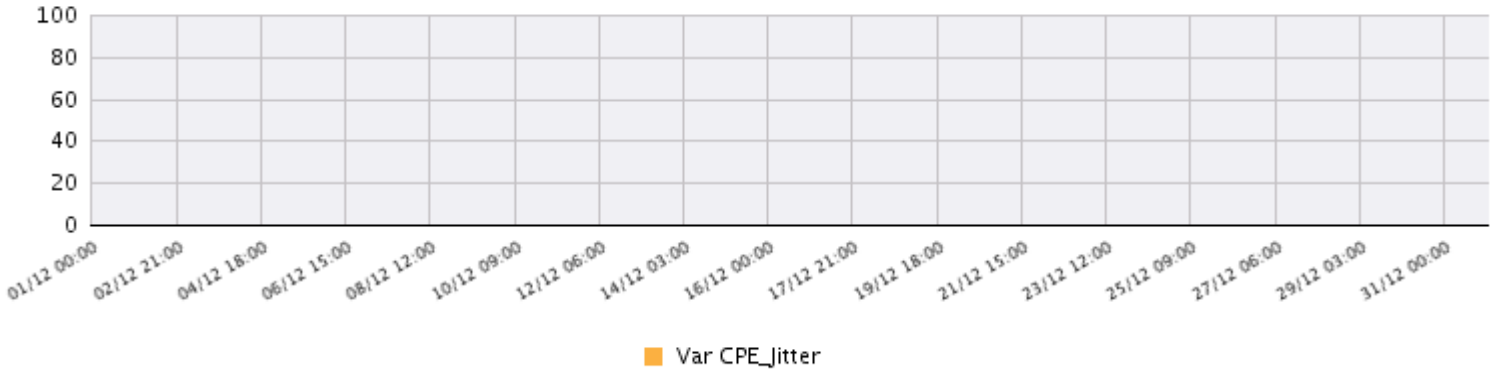
Level (3) COMMUNICATIONS
Connecting and Protecting the Networked World℠

Sede	**OACI - TRINIDAD & TOBAGO**
Equipo	ICAO_TRINIDAD.yourdomain.com
Modelo	cisco1921k9
IP de Gestión	(172.21.6.194)
Ciudad	Port of Spain

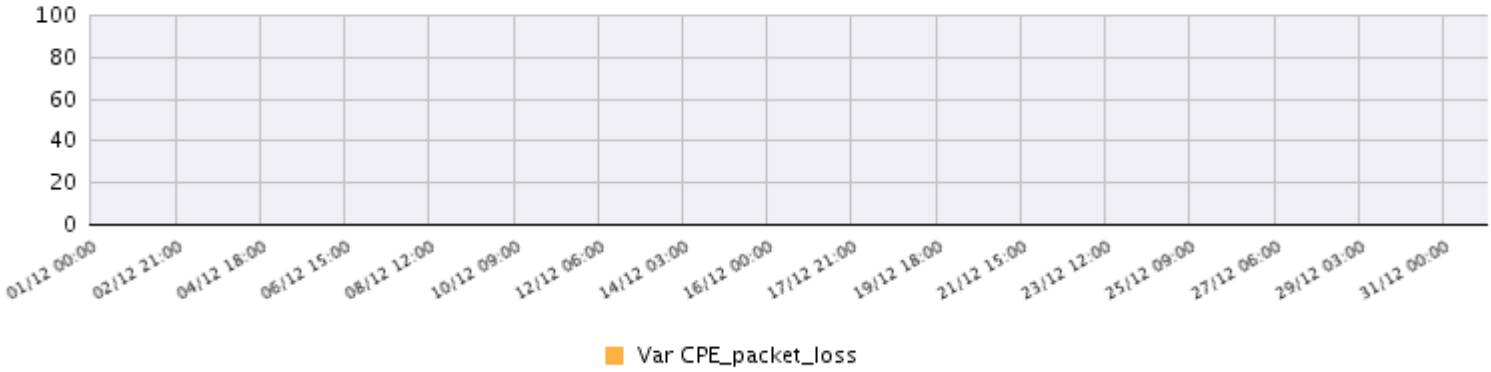
PROM: 0 [ms]



PROM: 0 [ms]



PROM: 0



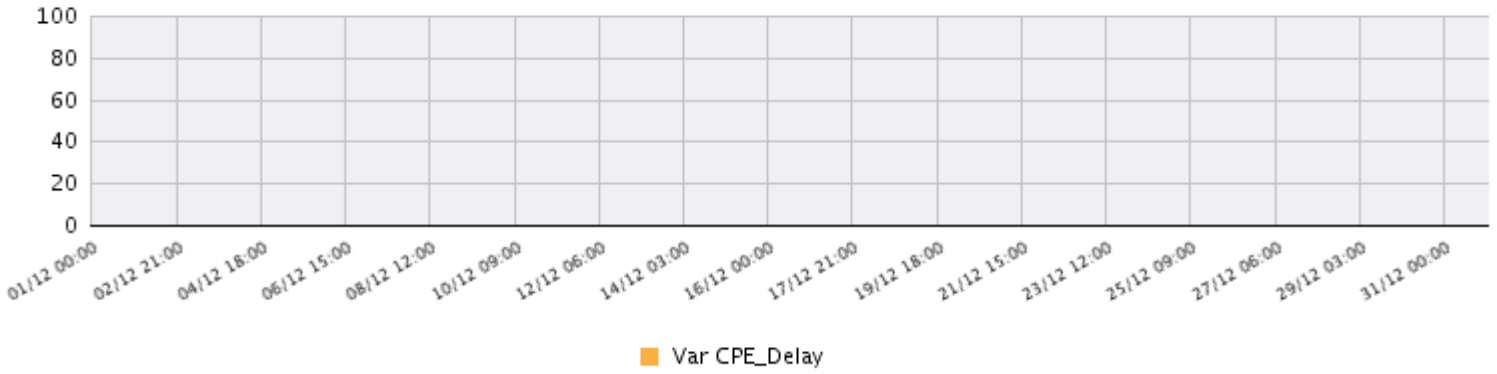
Reporte de Delay, Jitter y Packet Loss, Diciembre 2015

INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873

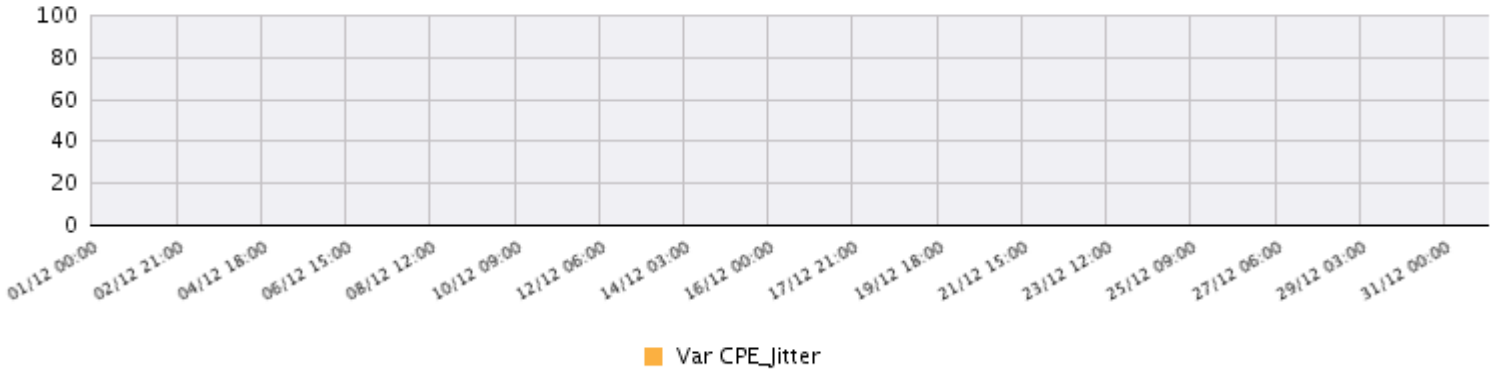
Level (3) COMMUNICATIONS
Connecting and Protecting the Networked World℠

Sede	**OACI - URUGUAY**
Equipo	**ICAO_URUGUAY**
Modelo	**cisco1921k9**
IP de Gestión	**(172.21.6.198)**
Ciudad	**Montevideo**

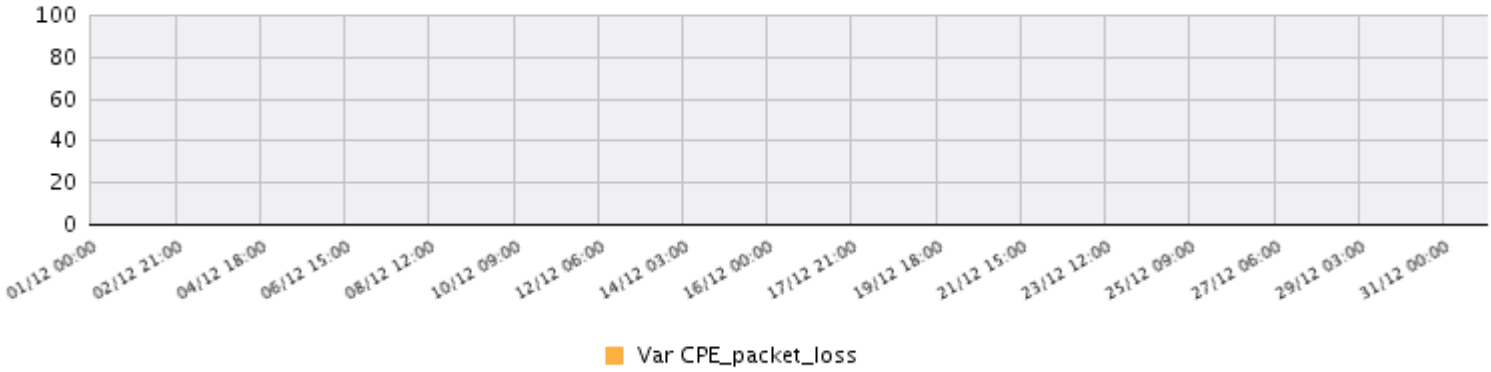
PROM: 0 [ms]



PROM: 0 [ms]



PROM: 0



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INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873

Level (3) COMMUNICATIONS

Connecting and Protecting the Networked World℠

NETWORK MANAGEMENT

NETFLOW

Flujo de Conversación, Aplicaciones y TOS

Level (3) COMMUNICATIONS

Connecting and Protecting
the Networked World

Level (3) COMMUNICATIONS
Connecting and Protecting the Networked World℠

1. APLICACIÓN

APPLICATION

Volume(Mbytes)

Level (3) COMMUNICATIONS
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2. DESTINO (TOP 20)

Level (3) COMMUNICATIONS
Connecting and Protecting the Networked World℠

3. ORIGEN (TOP 20)

4. QoS

Level (3) COMMUNICATIONS
Connecting and Protecting the Networked World℠

4. CONVERSACIONES

NETWORK MANAGEMENT

CAPACIDAD Y RENDIMIENTO

Calidad de Servicio

INTERNATIONAL CIVIL AVIATION ORGANIZATION
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Diciembre 2015

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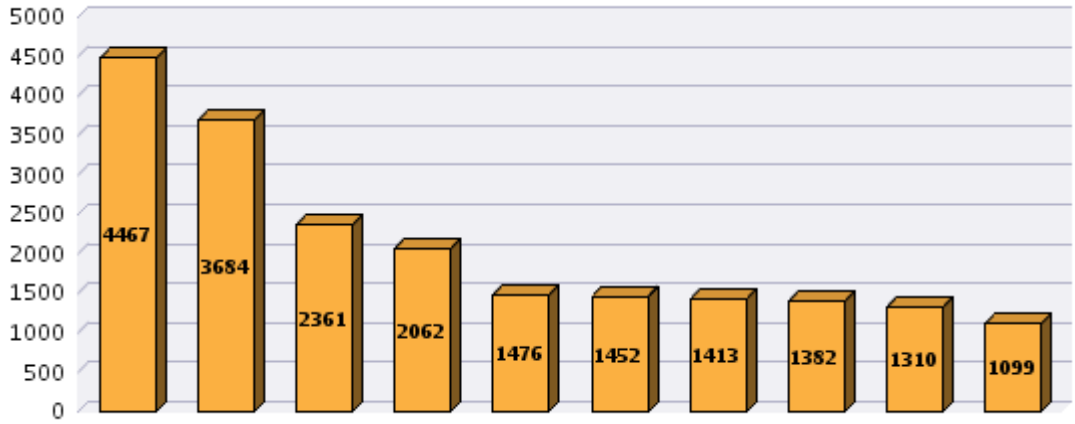
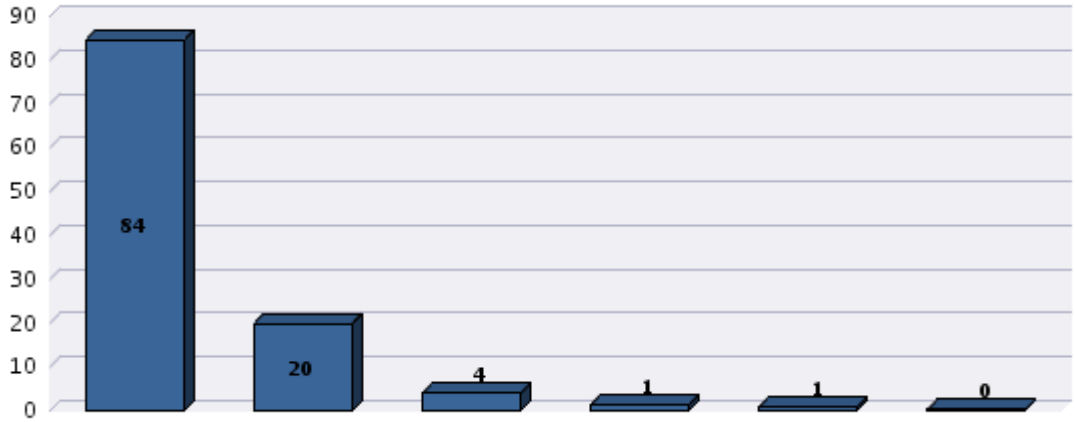
Top Policy (kbps)

OACI - BRASIL MANAUS // ICAO_MANAUSBRASIL // GigabitEthernet0/0	OACI - ECUADOR // ICAO_ECUADOR // GigabitEthernet0/0.1367	OACI - ECUADOR // ICAO_ECUADOR // GigabitEthernet0/1	OACI - LIMA // ICAO_PERU // GigabitEthernet0/0.2428	OACI - ARGENTINA // ICAO_ARGENTINA // GigabitEthernet0/1	OACI - LIMA // ICAO_PERU // GigabitEthernet0/1	OACI - URUGUAY // ICAO_URUGUAY // GigabitEthernet0/1	OACI - CHILE // ICAO_CHILE.yourdomain.com // GigabitEthernet0/0	OACI - TRINIDAD & TOBAGO // ICAO_TRINIDAD.yourdomain.com // GigabitEthernet0/0	OACI - CHILE // ICAO_CHILE.yourdomain.com // GigabitEthernet0/1
4466.92	3684.10	2360.53	2061.52	1475.51	1451.84	1412.58	1382.13	1309.87	1098.57



Top Drop (kbps)

OACI - ECUADOR // ICAO_ECUADOR // GigabitEthernet0/0.1367	OACI - LIMA // ICAO_PERU // GigabitEthernet0/0.2428	OACI - PARAGUAY // ICAO_PARAGUAY.ineo.com.py // GigabitEthernet0/0	OACI - TRINIDAD & TOBAGO // ICAO_TRINIDAD.yourdomain.com // GigabitEthernet0/0	OACI - BRASIL CURITIBA // ICAO_CURITIBA // Multilink1	OACI - CHILE // ICAO_CHILE.yourdomain.com // GigabitEthernet0/0
84.30	19.72	3.70	1.13	0.67	0.04



Reporte de Calidad de Servicio, Diciembre 2015

INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873

Level (3) COMMUNICATIONS
Connecting and Protecting the Networked World

Evolución histórica:

				Diciembre 2015	
Sede	**Dirección IP**	**Nombre de Interfaz**	**Clase**	**Post Policy (Kbps)**	**Drop (Bytes)**
OACI - ARGENTINA ICAO_ARGENTINA	172.21.6.193	GigabitEthernet0/0	class-default	723.04	0
			CRITICAL	16.21	0
			No Match	11.72	0
			PRIORITY	0	0
			VIDEO	0	0
			VOZ	27.52	0
		GigabitEthernet0/1	class-default	1,387.49	0
			CRITICAL	15.65	0
			No Match	44.94	0
			PRIORITY	0	0
			VIDEO	0	0
			VOZ	27.44	0
OACI - BOLIVIA ICAO_BOLIVIA.tigo.net.bo	172.21.6.204	GigabitEthernet0/0	class-default	515.54	0
			CRITICAL	0.23	0
			No Match	22.2	0
			PRIORITY	0	0
			VIDEO	0	0
			VOZ	0.82	0
		GigabitEthernet0/1	class-default	889.65	0

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INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873

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				Diciembre 2015	
Sede	**Dirección IP**	**Nombre de Interfaz**	**Clase**	**Post Policy (Kbps)**	**Drop (Bytes)**
ICAO_BOLIVIA.tigo.net.bo	172.21.6.204	GigabitEthernet0/1	CRITICAL	0.38	0
			No Match	50.15	0
			PRIORITY	0	0
			VIDEO	0	0
			VOZ	0.83	0
OACI - BRASIL CURITIBA ICAO_CURITIBA	172.20.26.63	GigabitEthernet0/0	class-default	846.8	0
			CRITICAL	7.21	0
			No Match	28.92	0
			PRIORITY	0	0
			VIDEO	0	0
			VOZ	4.37	0
		Multilink1	class-default	441.06	0
			CRITICAL	6.29	0
			No Match	14.89	0
			PRIORITY	0	0
			VIDEO	0	0
			VOZ	3.37	0.67
OACI - BRASIL MANAUS ICAO_MANAUSBRASIL	172.21.6.192	GigabitEthernet0/0	class-default	4,227.09	0
			CRITICAL	17.65	0
			No Match	176	0

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				Diciembre 2015	
Sede	**Dirección IP**	**Nombre de Interfaz**	**Clase**	**Post Policy (Kbps)**	**Drop (Bytes)**
ICAO_MANAUSBRASIL	172.21.6.192	GigabitEthernet0/0	PRIORITY	0	0
			VIDEO	0	0
			VOZ	46.19	0
OACI - BRASIL RECIFE ICAO_RECIFE	172.20.26.62	GigabitEthernet0/0	class-default	859.76	0
			CRITICAL	8.02	0
			No Match	42.92	0
			PRIORITY	0	0
			VIDEO	0	0
			VOZ	7.82	0
		Multilink1	class-default	477.4	0
			CRITICAL	6.98	0
			No Match	16.08	0
			PRIORITY	0	0
			VIDEO	0	0
			VOZ	7.04	0
OACI - CHILE ICAO_CHILE.yourdomain.com	172.21.6.197	GigabitEthernet0/0	class-default	1,328.03	0.02
			CRITICAL	4.21	0
			No Match	42.58	0
			PRIORITY	0	0
			VIDEO	0	0

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				Diciembre 2015	
Sede	**Dirección IP**	**Nombre de Interfaz**	**Clase**	**Post Policy (Kbps)**	**Drop (Bytes)**
ICAO_CHILE.yourdomain.com	172.21.6.197	GigabitEthernet0/0	VOZ	7.31	0.02
		GigabitEthernet0/1	class-default	1,049.31	0
			CRITICAL	3.79	0
			No Match	38.21	0
			PRIORITY	0	0
			VIDEO	0	0
			VOZ	7.26	0
OACI - COLOMBIA ICAO_COLOMBIA	172.21.6.196	GigabitEthernet0/0	class-default	572.59	0
			CRITICAL	2.87	0
			No Match	18.47	0
			PRIORITY	0	0
			VIDEO	0	0
			VOZ	7.53	0
		GigabitEthernet0/1	class-default	824.58	0
			CRITICAL	2.88	0
			No Match	28.01	0
			PRIORITY	0	0
			VIDEO	0	0
			VOZ	7.47	0
OACI - ECUADOR ICAO_ECUADOR	172.21.6.195	GigabitEthernet0/0.1367	class-default	3,235.61	43.41

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				Diciembre 2015	
Sede	**Dirección IP**	**Nombre de Interfaz**	**Clase**	**Post Policy (Kbps)**	**Drop (Bytes)**
ICAO_ECUADOR	172.21.6.195	GigabitEthernet0/0.1367	CRITICAL	87.73	0
			No Match	187.85	0
			PRIORITY	0	0
			VIDEO	0	0
			VOZ	172.91	40.88
		GigabitEthernet0/1	class-default	1,954.58	0
			CRITICAL	88.7	0
			No Match	108.11	0
			PRIORITY	0	0
			VIDEO	0	0
			VOZ	209.15	0
OACI - GUYANA ICAO_GUYANA.yourdomain.com	172.21.6.200	GigabitEthernet0/0	class-default	385.18	0
			CRITICAL	0.17	0
			No Match	13.34	0
			PRIORITY	0	0
			VIDEO	0	0
			VOZ	1.3	0
		GigabitEthernet0/1	class-default	792.28	0
			CRITICAL	8.76	0
			No Match	23.45	0

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				Diciembre 2015	
Sede	**Dirección IP**	**Nombre de Interfaz**	**Clase**	**Post Policy (Kbps)**	**Drop (Bytes)**
ICAO_GUYANA.yourdomain.com	172.21.6.200	GigabitEthernet0/1	PRIORITY	0	0
			VIDEO	0	0
			VOZ	1.3	0
OACI - GUYANA FRANCESA ICAO_FR_GUYANA.eq.ignetworks.com	172.21.6.201	GigabitEthernet0/0	class-default	255.06	0
			CRITICAL	0.04	0
			No Match	6.12	0
			PRIORITY	0	0
			VIDEO	0	0
			VOZ	0	0
		GigabitEthernet0/1	class-default	554.13	0
			CRITICAL	0.05	0
			No Match	29.31	0
			PRIORITY	0	0
			VIDEO	0	0
			VOZ	0	0
OACI - LIMA ICAO_PERU	172.20.26.50	GigabitEthernet0/0.2428	class-default	1,795.08	10.56
			CRITICAL	52.43	0
			No Match	40.54	0
			PRIORITY	0	0
			VIDEO	0	0

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INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873

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				Diciembre 2015	
Sede	**Dirección IP**	**Nombre de Interfaz**	**Clase**	**Post Policy (Kbps)**	**Drop (Bytes)**
ICAO_PERU	172.20.26.50	GigabitEthernet0/0.2428	VOZ	173.48	9.16
		GigabitEthernet0/1	class-default	1,191.48	0
			CRITICAL	51.98	0
			No Match	30.15	0
			PRIORITY	0	0
			VIDEO	0	0
			VOZ	178.23	0
OACI - PARAGUAY ICAO_PARAGUAY.ineo.com.py	172.21.6.199	GigabitEthernet0/0	class-default	996.5	1.85
			CRITICAL	1.7	0
			No Match	30.49	0
			PRIORITY	0	0
			VIDEO	0	0
			VOZ	7.1	1.85
		GigabitEthernet0/1	class-default	1,047.33	0
			CRITICAL	1.74	0
			No Match	34	0
			PRIORITY	0	0
			VIDEO	0	0
			VOZ	9	0
OACI - SURINAME ICAO_SURINAME.yourdomain.com	172.21.6.203	GigabitEthernet0/0	class-default	364.93	0

Reporte de Calidad de Servicio, Diciembre 2015

INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873

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				Diciembre 2015	
Sede	**Dirección IP**	**Nombre de Interfaz**	**Clase**	**Post Policy (Kbps)**	**Drop (Bytes)**
ICAO_SURINAME.yourdomain.com	172.21.6.203	GigabitEthernet0/0	CRITICAL	0.18	0
			No Match	13.31	0
			PRIORITY	0	0
			VIDEO	0	0
			VOZ	0.3	0
		GigabitEthernet0/1	class-default	868.9	0
			CRITICAL	0.17	0
			No Match	26.02	0
			PRIORITY	0	0
			VIDEO	0	0
			VOZ	0.29	0
OACI - TRINIDAD & TOBAGO ICAO_TRINIDAD.yourdomain.com	172.21.6.194	GigabitEthernet0/0	class-default	1,267.57	0.59
			CRITICAL	0.2	0
			No Match	40.17	0
			PRIORITY	0	0
			VIDEO	0	0
			VOZ	1.93	0.54
		GigabitEthernet0/1	class-default	848.03	0
			CRITICAL	0.21	0
			No Match	26	0

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INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873

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				Diciembre 2015	
Sede	**Dirección IP**	**Nombre de Interfaz**	**Clase**	**Post Policy (Kbps)**	**Drop (Bytes)**
ICAO_TRINIDAD.yourdomain.com	172.21.6.194	GigabitEthernet0/1	PRIORITY	0	0
			VIDEO	0	0
			VOZ	2.46	0
OACI - URUGUAY ICAO_URUGUAY	172.21.6.198	GigabitEthernet0/0	class-default	742.14	0
			CRITICAL	35.25	0
			No Match	16.79	0
			PRIORITY	0	0
			VIDEO	0	0
			VOZ	42.95	0
		GigabitEthernet0/1	class-default	1,274.09	0
			CRITICAL	35.25	0
			No Match	60.22	0
			PRIORITY	0	0
			VIDEO	0	0
			VOZ	43.01	0
OACI - VENEZUELA ICAO_VENEZUELA	172.21.6.202	GigabitEthernet0/0	class-default	451.95	0
			CRITICAL	3.33	0
			No Match	14.92	0
			PRIORITY	0	0
			VIDEO	0	0

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				Diciembre 2015	
Sede	**Dirección IP**	**Nombre de Interfaz**	**Clase**	**Post Policy (Kbps)**	**Drop (Bytes)**
ICAO_VENEZUELA	172.21.6.202	GigabitEthernet0/0	VOZ	0.86	0
		GigabitEthernet0/1	class-default	741.97	0
			CRITICAL	2.93	0
			No Match	23.85	0
			PRIORITY	0	0
			VIDEO	0	0
			VOZ	0.85	0

Reporte de Calidad de Servicio, Diciembre 2015

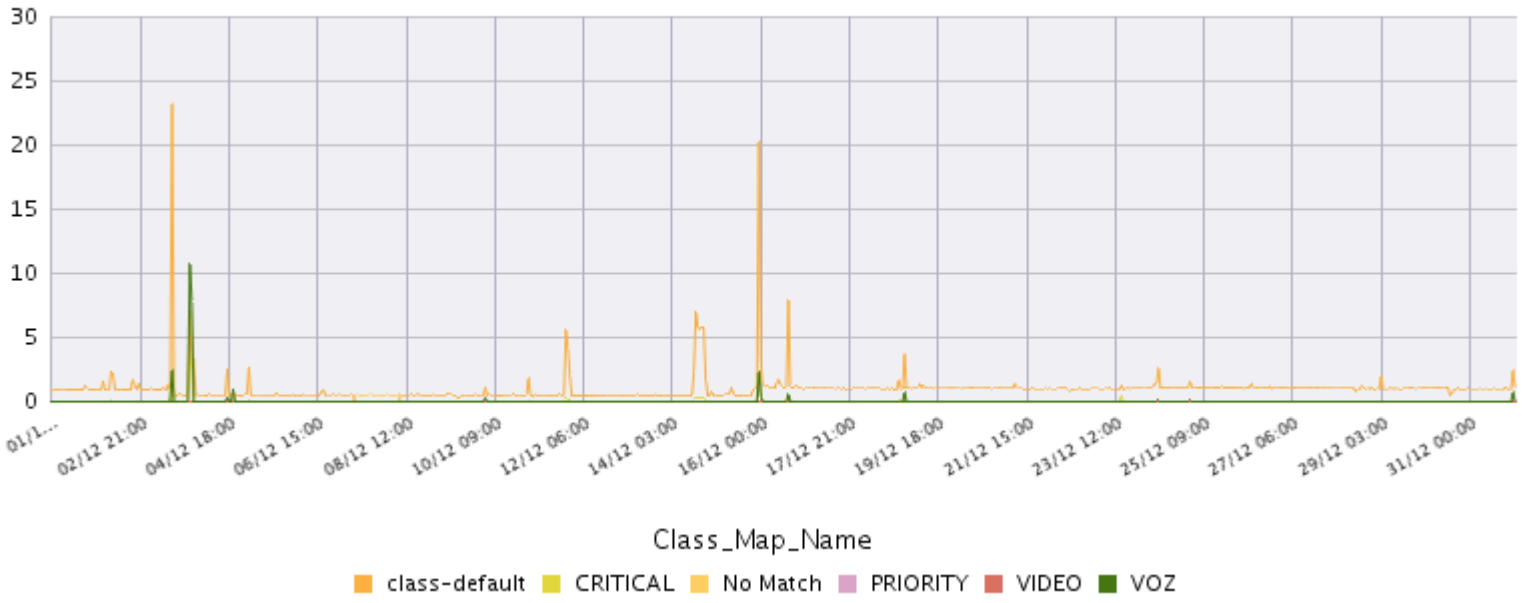
INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873

Level (3) COMMUNICATIONS
Connecting and Protecting the Networked World℠

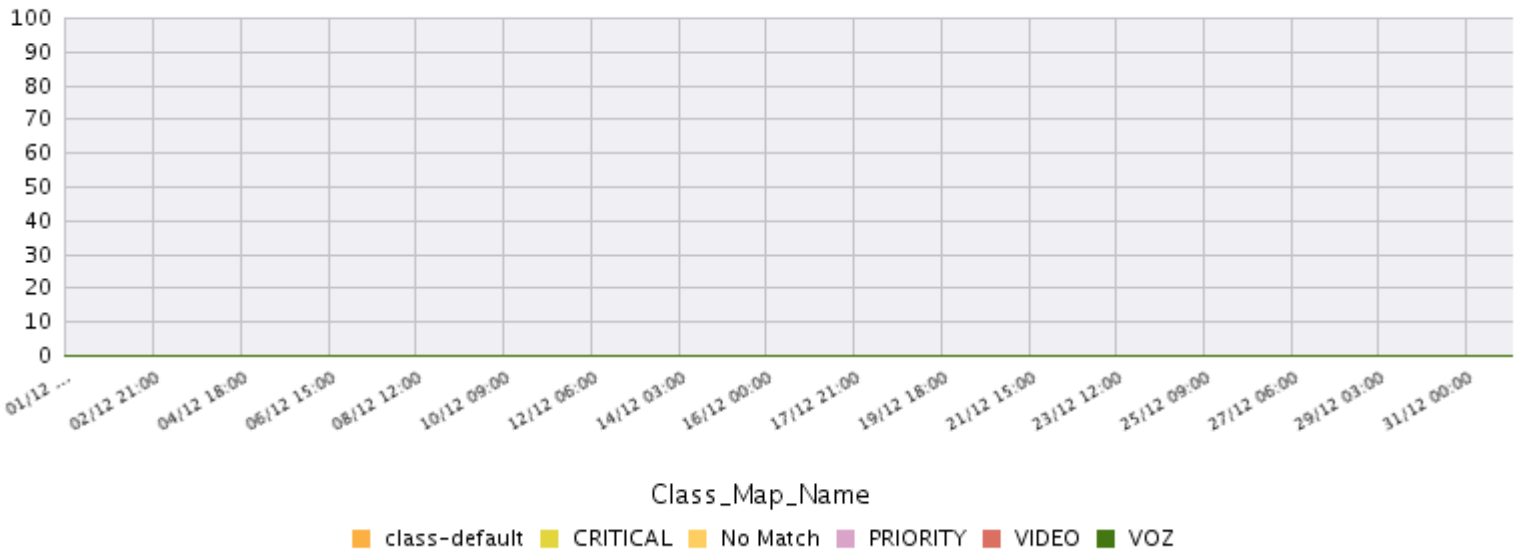
Sede	**OACI - ARGENTINA**
Equipo	**ICAO_ARGENTINA**
Modelo	**Cisco1921k9**
IP de Gestión	**(172.21.6.193)**
Ciudad	**Ezeiza**

Interface: **GigabitEthernet0/0**

Policy Map (kbps)

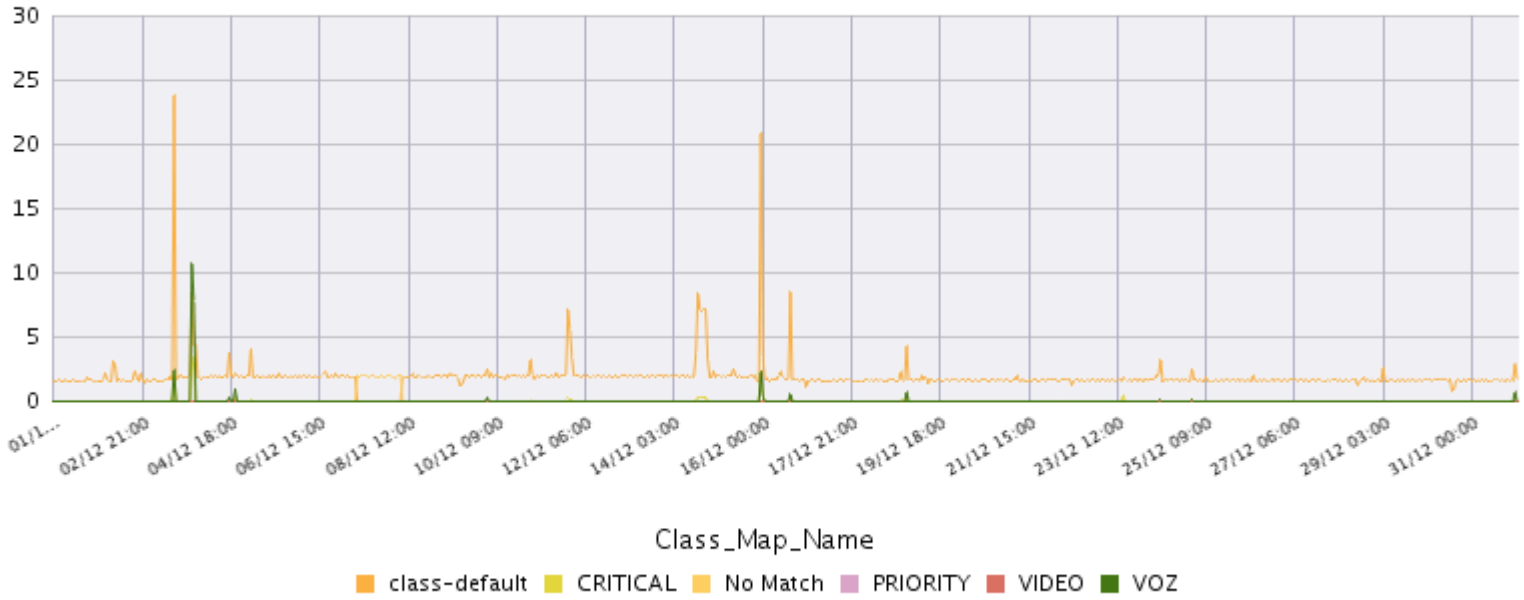


Drops (kbps)

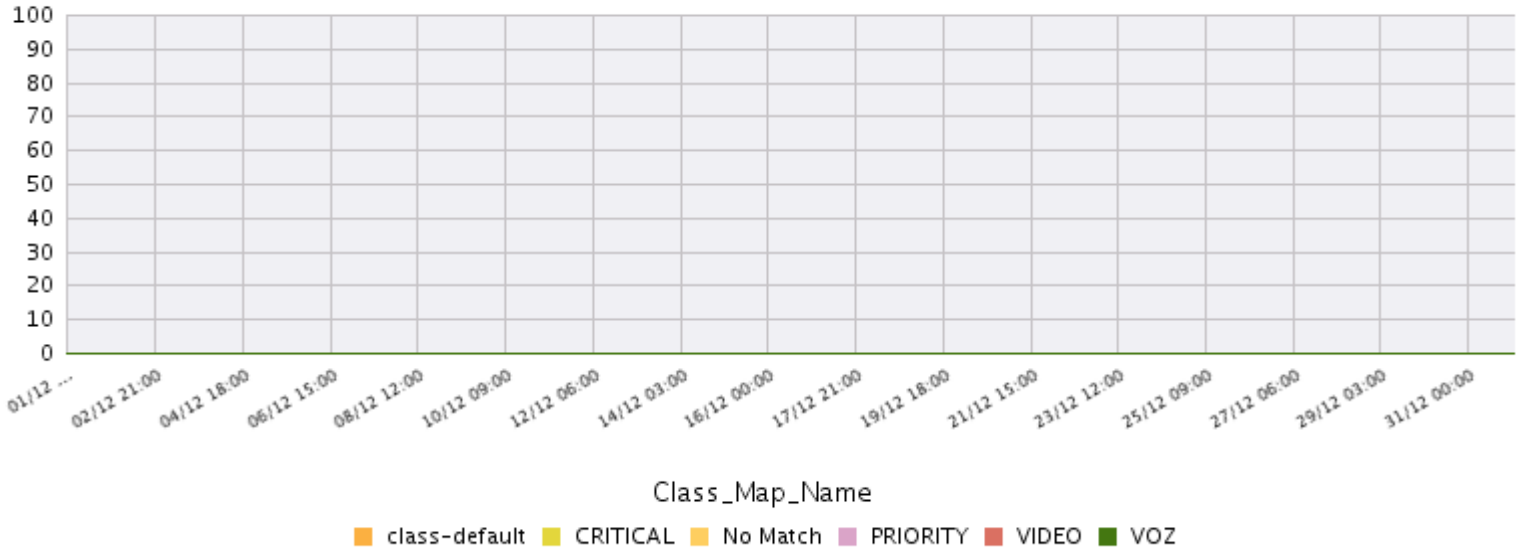


Interface: **GigabitEthernet0/1**

Policy Map (kbps)



Drops (kbps)



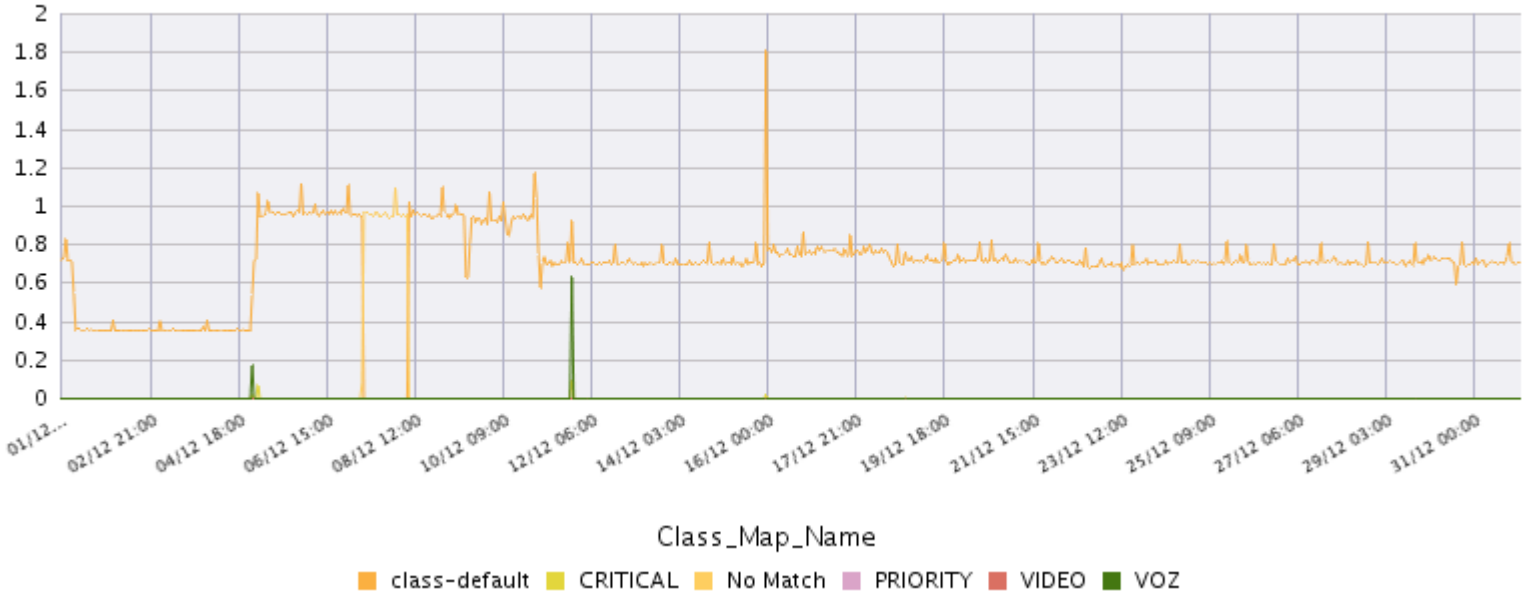
Reporte de Calidad de Servicio, Diciembre 2015

INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873

Level 3 COMMUNICATIONS
Connecting and Protecting the Networked World

Sede	**OACI - BOLIVIA**
Equipo	**ICAO_BOLIVIA.tigo.net.bo**
Modelo	**Cisco1921k9**
IP de Gestión	**(172.21.6.204)**
Ciudad	**La Paz**
Interface:	**GigabitEthernet0/0**

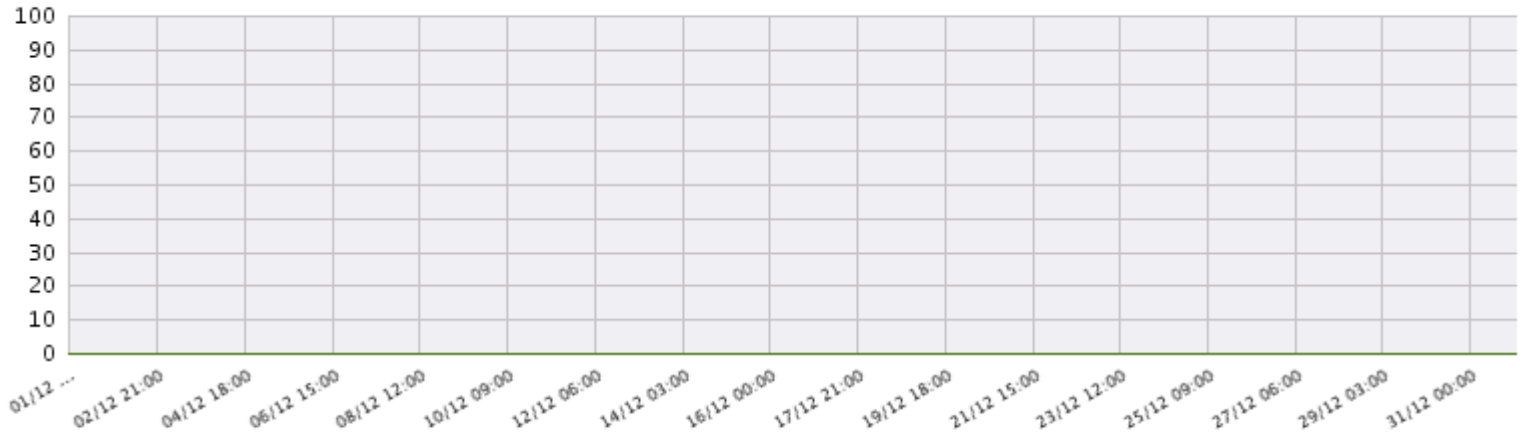
Policy Map (kbps)



Class_Map_Name

class-default CRITICAL No Match PRIORITY VIDEO VOZ

Drops (kbps)

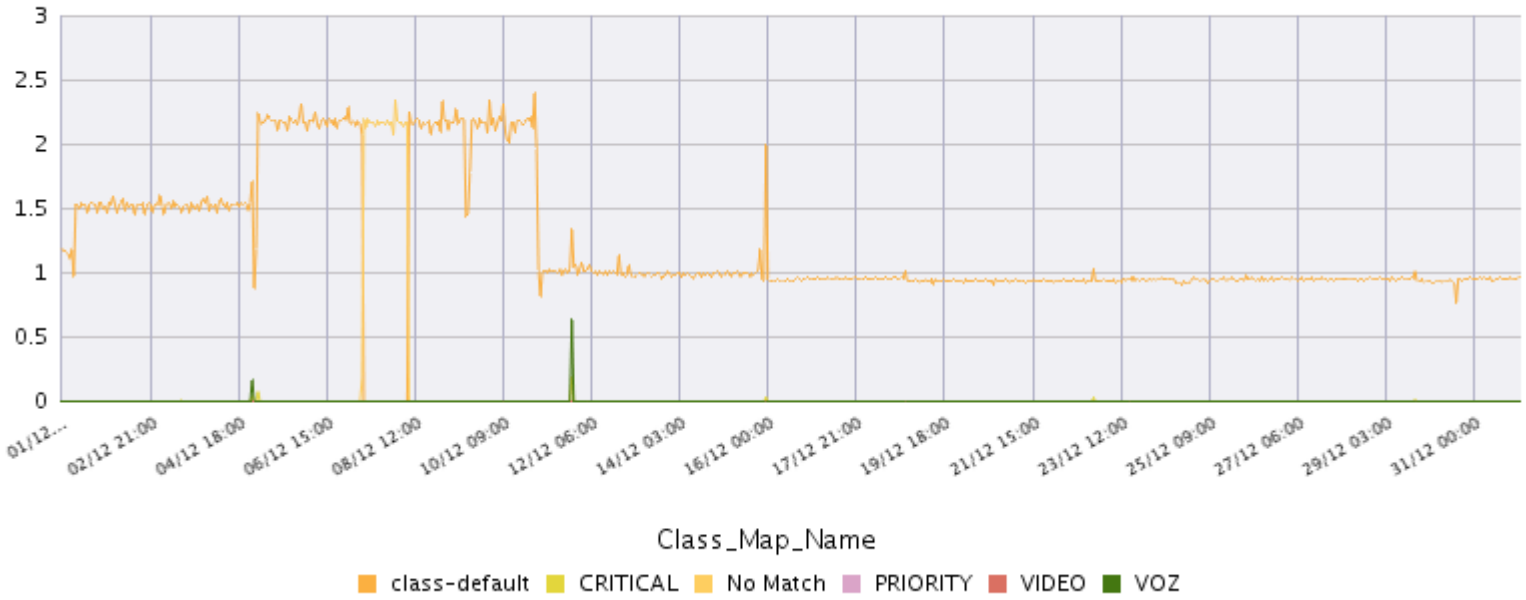


Class_Map_Name

class-default CRITICAL No Match PRIORITY VIDEO VOZ

Interface: **GigabitEthernet0/1**

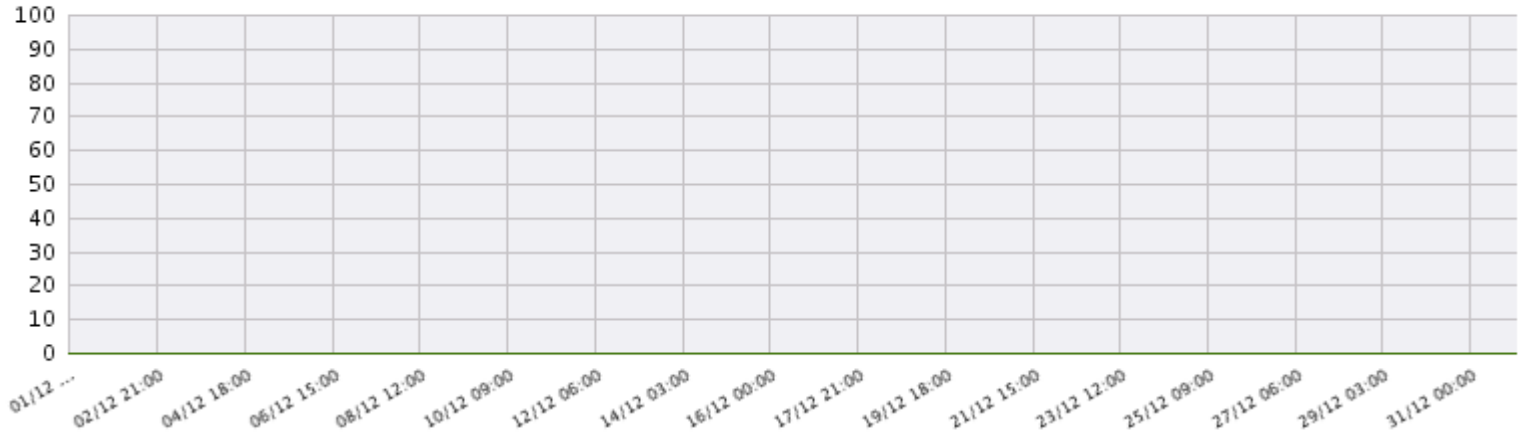
Policy Map (kbps)



Class_Map_Name

class-default CRITICAL No Match PRIORITY VIDEO VOZ

Drops (kbps)



Class_Map_Name

class-default CRITICAL No Match PRIORITY VIDEO VOZ

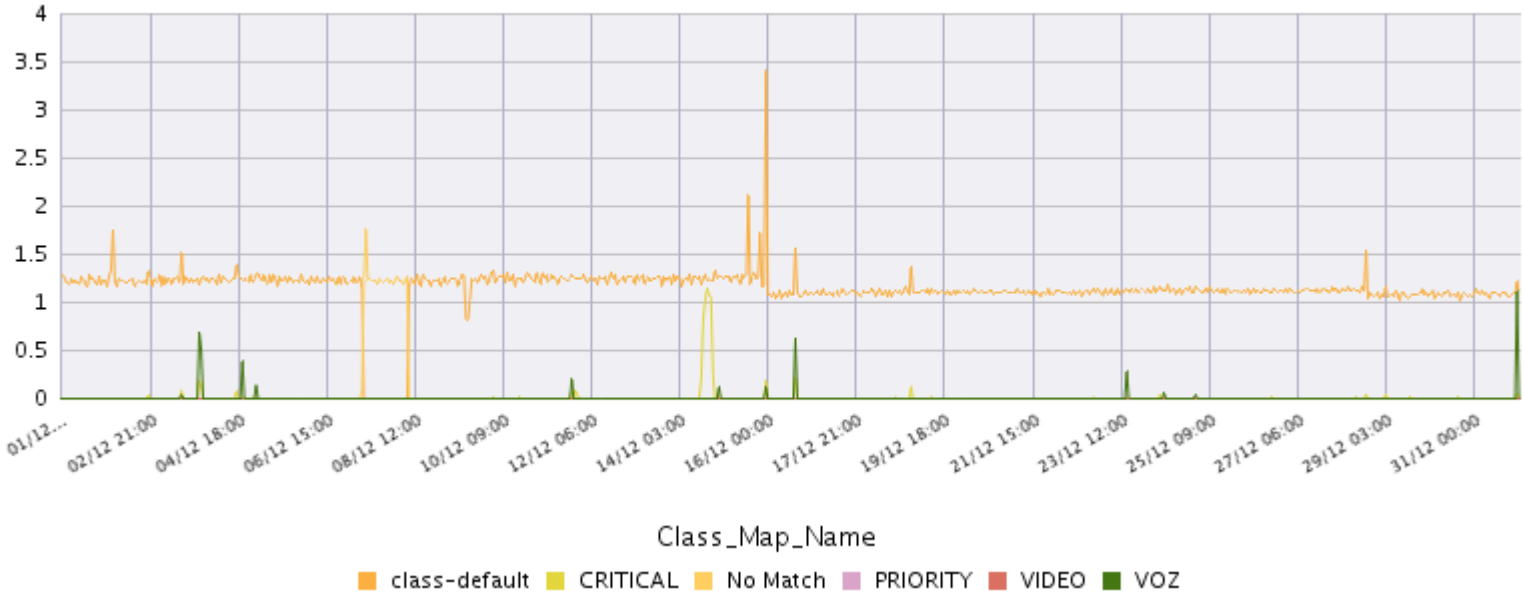
Reporte de Calidad de Servicio, Diciembre 2015

INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873

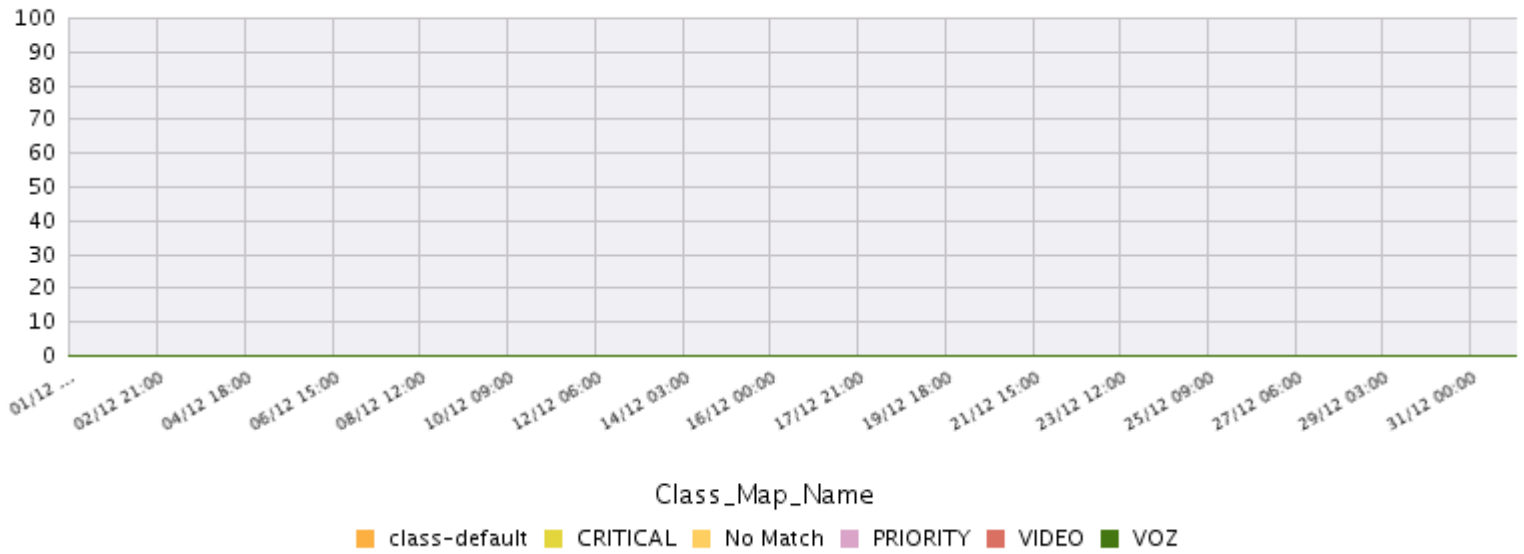
Level 3 COMMUNICATIONS
Connecting and Protecting the Networked World

Sede	**OACI - BRASIL CURITIBA**
Equipo	**ICAO_CURITIBA**
Modelo	**Cisco1921k9**
IP de Gestión	**(172.20.26.63)**
Ciudad	**Curitiba**
Interface:	**GigabitEthernet0/0**

Policy Map (kbps)

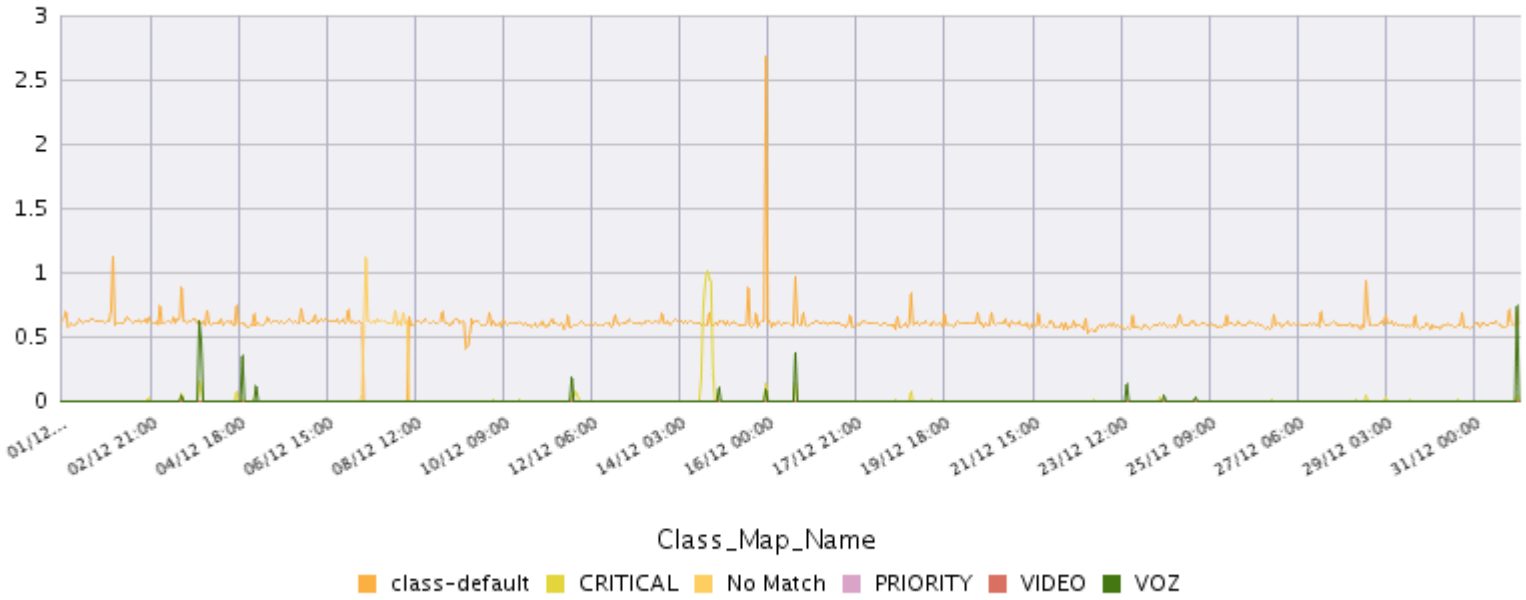


Drops (kbps)



Interface: **Multilink1**

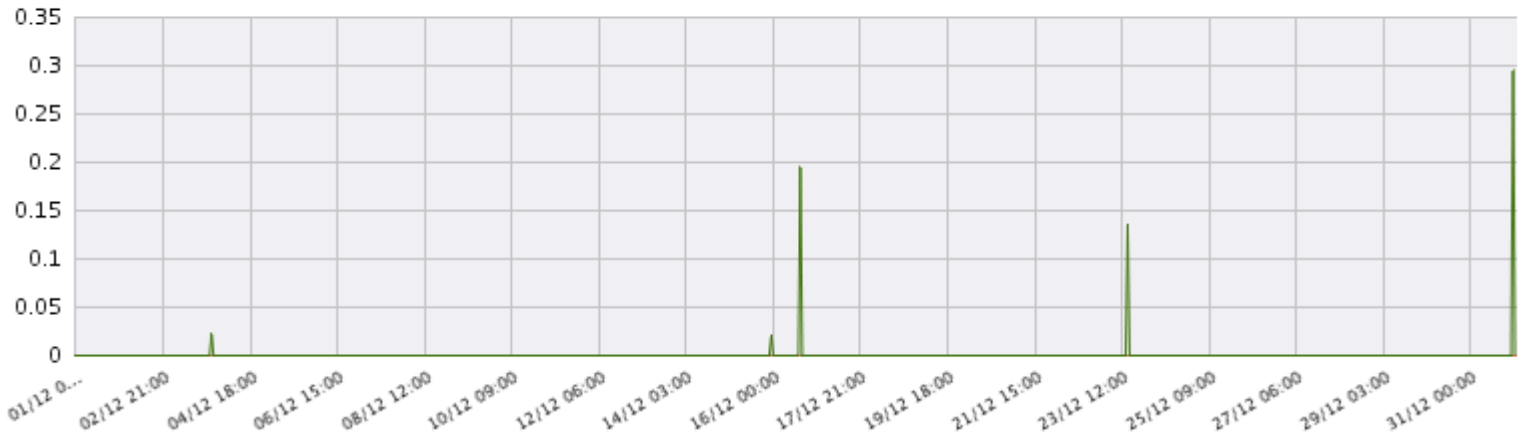
Policy Map (kbps)



Class_Map_Name

class-default CRITICAL No Match PRIORITY VIDEO VOZ

Drops (kbps)

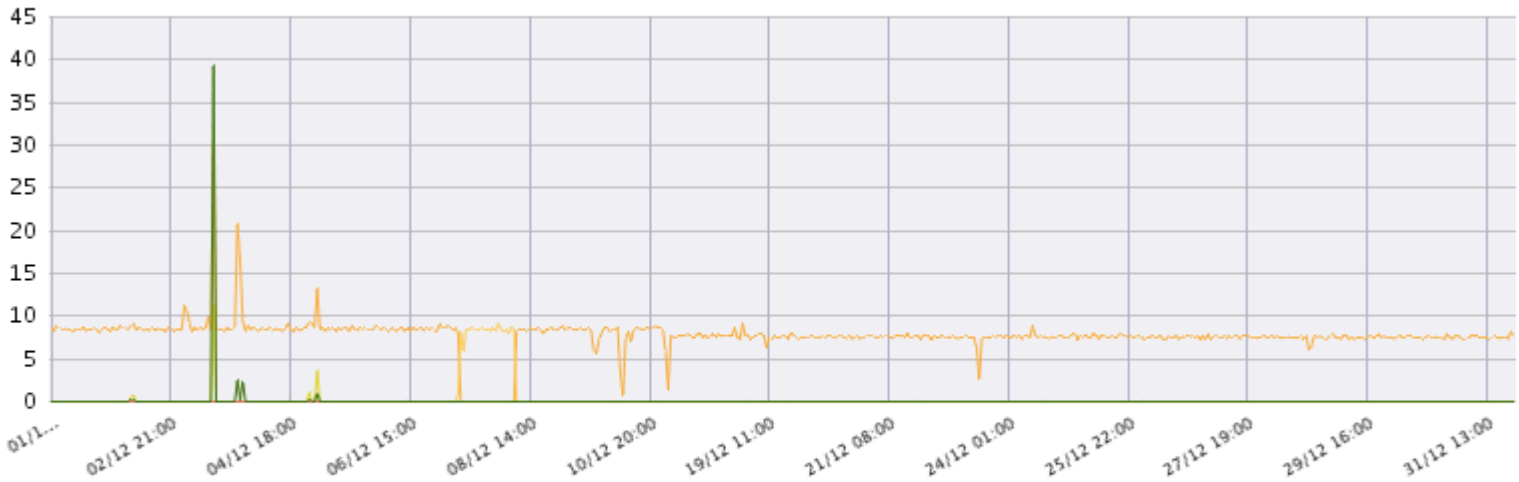


Class_Map_Name

class-default CRITICAL No Match PRIORITY VIDEO VOZ

Sede	**OACI - BRASIL MANAUS**
Equipo	**ICAO_MANAUSBRASIL**
Modelo	**Cisco1921k9**
IP de Gestión	**(172.21.6.192)**
Ciudad	**Manaus**
Interface:	**GigabitEthernet0/0**

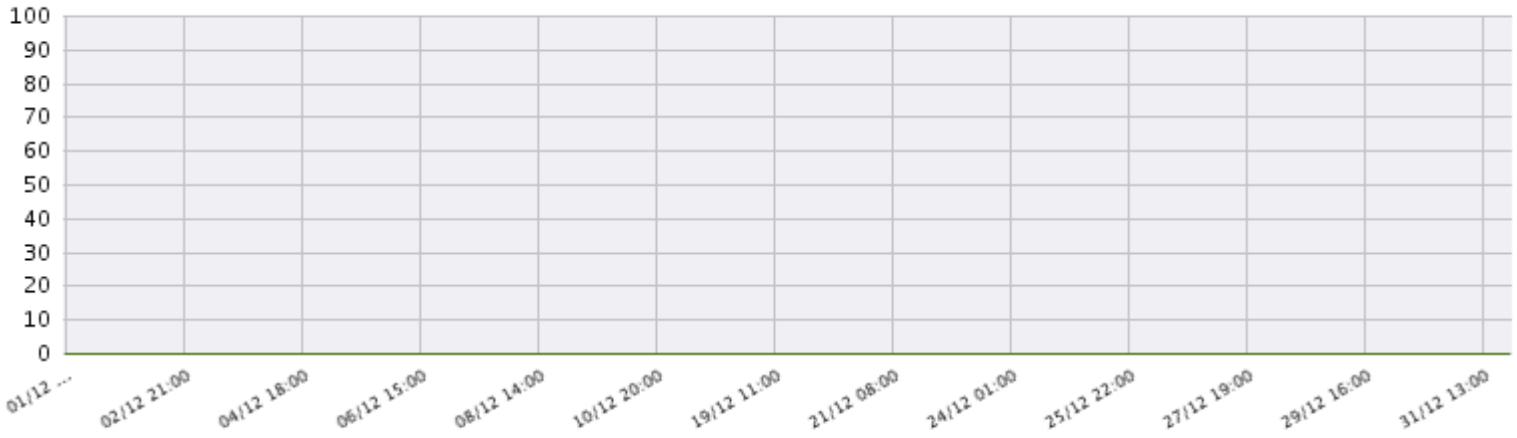
Policy Map (kbps)



Class_Map_Name

class-default CRITICAL No Match PRIORITY VIDEO VOZ

Drops (kbps)



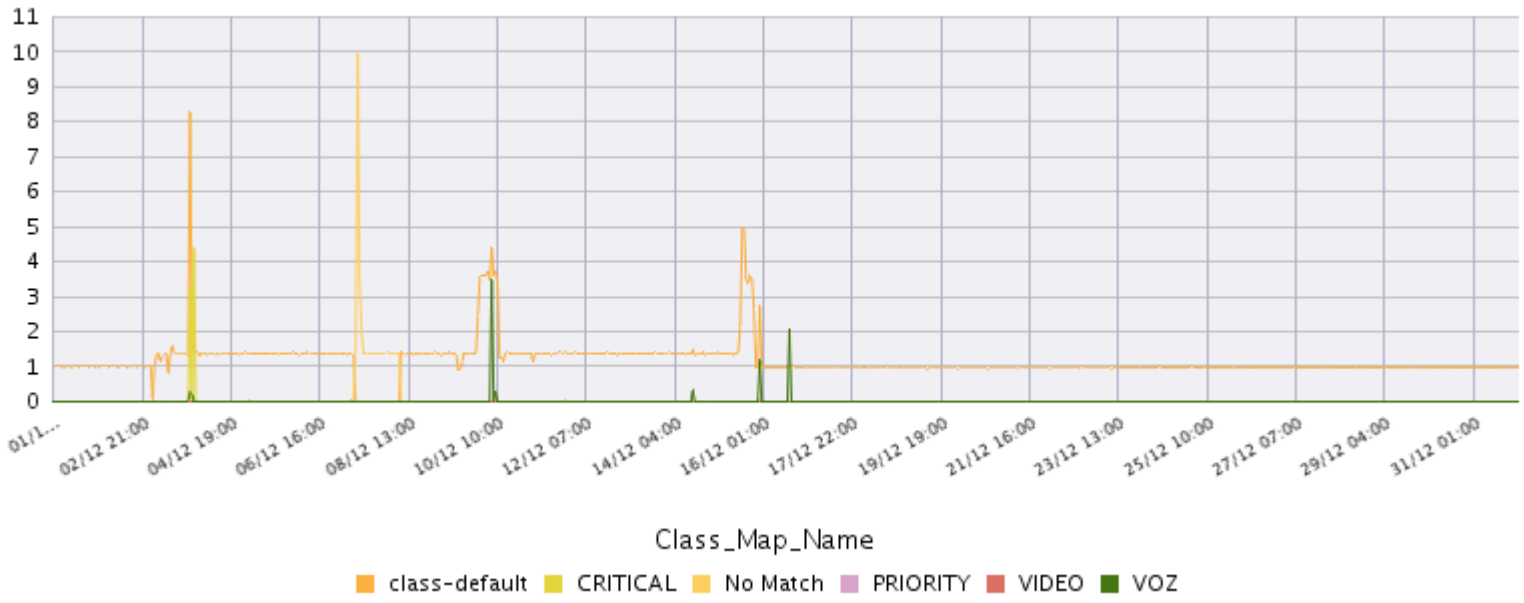
Class_Map_Name

class-default CRITICAL No Match PRIORITY VIDEO VOZ

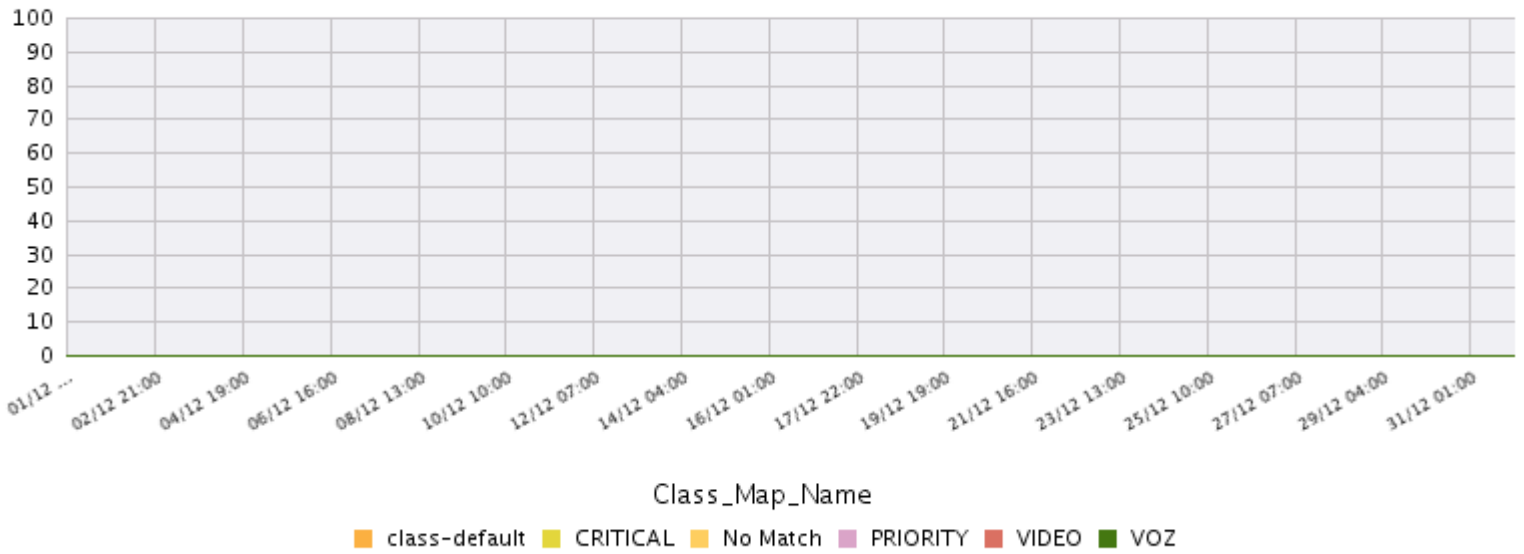
Sede	**OACI - BRASIL RECIFE**
Equipo	**ICAO_RECIFE**
Modelo	**Cisco1921k9**
IP de Gestión	**(172.20.26.62)**
Ciudad	**Recife**

Interface: **GigabitEthernet0/0**

Policy Map (kbps)

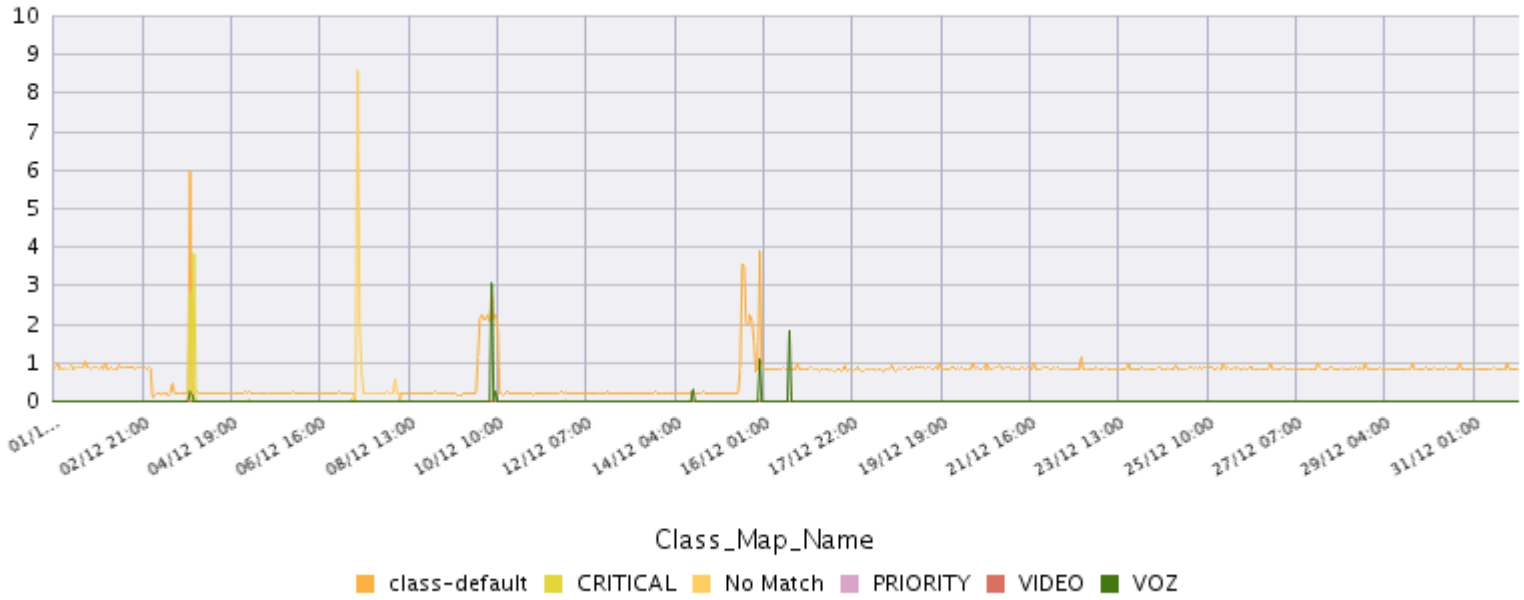


Drops (kbps)



Interface: **Multilink1**

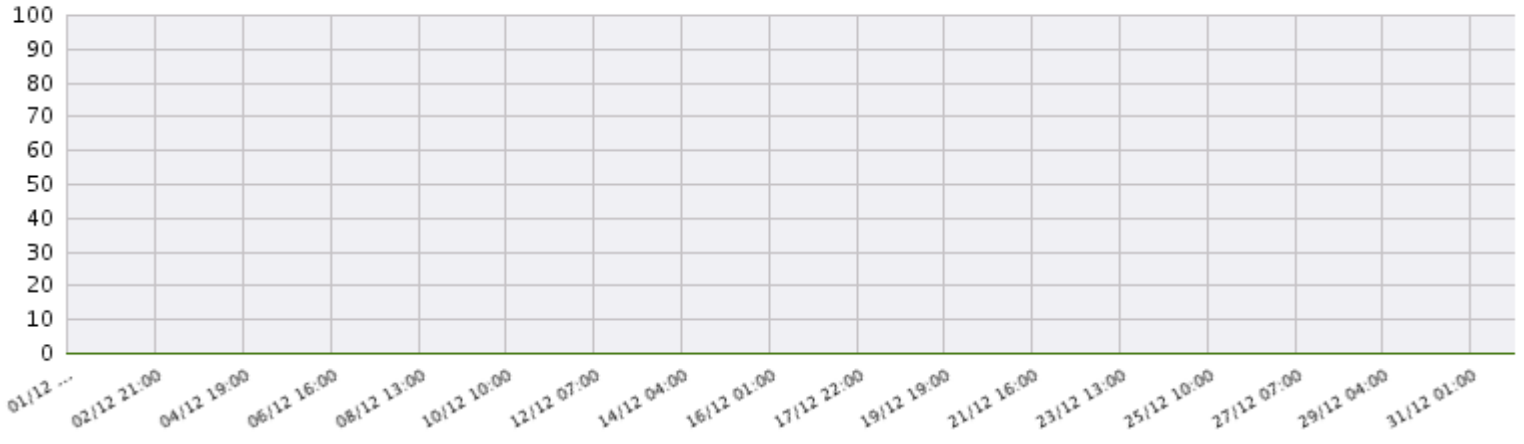
Policy Map (kbps)



Class_Map_Name

class-default CRITICAL No Match PRIORITY VIDEO VOZ

Drops (kbps)



Class_Map_Name

class-default CRITICAL No Match PRIORITY VIDEO VOZ

Reporte de Calidad de Servicio, Diciembre 2015

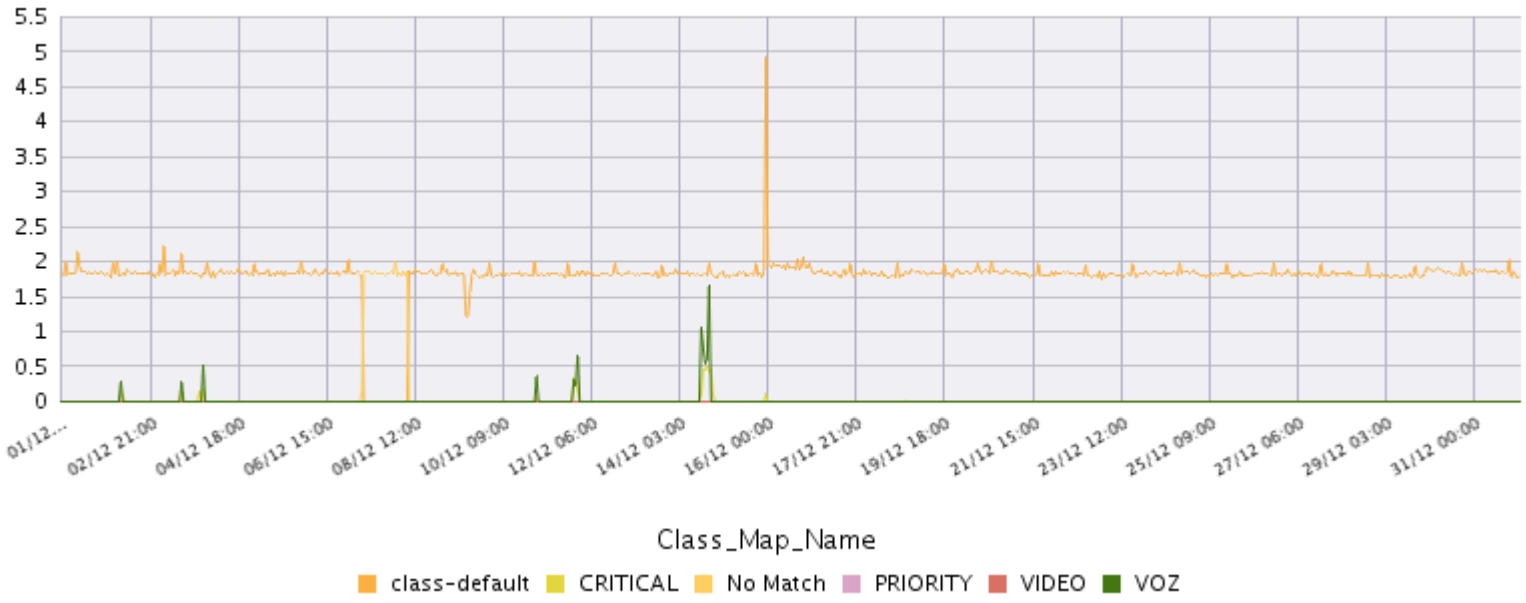
INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873

Level (3) COMMUNICATIONS
Connecting and Protecting the Networked World℠

Sede	**OACI - CHILE**
Equipo	**ICAO_CHILE.yourdomain.com**
Modelo	**Cisco1921k9**
IP de Gestión	**(172.21.6.197)**
Ciudad	**Santiago de Chile**

Interface: **GigabitEthernet0/0**

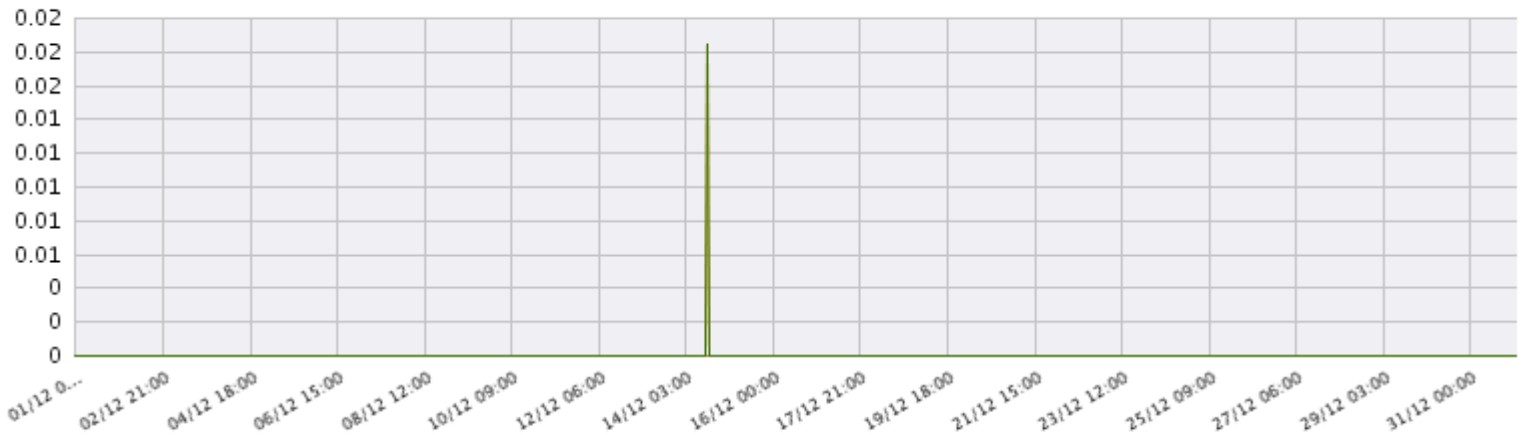
Policy Map (kbps)



Class_Map_Name

class-default CRITICAL No Match PRIORITY VIDEO VOZ

Drops (kbps)

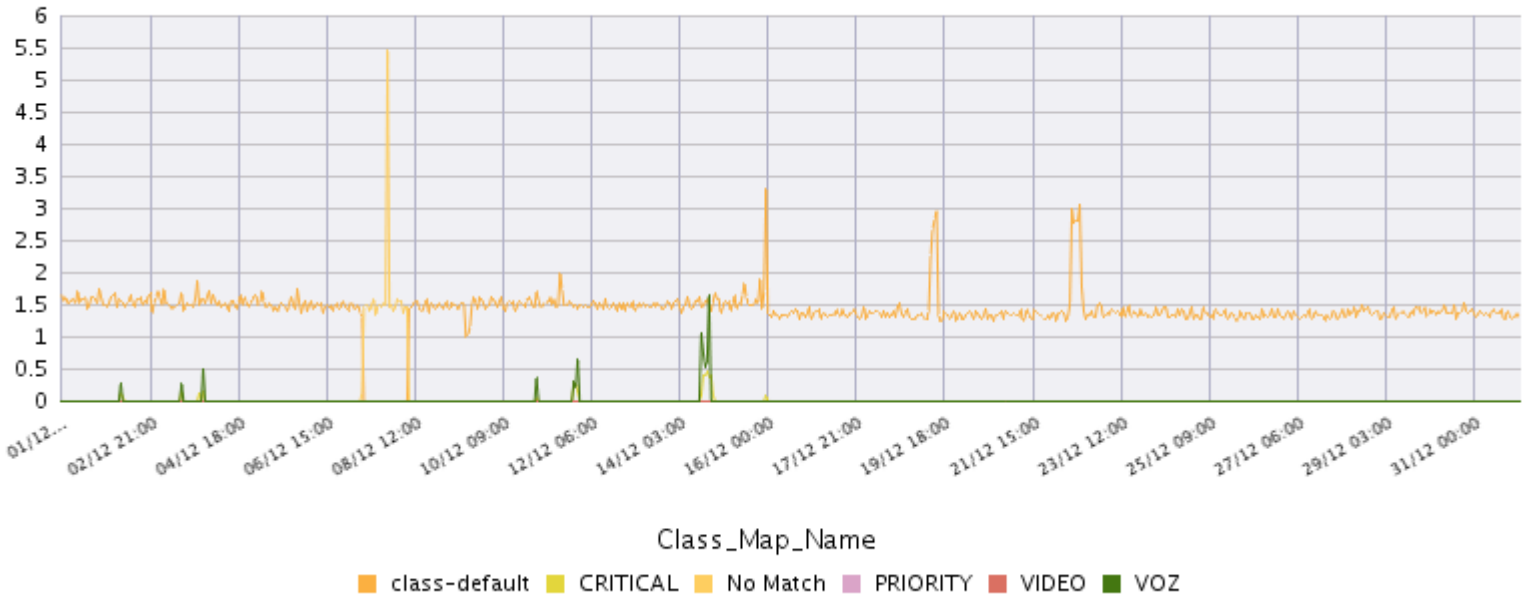


Class_Map_Name

class-default CRITICAL No Match PRIORITY VIDEO VOZ

Interface: **GigabitEthernet0/1**

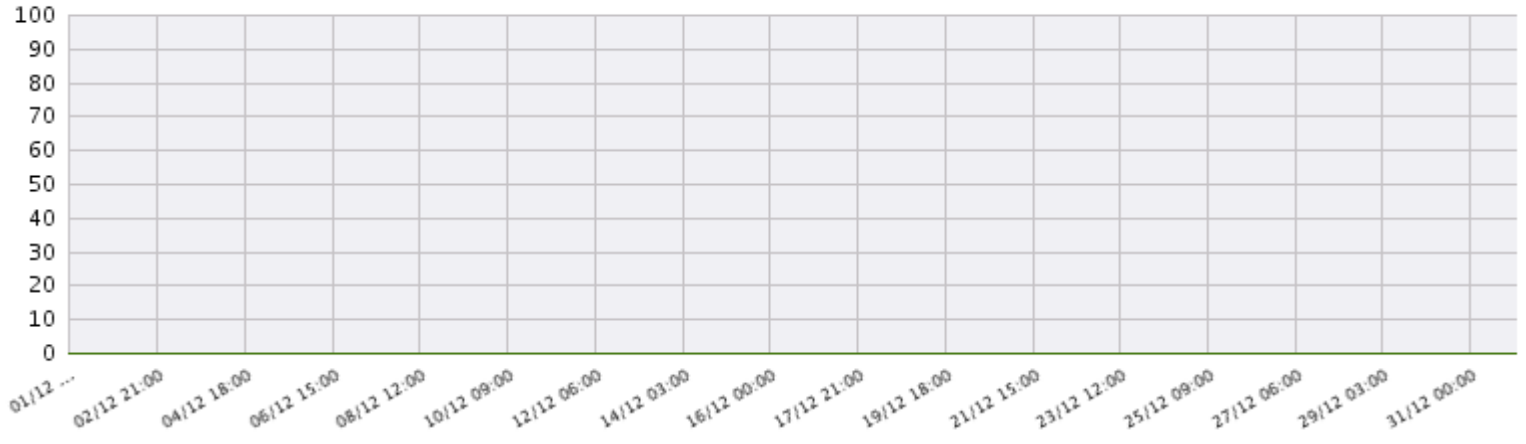
Policy Map (kbps)



Class_Map_Name

class-default CRITICAL No Match PRIORITY VIDEO VOZ

Drops (kbps)



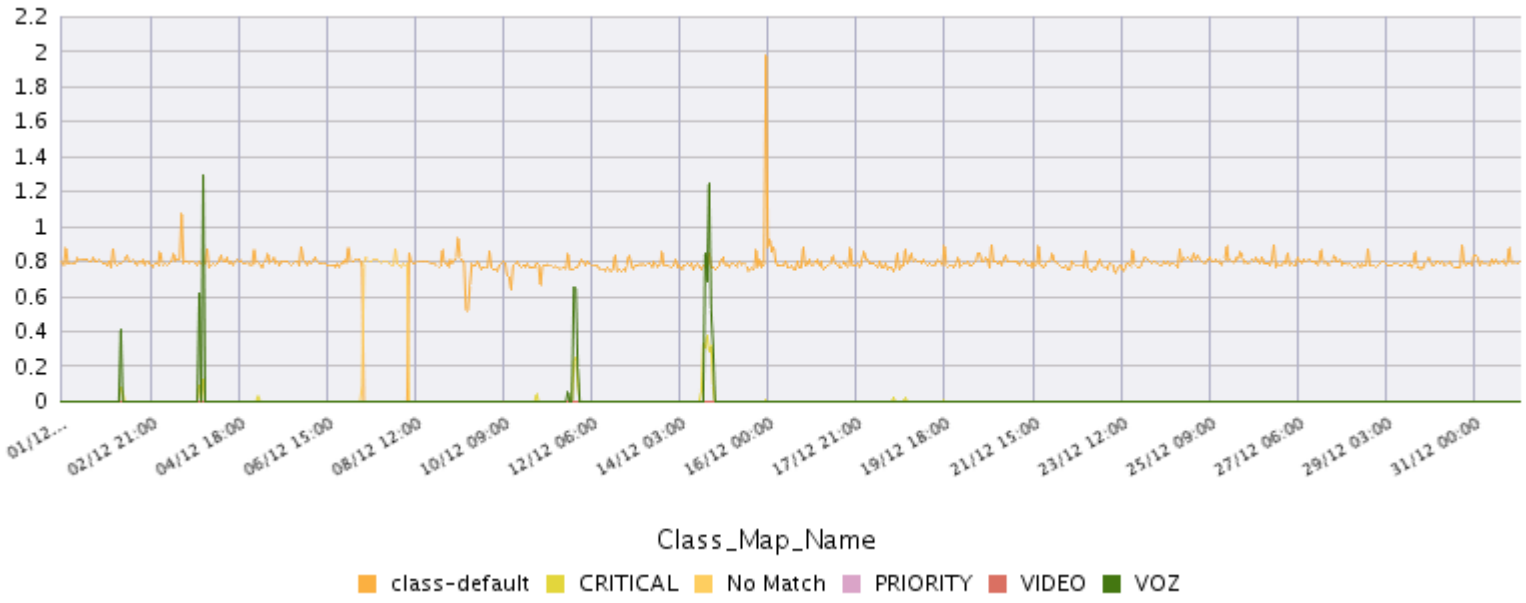
Class_Map_Name

class-default CRITICAL No Match PRIORITY VIDEO VOZ

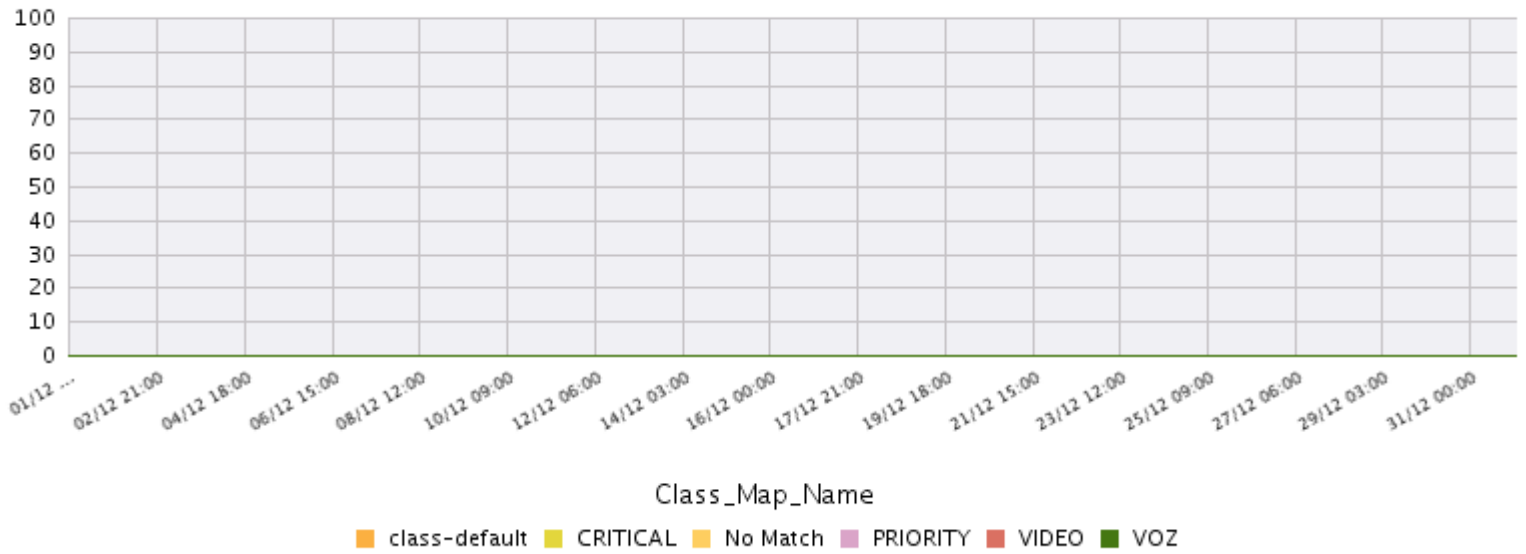
Sede	**OACI - COLOMBIA**
Equipo	**ICAO_COLOMBIA**
Modelo	**Cisco1921k9**
IP de Gestión	**(172.21.6.196)**
Ciudad	**Bogotá**

Interface: **GigabitEthernet0/0**

Policy Map (kbps)

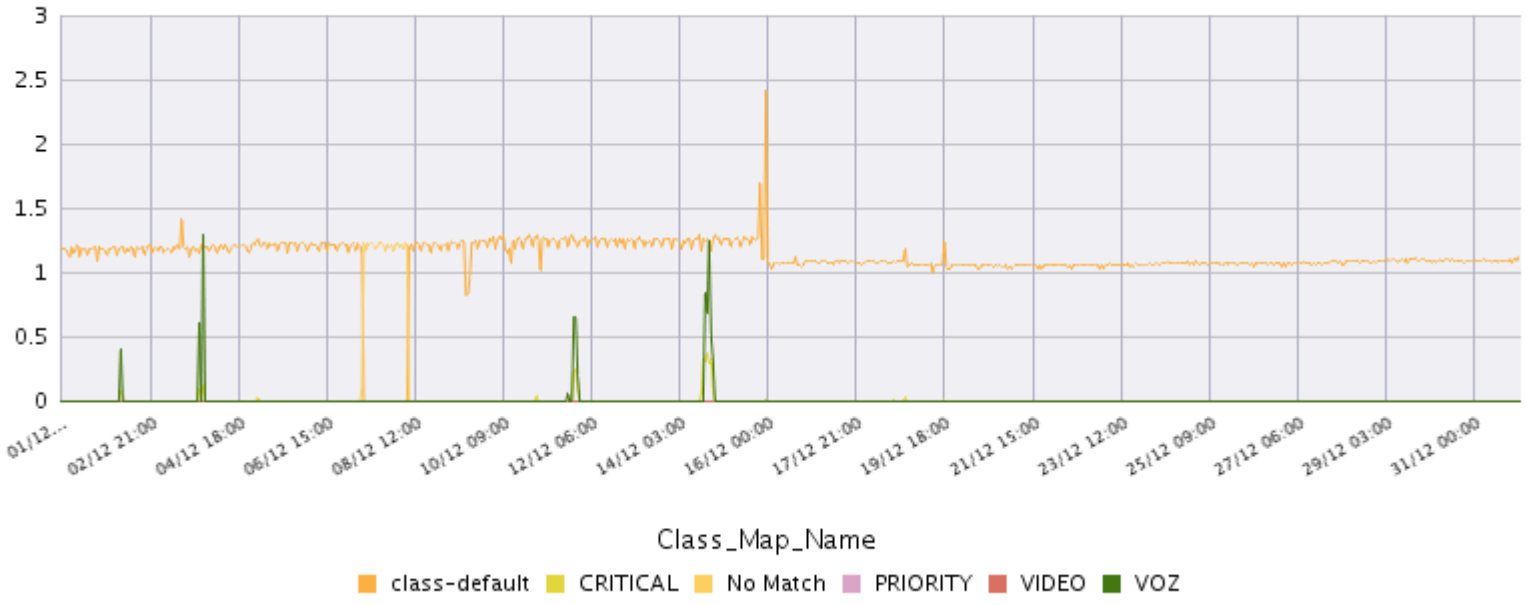


Drops (kbps)

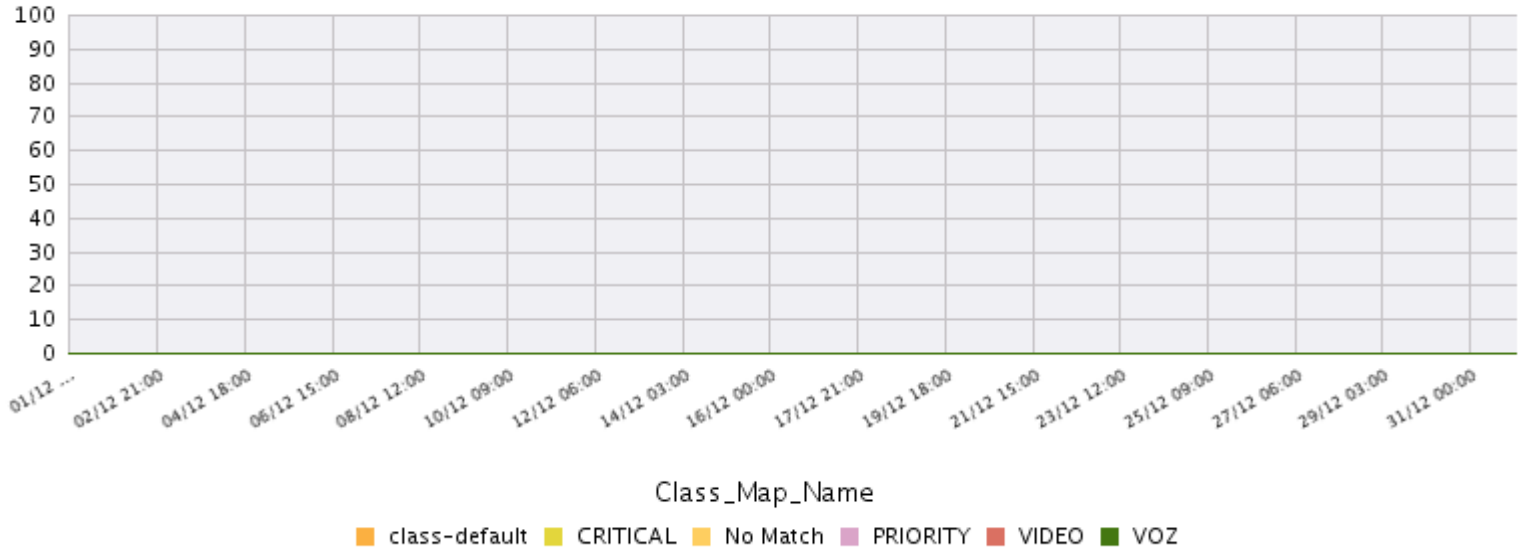


Interface: **GigabitEthernet0/1**

Policy Map (kbps)



Drops (kbps)

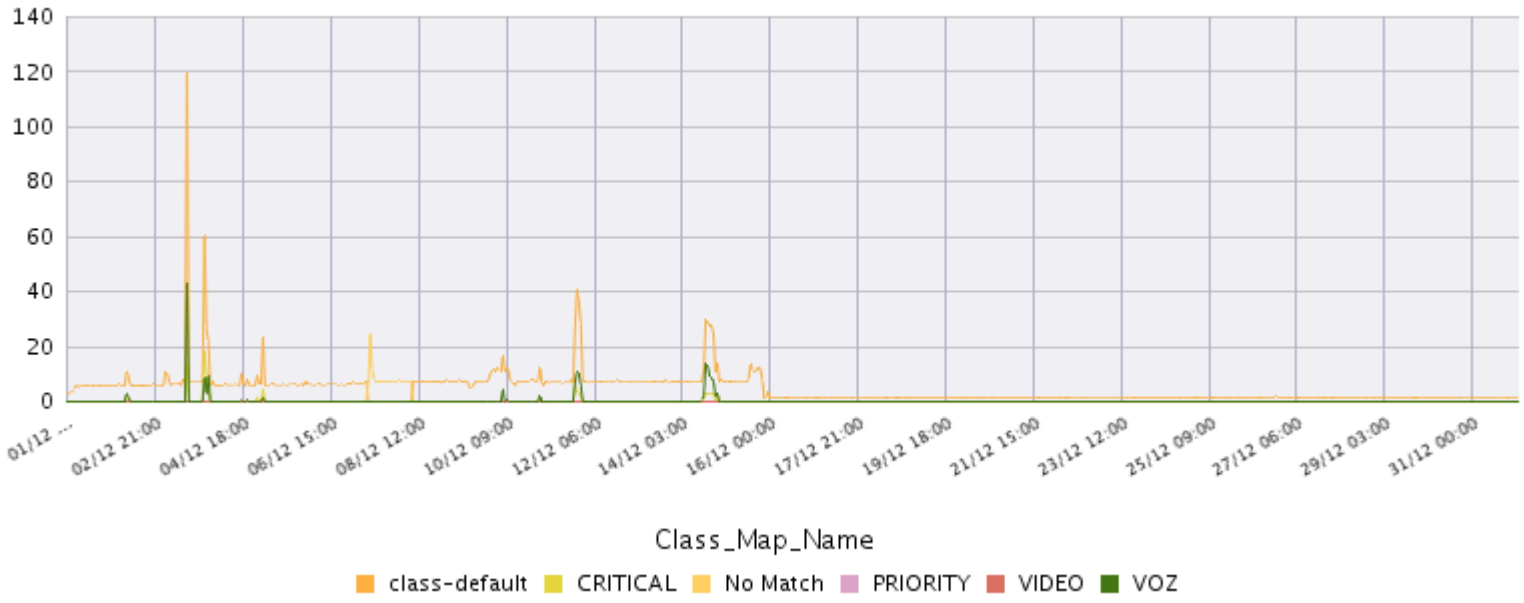


Sede	OACI - ECUADOR

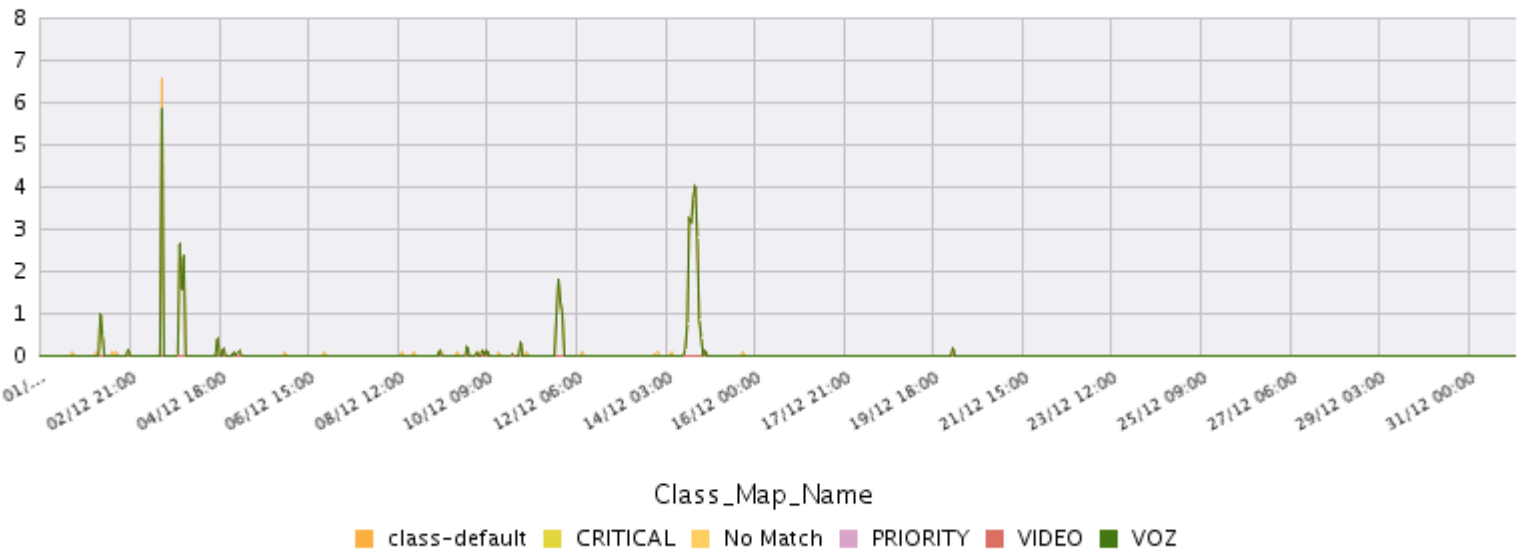
Equipo	ICAO_ECUADOR	Modelo	Cisco1921k9
IP de Gestión	(172.21.6.195)	Ciudad	Guayaquil

Interface: **GigabitEthernet0/0.1367**

Policy Map (kbps)

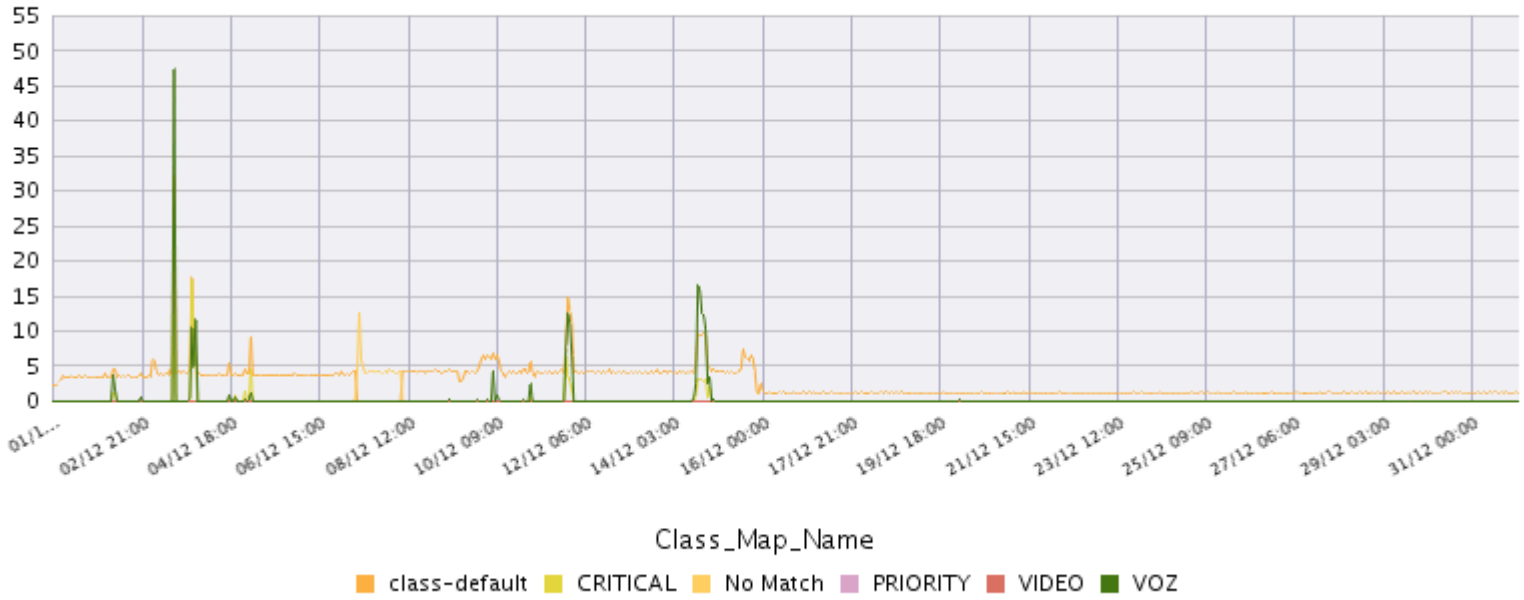


Drops (kbps)

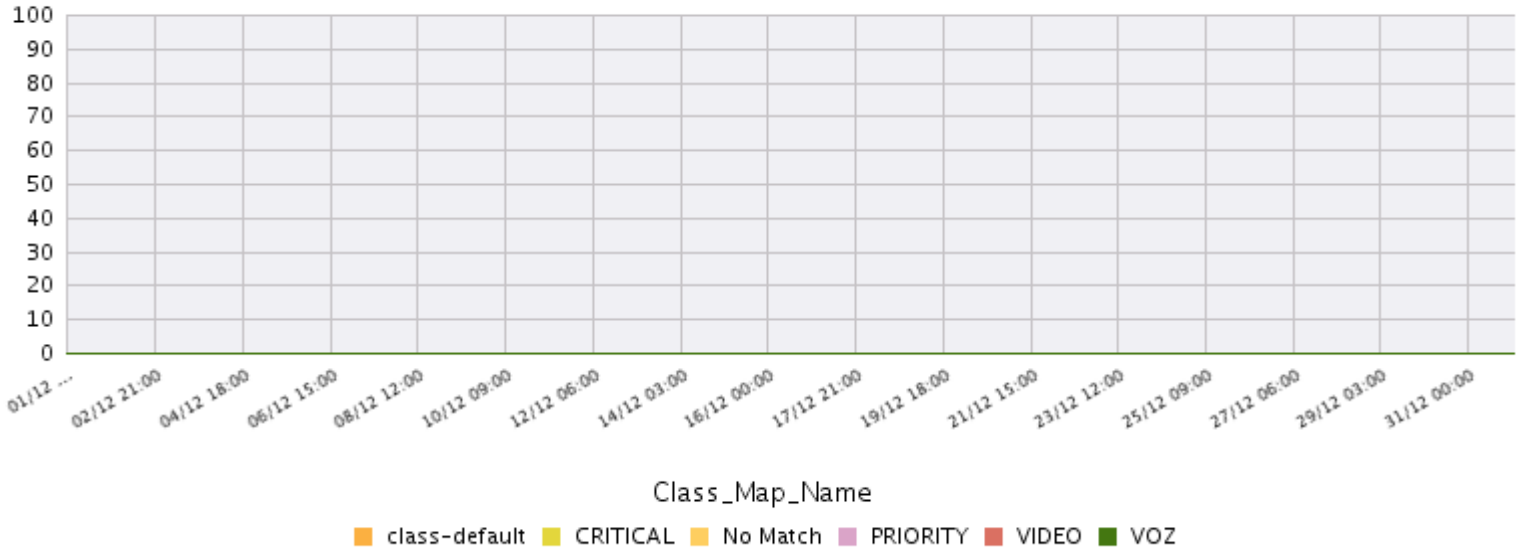


Interface: **GigabitEthernet0/1**

Policy Map (kbps)



Drops (kbps)



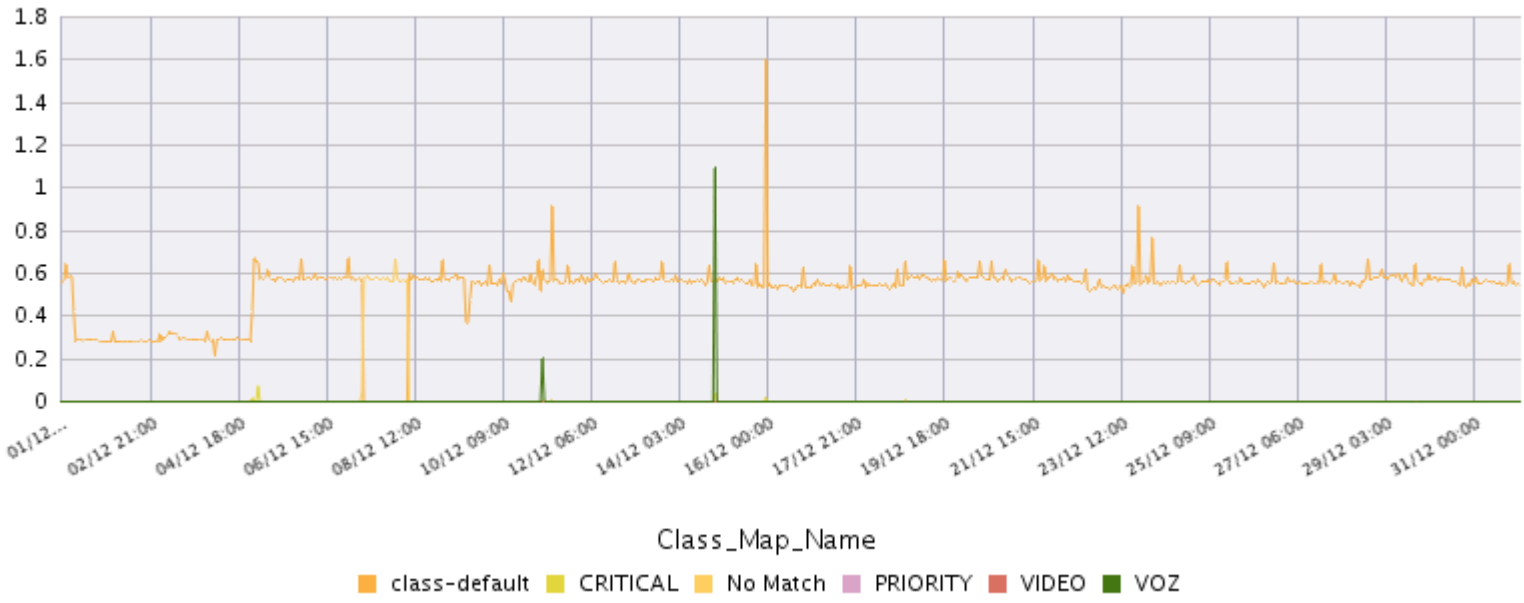
Reporte de Calidad de Servicio, Diciembre 2015

INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873

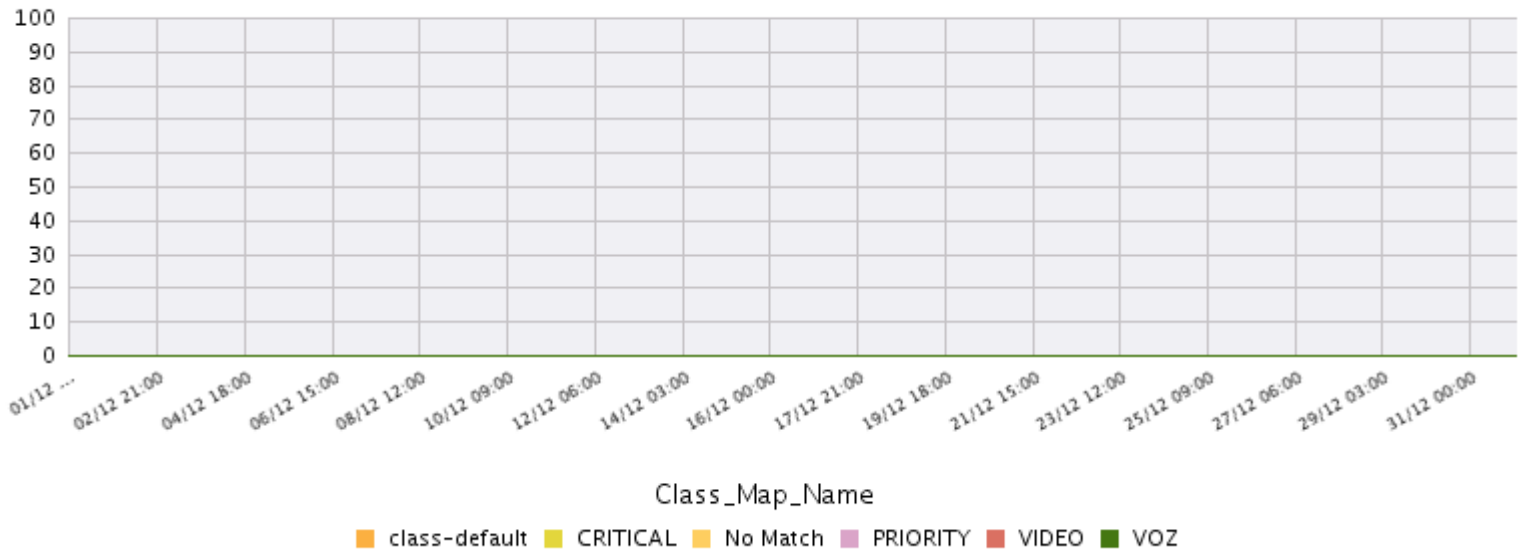
Level (3) COMMUNICATIONS
Connecting and Protecting the Networked World℠

Sede	**OACI - GUYANA**
Equipo	**ICAO_GUYANA.yourdomain.com**
Modelo	**Cisco1921k9**
IP de Gestión	**(172.21.6.200)**
Ciudad	**Georgetown**
Interface:	**GigabitEthernet0/0**

Policy Map (kbps)

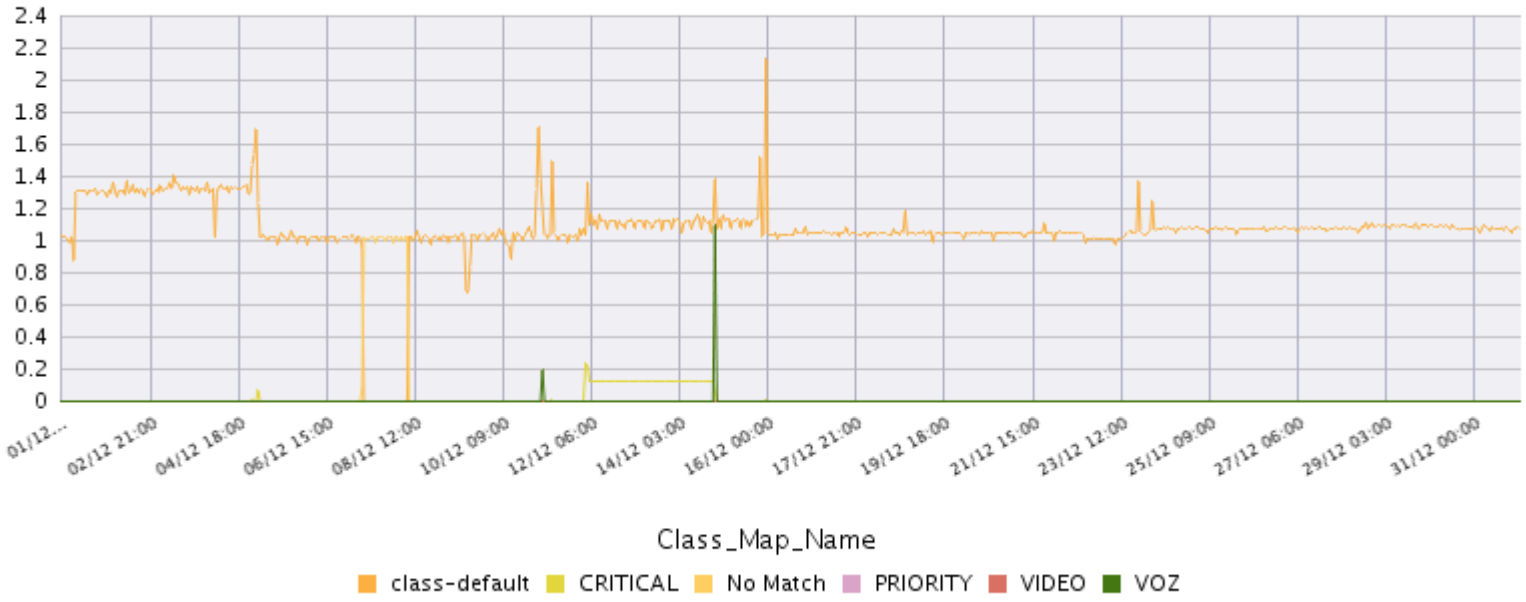


Drops (kbps)



Interface: **GigabitEthernet0/1**

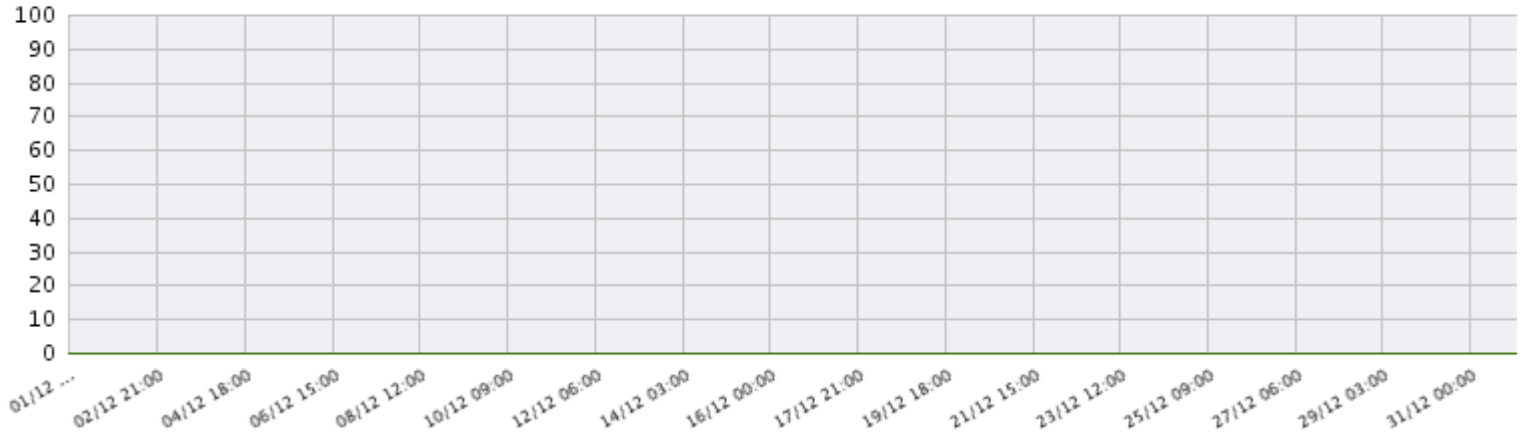
Policy Map (kbps)



Class_Map_Name

class-default CRITICAL No Match PRIORITY VIDEO VOZ

Drops (kbps)

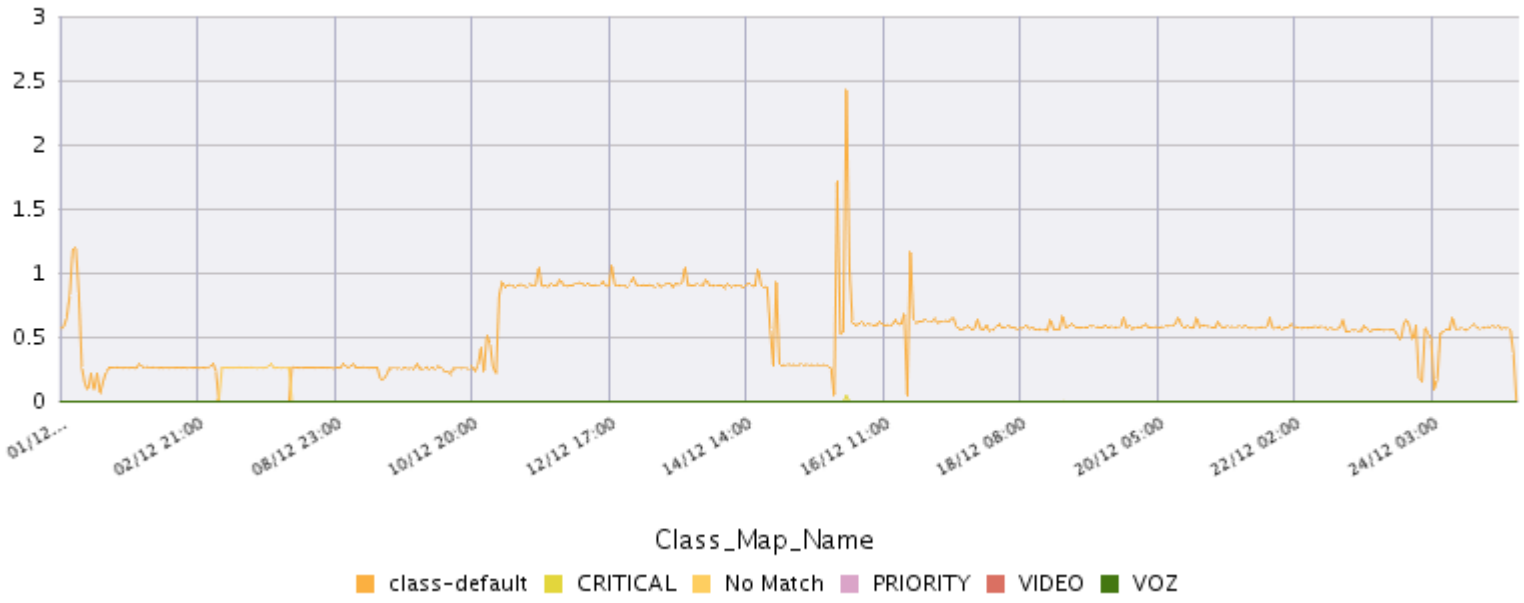


Class_Map_Name

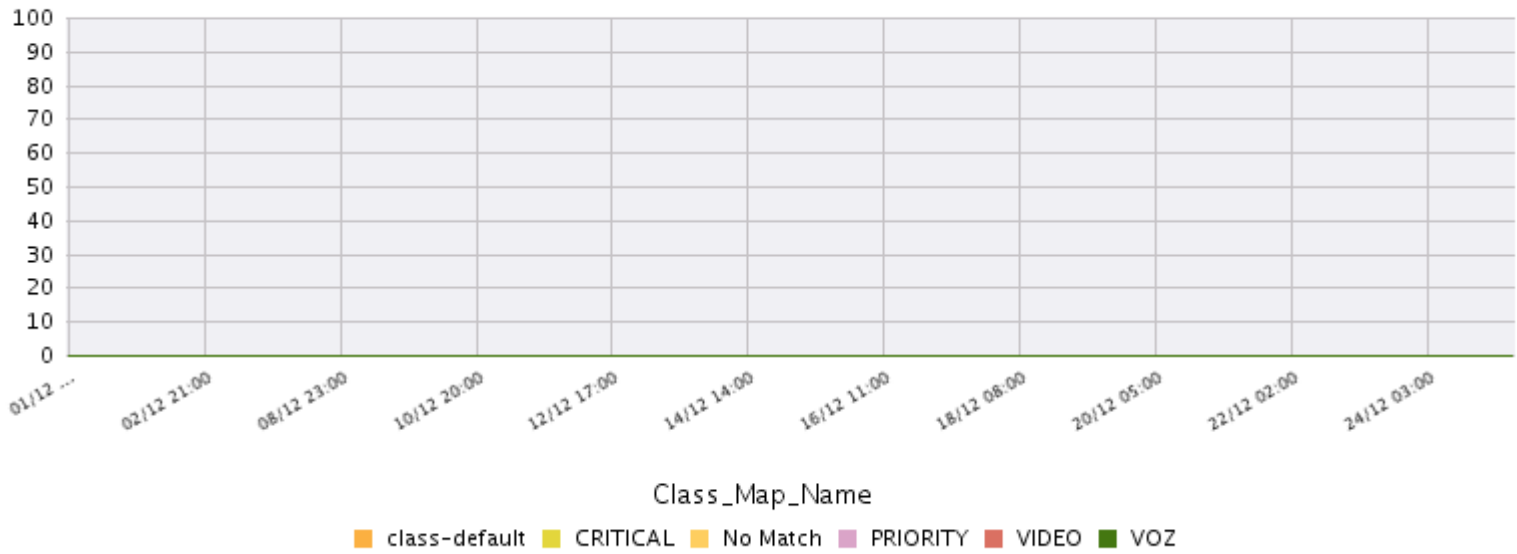
class-default CRITICAL No Match PRIORITY VIDEO VOZ

Sede	**OACI - GUYANA FRANCESA**
Equipo	**ICAO_FR_GUYANA.eq.ignetworks.com**
Modelo	**Cisco1921k9**
IP de Gestión	**(172.21.6.201)**
Ciudad	**Cayena**
Interface:	**GigabitEthernet0/0**

Policy Map (kbps)

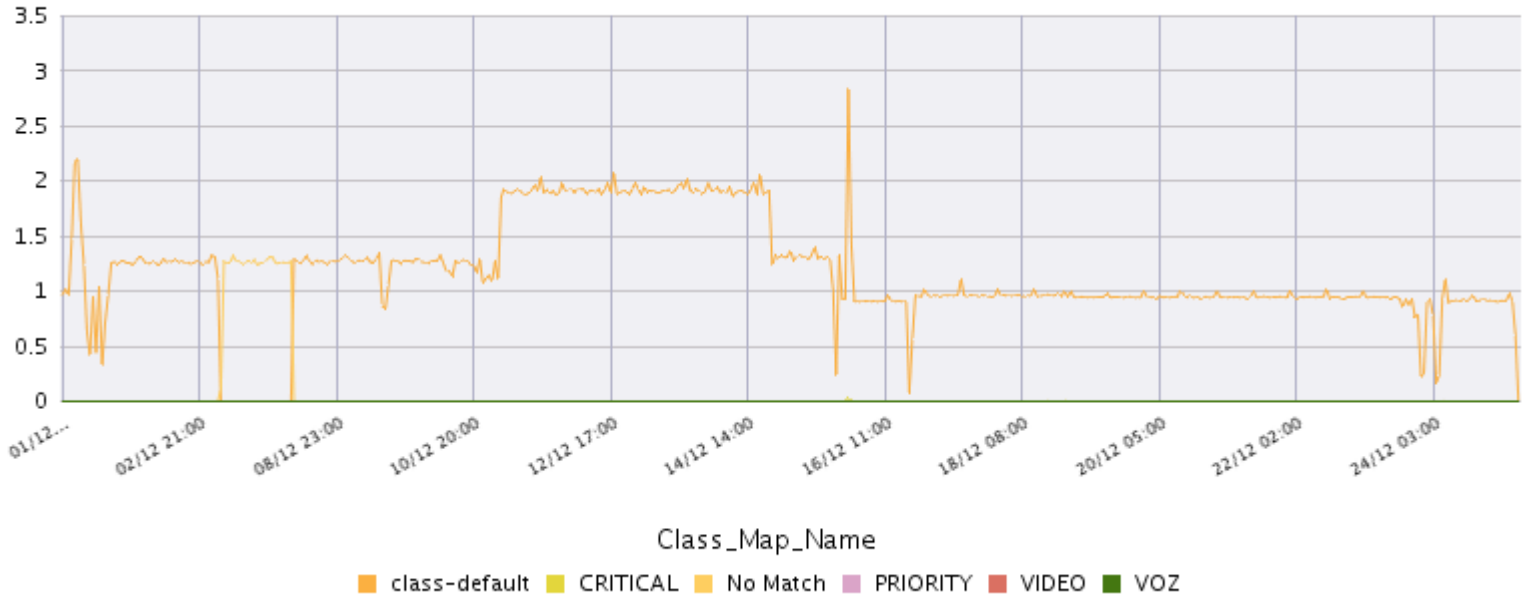


Drops (kbps)



Interface: **GigabitEthernet0/1**

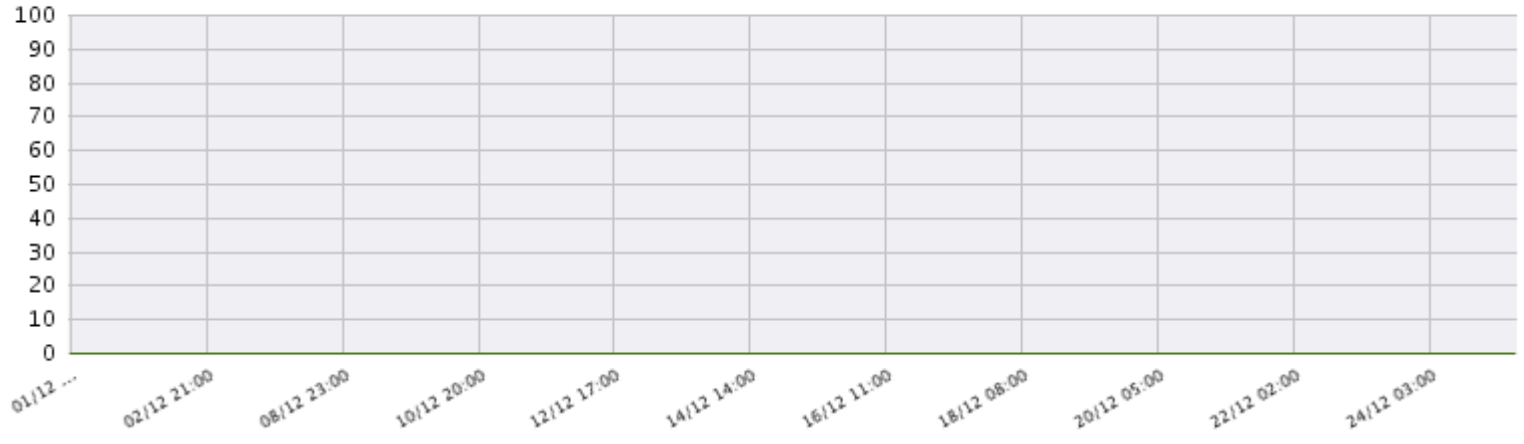
Policy Map (kbps)



Class_Map_Name

class-default CRITICAL No Match PRIORITY VIDEO VOZ

Drops (kbps)



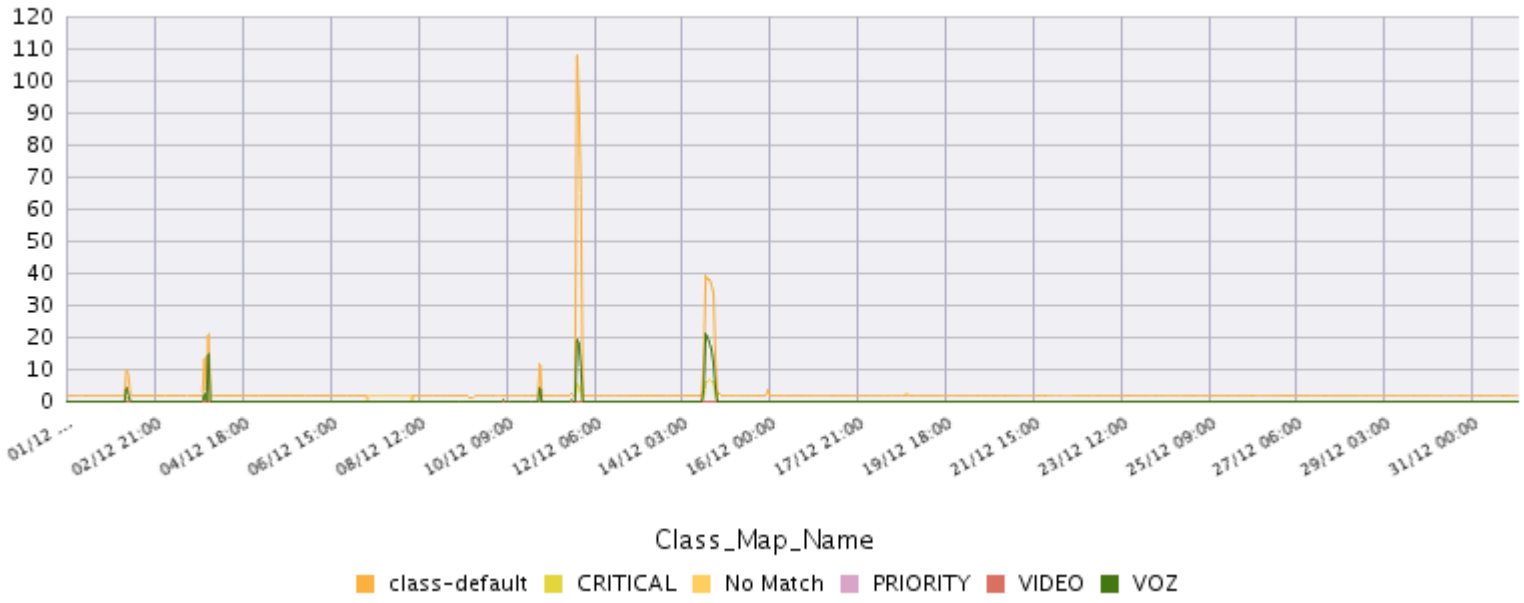
Class_Map_Name

class-default CRITICAL No Match PRIORITY VIDEO VOZ

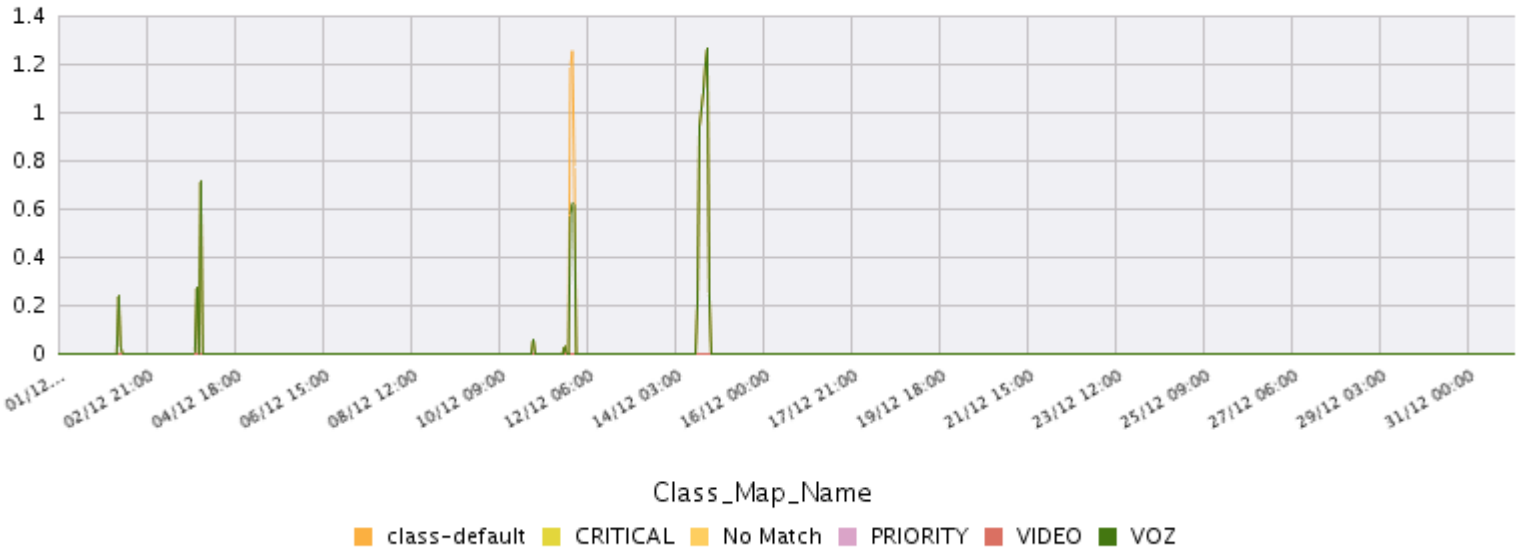
Sede	**OACI - LIMA**
Equipo	**ICAO_PERU**
Modelo	**Cisco1921k9**
IP de Gestión	**(172.20.26.50)**
Ciudad	**Callao**

Interface: **GigabitEthernet0/0.2428**

Policy Map (kbps)

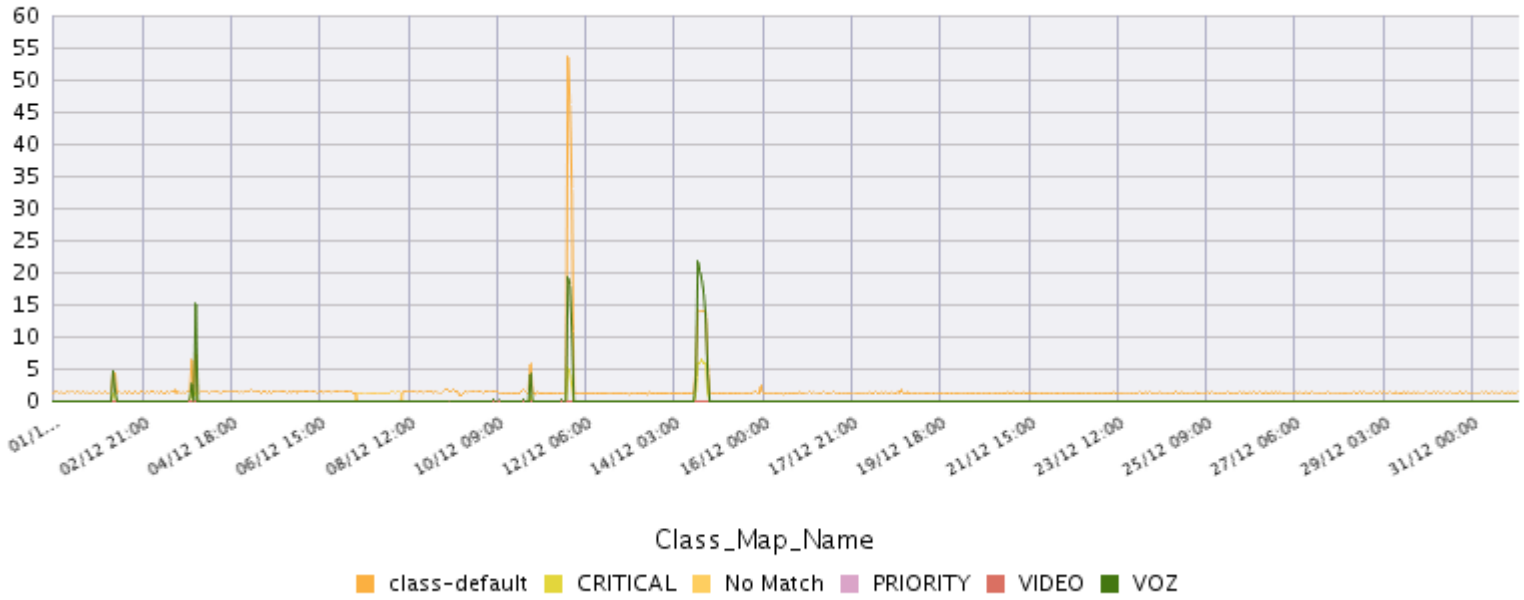


Drops (kbps)



Interface: **GigabitEthernet0/1**

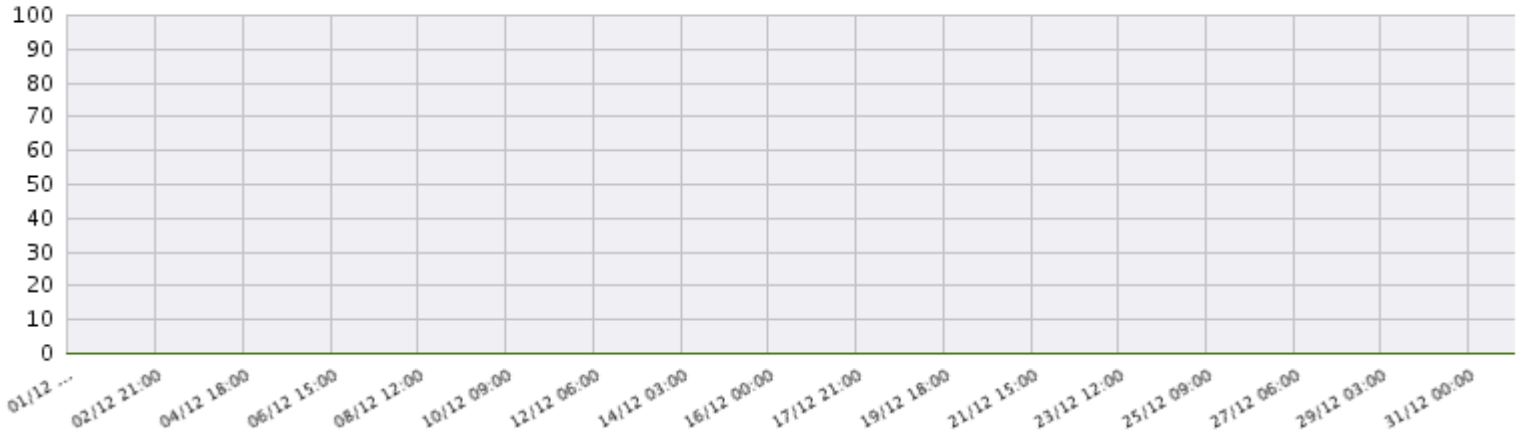
Policy Map (kbps)



Class_Map_Name

class-default CRITICAL No Match PRIORITY VIDEO VOZ

Drops (kbps)



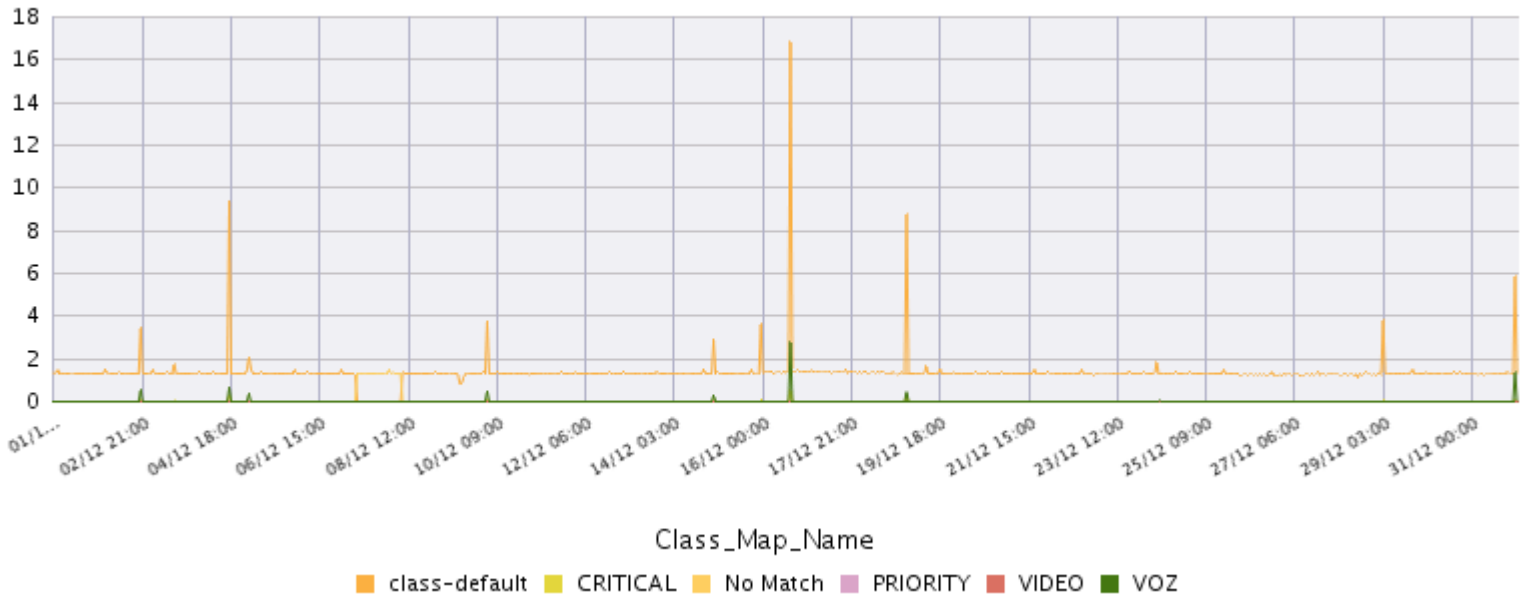
Class_Map_Name

class-default CRITICAL No Match PRIORITY VIDEO VOZ

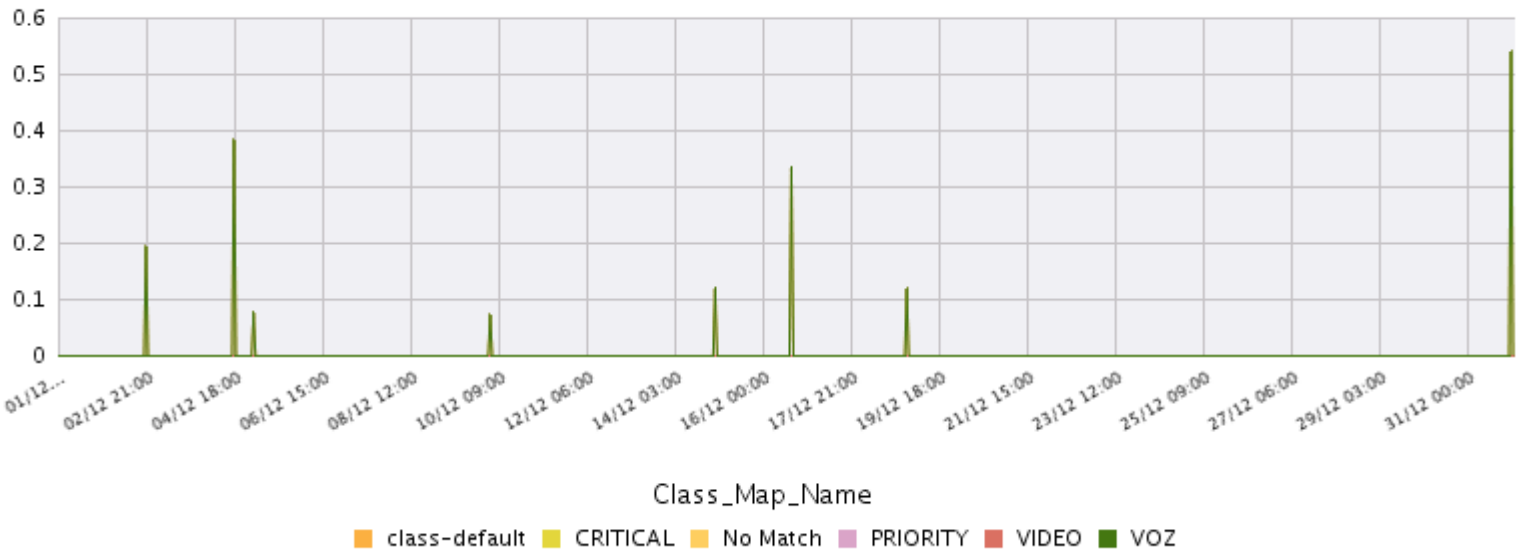
Sede	**OACI - PARAGUAY**
Equipo	**ICAO_PARAGUAY.ineo.com.py**
Modelo	**Cisco1941**
IP de Gestión	**(172.21.6.199)**
Ciudad	**Asunción**

Interface: **GigabitEthernet0/0**

Policy Map (kbps)

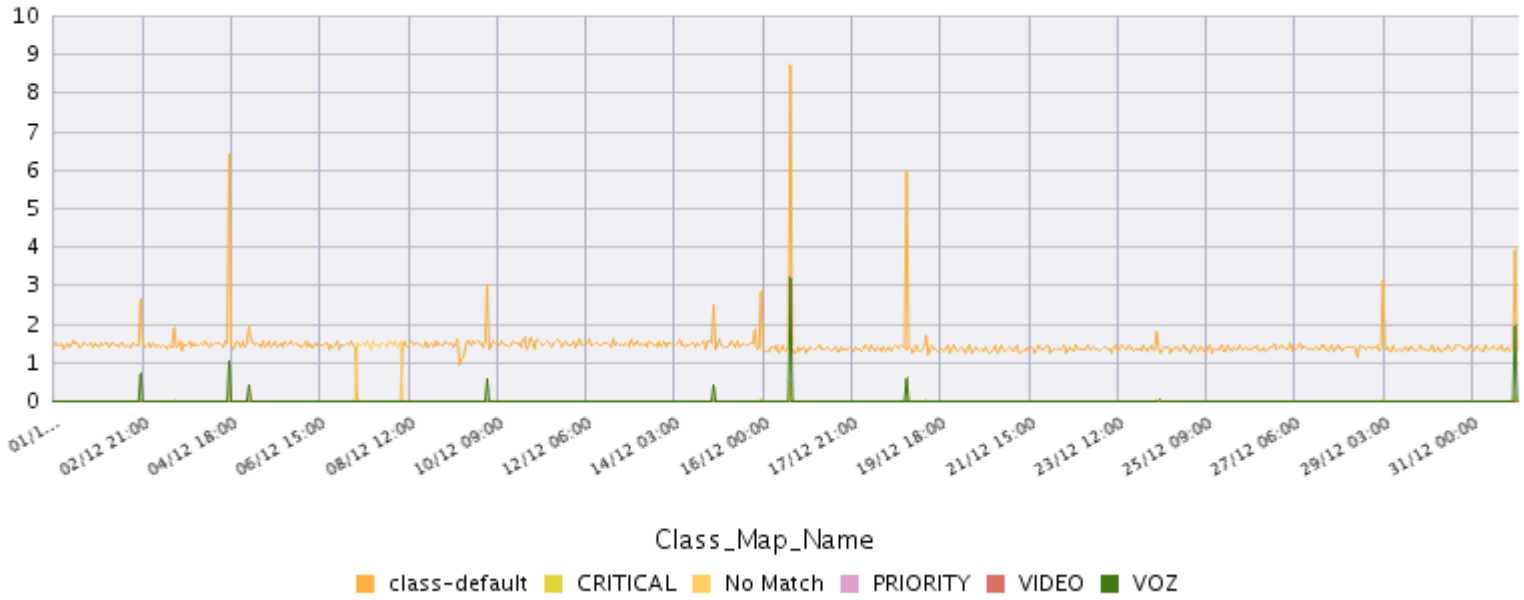


Drops (kbps)

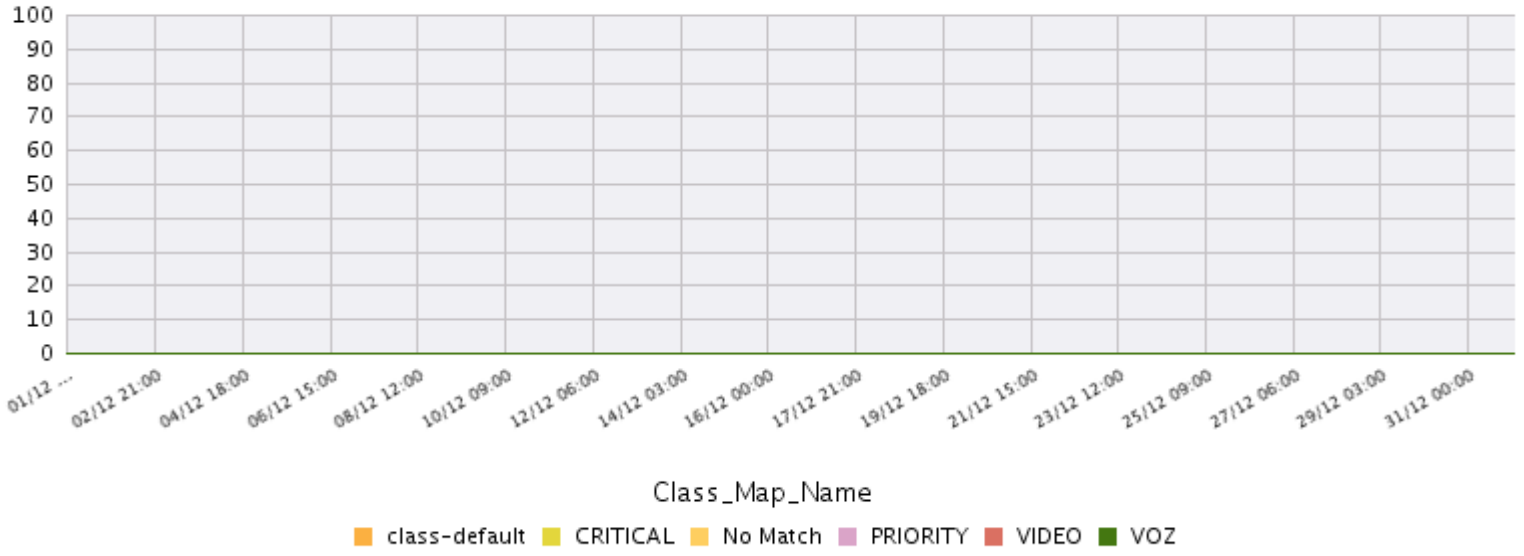


Interface: **GigabitEthernet0/1**

Policy Map (kbps)



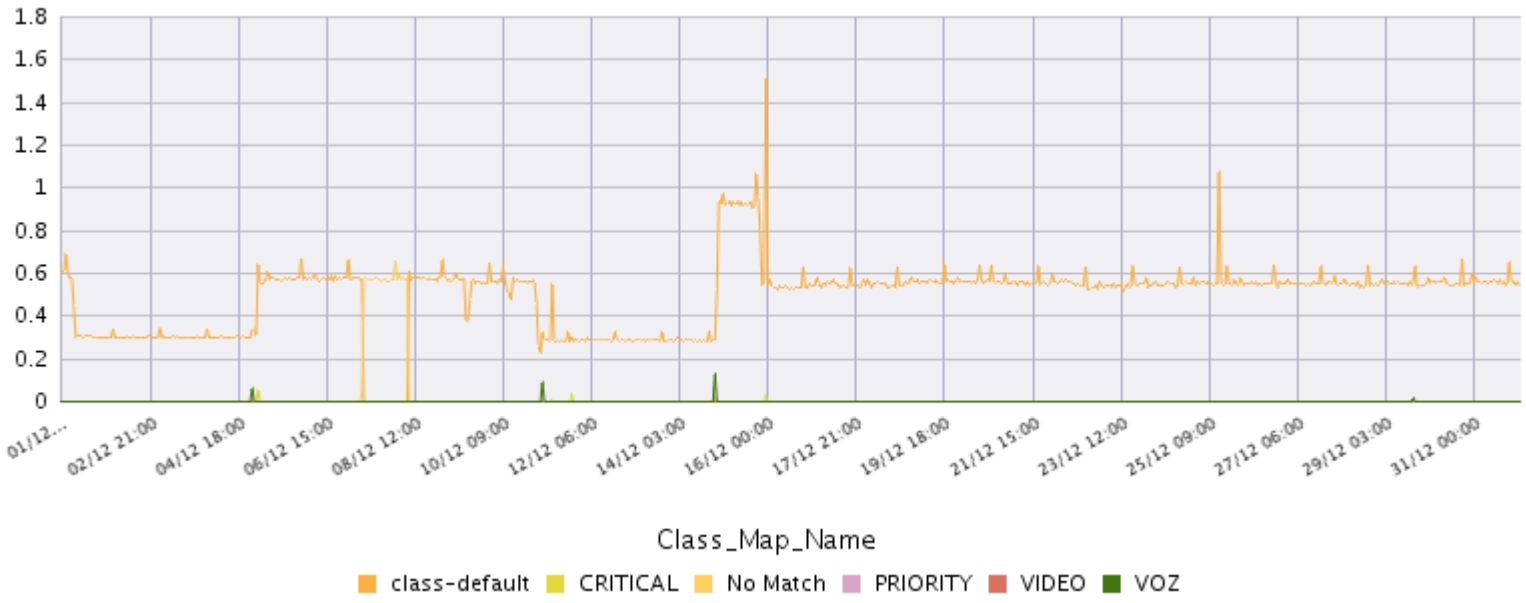
Drops (kbps)



Sede	**OACI - SURINAME**
Equipo	**ICAO_SURINAME.yourdomain.com**
Modelo	**Cisco1921k9**
IP de Gestión	**(172.21.6.203)**
Ciudad	**Paramaribo**

Interface: **GigabitEthernet0/0**

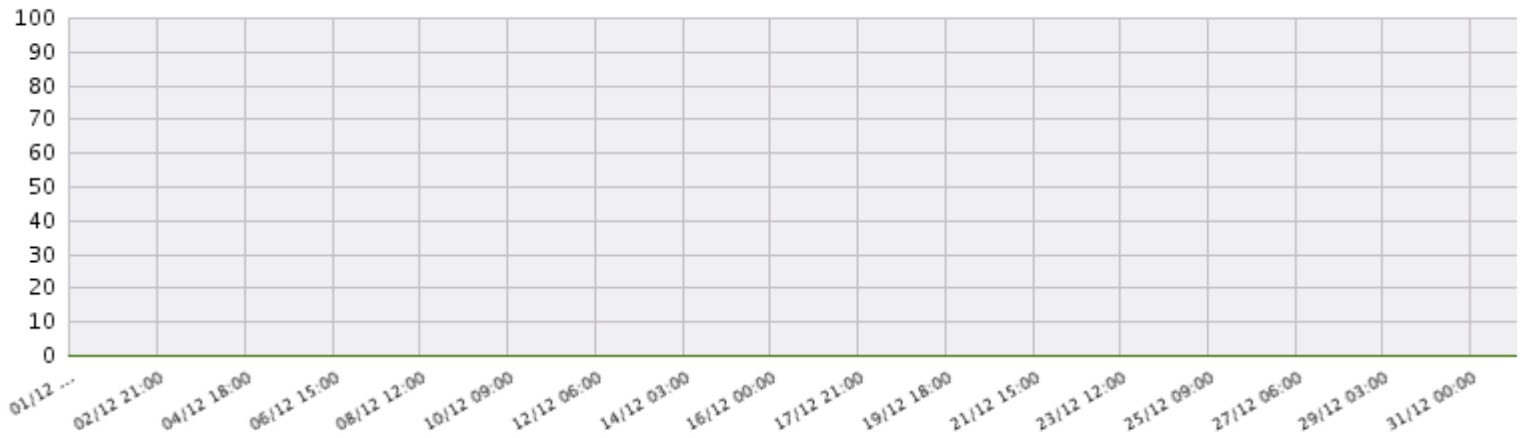
Policy Map (kbps)



Class_Map_Name

class-default CRITICAL No Match PRIORITY VIDEO VOZ

Drops (kbps)

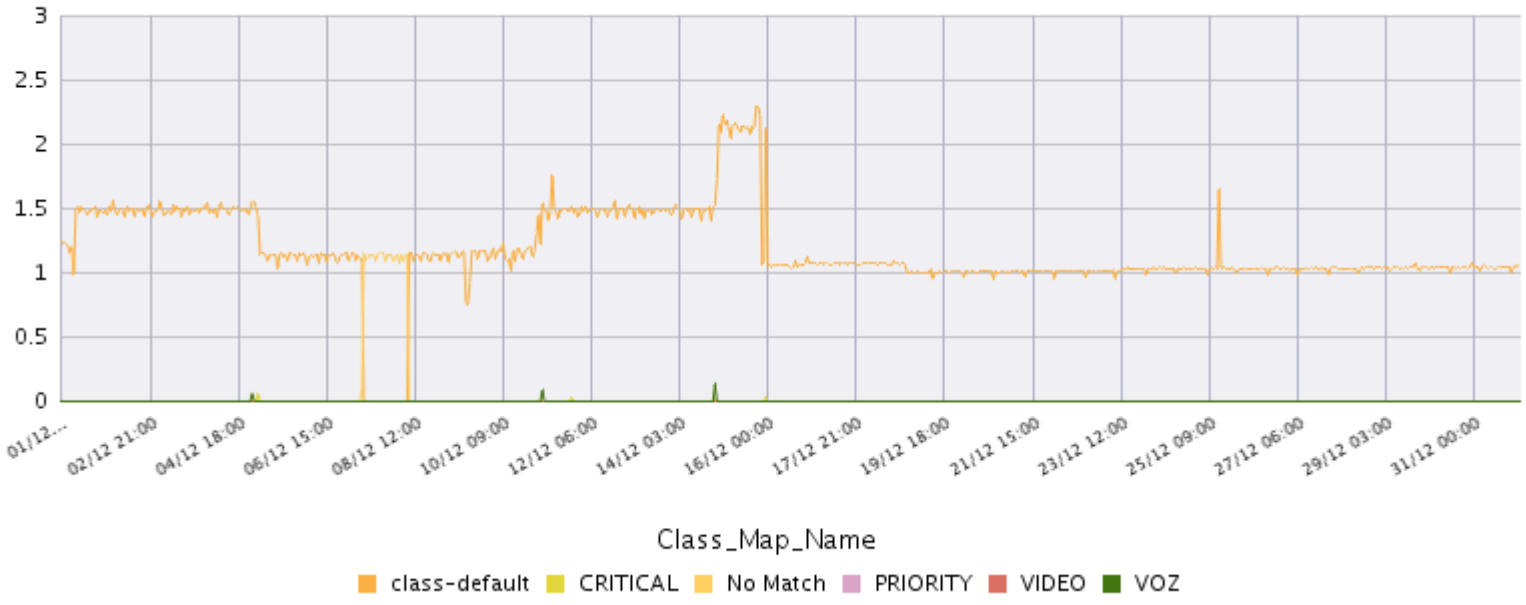


Class_Map_Name

class-default CRITICAL No Match PRIORITY VIDEO VOZ

Interface: **GigabitEthernet0/1**

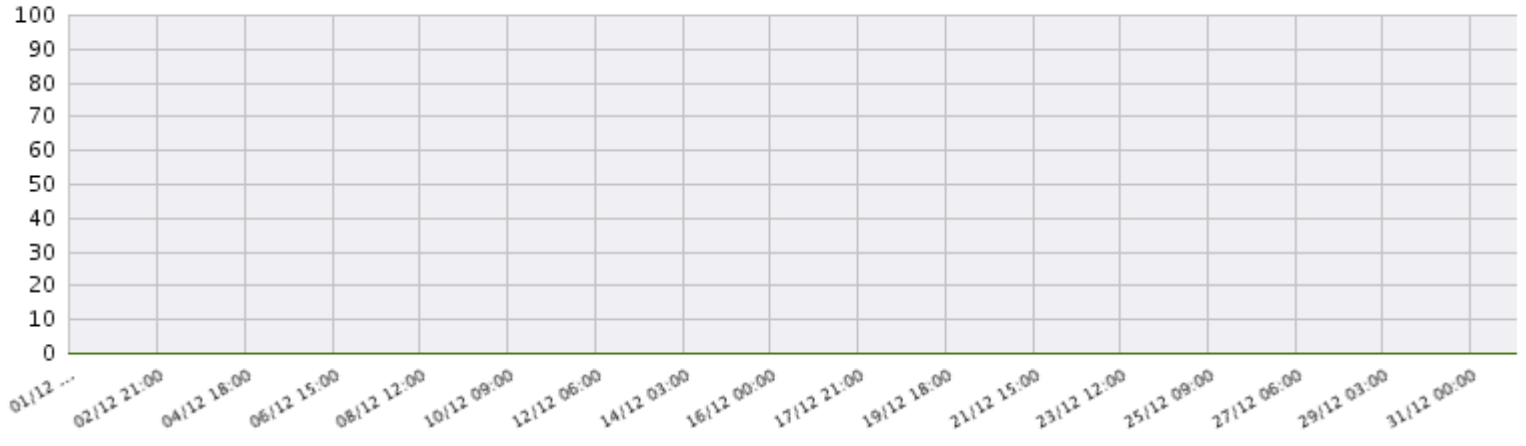
Policy Map (kbps)



Class_Map_Name

class-default CRITICAL No Match PRIORITY VIDEO VOZ

Drops (kbps)

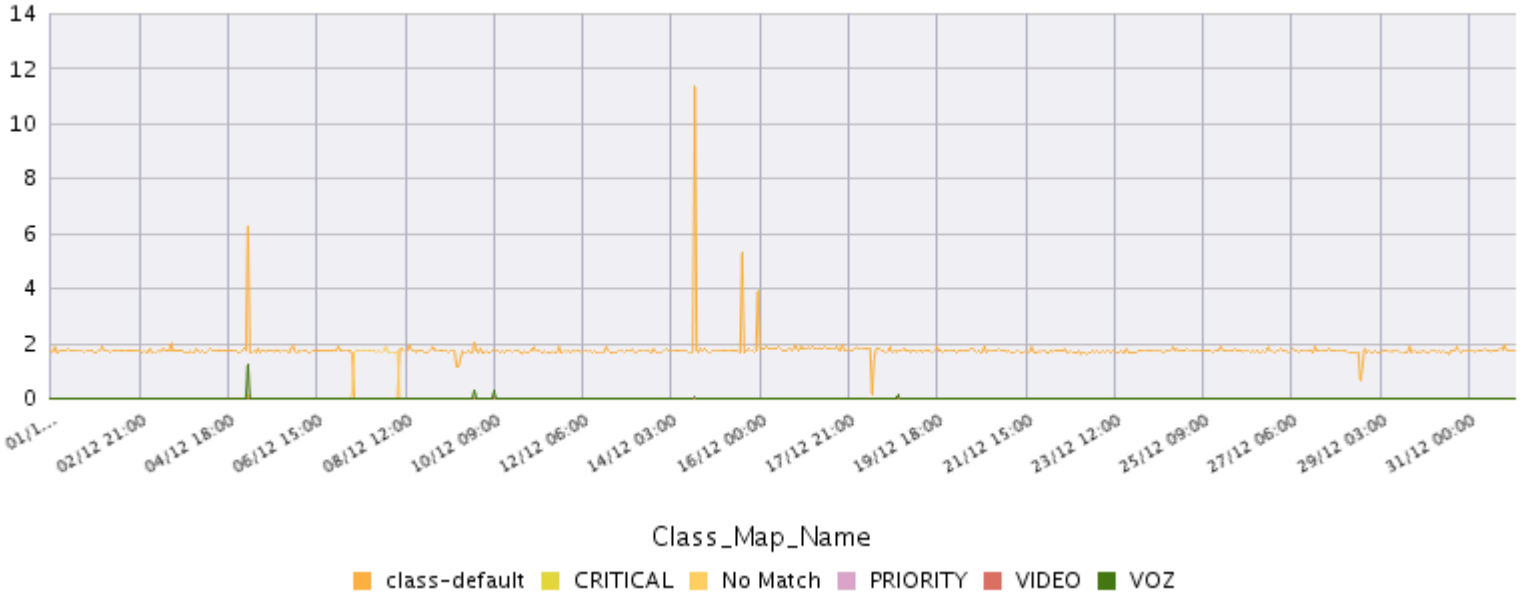


Class_Map_Name

class-default CRITICAL No Match PRIORITY VIDEO VOZ

Sede	**OACI - TRINIDAD & TOBAGO**
Equipo	**ICAO_TRINIDAD.yourdomain.com**
Modelo	**Cisco1921k9**
IP de Gestión	**(172.21.6.194)**
Ciudad	**Port of Spain**
Interface:	**GigabitEthernet0/0**

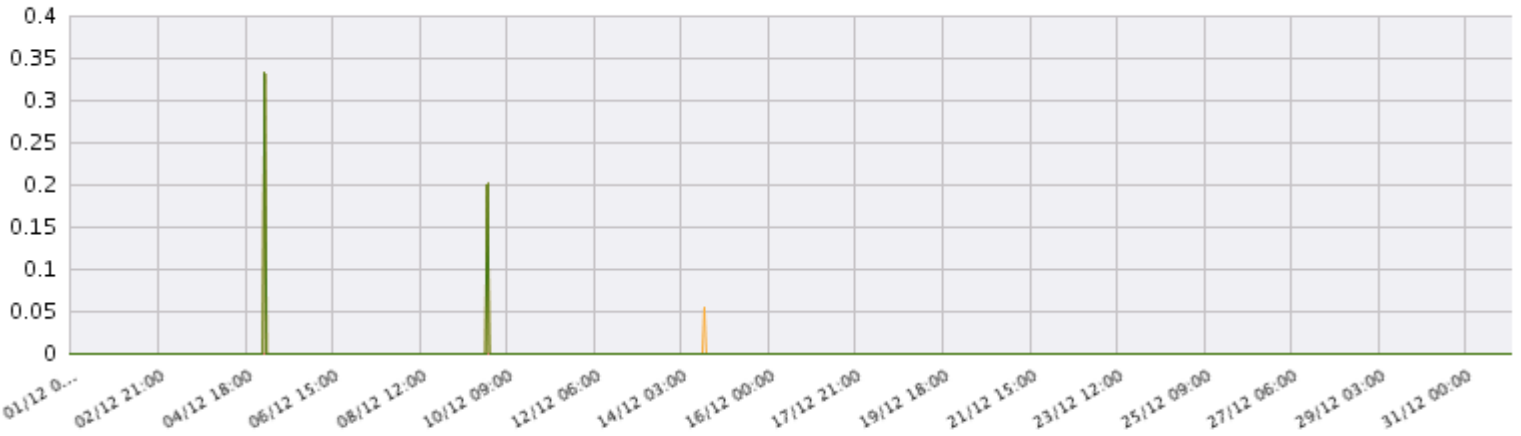
Policy Map (kbps)



Class_Map_Name

class-default CRITICAL No Match PRIORITY VIDEO VOZ

Drops (kbps)

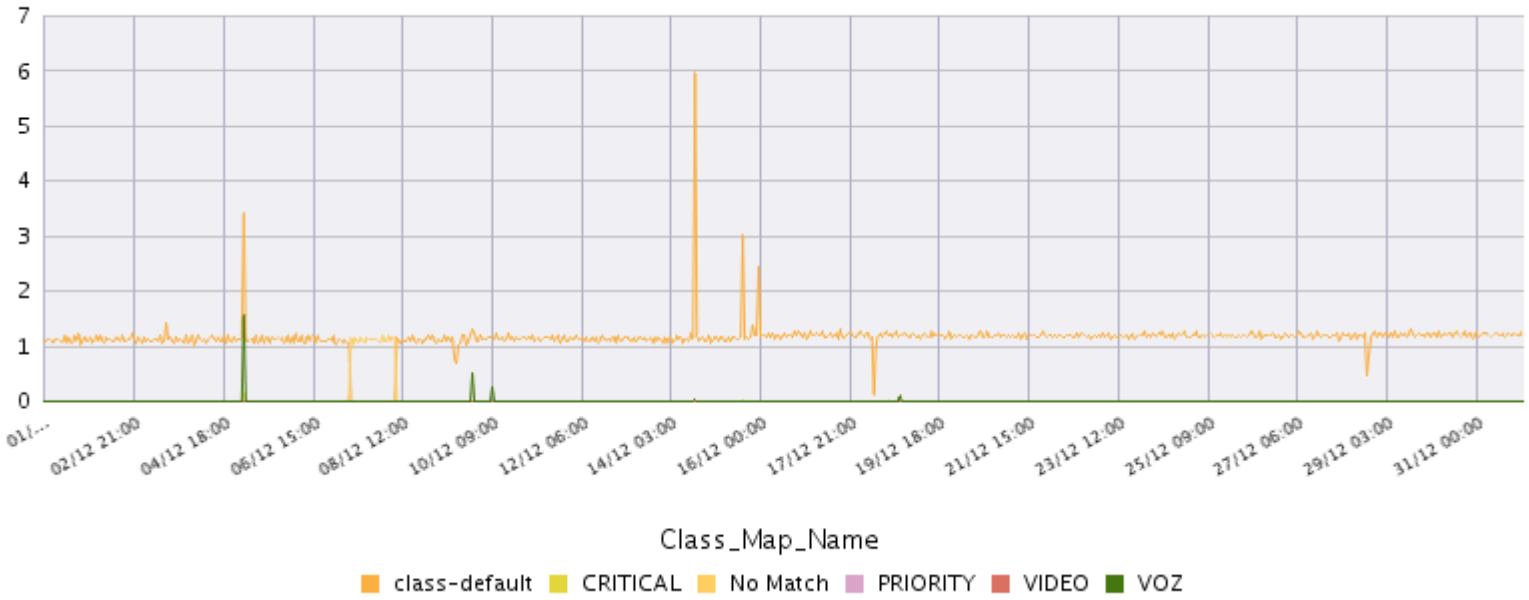


Class_Map_Name

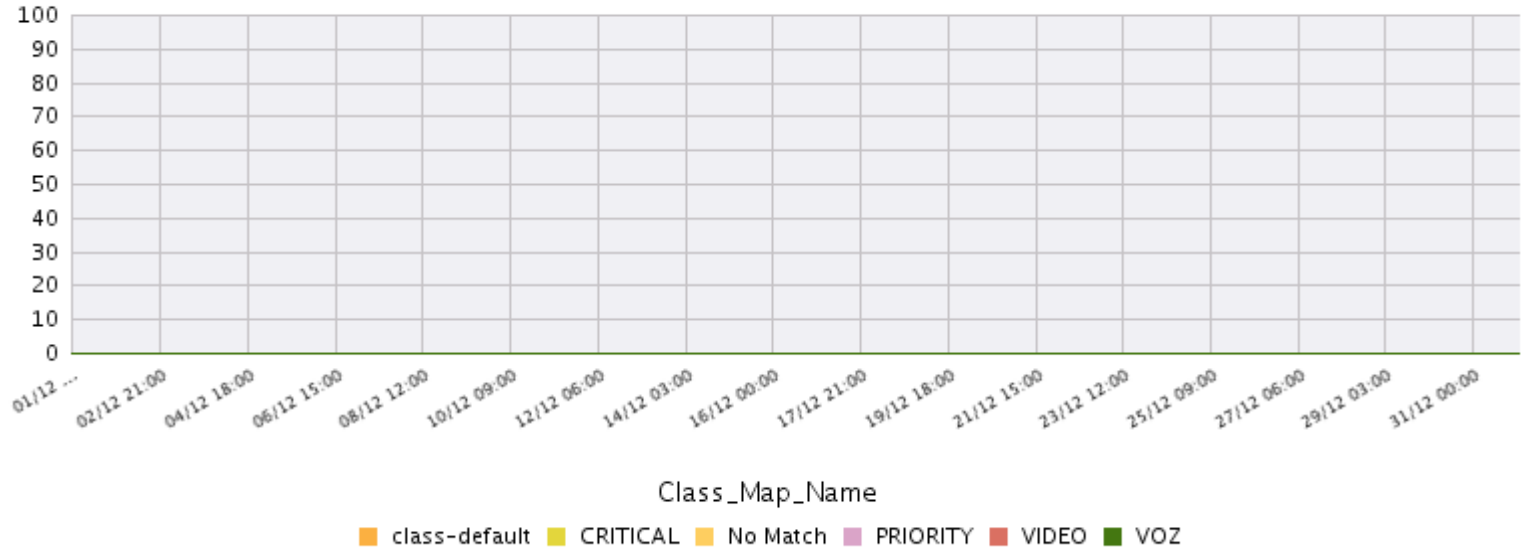
class-default CRITICAL No Match PRIORITY VIDEO VOZ

Interface: **GigabitEthernet0/1**

Policy Map (kbps)



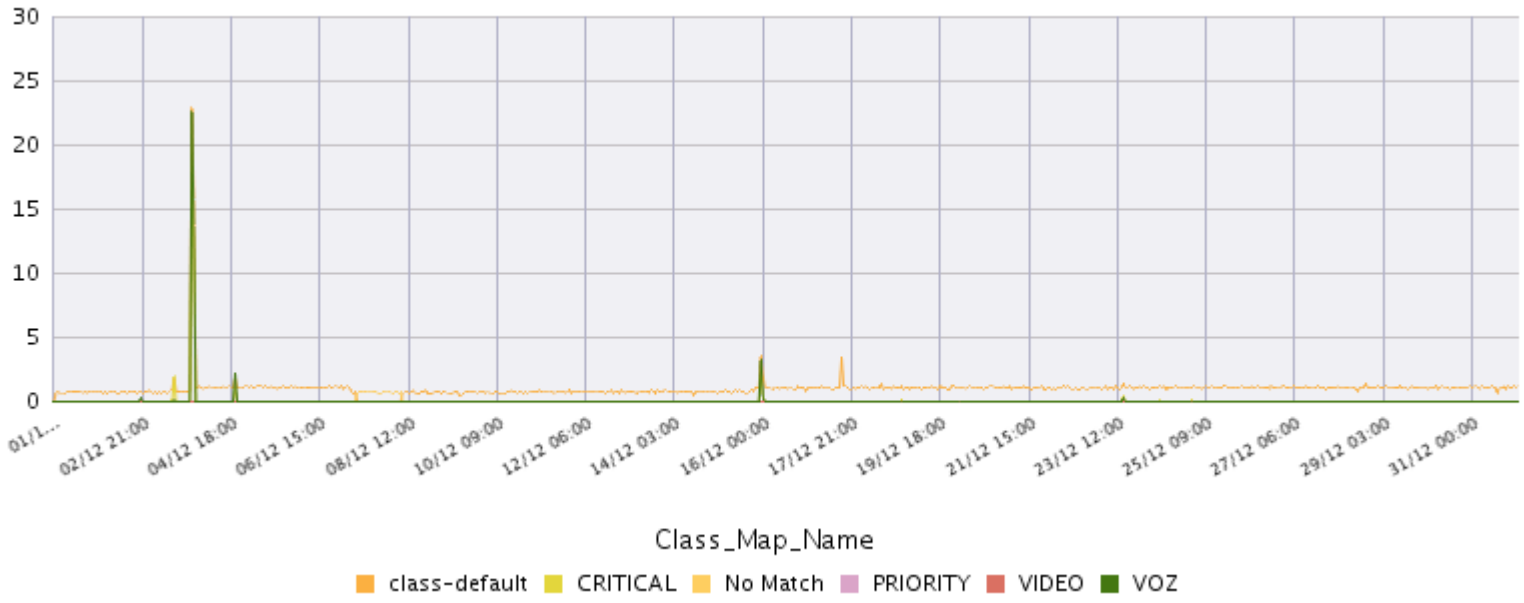
Drops (kbps)



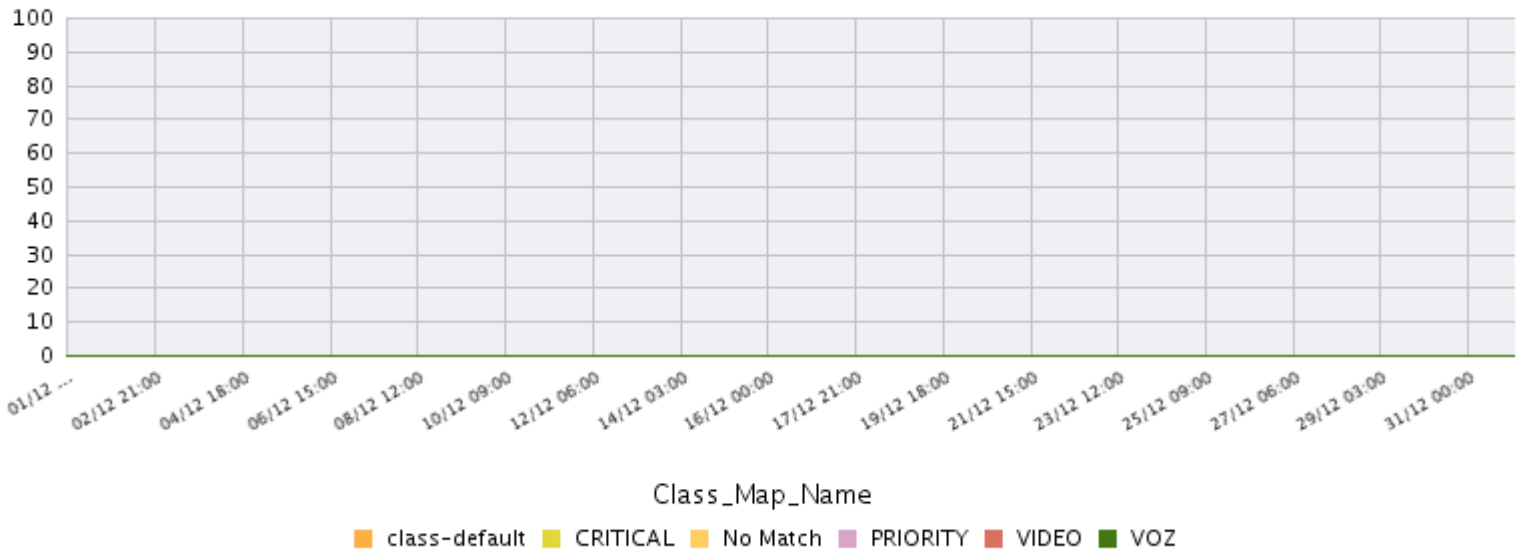
Sede	**OACI - URUGUAY**
Equipo	**ICAO_URUGUAY**
Modelo	**Cisco1921k9**
IP de Gestión	**(172.21.6.198)**
Ciudad	**Montevideo**

Interface: **GigabitEthernet0/0**

Policy Map (kbps)

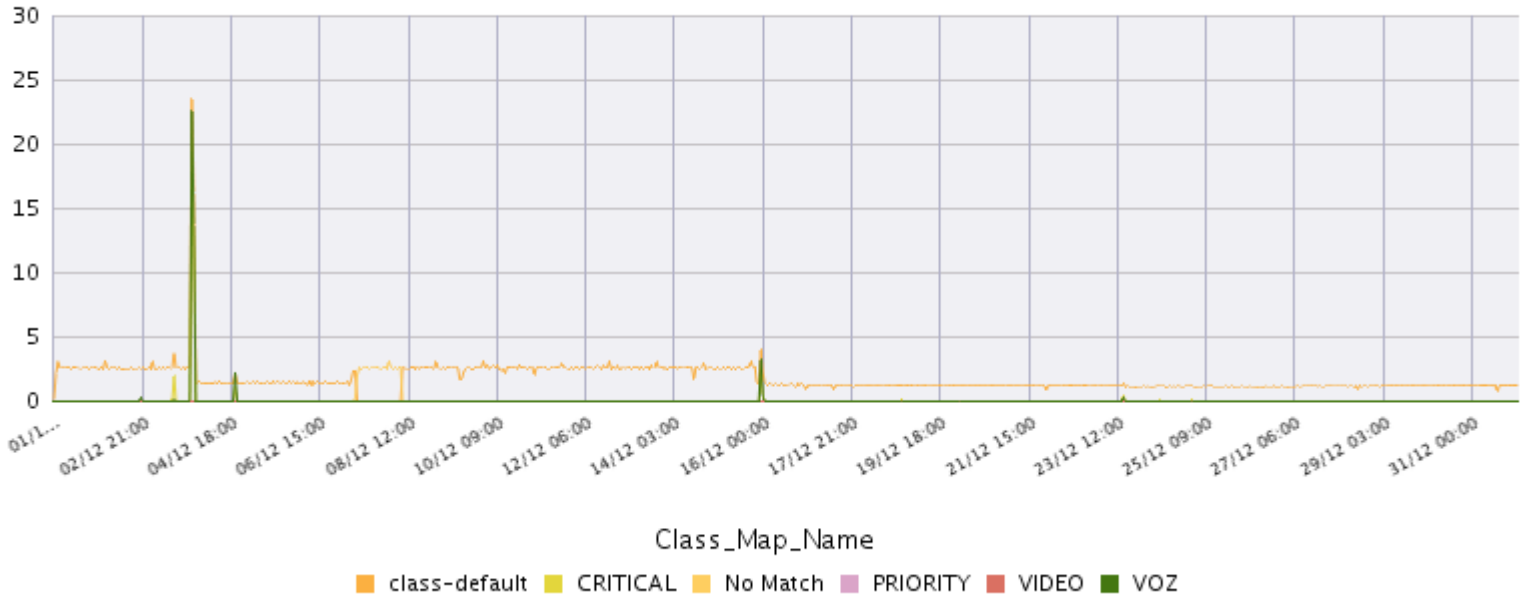


Drops (kbps)



Interface: **GigabitEthernet0/1**

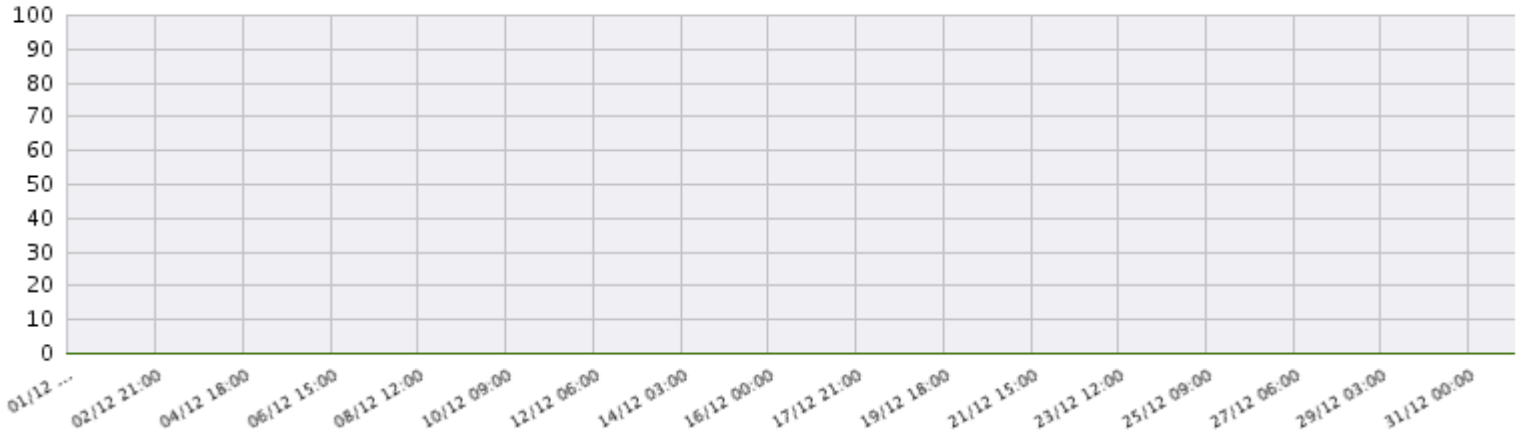
Policy Map (kbps)



Class_Map_Name

class-default CRITICAL No Match PRIORITY VIDEO VOZ

Drops (kbps)



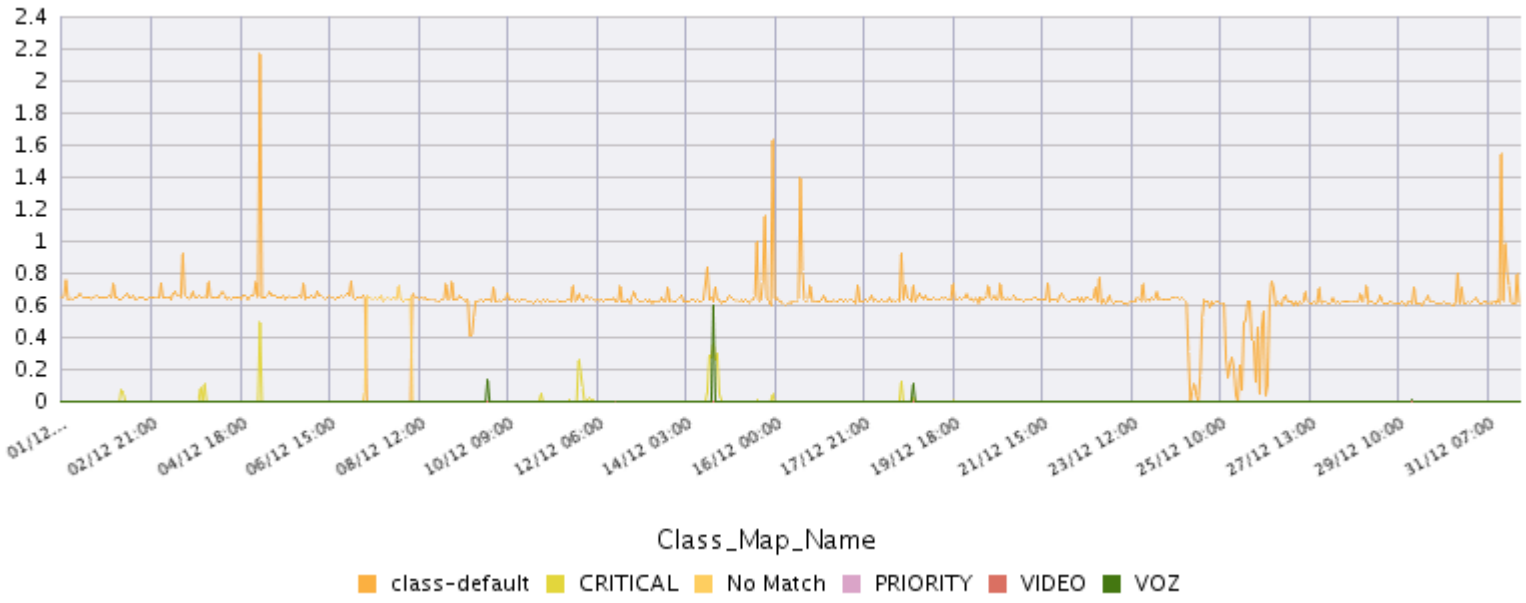
Class_Map_Name

class-default CRITICAL No Match PRIORITY VIDEO VOZ

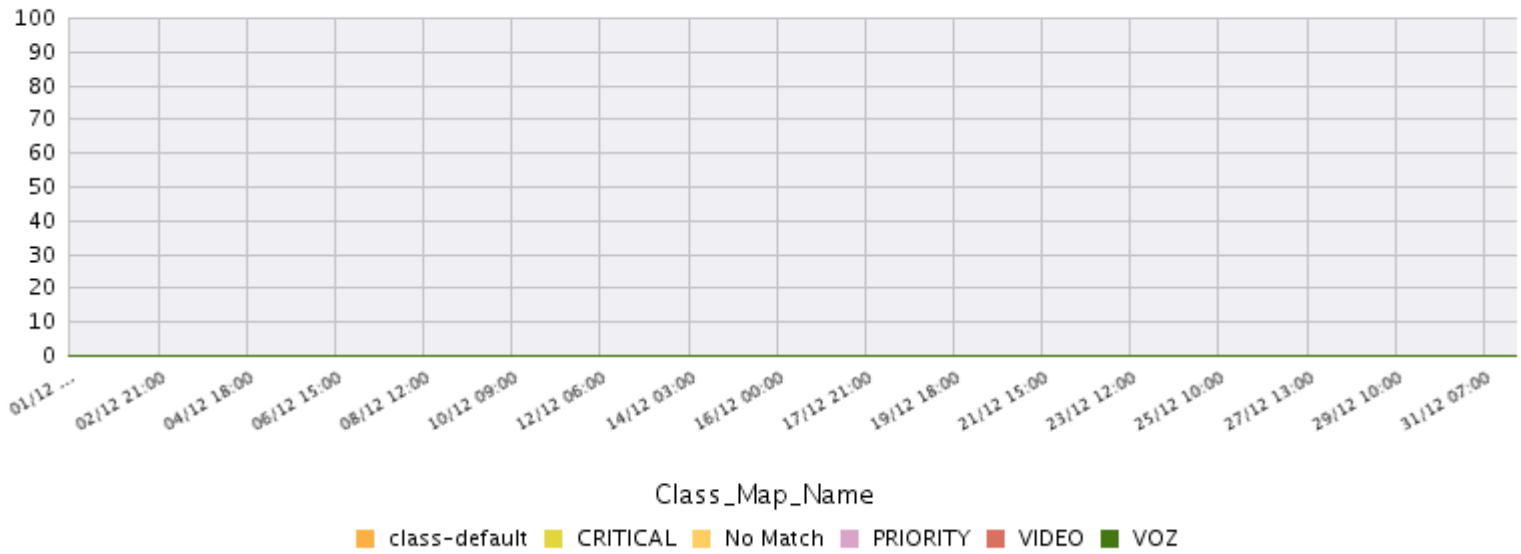
Sede	**OACI - VENEZUELA**
Equipo	**ICAO_VENEZUELA**
Modelo	**Cisco1921k9**
IP de Gestión	**(172.21.6.202)**
Ciudad	**Maiquetía**

Interface: **GigabitEthernet0/0**

Policy Map (kbps)

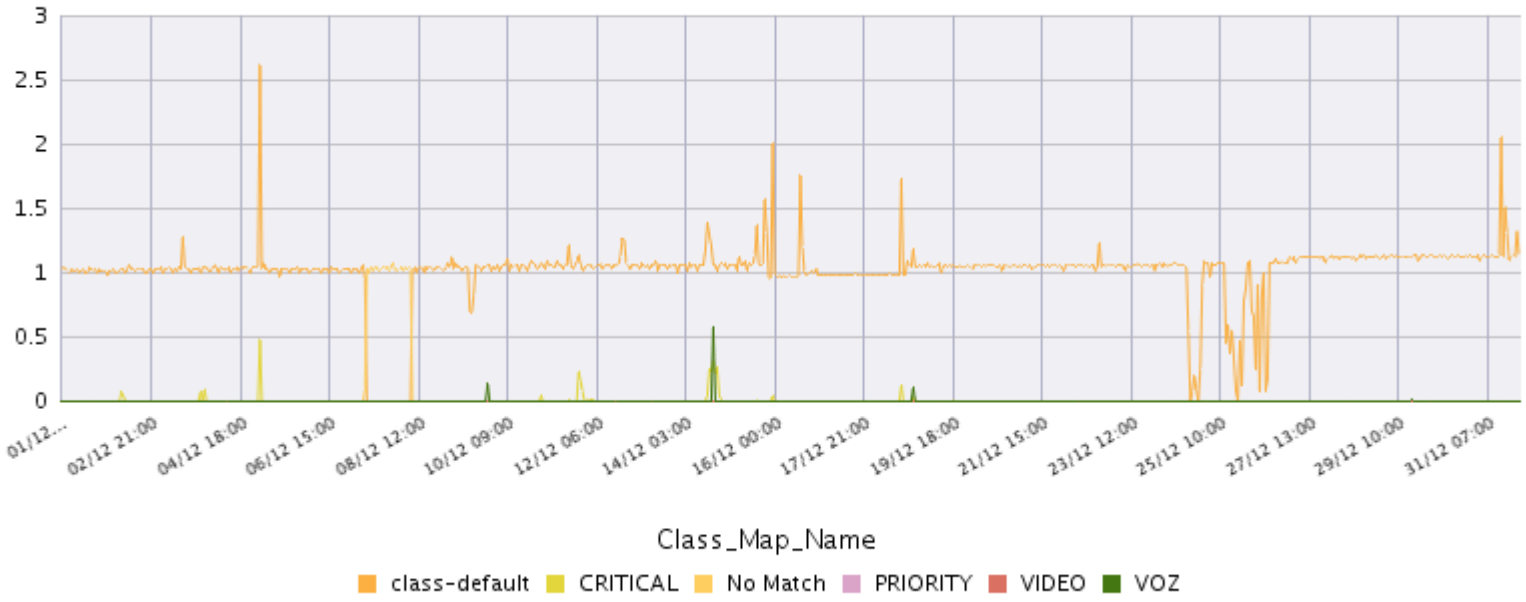


Drops (kbps)



Interface: **GigabitEthernet0/1**

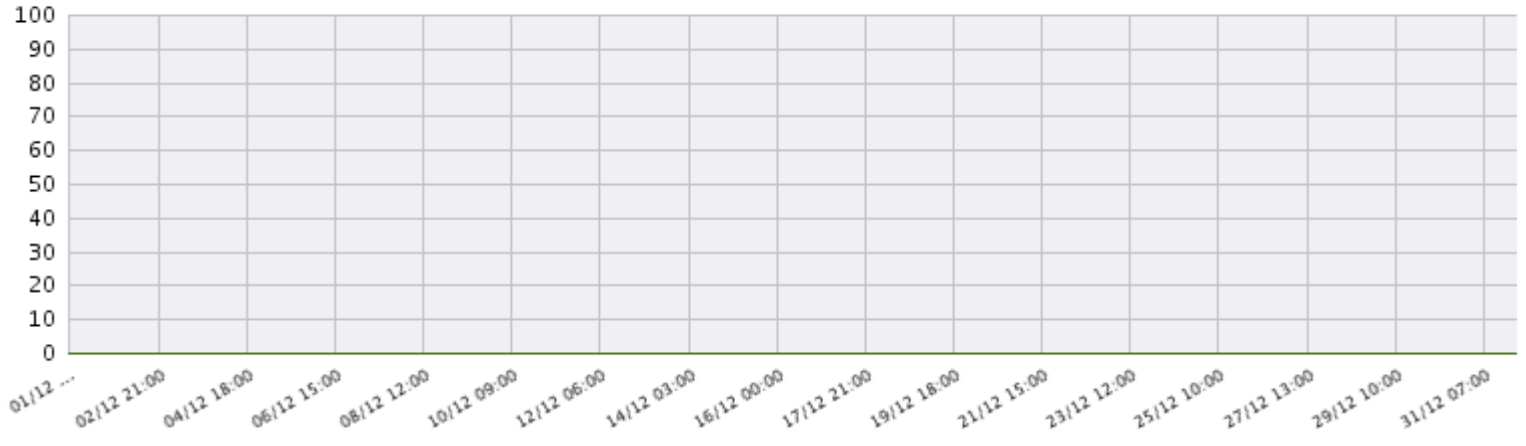
Policy Map (kbps)



Class_Map_Name

class-default CRITICAL No Match PRIORITY VIDEO VOZ

Drops (kbps)



Class_Map_Name

class-default CRITICAL No Match PRIORITY VIDEO VOZ

Reporte de Calidad de Servicio, Diciembre 2015

INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873

Level (3) COMMUNICATIONS

Connecting and Protecting the Networked World℠

NETWORK MANAGEMENT

CAPACIDAD Y RENDIMIENTO

Tráfico Entrada/Salida y Errores

INTERNATIONAL CIVIL AVIATION ORGANIZATION
1-7GO-1873

INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873

Level (3) COMMUNICATIONS

Connecting and Protecting the Networked World

Diciembre 2015

Reporte de Tráfico Entrada/Salida y Errores, Diciembre 2015

INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873

Level (3) COMMUNICATIONS
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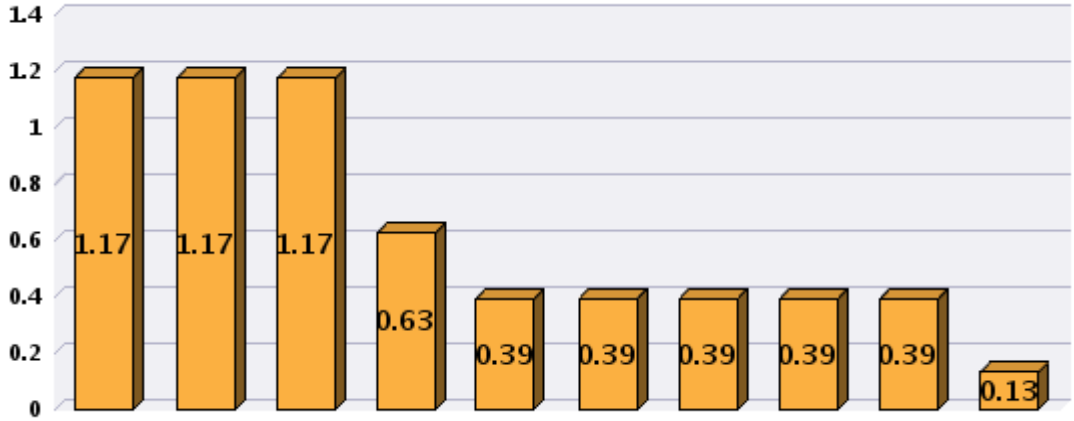
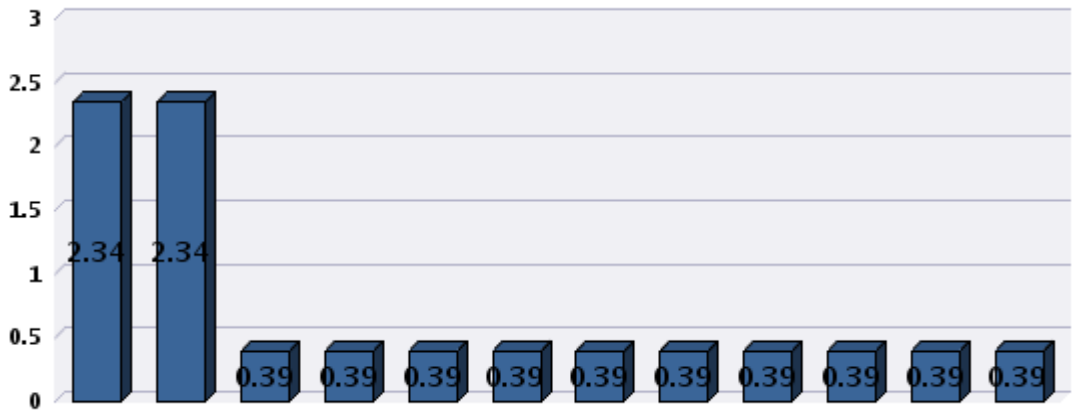
Top Percentil 95 IN (%)

OACI - BOLIVIA // ICAO_BOLIVIA.tigo.net.bo // GigabitEthernet0/1	OACI - COLOMBIA // ICAO_COLOMBIA // GigabitEthernet0/1	OACI - GUYANA FRANCESA // ICAO_FR_GUYANA.eq.ignetworks.com // GigabitEthernet0/1	OACI - BRASIL MANAUS // ICAO_MANAUSBRASIL // Multilink1	OACI - ARGENTINA // ICAO_ARGENTINA / / GigabitEthernet0/0	OACI - BOLIVIA // ICAO_BOLIVIA.tigo.net.bo // GigabitEthernet0/0	OACI - GUYANA FRANCESA // ICAO_FR_GUYANA.eq.ignetworks.com // GigabitEthernet0/0	OACI - LIMA // ICAO_PERU // GigabitEthernet0/0.2428	OACI - URUGUAY // ICAO_URUGUAY // GigabitEthernet0/0	OACI - BRASIL MANAUS // ICAO_MANAUSBRASIL // Serial0/0/0
1.17	1.17	1.17	0.63	0.39	0.39	0.39	0.39	0.39	0.13



Top Percentil 95 OUT (%)

OACI - BRASIL MANAUS // ICAO_MANAUSBRASIL // Multilink1	OACI - ECUADOR // ICAO_ECUADOR // GigabitEthernet0/0.1367	OACI - ARGENTINA // ICAO_ARGENTINA / / GigabitEthernet0/0	OACI - BOLIVIA // ICAO_BOLIVIA.tigo.net.bo // GigabitEthernet0/0	OACI - BOLIVIA // ICAO_BOLIVIA.tigo.net.bo // GigabitEthernet0/1	OACI - CHILE // ICAO_CHILE.yourdomain.com / / GigabitEthernet0/0	OACI - COLOMBIA // ICAO_COLOMBIA // GigabitEthernet0/0	OACI - GUYANA FRANCESA // ICAO_FR_GUYANA.eq.ignetworks.com // GigabitEthernet0/1	OACI - LIMA // ICAO_PERU // GigabitEthernet0/0.2428	OACI - PARAGUAY // ICAO_PARAGUAY.ineo.com.py // GigabitEthernet0/0	OACI - TRINIDAD & TOBAGO // ICAO_TRINIDAD.yourdomain.com // GigabitEthernet0/0	OACI - URUGUAY // ICAO_URUGUAY // GigabitEthernet0/0
2.34 %	2.34 %	0.39 %	0.39 %	0.39 %	0.39 %	0.39 %	0.39 %	0.39 %	0.39 %	0.39 %	0.39 %



Reporte de Tráfico Entrada/Salida y Errores, Diciembre 2015

INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873

Level 3 COMMUNICATIONS
Connecting and Protecting the Networked World

Resumen:

						Tráfico Entrada					Tráfico Salida				
Sede	**IP Loopback**	**Nombre de Interfaz**	**Alias**	**BW [Kbps]**	**Errores Prom**	**Min [%]**	**ROM [%]**	**Pe95 [%]**	**Max [%]**	**# Picos > 75%**	**Min [%]**	**ROM [%]**	**Pe95 [%]**	**Max [%]**	**# Picos > 75%**
OACI - ARGENTINA ICAO_ARGENTINA	172.21.6.193	GigabitEthernet0/0	WAN	256	0	0.00	0.09	0.39	9.77	0.00	0.00	0.25	0.39	4.30	0.00
		GigabitEthernet0/1	LAN	100000	0	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.03	0.00
OACI - BOLIVIA ICAO_BOLIVIA.tigo.net.bo	172.21.6.204	GigabitEthernet0/0	---- WAN CLIENTE HACIA BBIP ----	256	0	0.00	0.08	0.39	0.39	0.00	0.00	0.04	0.39	0.78	0.00
		GigabitEthernet0/0/0	Iface Fisica Acceso	1000000	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		GigabitEthernet0/0/0.1000	Iface trafico	1000000		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		GigabitEthernet0/0/0.500	Iface O&M	1000000		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		GigabitEthernet0/1	--- LAN INTERNA ---	256	0	0.78	0.90	1.17	1.56	1.00	0.00	0.13	0.39	0.78	0.00
OACI - BRASIL CURITIBA ICAO_CURITIBA	172.20.26.63	GigabitEthernet0/0	LAN	1000000	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		Multilink1	WAN	256	0	0.00	0.01	0.00	0.39	0.00	0.00	0.01	0.00	0.78	0.00
		Serial0/0/0	WAN	256	0	0.00	0.01	0.00	0.78	0.00	0.00	0.01	0.00	0.78	0.00
OACI - BRASIL MANAUS ICAO_MANAUSBRASIL	172.21.6.192	GigabitEthernet0/0	LAN	1000000	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00
		Multilink1	WAN_P24941_1BRAA01D.0007	256	0	0.00	0.56	0.63	26.17	1.00	0.00	2.34	2.34	2.73	2.00
		Serial0/0/0	WAN_P24941_1BRAA01D.0007	1544	0	0.00	0.09	0.13	4.60	0.00	0.00	0.39	0.39	0.45	0.00
OACI - BRASIL RECIFE ICAO_RECIFE	172.20.26.62	GigabitEthernet0/0	LAN	1000000	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		Multilink1	WAN_P24944_1BRAA01D.0006	256	0	0.00	0.04	0.00	3.52	0.00	0.00	0.00	0.00	0.78	0.00
		Serial0/0/0	WAN_P24944_1BRAA01D.0006	256	0	0.00	0.04	0.00	3.91	0.00	0.00	0.00	0.00	0.78	0.00

Reporte de Tráfico Entrada/Salida y Errores, Diciembre 2015

INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873

Level 3 COMMUNICATIONS
Connecting and Protecting the Networked World

						Tráfico Entrada					Tráfico Salida				
Sede	**IP Loopback**	**Nombre de Interfaz**	**Alias**	**BW [Kbps]**	**Errores Prom**	**Min [%]**	**ROM [%]**	**Pe95 [%]**	**Max [%]**	**# Picos > 75%**	**Min [%]**	**ROM [%]**	**Pe95 [%]**	**Max [%]**	**# Picos > 75%**
OACI - CHILE ICAO_CHILE.yourdomain.com	172.21.6.197	GigabitEthernet0/0	WAN_Movistar	256	0	0.00	0.01	0.00	1.17	0.00	0.39	0.39	0.39	1.17	0.00
		GigabitEthernet0/1	LAN PRINCIPAL	1000000	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OACI - COLOMBIA ICAO_COLOMBIA	172.21.6.196	GigabitEthernet0/0	---- WAN CLIENTE HACIA BBIP ----	256	0	0.00	0.01	0.00	0.78	0.00	0.39	0.39	0.39	0.78	0.00
		GigabitEthernet0/1	--- LAN INTERNA ---	256	0	0.78	0.97	1.17	1.56	1.00	0.00	0.01	0.00	1.17	0.00
OACI - ECUADOR ICAO_ECUADOR	172.21.6.195	GigabitEthernet0/0.1367	WAN	256		0.00	0.03	0.00	2.34	0.00	0.00	0.95	2.34	34.77	1.00
OACI - GUYANA ICAO_GUYANA.yourdomain.com	172.21.6.200	GigabitEthernet0/0	WAN	100000	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		GigabitEthernet0/1	LAN	1000000	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OACI - GUYANA FRANCESA ICAO_FR_GUYANA.eq.ignetworks.com	172.21.6.201	GigabitEthernet0/0	---- WAN CLIENTE HACIA BBIP ----	256	0	0.00	0.08	0.39	0.78	0.00	0.00	0.00	0.00	0.78	0.00
		GigabitEthernet0/1	--- LAN INTERNA ---	256	0	0.00	0.80	1.17	1.56	1.00	0.00	0.21	0.39	0.78	0.00
OACI - LIMA ICAO_PERU	172.20.26.50	GigabitEthernet0/0.2428	WAN	256		0.39	0.48	0.39	11.72	1.00	0.39	0.55	0.39	25.78	1.00
OACI - PARAGUAY ICAO_PARAGUAY.ineo.com.py	172.21.6.199	GigabitEthernet0/0	a psr1.ats1.eze interface ae2.501	256	0	0.00	0.01	0.00	1.56	0.00	0.39	0.40	0.39	3.52	0.00
		GigabitEthernet0/1	Customer_LAN	1000000	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OACI - SURINAME ICAO_SURINAME.yourdomain.com	172.21.6.203	GigabitEthernet0/0	WAN	256	0	0.00	0.01	0.00	0.39	0.00	0.00	0.00	0.00	0.39	0.00
		GigabitEthernet0/1	LAN	1000000	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OACI - TRINIDAD & TOBAGO ICAO_TRINIDAD.yourdomain.com	172.21.6.194	GigabitEthernet0/0	a rpar1.sfd1.sfd GigabitEthernet0/1.210	256	0	0.00	0.00	0.00	0.39	0.00	0.39	0.40	0.39	2.34	0.00
		GigabitEthernet0/1	Customer_LAN	100000	0	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00
OACI - URUGUAY ICAO_URUGUAY	172.21.6.198	GigabitEthernet0/0	WAN a psr1.ats1.eze ae0.2324	256	0	0.39	0.42	0.39	12.11	0.00	0.00	0.28	0.39	17.58	0.00

Reporte de Tráfico Entrada/Salida y Errores, Diciembre 2015

INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873

Level (3) COMMUNICATIONS
Connecting and Protecting the Networked World℠

						Tráfico Entrada					Tráfico Salida				
Sede	**IP Loopback**	**Nombre de Interfaz**	**Alias**	**BW [Kbps]**	**Errores Prom**	**Min [%]**	**ROM [%]**	**Pe95 [%]**	**Max [%]**	**# Picos > 75%**	**Min [%]**	**ROM [%]**	**Pe95 [%]**	**Max [%]**	**# Picos > 75%**
OACI - URUGUAY ICAO_URUGUAY	172.21.6.198	GigabitEthernet0/1	LAN de DATOS	1000000	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OACI - VENEZUELA ICAO_VENEZUELA	172.21.6.202	GigabitEthernet0/0.2196	"CONEXION WAN"	256		0.00	0.01	0.00	0.78	0.00	0.00	0.01	0.00	0.39	0.00
		GigabitEthernet0/1	"CONEXION LAN"	1000000	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Reporte de Tráfico Entrada/Salida y Errores, Diciembre 2015

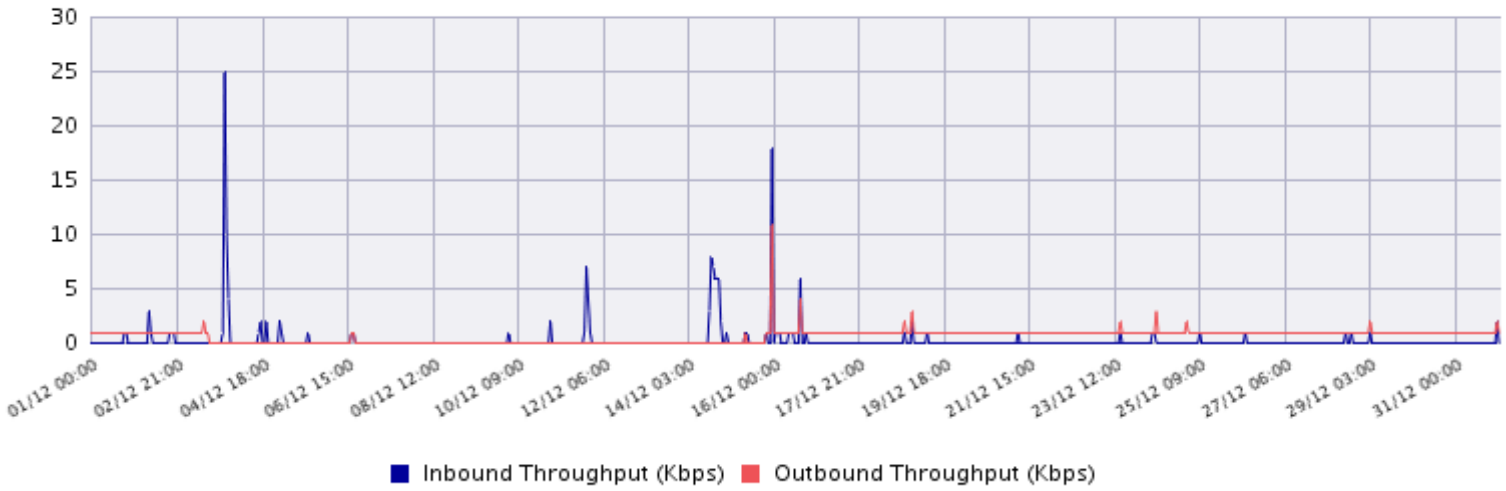
INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873

Level (3) COMMUNICATIONS
Connecting and Protecting the Networked World℠

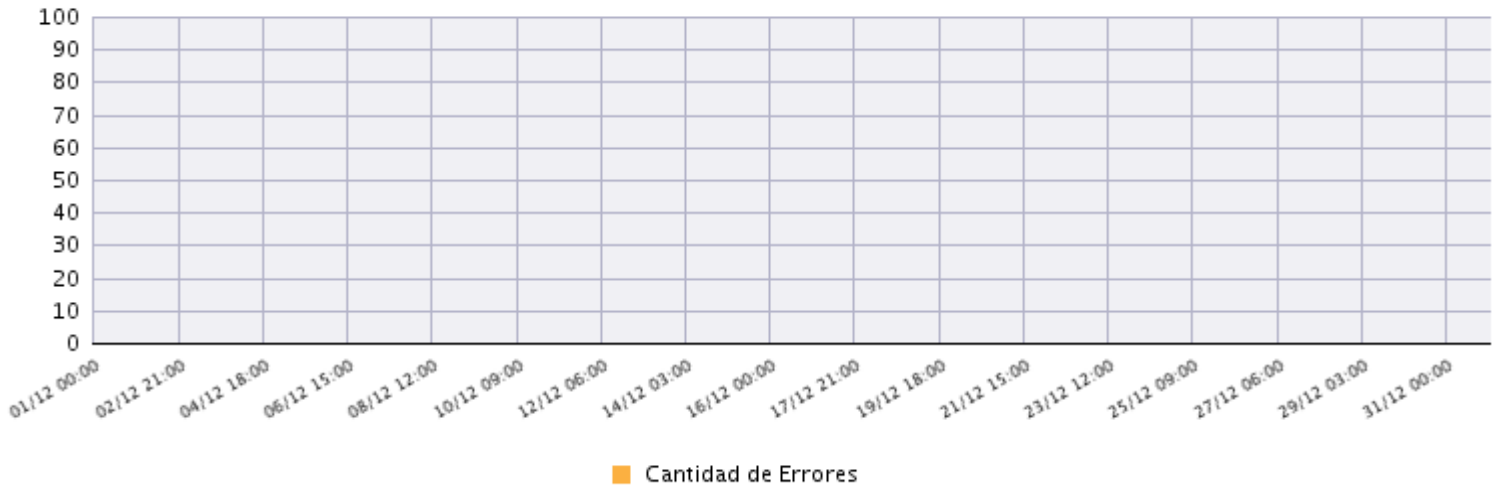
Sede	**OACI - ARGENTINA**
Equipo	**ICAO_ARGENTINA**
Modelo	**Cisco1921k9**
IP de Gestión	**(172.21.6.193)**
Ciudad	**Ezeiza**

Interface: GigabitEthernet0/0 - WAN - Bandwidth: 256 Kbps

VALUES [Kbps]: PROM: (In: 0.22 | Out: 0.64) - MAX (In: 25 | Out: 11) - MIN (In: 0 | Out: 0) - PE95 (In: 1 | Out: 1)



Cantidad de Errores: 0



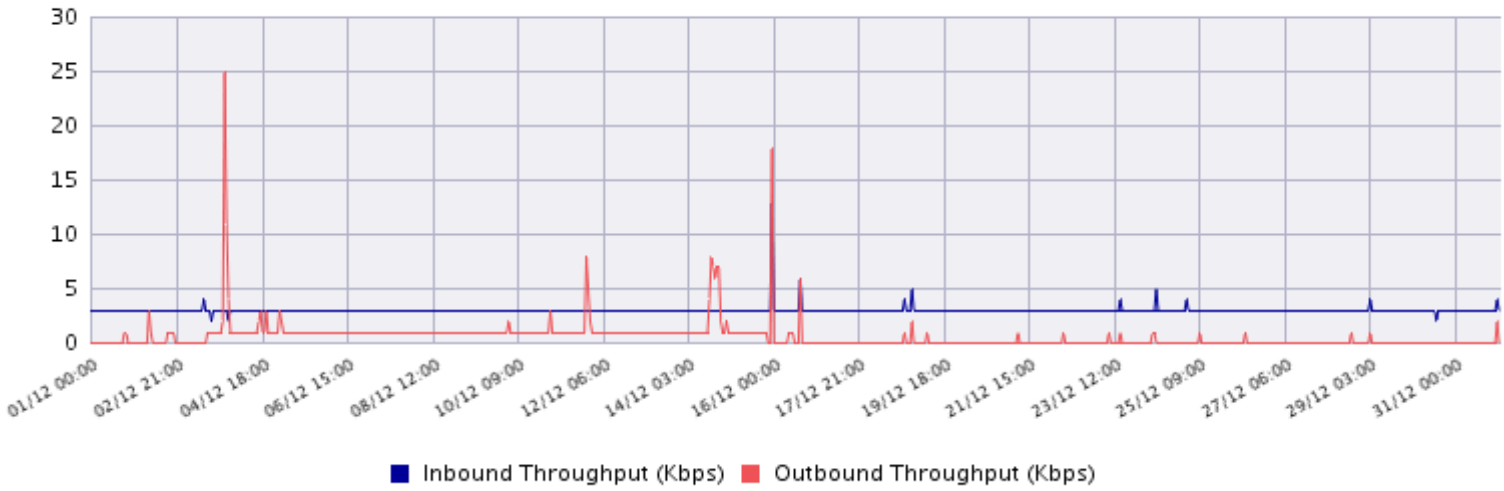
Reporte de Tráfico Entrada/Salida y Errores, Diciembre 2015

INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873

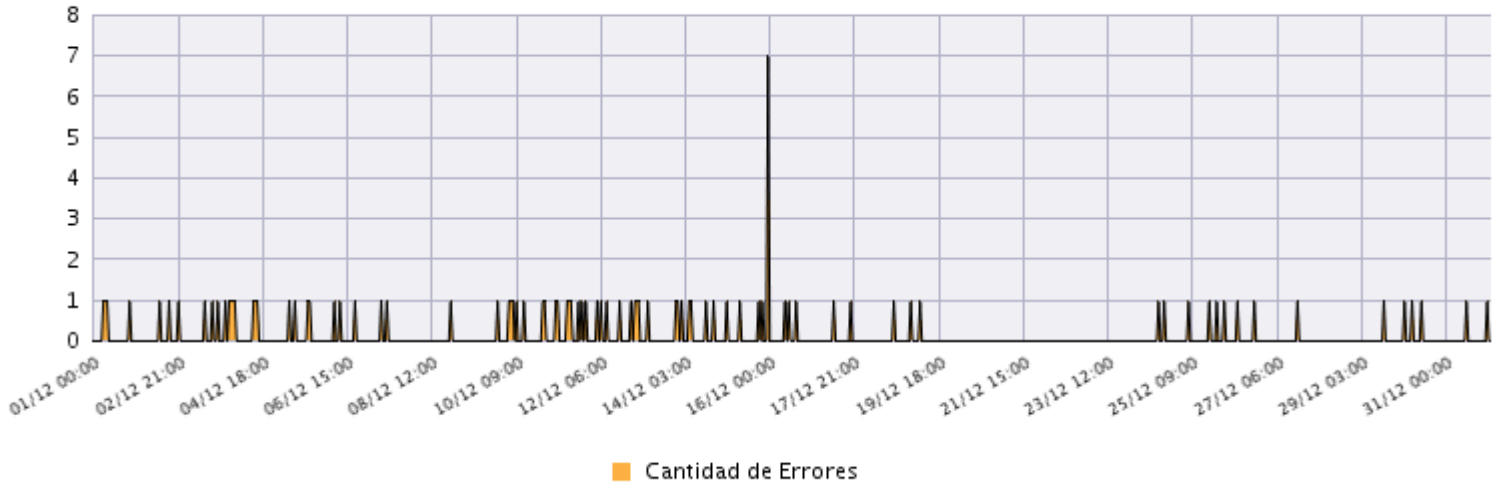
Level (3) COMMUNICATIONS
Connecting and Protecting the Networked World℠

Interface: GigabitEthernet0/1 - LAN - Bandwidth: 100,000 Kbps

VALUES [Kbps]: PROM: (In: 3.03 | Out: 0.6) - MAX (In: 13 | Out: 25) - MIN (In: 2 | Out: 0) - PE95 (In: 3 | Out: 1)



Cantidad de Errores: 0



Reporte de Tráfico Entrada/Salida y Errores, Diciembre 2015

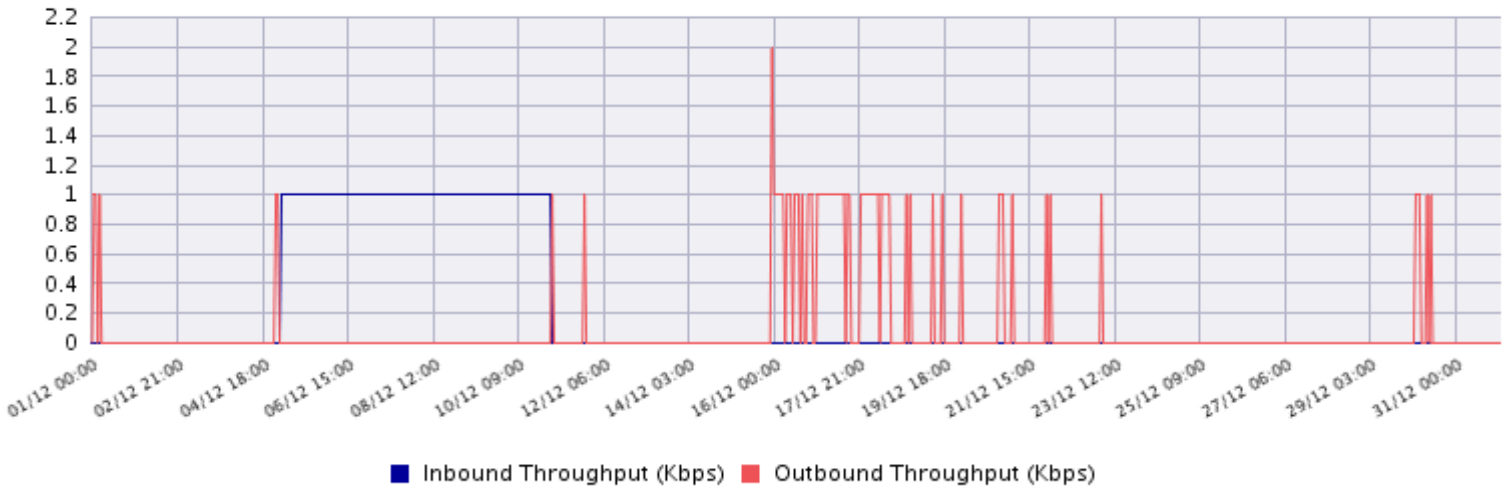
INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873

Level (3) COMMUNICATIONS
Connecting and Protecting the Networked World℠

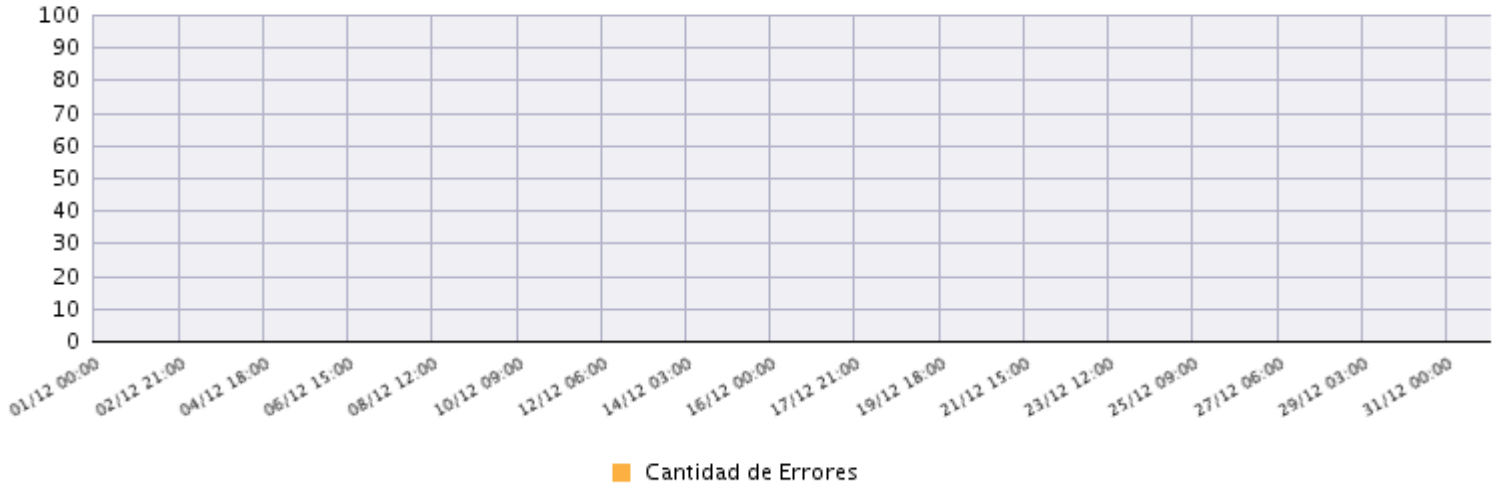
Sede	**OACI - BOLIVIA**
Equipo	**ICAO_BOLIVIA.tigo.net.bo**
Modelo	**Cisco1921k9**
IP de Gestión	**(172.21.6.204)**
Ciudad	**La Paz**

Interface: GigabitEthernet0/0 - ---- WAN CLIENTE HACIA BBIP ---- - Bandwidth: 256 Kbps

VALUES [Kbps]: PROM: (In: 0.19 | Out: 0.1) - MAX (In: 1 | Out: 2) - MIN (In: 0 | Out: 0) - PE95 (In: 1 | Out: 1)



Cantidad de Errores: 0



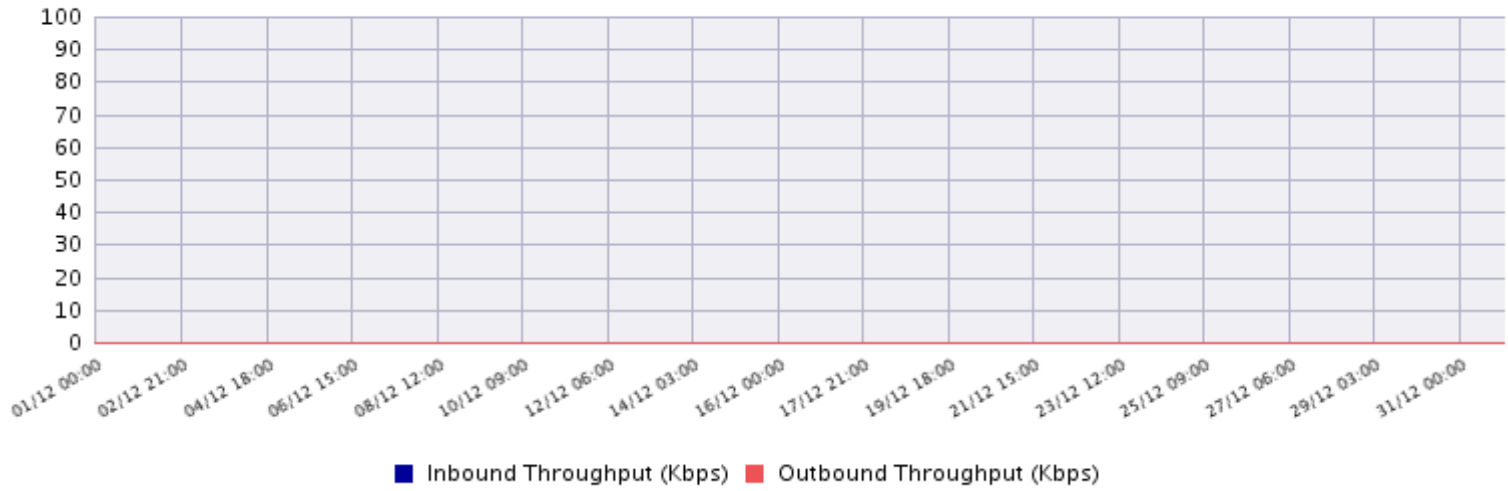
Reporte de Tráfico Entrada/Salida y Errores, Diciembre 2015

INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873

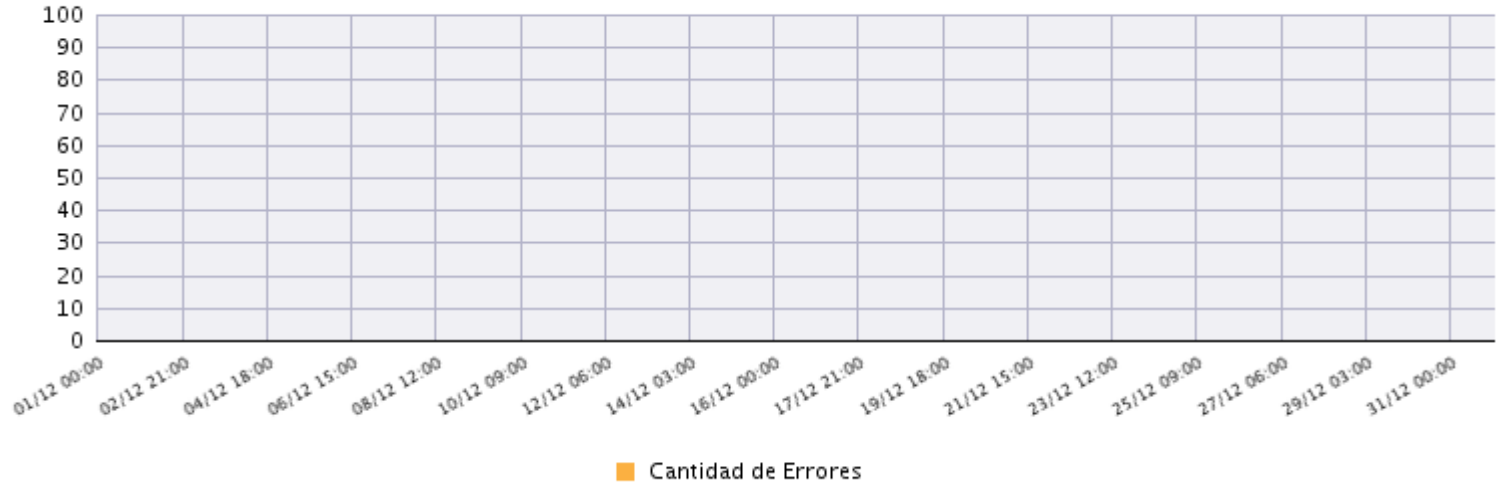
Level (3) COMMUNICATIONS
Connecting and Protecting the Networked World℠

Interface: GigabitEthernet0/0/0 - Iface Fisica Acceso - Bandwidth: 1,000,000 Kbps

VALUES [Kbps]: PROM: (In: 0 | Out: 0) - MAX (In: 0 | Out: 0) - MIN (In: 0 | Out: 0) - PE95 (In: 0 | Out: 0)



Cantidad de Errores: 0



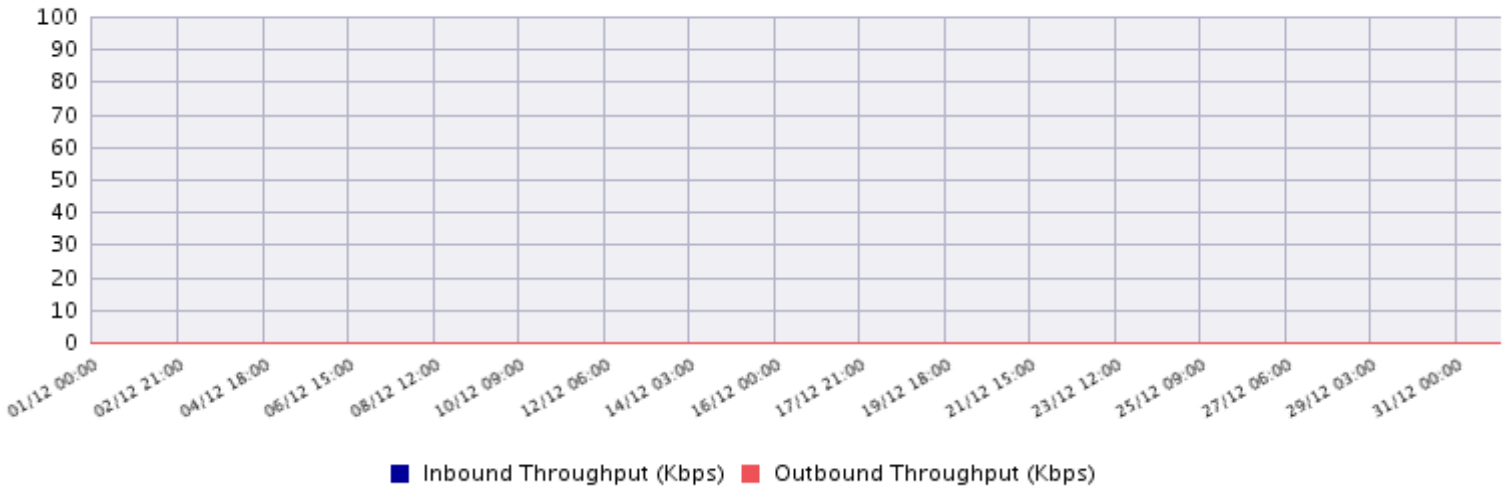
Reporte de Tráfico Entrada/Salida y Errores, Diciembre 2015

INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873

Level (3) COMMUNICATIONS
Connecting and Protecting the Networked World℠

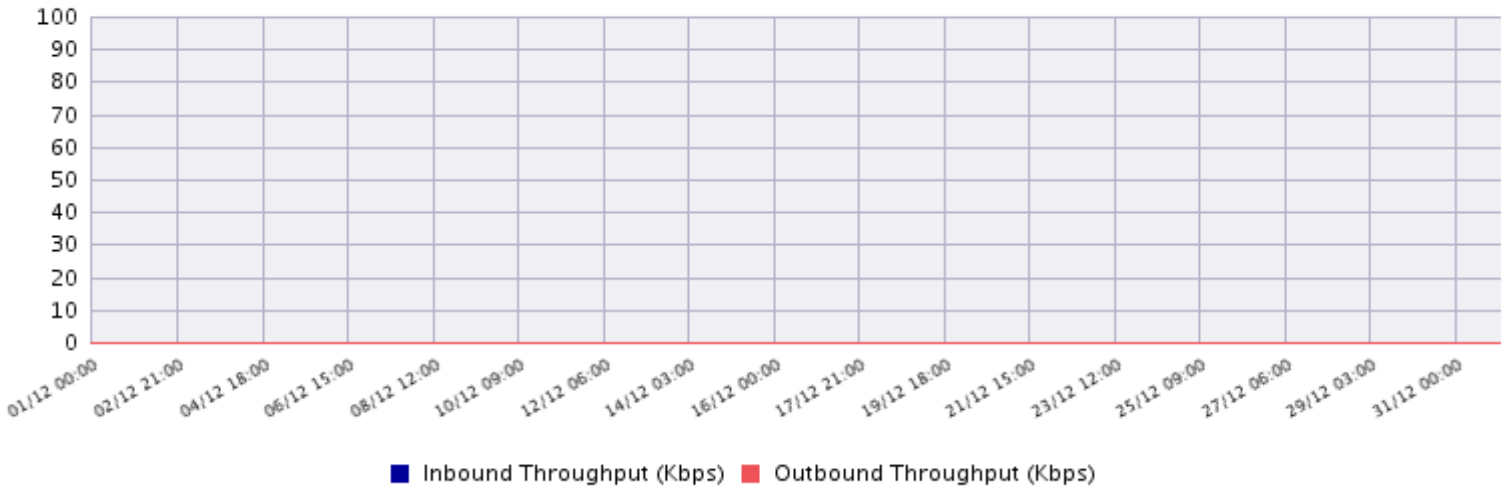
Interface: GigabitEthernet0/0/0.1000 - Iface trafico - Bandwidth: 1,000,000 Kbps

VALUES [Kbps]: PROM: (In: 0 | Out: 0) - MAX (In: 0 | Out: 0) - MIN (In: 0 | Out: 0) - PE95 (In: 0 | Out: 0)



Interface: GigabitEthernet0/0/0.500 - Iface O&M - Bandwidth: 1,000,000 Kbps

VALUES [Kbps]: PROM: (In: 0 | Out: 0) - MAX (In: 0 | Out: 0) - MIN (In: 0 | Out: 0) - PE95 (In: 0 | Out: 0)



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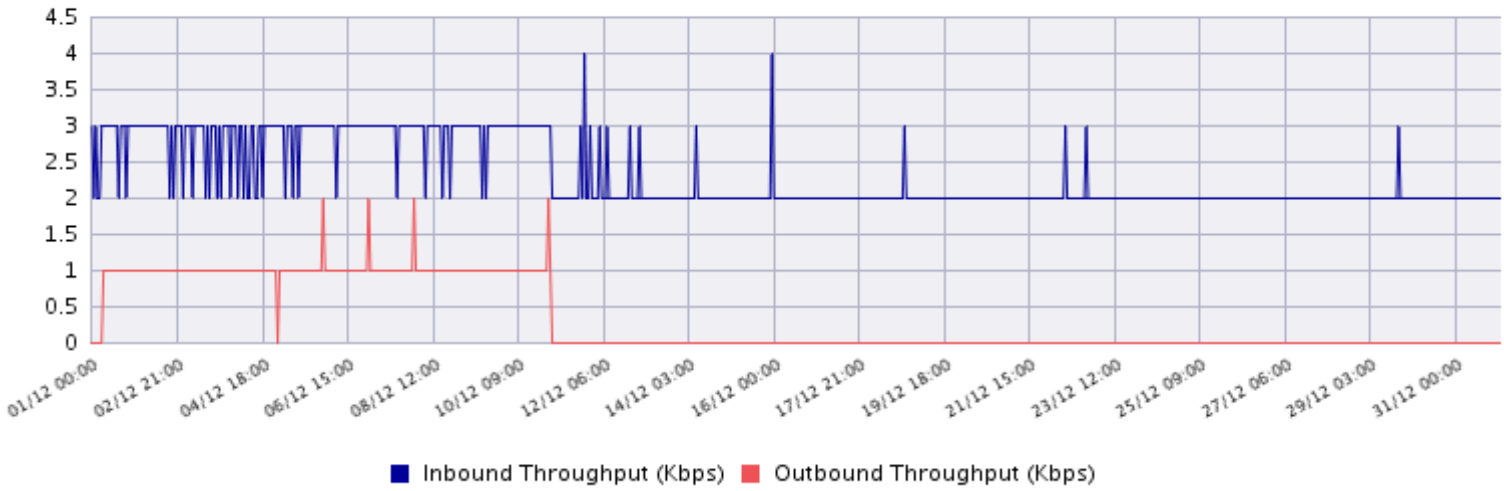
INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873

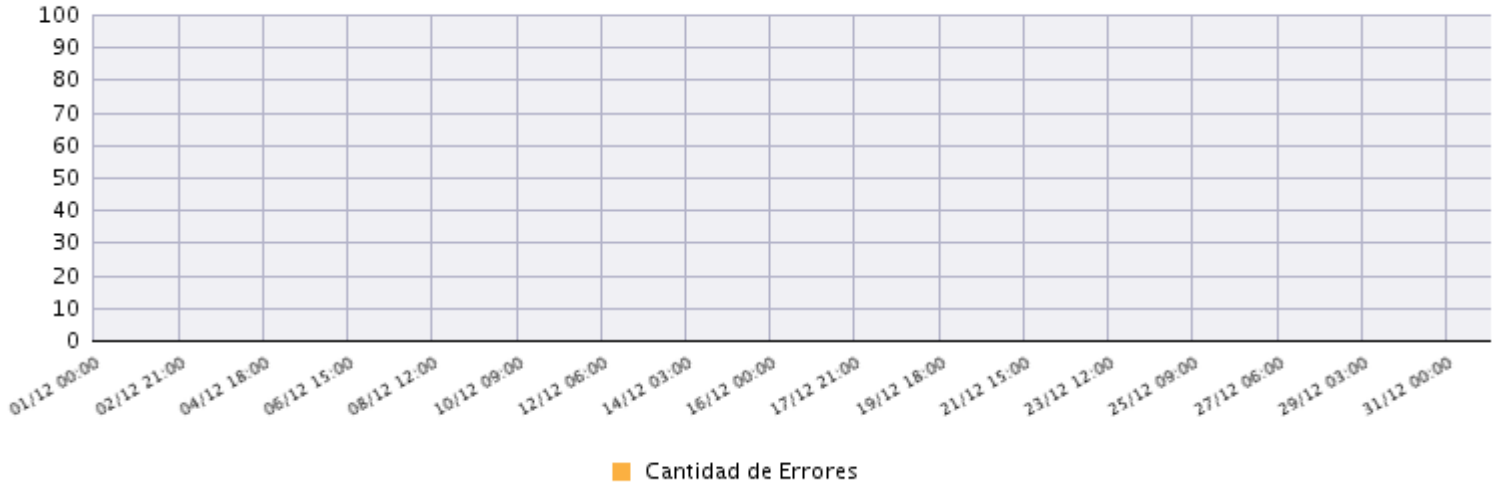
Level (3) COMMUNICATIONS
Connecting and Protecting the Networked World℠

Interface: GigabitEthernet0/1 - --- LAN INTERNA --- - Bandwidth: 256 Kbps

VALUES [Kbps]: PROM: (In: 2.31 | Out: 0.32) - MAX (In: 4 | Out: 2) - MIN (In: 2 | Out: 0) - PE95 (In: 3 | Out: 1)



Cantidad de Errores: 0



Reporte de Tráfico Entrada/Salida y Errores, Diciembre 2015

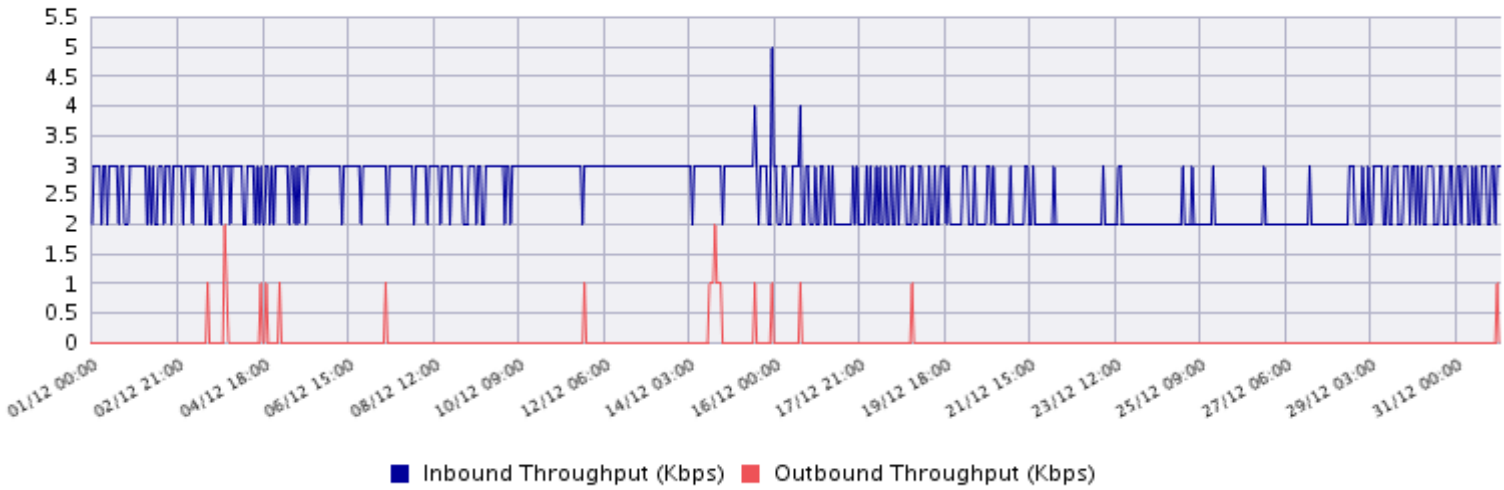
INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873

Level (3) COMMUNICATIONS
Connecting and Protecting the Networked World℠

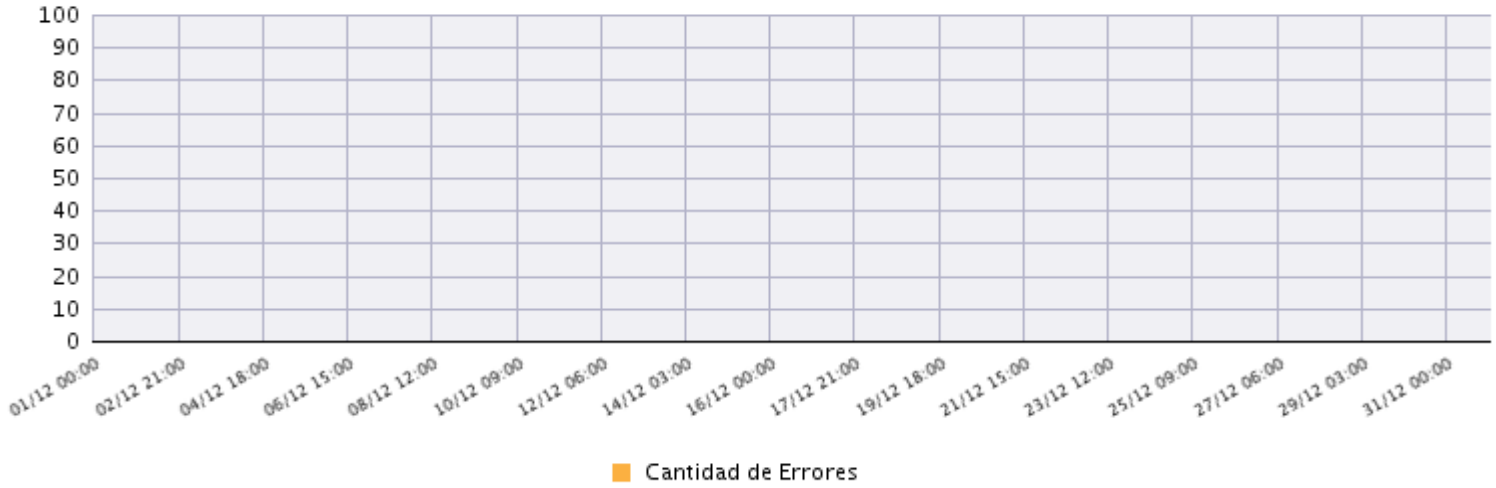
Sede	**OACI - BRASIL CURITIBA**
Equipo	**ICAO_CURITIBA**
Modelo	**Cisco1921k9**
IP de Gestión	**(172.20.26.63)**
Ciudad	**Curitiba**

Interface: GigabitEthernet0/0 - LAN - Bandwidth: 1,000,000 Kbps

VALUES [Kbps]: PROM: (In: 2.55 | Out: 0.03) - MAX (In: 5 | Out: 2) - MIN (In: 2 | Out: 0) - PE95 (In: 3 | Out: 0)



Cantidad de Errores: 0



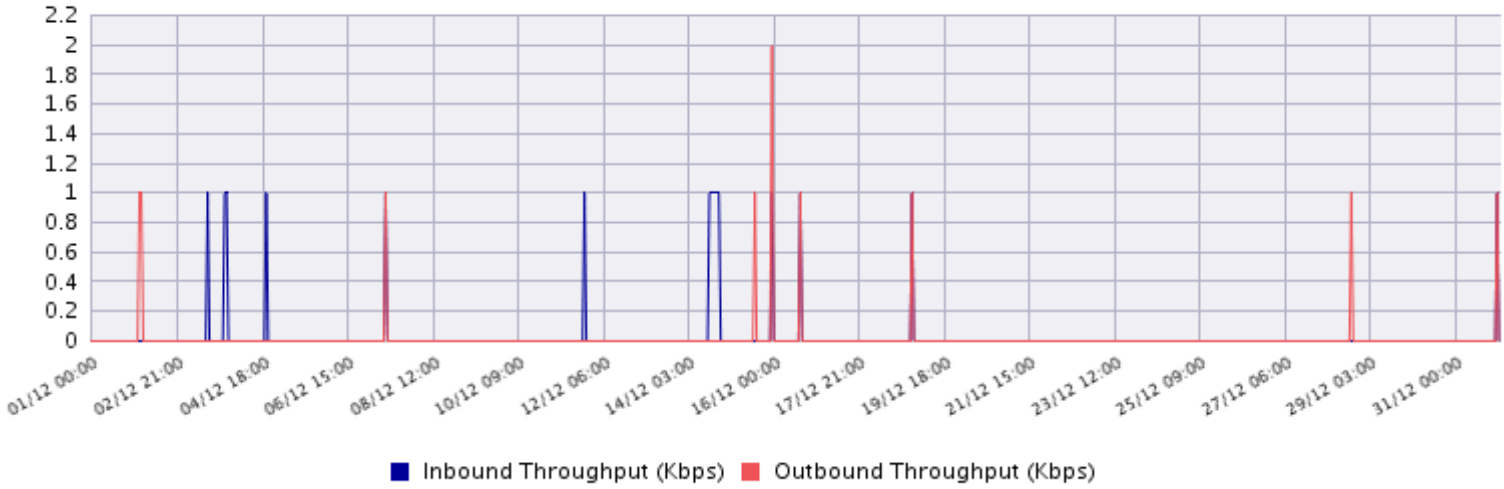
Reporte de Tráfico Entrada/Salida y Errores, Diciembre 2015

INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873

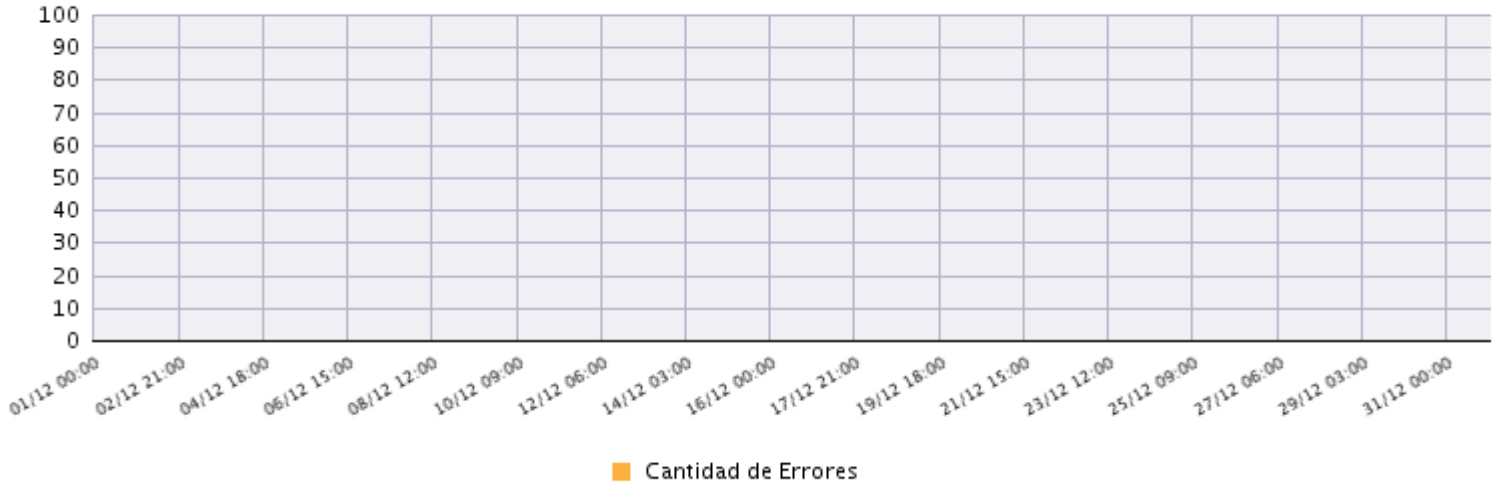
Level (3) COMMUNICATIONS
Connecting and Protecting the Networked World℠

Interface: Multilink1 - WAN - Bandwidth: 256 Kbps

VALUES [Kbps]: PROM: (In: 0.02 | Out: 0.01) - MAX (In: 1 | Out: 2) - MIN (In: 0 | Out: 0) - PE95 (In: 0 | Out: 0)



Cantidad de Errores: 0



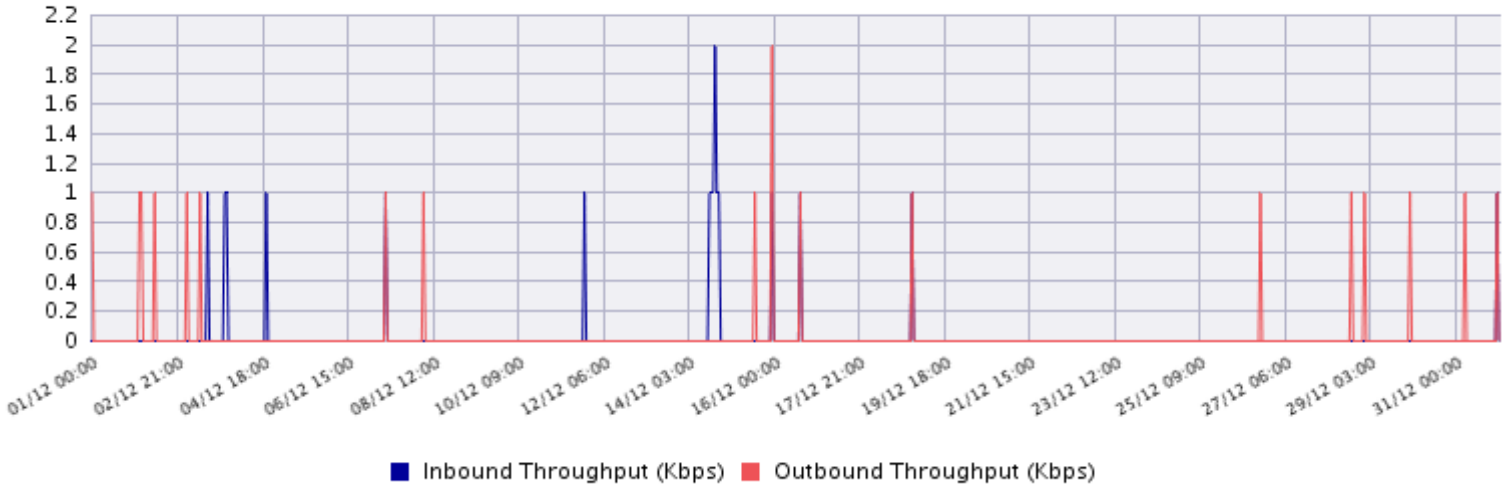
Reporte de Tráfico Entrada/Salida y Errores, Diciembre 2015

INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873

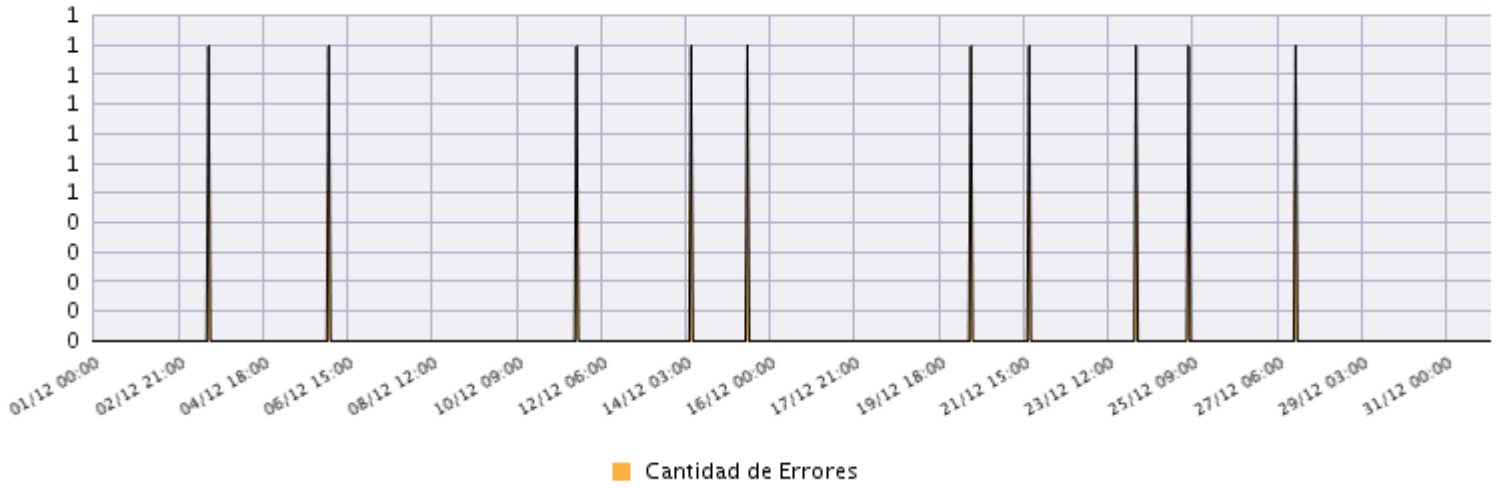
Level (3) COMMUNICATIONS
Connecting and Protecting the Networked World℠

Interface: Serial0/0/0 - WAN - Bandwidth: 256 Kbps

VALUES [Kbps]: PROM: (In: 0.02 | Out: 0.03) - MAX (In: 2 | Out: 2) - MIN (In: 0 | Out: 0) - PE95 (In: 0 | Out: 0)



Cantidad de Errores: 0



Reporte de Tráfico Entrada/Salida y Errores, Diciembre 2015

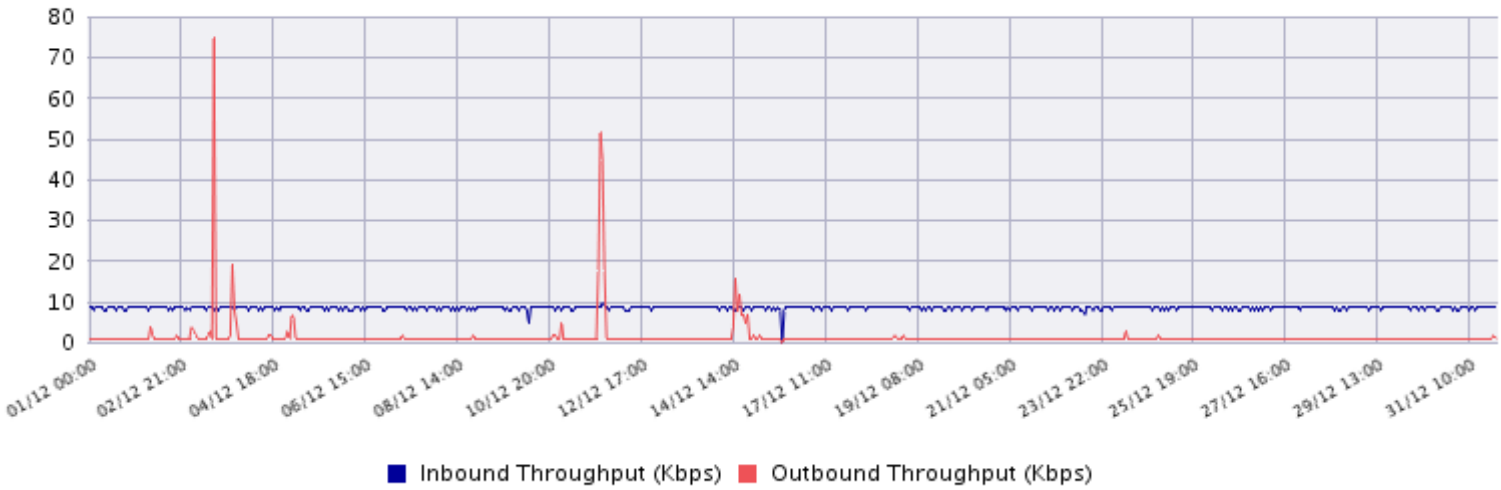
INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873

Level (3) COMMUNICATIONS
Connecting and Protecting the Networked World℠

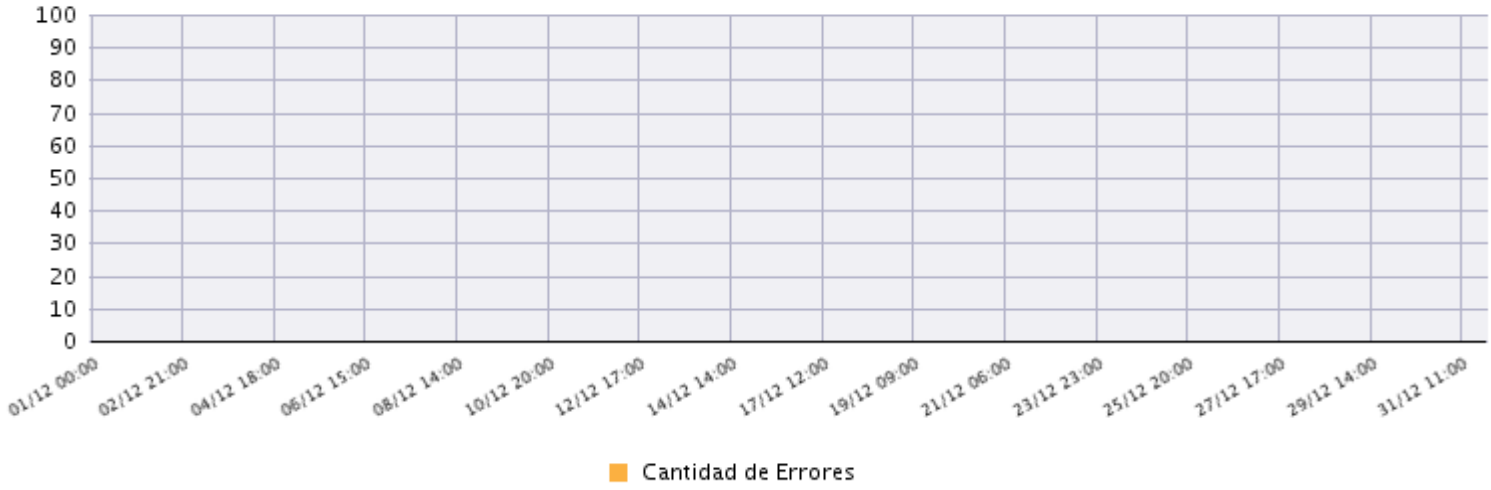
Sede	**OACI - BRASIL MANAUS**
Equipo	**ICAO_MANAUSBRASIL**
Modelo	**Cisco1921k9**
IP de Gestión	**(172.21.6.192)**
Ciudad	**Manaus**

Interface: GigabitEthernet0/0 - LAN - Bandwidth: 1,000,000 Kbps

VALUES [Kbps]: PROM: (In: 8.79 | Out: 1.49) - MAX (In: 10 | Out: 75) - MIN (In: 0 | Out: 0) - PE95 (In: 9 | Out: 2)



Cantidad de Errores: 0



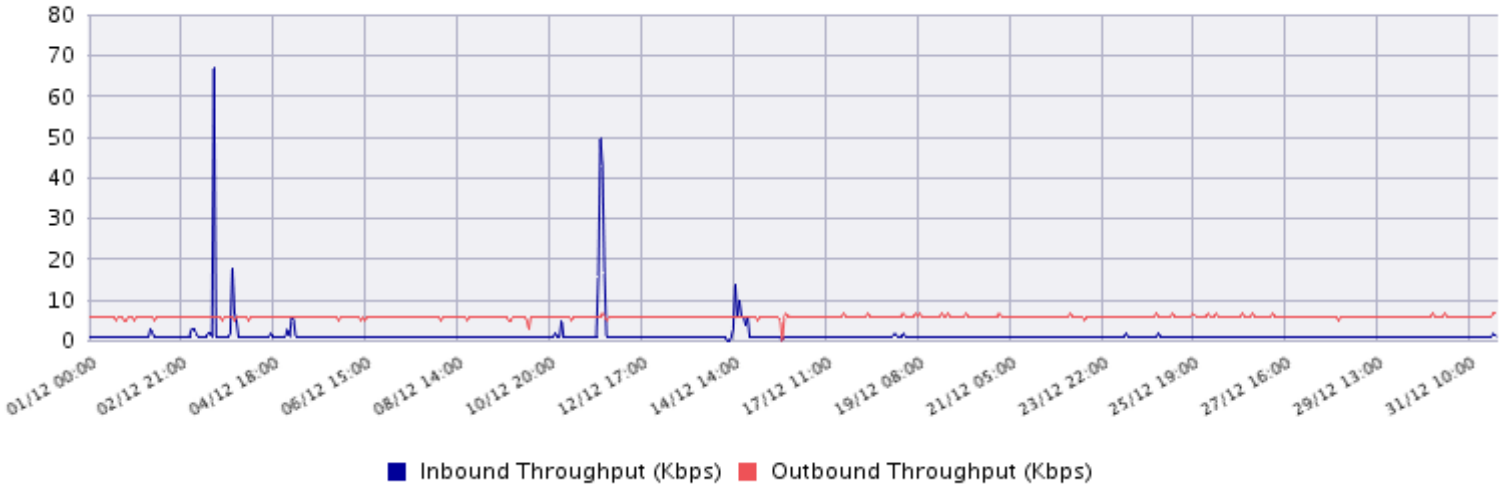
Reporte de Tráfico Entrada/Salida y Errores, Diciembre 2015

INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873

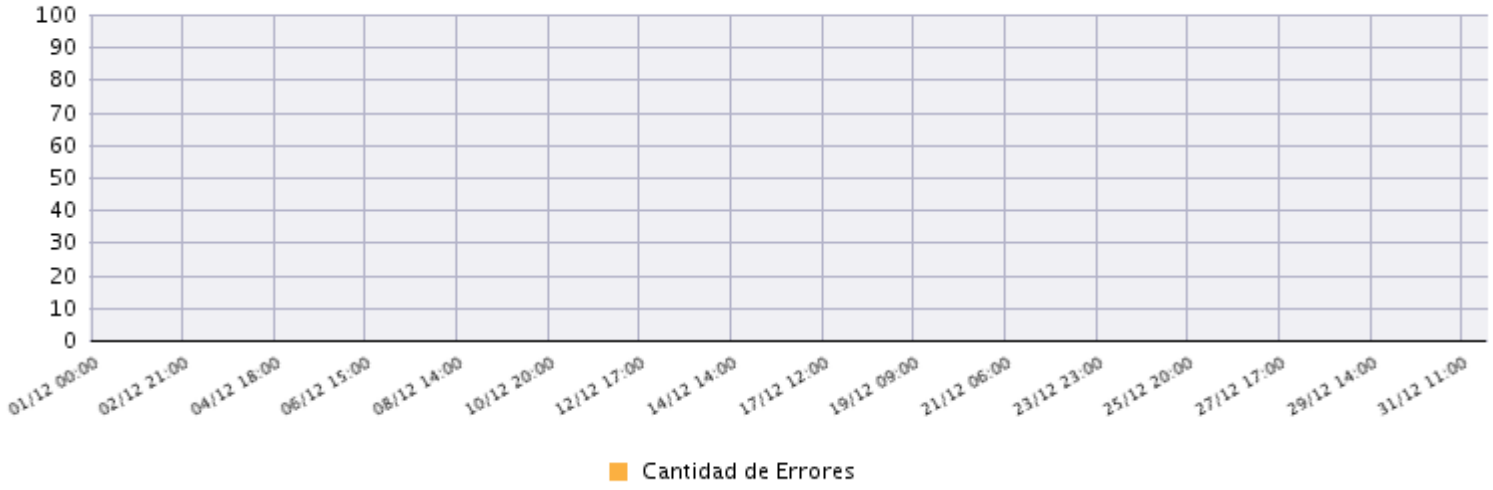
Level (3) COMMUNICATIONS
Connecting and Protecting the Networked World℠

Interface: Multilink1 - WAN_P24941_1BRAA01D.0007 - Bandwidth: 256 Kbps

VALUES [Kbps]: PROM: (In: 1.42 | Out: 5.99) - MAX (In: 67 | Out: 7) - MIN (In: 0 | Out: 0) - PE95 (In: 1.6 | Out: 6)



Cantidad de Errores: 0



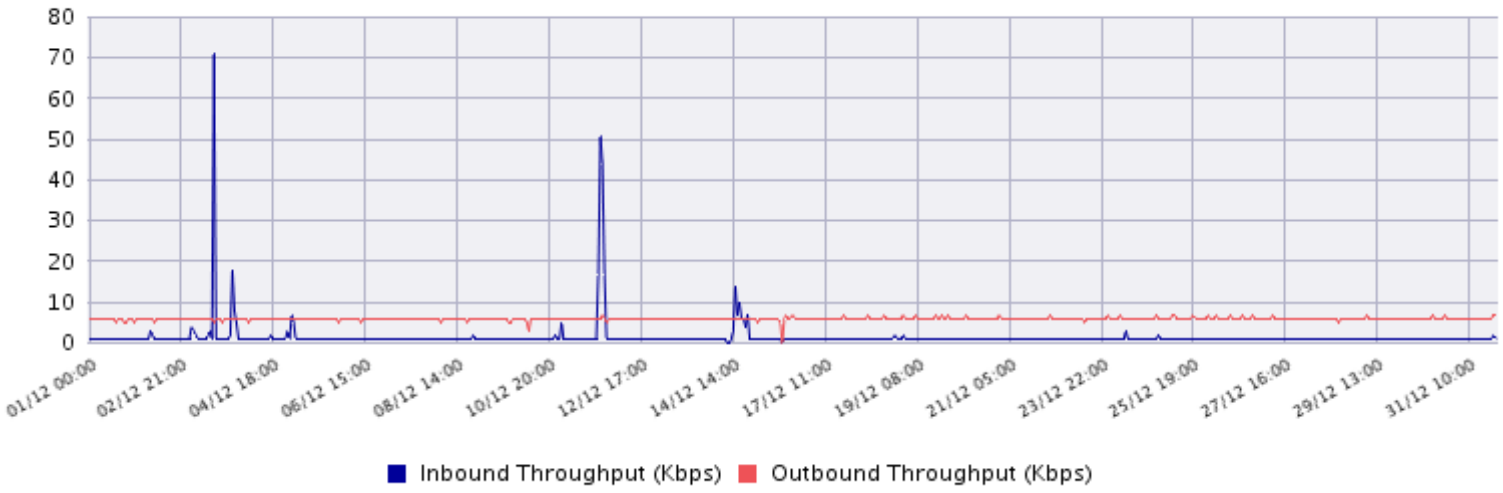
Reporte de Tráfico Entrada/Salida y Errores, Diciembre 2015

INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873

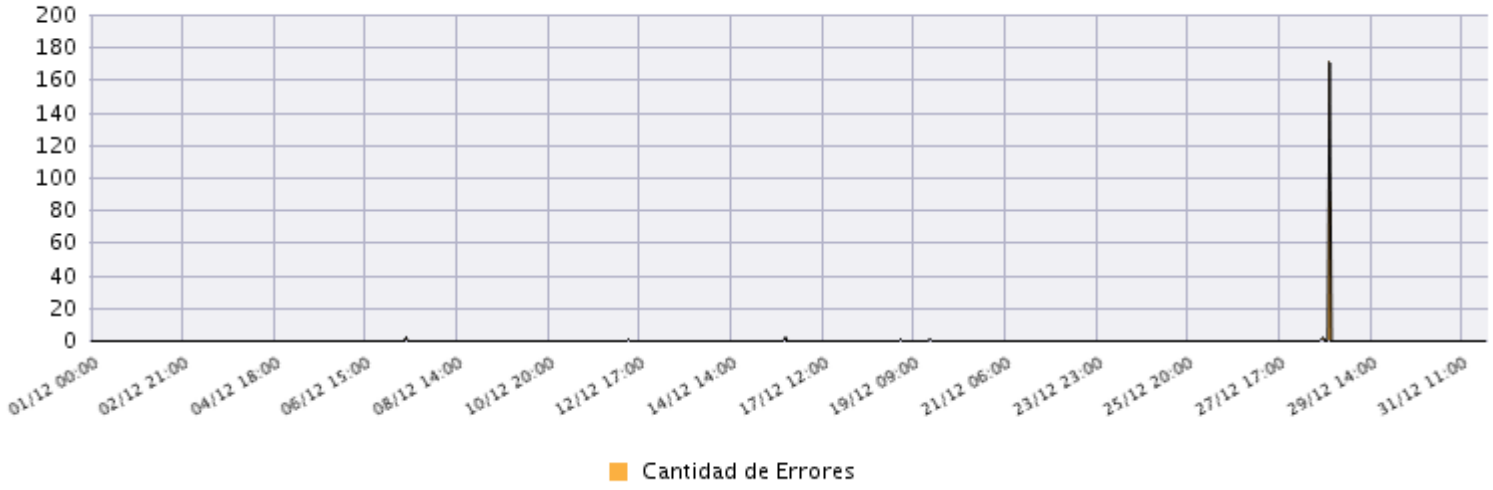
Level (3) COMMUNICATIONS
Connecting and Protecting the Networked World℠

Interface: Serial0/0/0 - WAN_P24941_1BRAA01D.0007 - Bandwidth: 1,544 Kbps

VALUES [Kbps]: PROM: (In: 1.45 | Out: 6) - MAX (In: 71 | Out: 7) - MIN (In: 0 | Out: 0) - PE95 (In: 2 | Out: 6)



Cantidad de Errores: 0



Reporte de Tráfico Entrada/Salida y Errores, Diciembre 2015

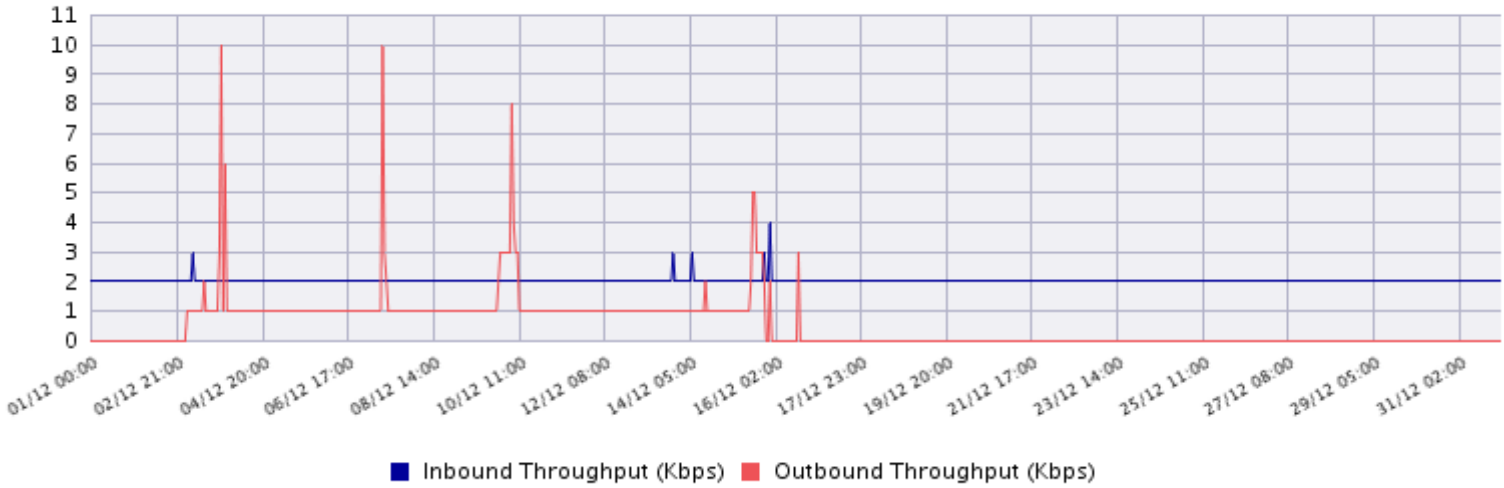
INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873

Level (3) COMMUNICATIONS
Connecting and Protecting the Networked World℠

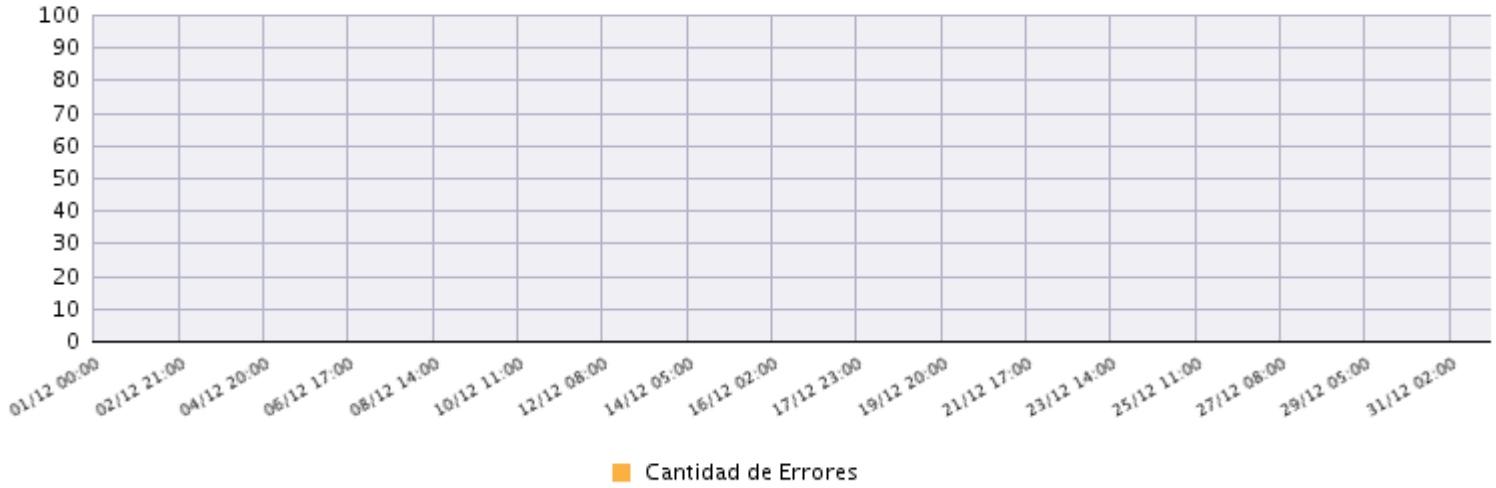
Sede	**OACI - BRASIL RECIFE**
Equipo	**ICAO_RECIFE**
Modelo	**Cisco1921k9**
IP de Gestión	**(172.20.26.62)**
Ciudad	**Recife**

Interface: GigabitEthernet0/0 - LAN - Bandwidth: 1,000,000 Kbps

VALUES [Kbps]: PROM: (In: 2.01 | Out: 0.52) - MAX (In: 4 | Out: 10) - MIN (In: 2 | Out: 0) - PE95 (In: 2 | Out: 1)



Cantidad de Errores: 0



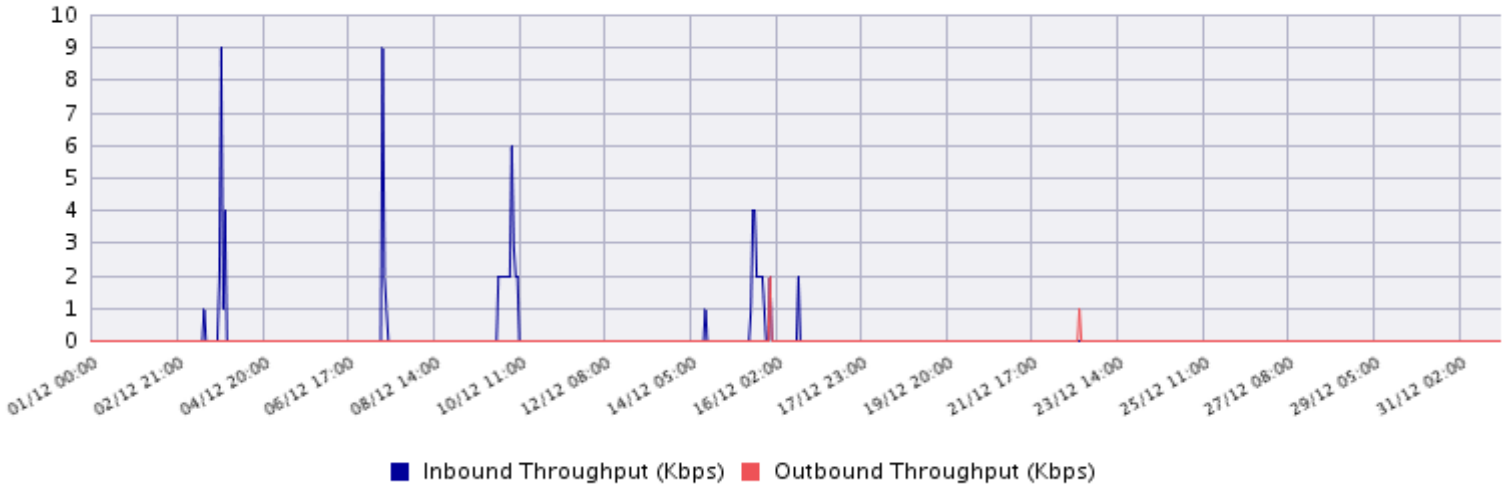
Reporte de Tráfico Entrada/Salida y Errores, Diciembre 2015

INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873

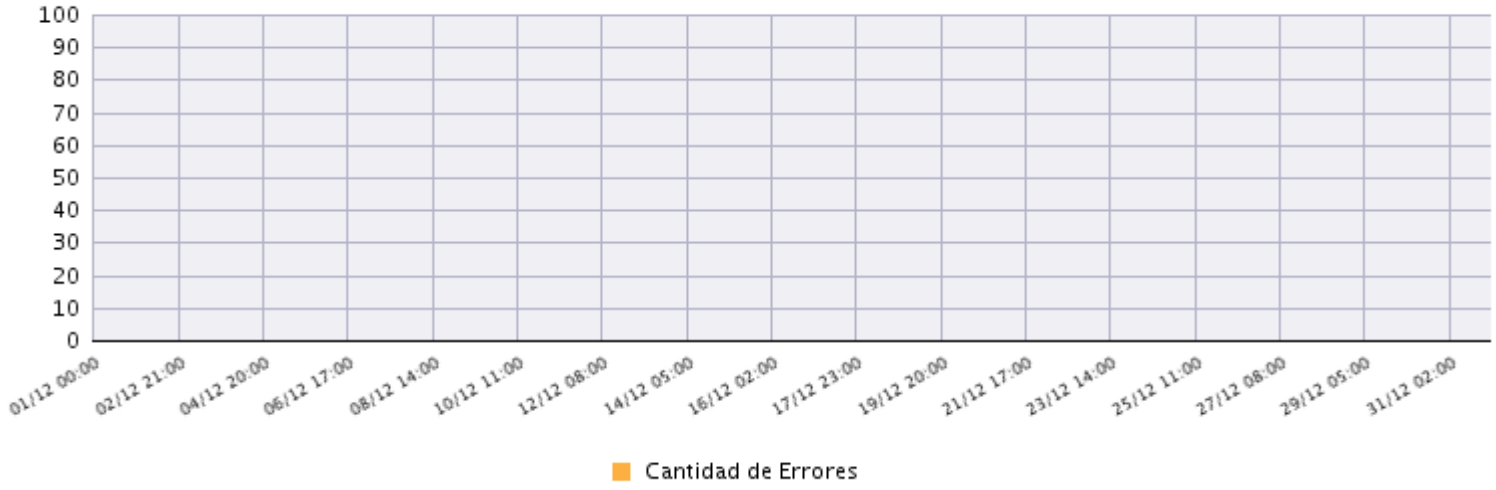
Level (3) COMMUNICATIONS
Connecting and Protecting the Networked World℠

Interface: Multilink1 - WAN_P24944_1BRAA01D.0006 - Bandwidth: 256 Kbps

VALUES [Kbps]: PROM: (In: 0.11 | Out: 0) - MAX (In: 9 | Out: 2) - MIN (In: 0 | Out: 0) - PE95 (In: 0 | Out: 0)



Cantidad de Errores: 0



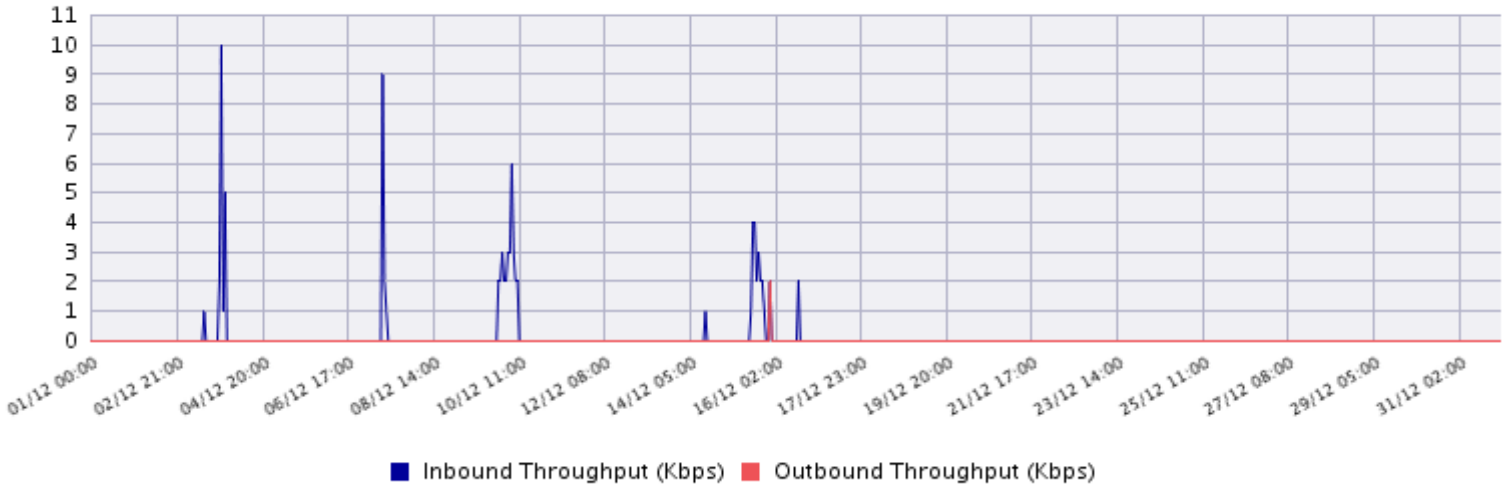
Reporte de Tráfico Entrada/Salida y Errores, Diciembre 2015

INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873

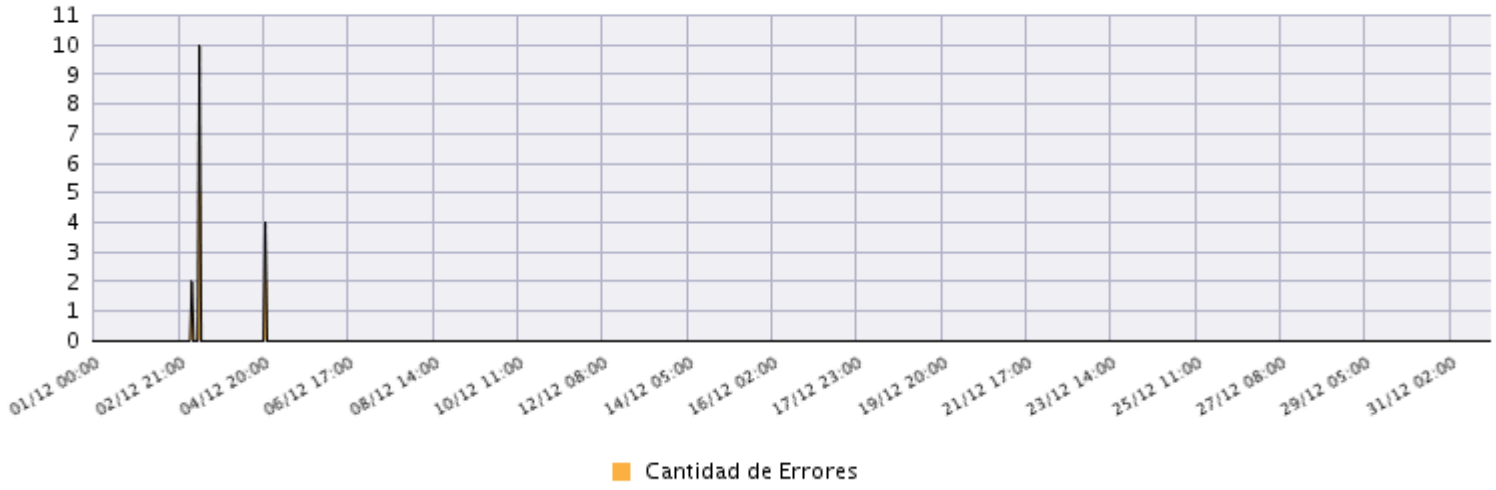
Level (3) COMMUNICATIONS
Connecting and Protecting the Networked World℠

Interface: Serial0/0/0 - WAN_P24944_1BRAA01D.0006 - Bandwidth: 256 Kbps

VALUES [Kbps]: PROM: (In: 0.11 | Out: 0) - MAX (In: 10 | Out: 2) - MIN (In: 0 | Out: 0) - PE95 (In: 0 | Out: 0)



Cantidad de Errores: 0



Reporte de Tráfico Entrada/Salida y Errores, Diciembre 2015

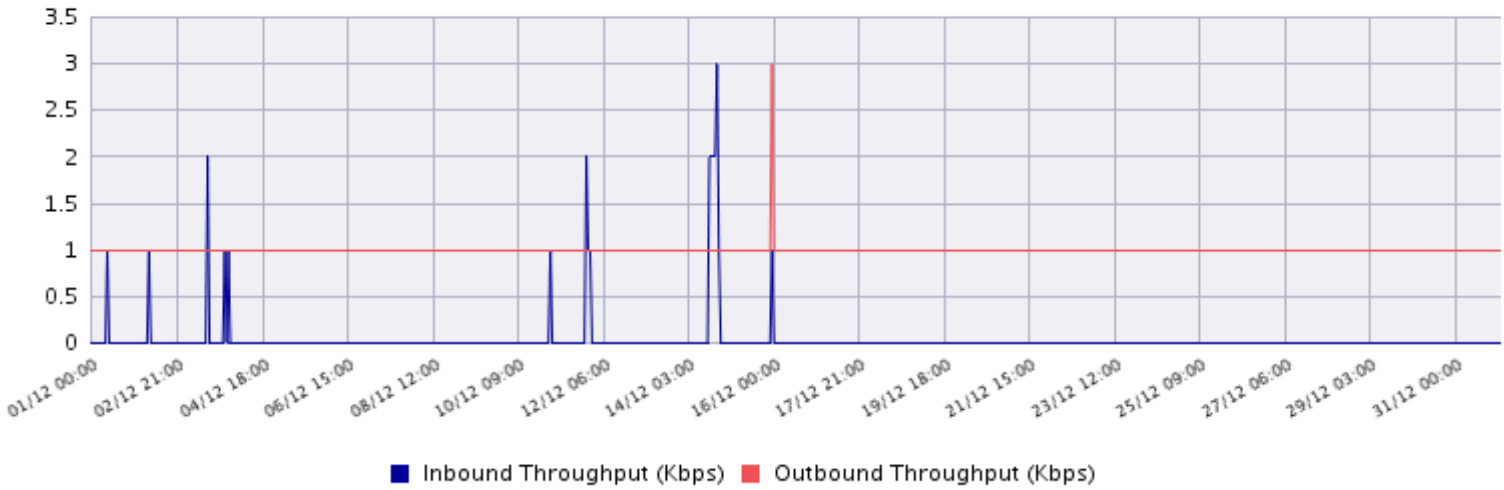
INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873

Level (3) COMMUNICATIONS
Connecting and Protecting the Networked World℠

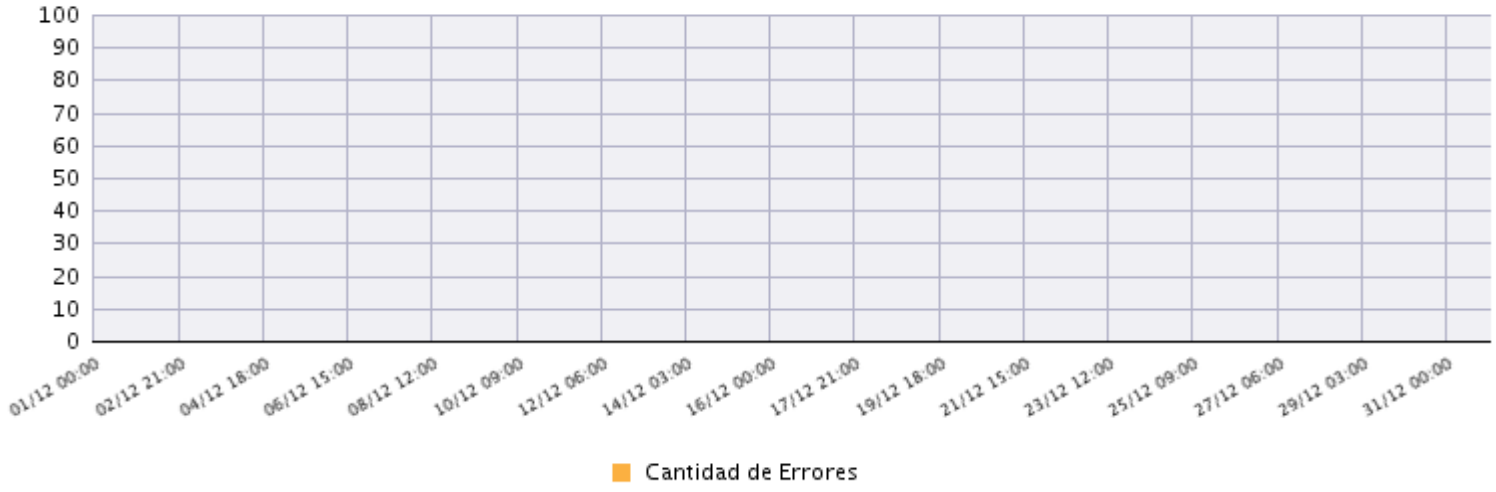
Sede	**OACI - CHILE**
Equipo	**ICAO_CHILE.yourdomain.com**
Modelo	**Cisco1921k9**
IP de Gestión	**(172.21.6.197)**
Ciudad	**Santiago de Chile**

Interface: GigabitEthernet0/0 - WAN_Movistar - Bandwidth: 256 Kbps

VALUES [Kbps]: PROM: (In: 0.03 | Out: 1) - MAX (In: 3 | Out: 3) - MIN (In: 0 | Out: 1) - PE95 (In: 0 | Out: 1)



Cantidad de Errores: 0



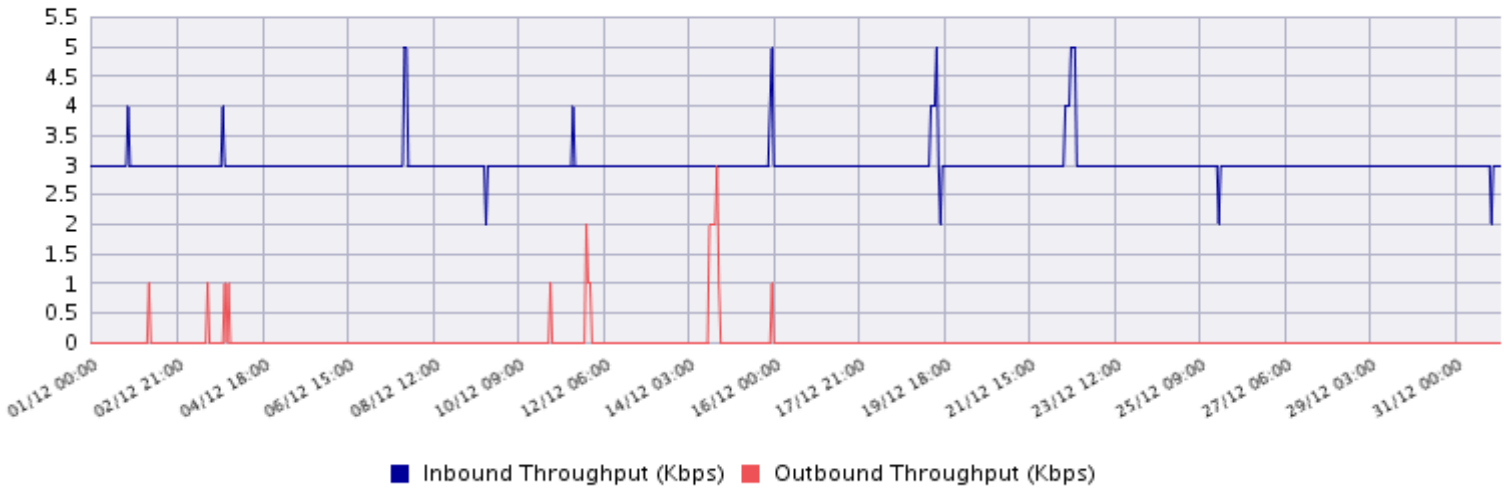
Reporte de Tráfico Entrada/Salida y Errores, Diciembre 2015

INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873

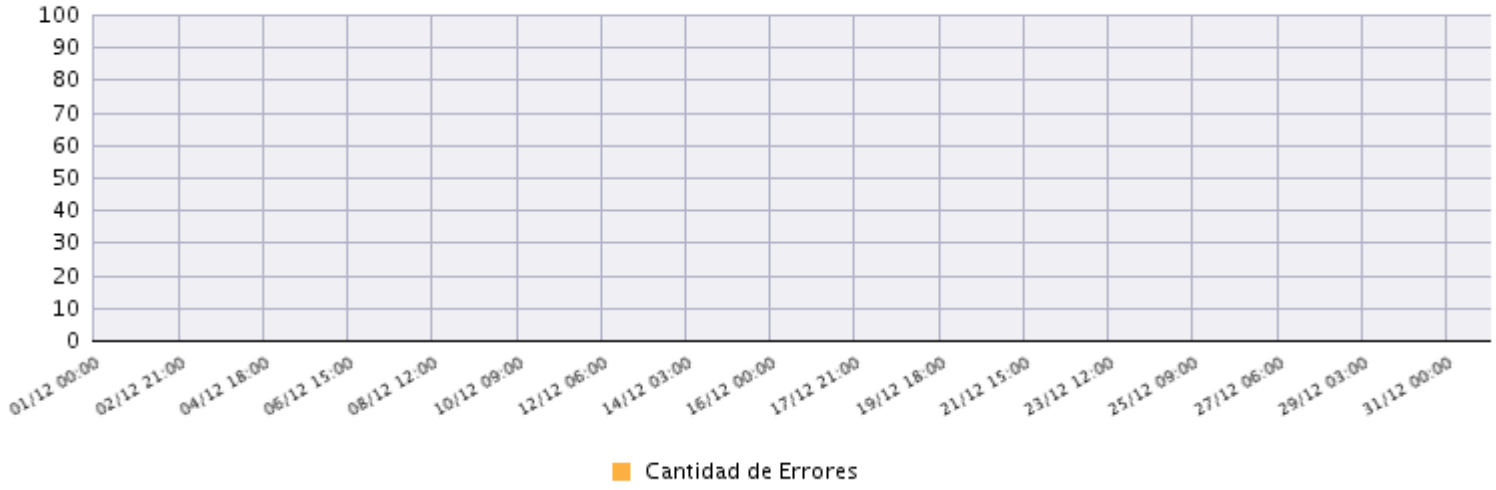
Level (3) COMMUNICATIONS
Connecting and Protecting the Networked World℠

Interface: GigabitEthernet0/1 - LAN PRINCIPAL - Bandwidth: 1,000,000 Kbps

VALUES [Kbps]: PROM: (In: 3.03 | Out: 0.03) - MAX (In: 5 | Out: 3) - MIN (In: 2 | Out: 0) - PE95 (In: 3 | Out: 0)



Cantidad de Errores: 0



Reporte de Tráfico Entrada/Salida y Errores, Diciembre 2015

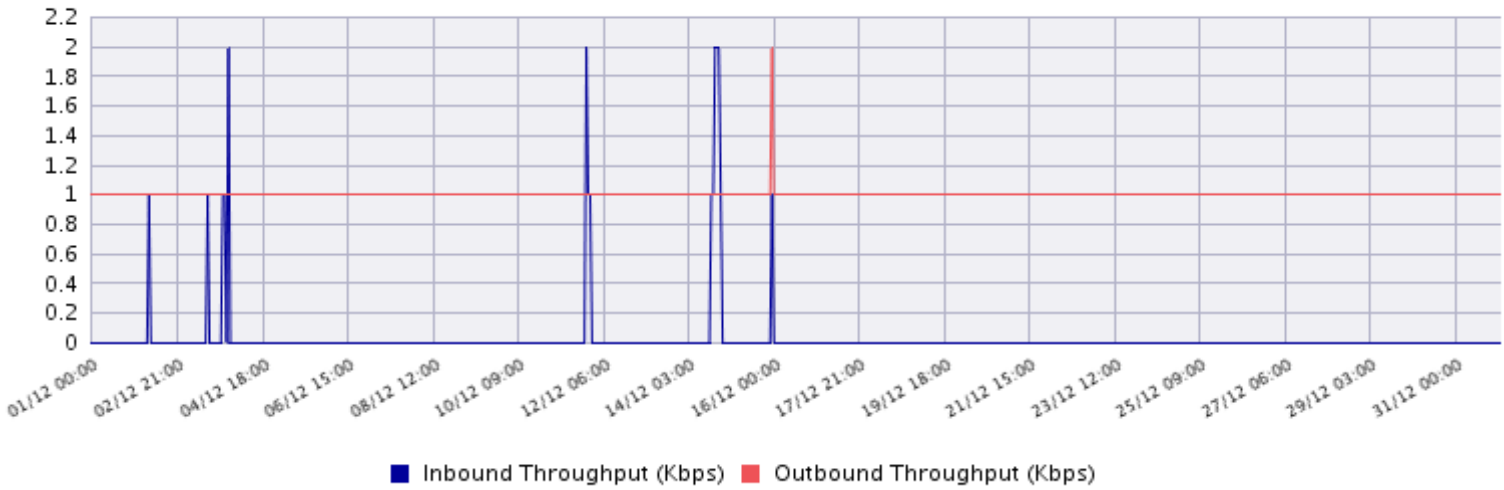
INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873

Level (3) COMMUNICATIONS
Connecting and Protecting the Networked World℠

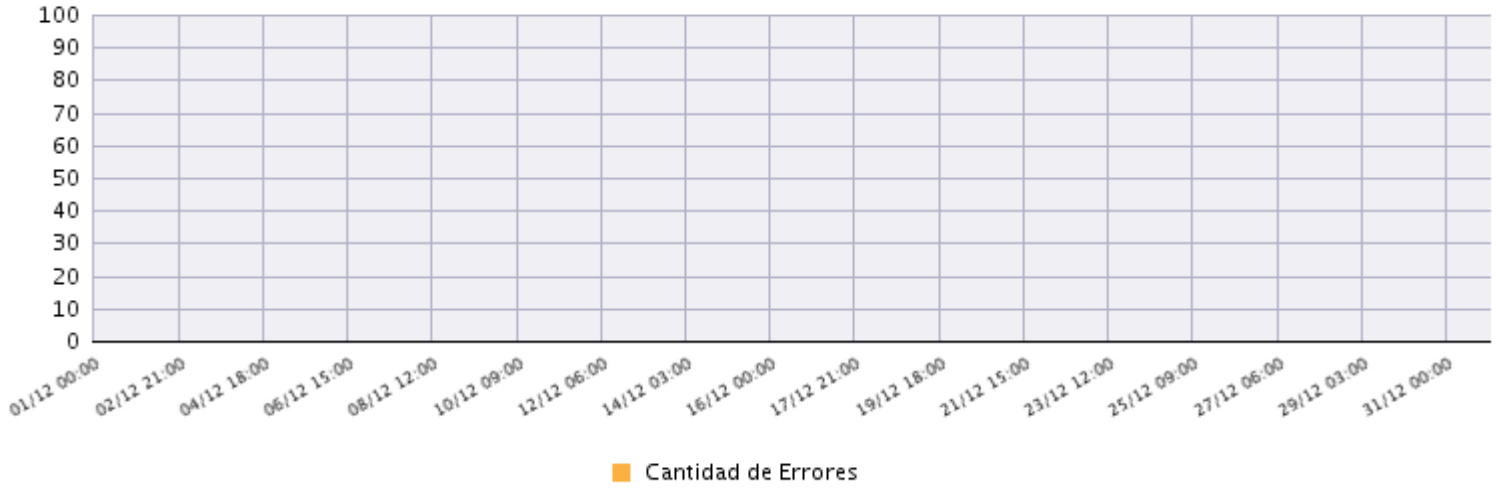
Sede	**OACI - COLOMBIA**
Equipo	**ICAO_COLOMBIA**
Modelo	**Cisco1921k9**
IP de Gestión	**(172.21.6.196)**
Ciudad	**Bogotá**

Interface: GigabitEthernet0/0 - ---- WAN CLIENTE HACIA BBIP ---- - Bandwidth: 256 Kbps

VALUES [Kbps]: PROM: (In: 0.03 | Out: 1) - MAX (In: 2 | Out: 2) - MIN (In: 0 | Out: 1) - PE95 (In: 0 | Out: 1)



Cantidad de Errores: 0



Reporte de Tráfico Entrada/Salida y Errores, Diciembre 2015

INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873

Level (3) COMMUNICATIONS
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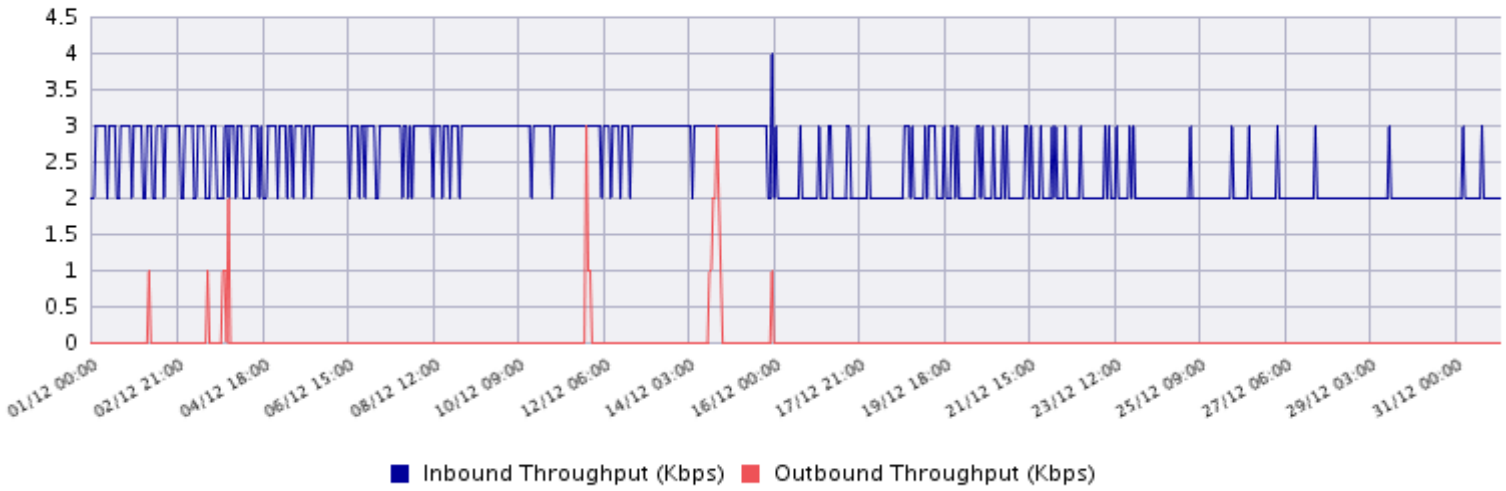
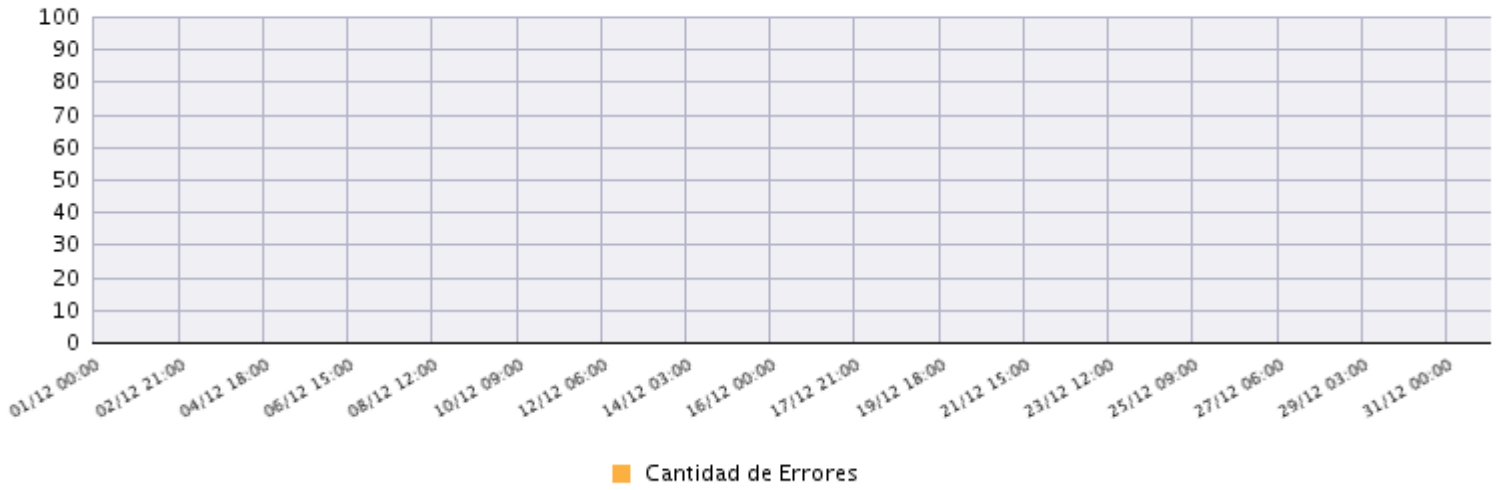
Interface: GigabitEthernet0/1 - --- LAN INTERNA --- - Bandwidth: 256 Kbps

VALUES [Kbps]: PROM: (In: 2.47 | Out: 0.03) - MAX (In: 4 | Out: 3) - MIN (In: 2 | Out: 0) - PE95 (In: 3 | Out: 0)



Cantidad de Errores: 0



Reporte de Tráfico Entrada/Salida y Errores, Diciembre 2015

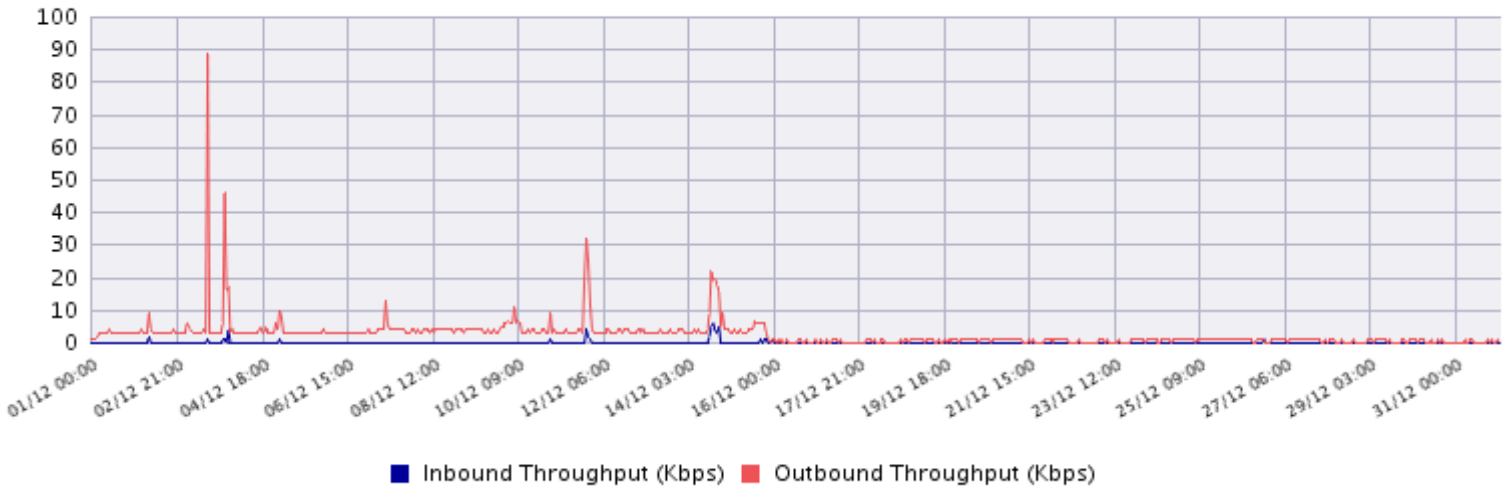
INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873

Level (3) COMMUNICATIONS
Connecting and Protecting the Networked World℠

Sede	**OACI - ECUADOR**
Equipo	**ICAO_ECUADOR**
Modelo	**Cisco1921k9**
IP de Gestión	**(172.21.6.195)**
Ciudad	**Guayaquil**

Interface: GigabitEthernet0/0.1367 - WAN - Bandwidth: 256 Kbps

VALUES [Kbps]: PROM: (In: 0.06 | Out: 2.44) - MAX (In: 6 | Out: 89) - MIN (In: 0 | Out: 0) - PE95 (In: 0 | Out: 6)



Reporte de Tráfico Entrada/Salida y Errores, Diciembre 2015

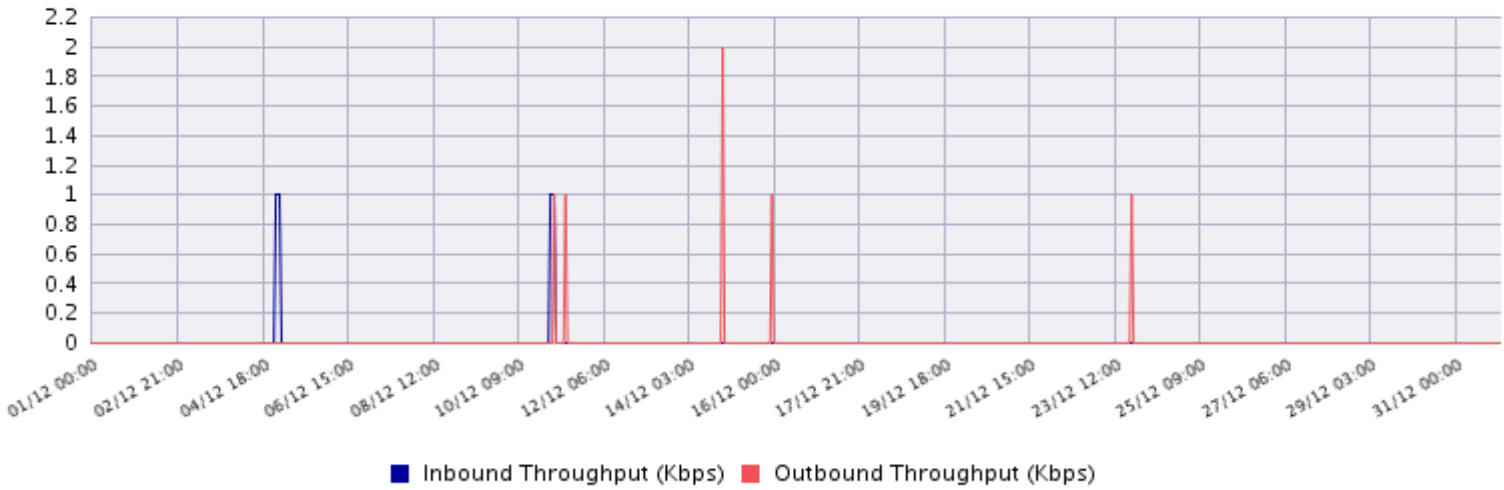
INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873

Level (3) COMMUNICATIONS
Connecting and Protecting the Networked World℠

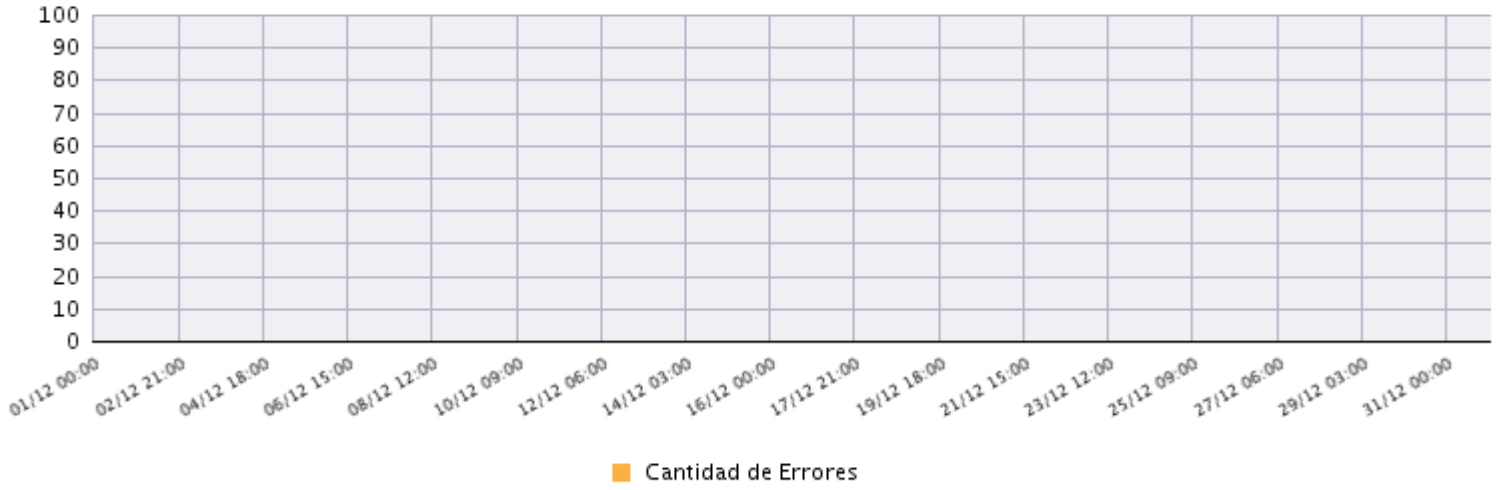
Sede	**OACI - GUYANA**
Equipo	**ICAO_GUYANA.yourdomain.com**
Modelo	**Cisco1921k9**
IP de Gestión	**(172.21.6.200)**
Ciudad	**Georgetown**

Interface: GigabitEthernet0/0 - WAN - Bandwidth: 100,000 Kbps

VALUES [Kbps]: PROM: (In: 0.01 | Out: 0.01) - MAX (In: 1 | Out: 2) - MIN (In: 0 | Out: 0) - PE95 (In: 0 | Out: 0)



Cantidad de Errores: 0



Reporte de Tráfico Entrada/Salida y Errores, Diciembre 2015

INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873

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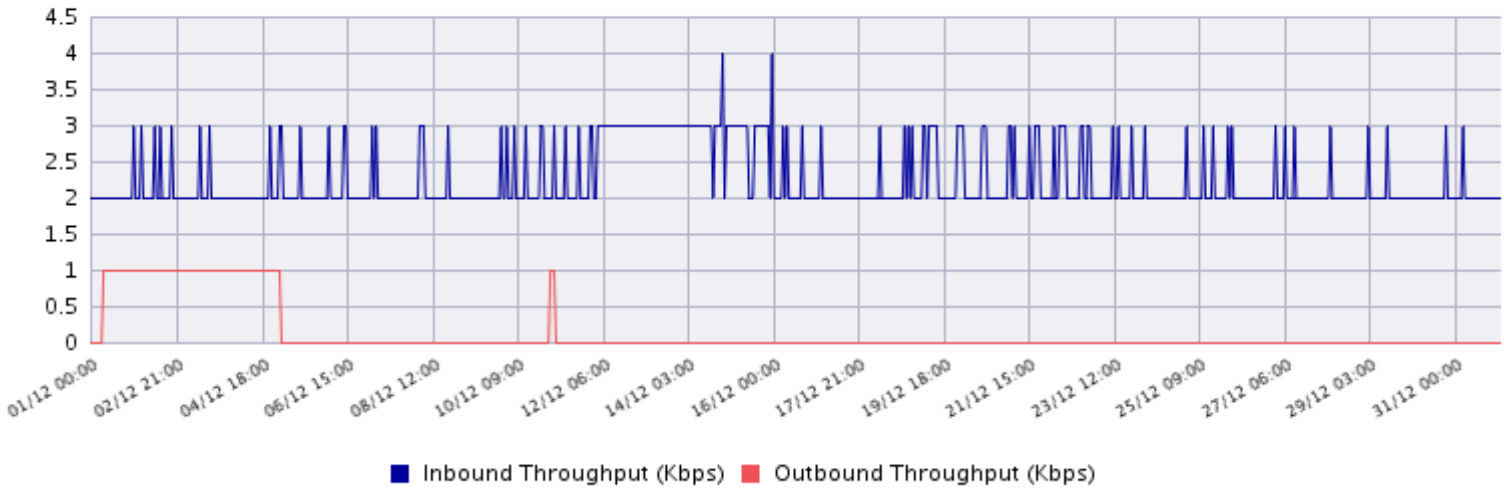
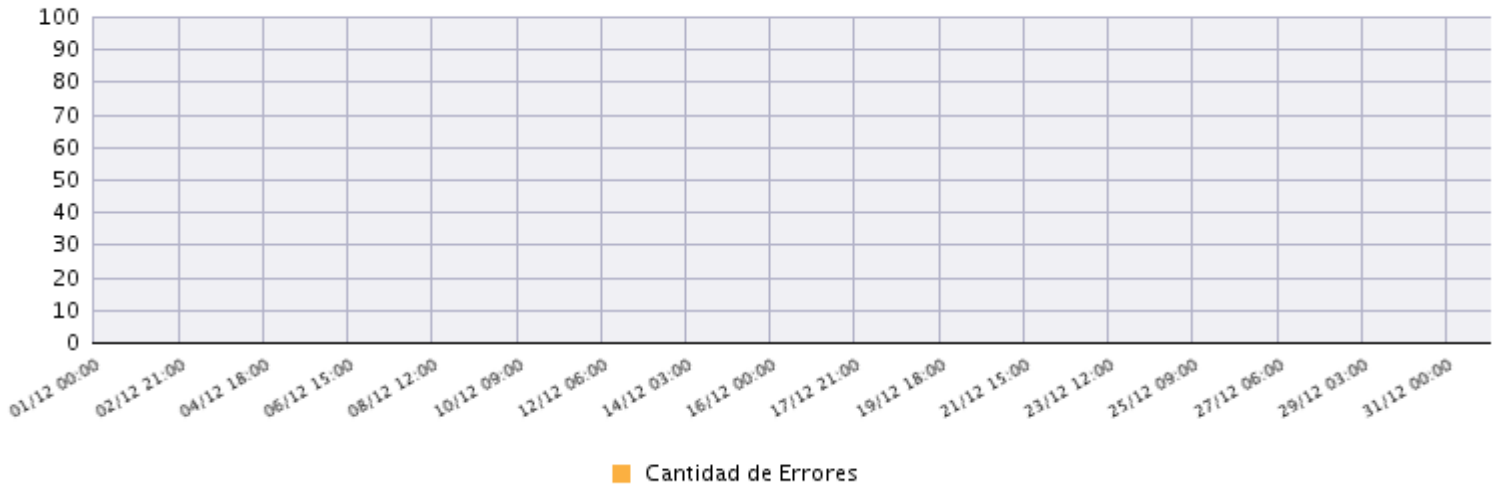
Interface: GigabitEthernet0/1 - LAN - Bandwidth: 1,000,000 Kbps

VALUES [Kbps]: PROM: (In: 2.24 | Out: 0.13) - MAX (In: 4 | Out: 1) - MIN (In: 2 | Out: 0) - PE95 (In: 3 | Out: 1)



Cantidad de Errores: 0



Reporte de Tráfico Entrada/Salida y Errores, Diciembre 2015

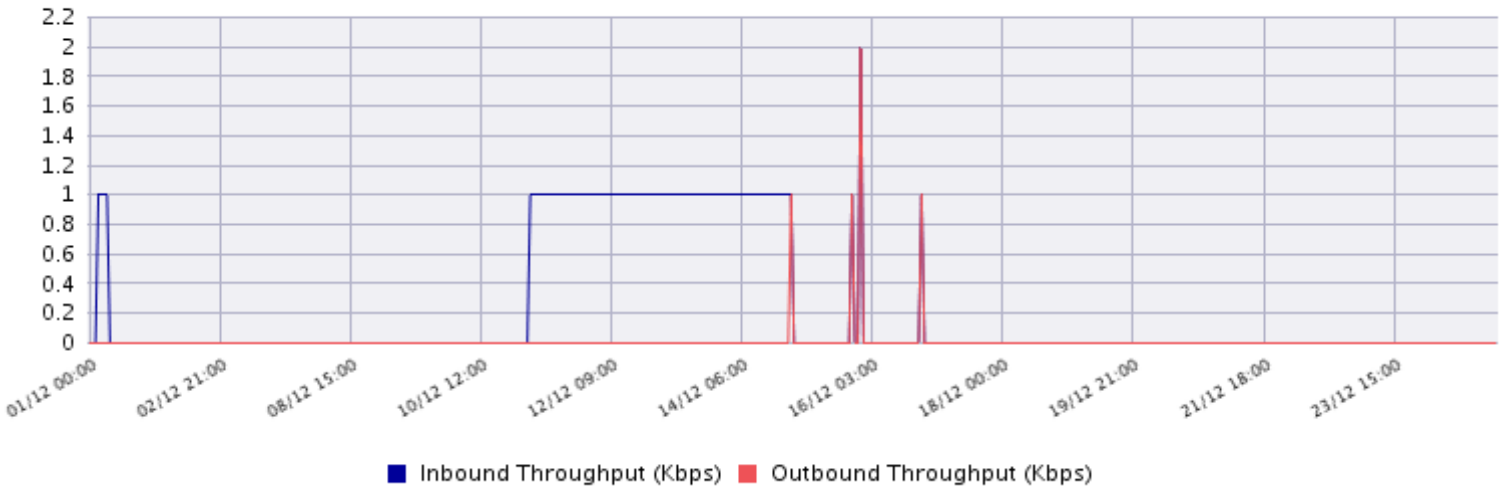
INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873

Level (3) COMMUNICATIONS
Connecting and Protecting the Networked World℠

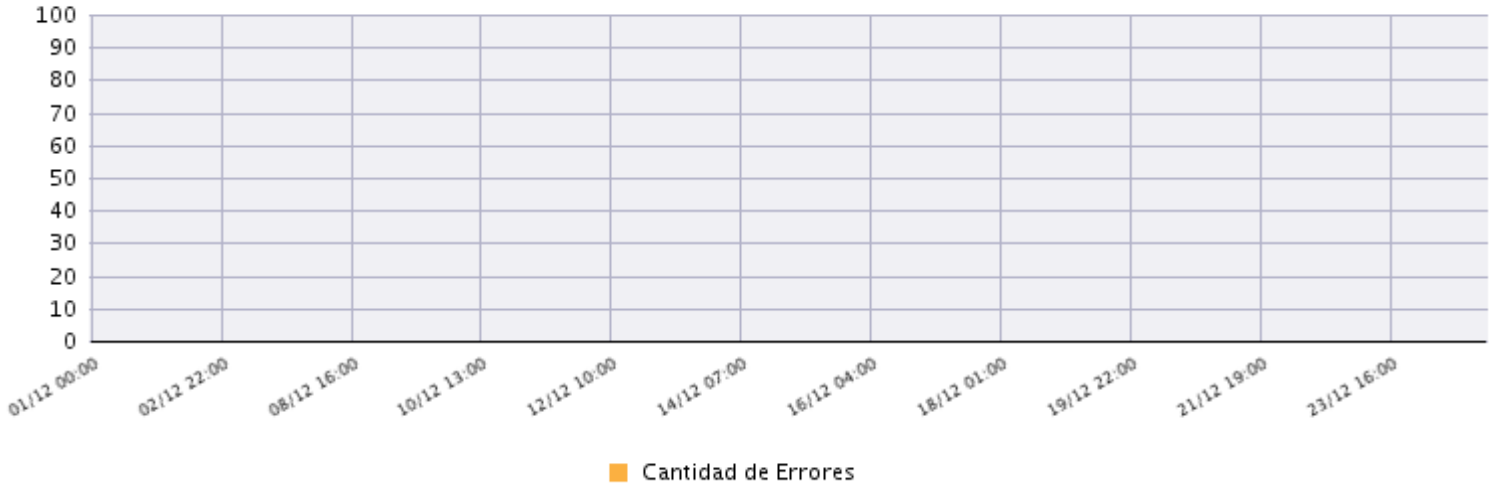
Sede	**OACI - GUYANA FRANCESA**
Equipo	**ICAO_FR_GUYANA.eq.ignetworks.com**
Modelo	**Cisco1921k9**
IP de Gestión	**(172.21.6.201)**
Ciudad	**Cayena**

Interface: GigabitEthernet0/0 - ---- WAN CLIENTE HACIA BBIP ---- - Bandwidth: 256 Kbps

VALUES [Kbps]: PROM: (In: 0.2 | Out: 0.01) - MAX (In: 2 | Out: 2) - MIN (In: 0 | Out: 0) - PE95 (In: 1 | Out: 0)



Cantidad de Errores: 0



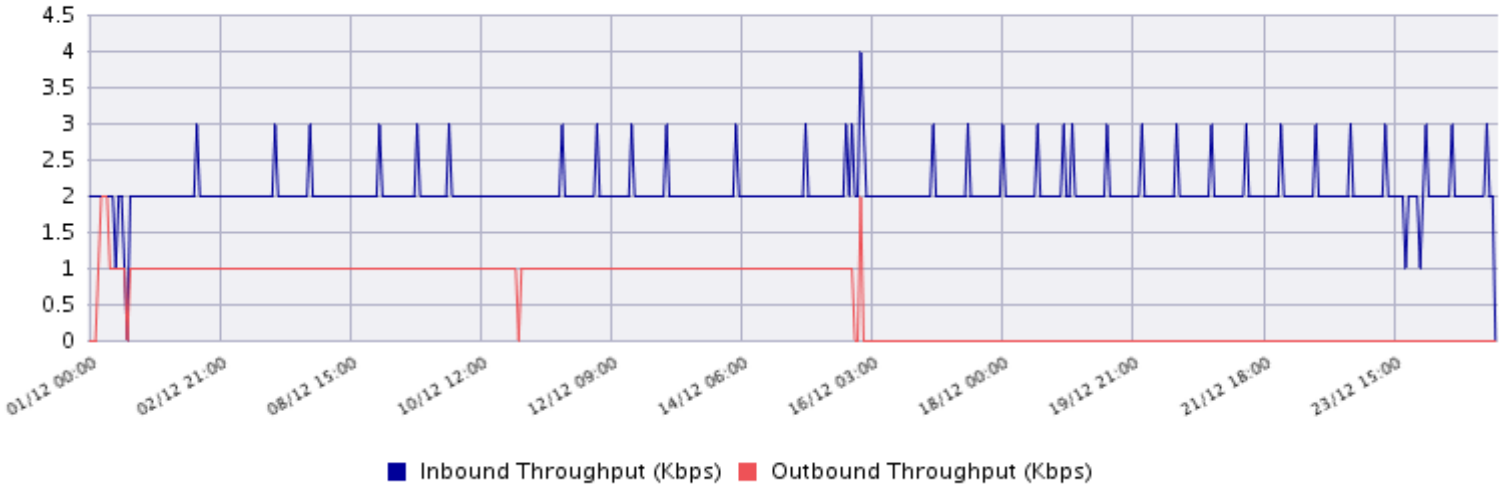
Reporte de Tráfico Entrada/Salida y Errores, Diciembre 2015

INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873

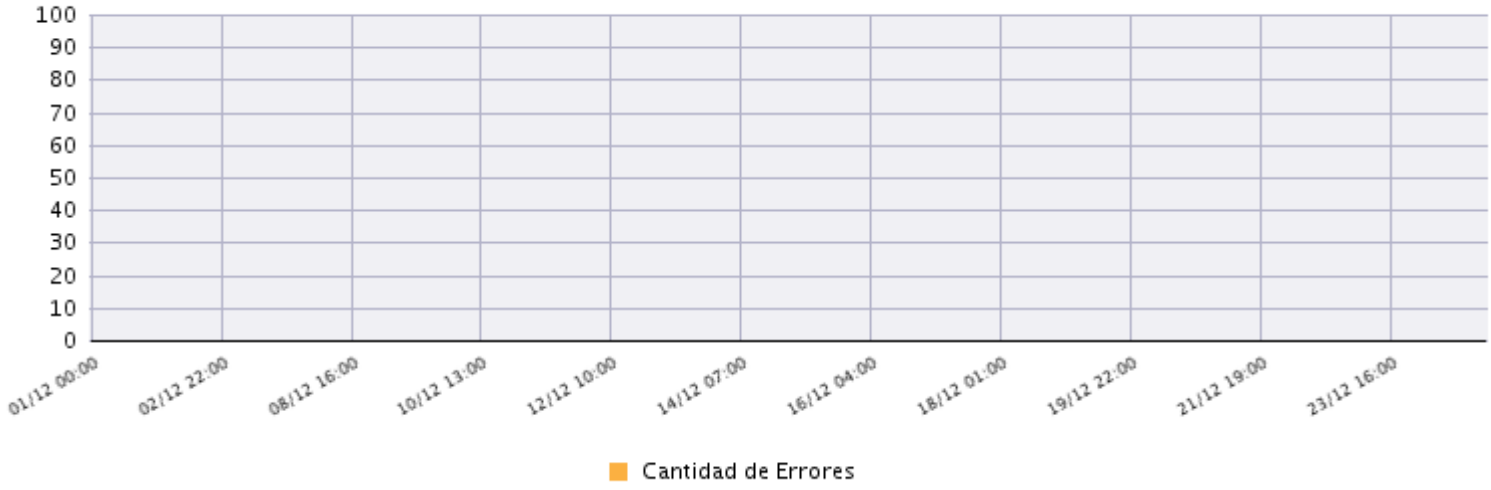
Level (3) COMMUNICATIONS
Connecting and Protecting the Networked World℠

Interface: GigabitEthernet0/1 - --- LAN INTERNA --- - Bandwidth: 256 Kbps

VALUES [Kbps]: PROM: (In: 2.06 | Out: 0.54) - MAX (In: 4 | Out: 2) - MIN (In: 0 | Out: 0) - PE95 (In: 3 | Out: 1)



Cantidad de Errores: 0



Reporte de Tráfico Entrada/Salida y Errores, Diciembre 2015

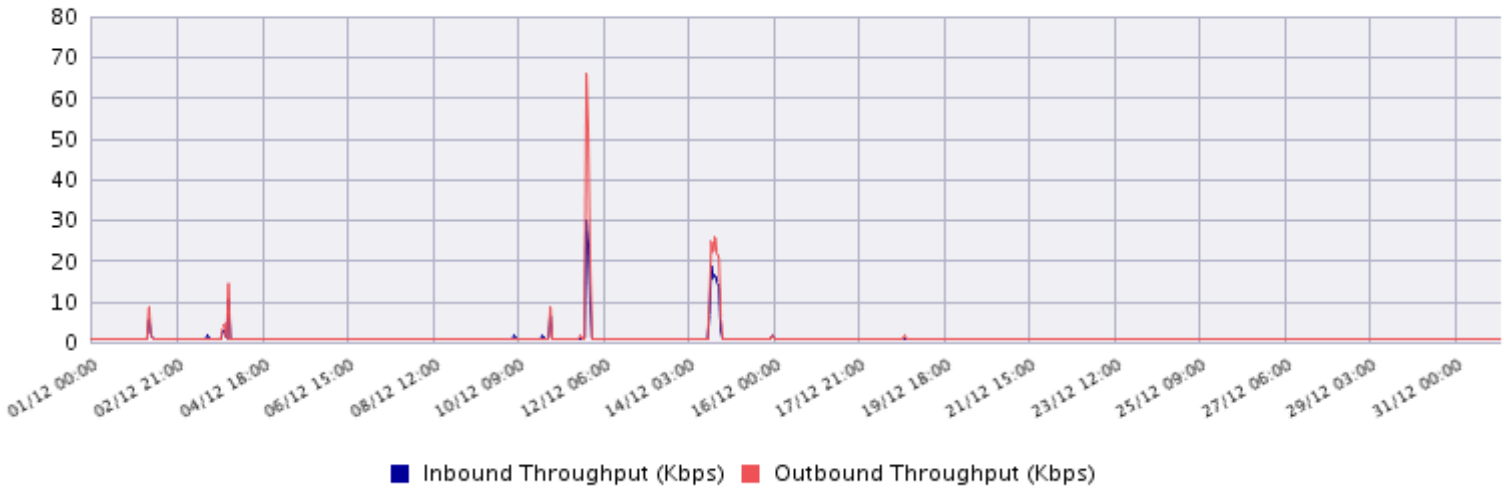
INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873

Level (3) COMMUNICATIONS
Connecting and Protecting the Networked World℠

Sede	**OACI - LIMA**
Equipo	**ICAO_PERU**
Modelo	**Cisco1921k9**
IP de Gestión	**(172.20.26.50)**
Ciudad	**Callao**

Interface: GigabitEthernet0/0.2428 - WAN - Bandwidth: 256 Kbps

VALUES [Kbps]: PROM: (In: 1.24 | Out: 1.4) - MAX (In: 30 | Out: 66) - MIN (In: 1 | Out: 1) - PE95 (In: 1 | Out: 1)



Reporte de Tráfico Entrada/Salida y Errores, Diciembre 2015

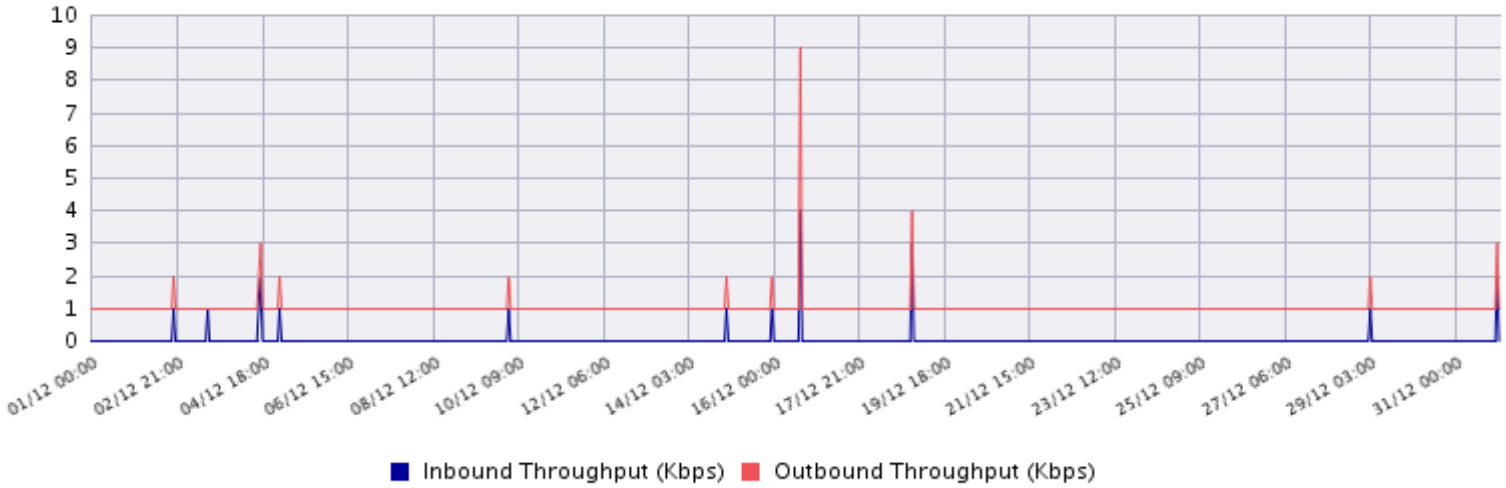
INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873

Level (3) COMMUNICATIONS
Connecting and Protecting the Networked World℠

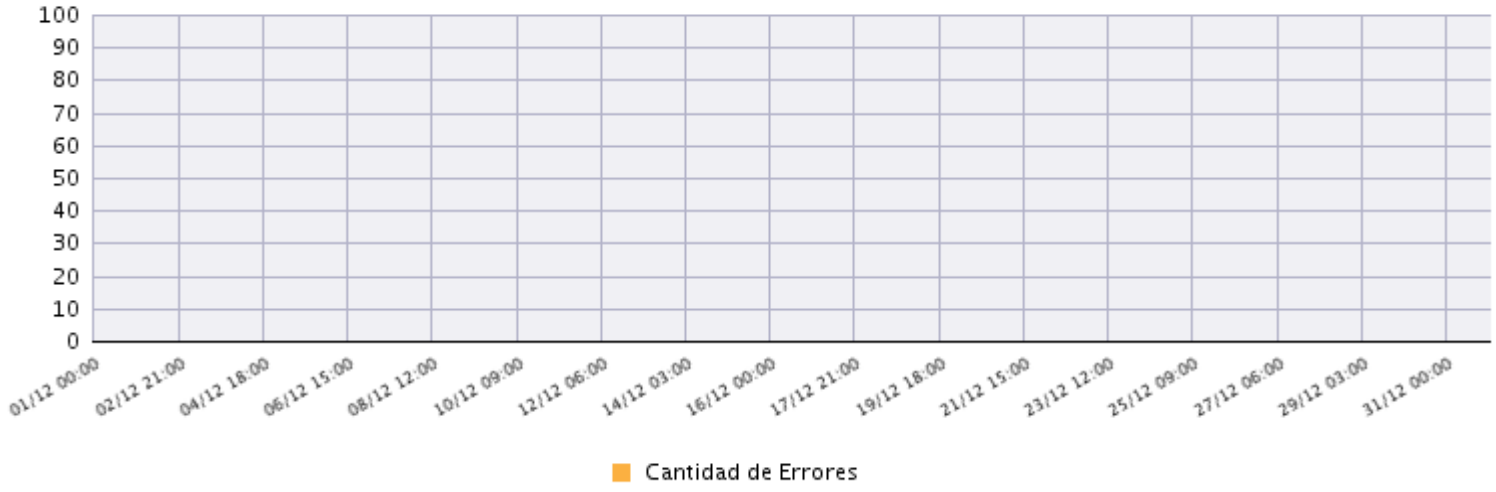
Sede	**OACI - PARAGUAY**
Equipo	**ICAO_PARAGUAY.ineo.com.py**
Modelo	**Cisco1941**
IP de Gestión	**(172.21.6.199)**
Ciudad	**Asunción**

Interface: GigabitEthernet0/0 - a psr1.ats1.eze interface ae2.501 - Bandwidth: 256 Kbps

VALUES [Kbps]: PROM: (In: 0.03 | Out: 1.03) - MAX (In: 4 | Out: 9) - MIN (In: 0 | Out: 1) - PE95 (In: 0 | Out: 1)



Cantidad de Errores: 0



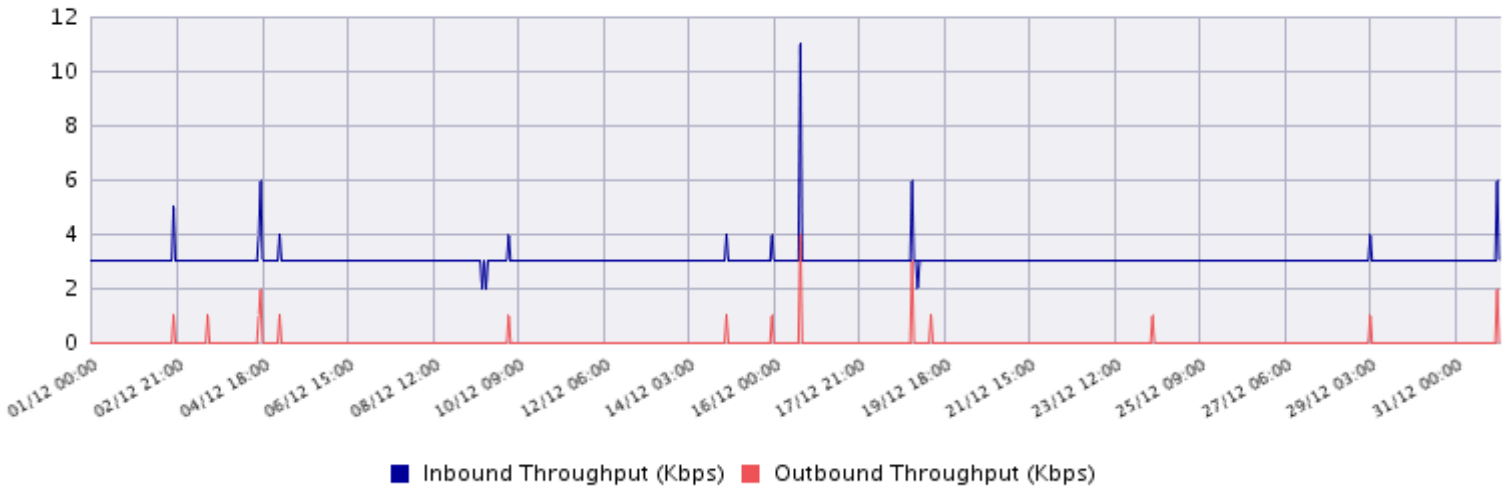
Reporte de Tráfico Entrada/Salida y Errores, Diciembre 2015

INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873

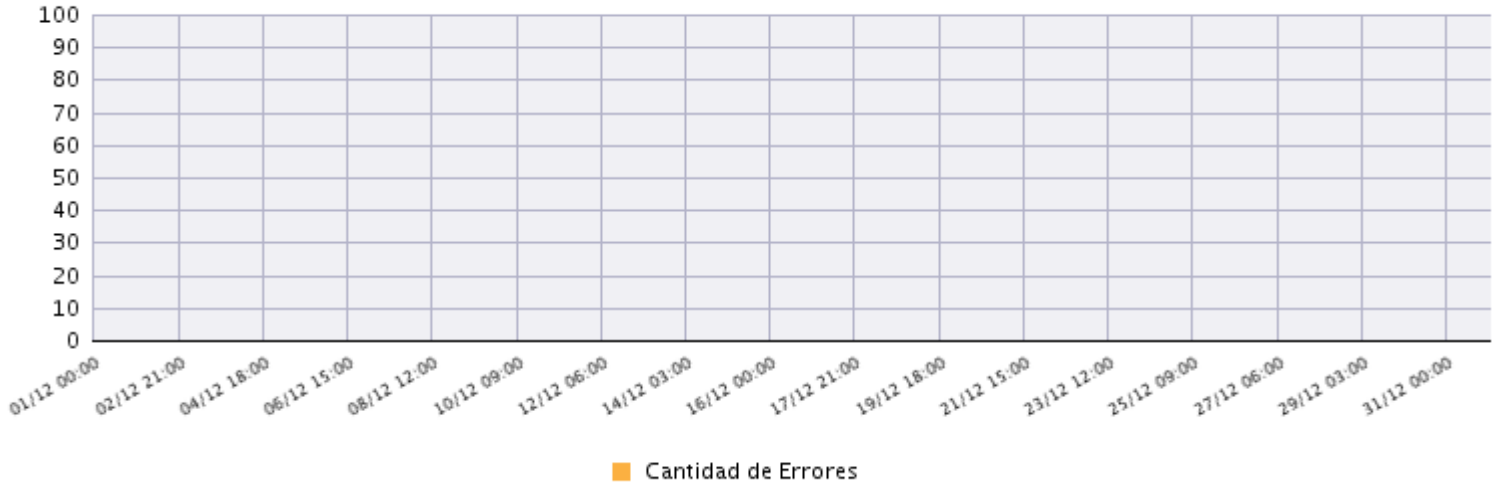
Level (3) COMMUNICATIONS
Connecting and Protecting the Networked World℠

Interface: GigabitEthernet0/1 - Customer_LAN - Bandwidth: 1,000,000 Kbps

VALUES [Kbps]: PROM: (In: 3.03 | Out: 0.03) - MAX (In: 11 | Out: 4) - MIN (In: 2 | Out: 0) - PE95 (In: 3 | Out: 0)



Cantidad de Errores: 0



Reporte de Tráfico Entrada/Salida y Errores, Diciembre 2015

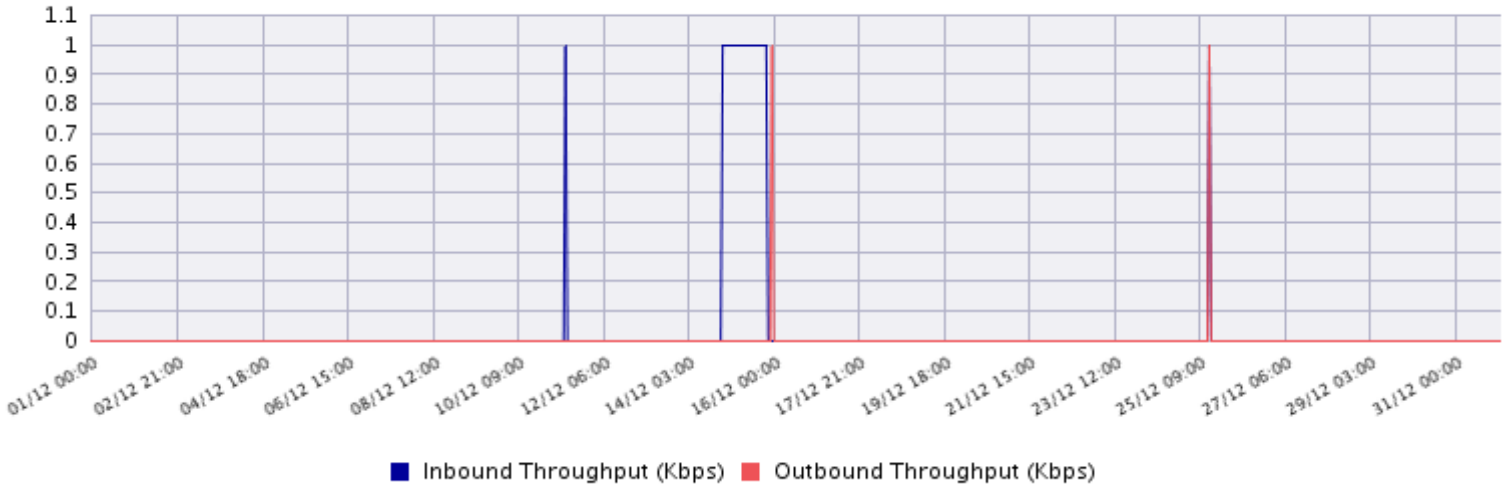
INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873

Level (3) COMMUNICATIONS
Connecting and Protecting the Networked World℠

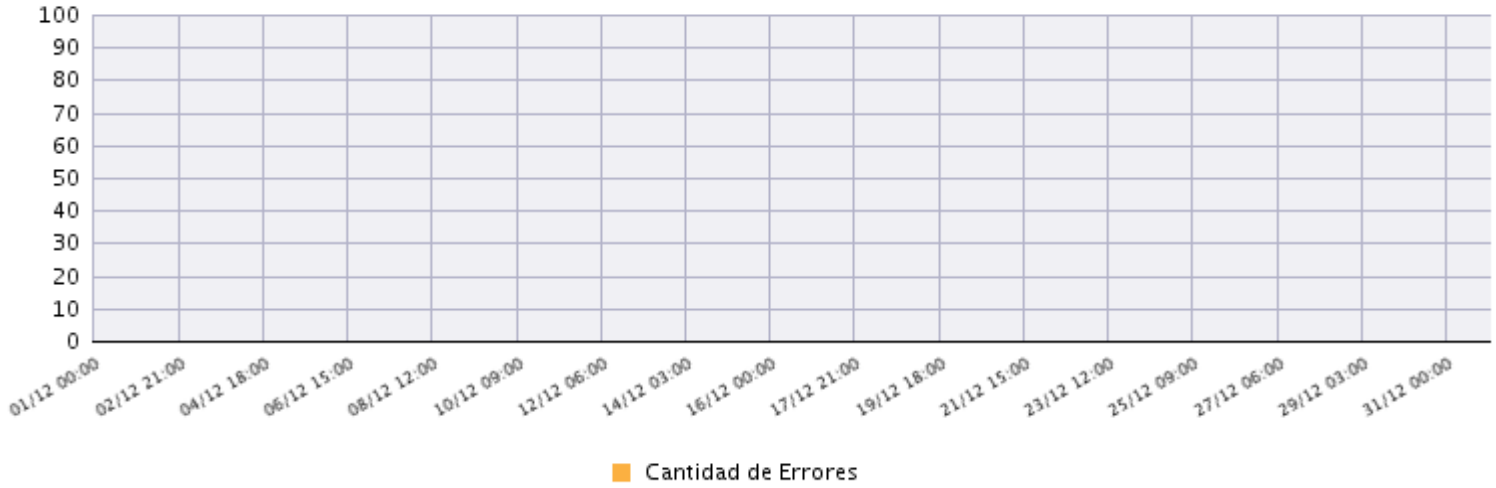
Sede	**OACI - SURINAME**
Equipo	**ICAO_SURINAME.yourdomain.com**
Modelo	**Cisco1921k9**
IP de Gestión	**(172.21.6.203)**
Ciudad	**Paramaribo**

Interface: GigabitEthernet0/0 - WAN - Bandwidth: 256 Kbps

VALUES [Kbps]: PROM: (In: 0.03 | Out: 0) - MAX (In: 1 | Out: 1) - MIN (In: 0 | Out: 0) - PE95 (In: 0 | Out: 0)



Cantidad de Errores: 0



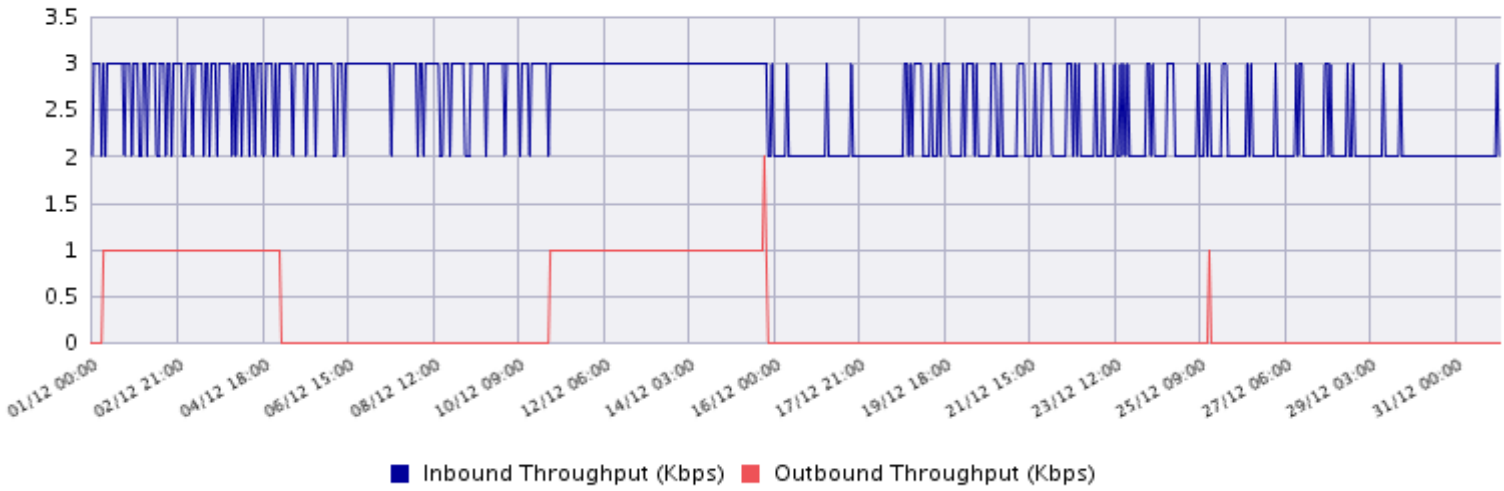
Reporte de Tráfico Entrada/Salida y Errores, Diciembre 2015

INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873

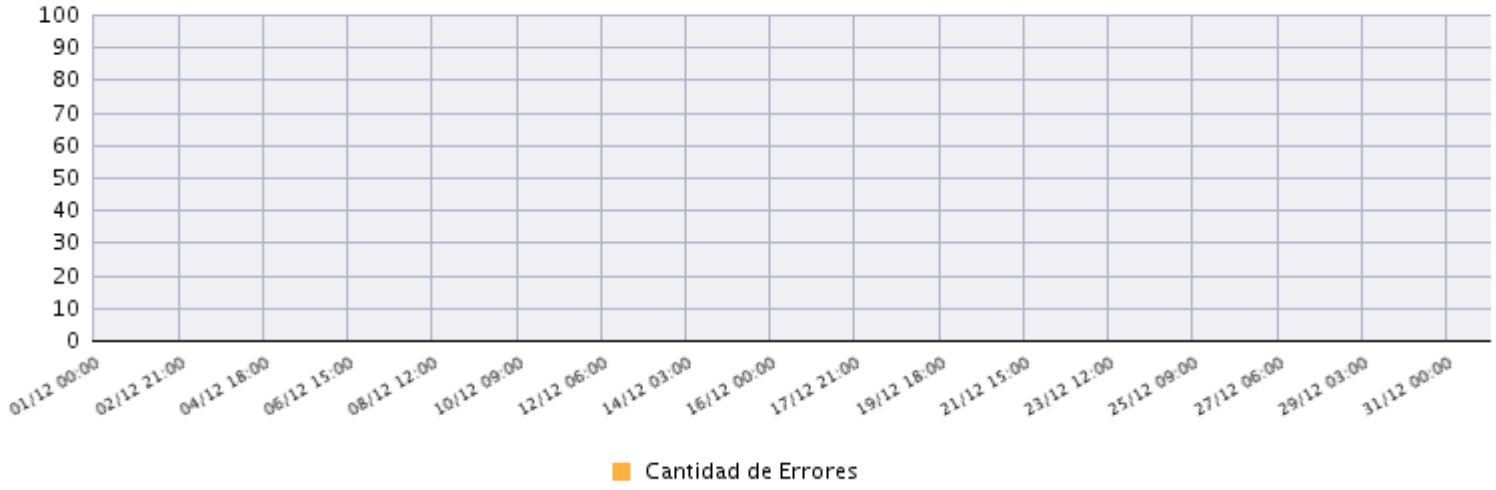
Level (3) COMMUNICATIONS
Connecting and Protecting the Networked World℠

Interface: GigabitEthernet0/1 - LAN - Bandwidth: 1,000,000 Kbps

VALUES [Kbps]: PROM: (In: 2.52 | Out: 0.28) - MAX (In: 3 | Out: 2) - MIN (In: 2 | Out: 0) - PE95 (In: 3 | Out: 1)



Cantidad de Errores: 0



Reporte de Tráfico Entrada/Salida y Errores, Diciembre 2015

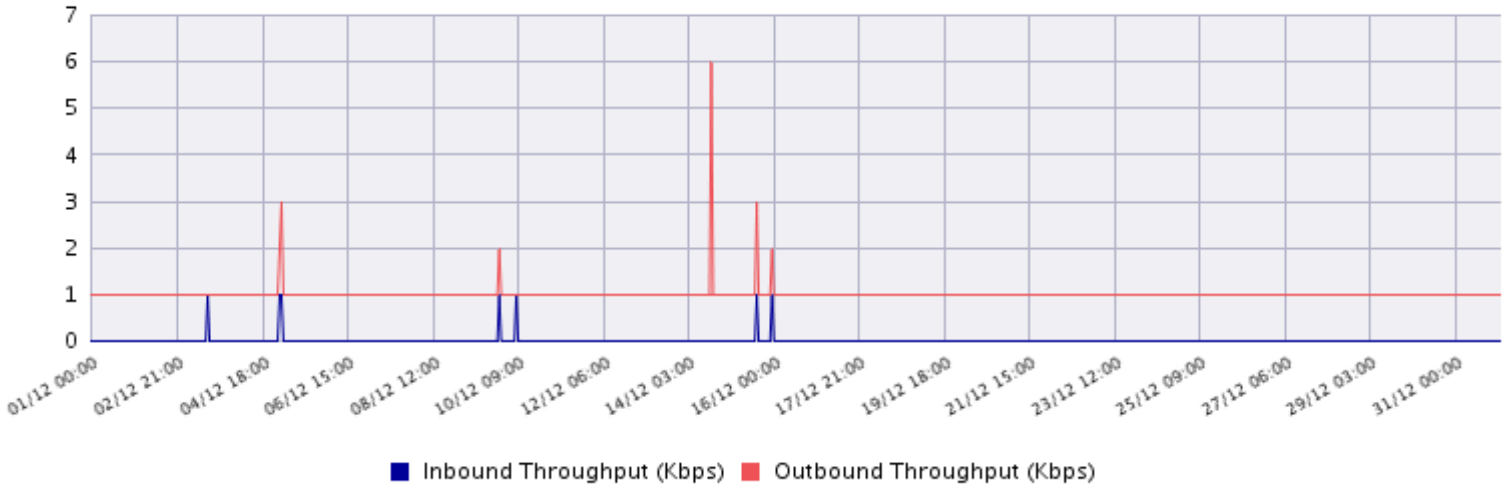
INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873

Level (3) COMMUNICATIONS
Connecting and Protecting the Networked World℠

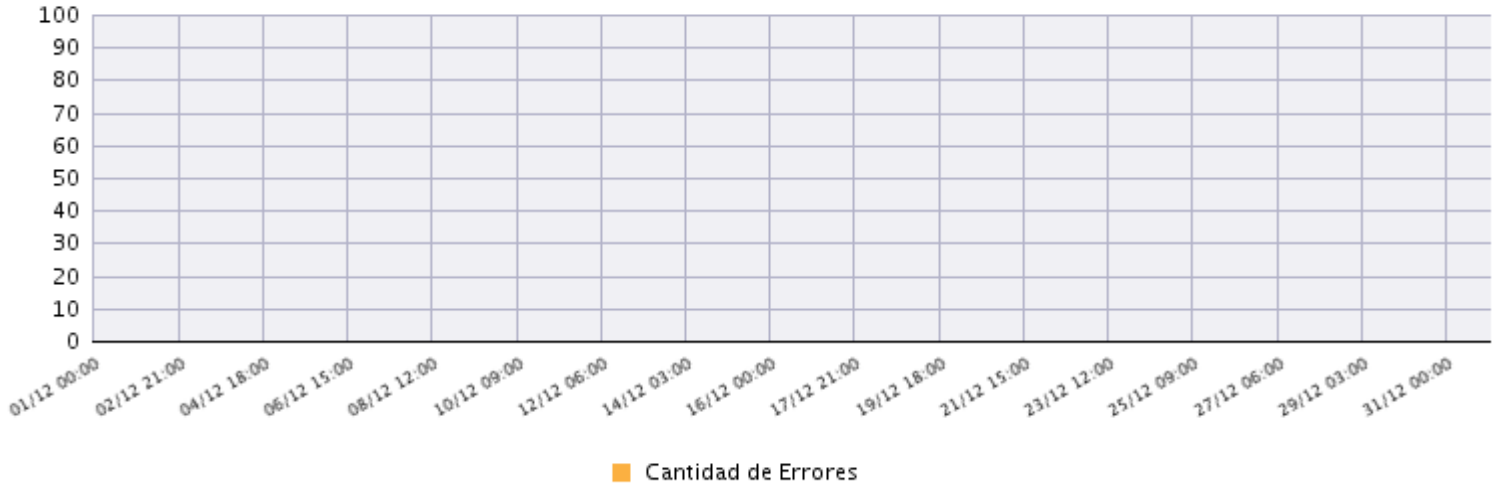
Sede	**OACI - TRINIDAD & TOBAGO**
Equipo	**ICAO_TRINIDAD.yourdomain.com**
Modelo	**Cisco1921k9**
IP de Gestión	**(172.21.6.194)**
Ciudad	**Port of Spain**

Interface: GigabitEthernet0/0 - a rpar1.sfd1.sfd GigabitEthernet0/1.210 - Bandwidth: 256 Kbps

VALUES [Kbps]: PROM: (In: 0.01 | Out: 1.02) - MAX (In: 1 | Out: 6) - MIN (In: 0 | Out: 1) - PE95 (In: 0 | Out: 1)



Cantidad de Errores: 0



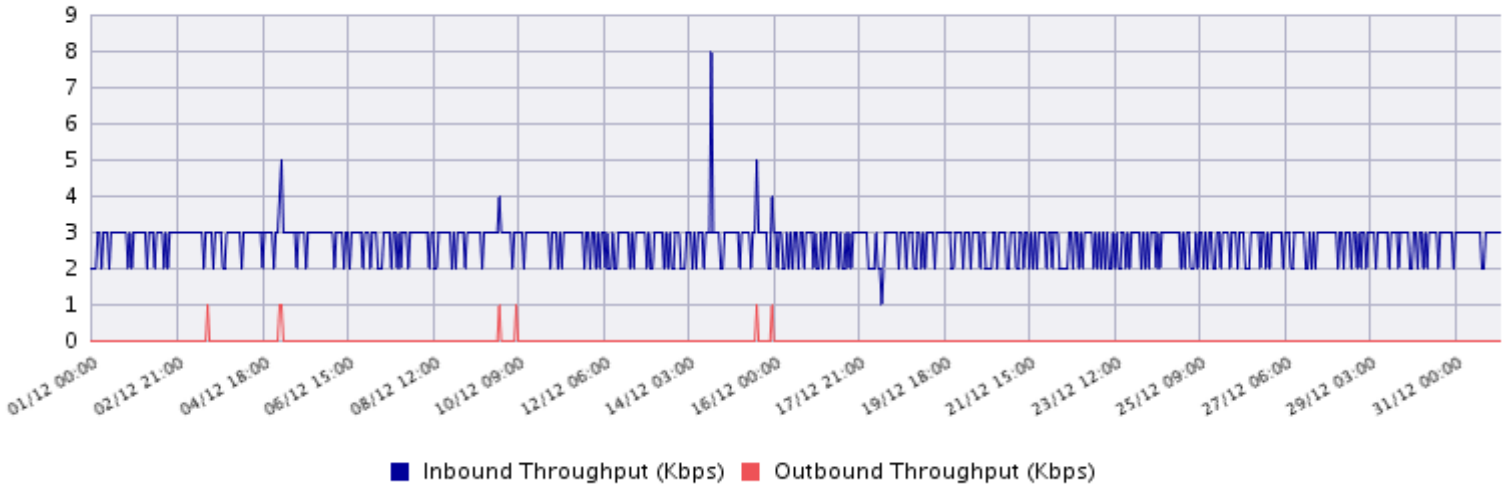
Reporte de Tráfico Entrada/Salida y Errores, Diciembre 2015

INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873

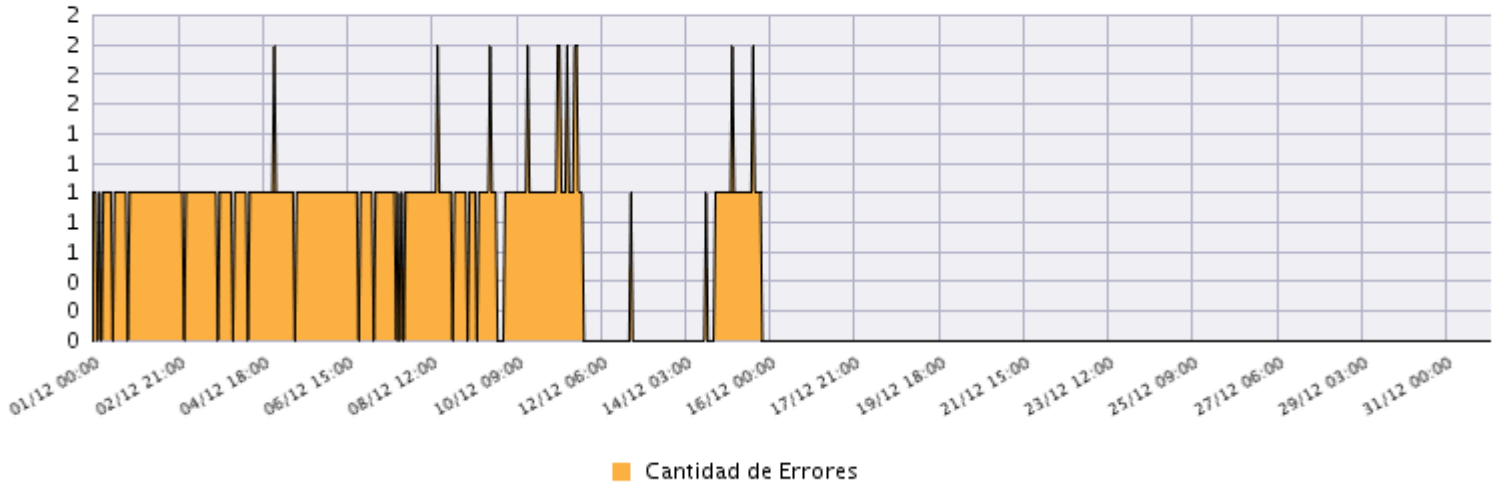
Level (3) COMMUNICATIONS
Connecting and Protecting the Networked World℠

Interface: GigabitEthernet0/1 - Customer_LAN - Bandwidth: 100,000 Kbps

VALUES [Kbps]: PROM: (In: 2.75 | Out: 0.01) - MAX (In: 8 | Out: 1) - MIN (In: 1 | Out: 0) - PE95 (In: 3 | Out: 0)



Cantidad de Errores: 0



Reporte de Tráfico Entrada/Salida y Errores, Diciembre 2015

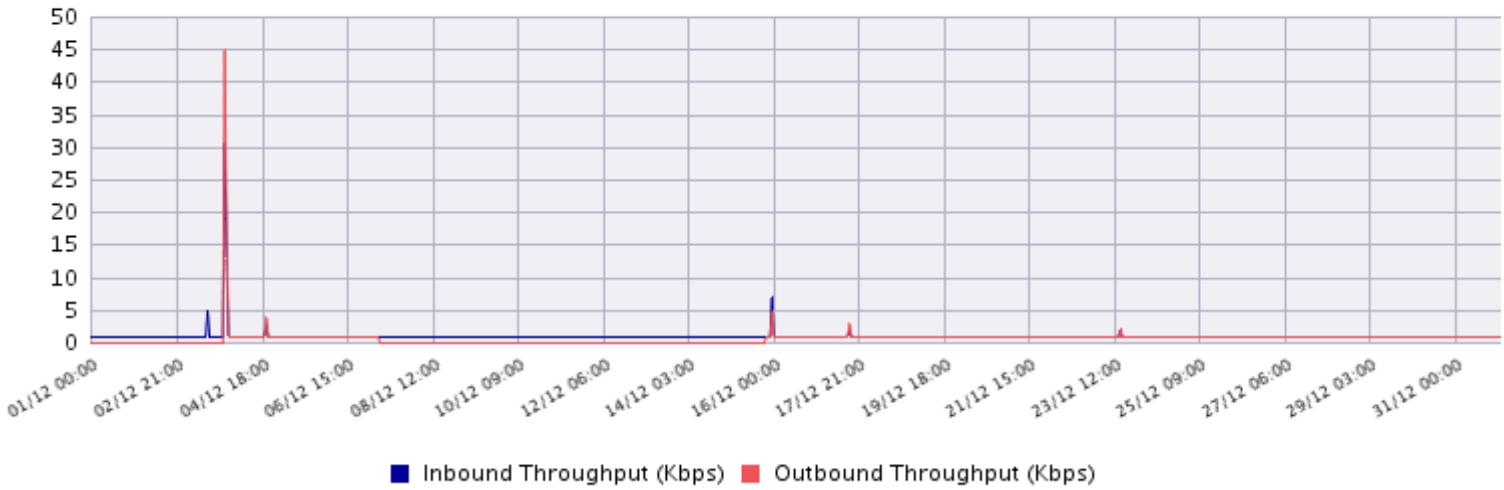
INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873

Level (3) COMMUNICATIONS
Connecting and Protecting the Networked World℠

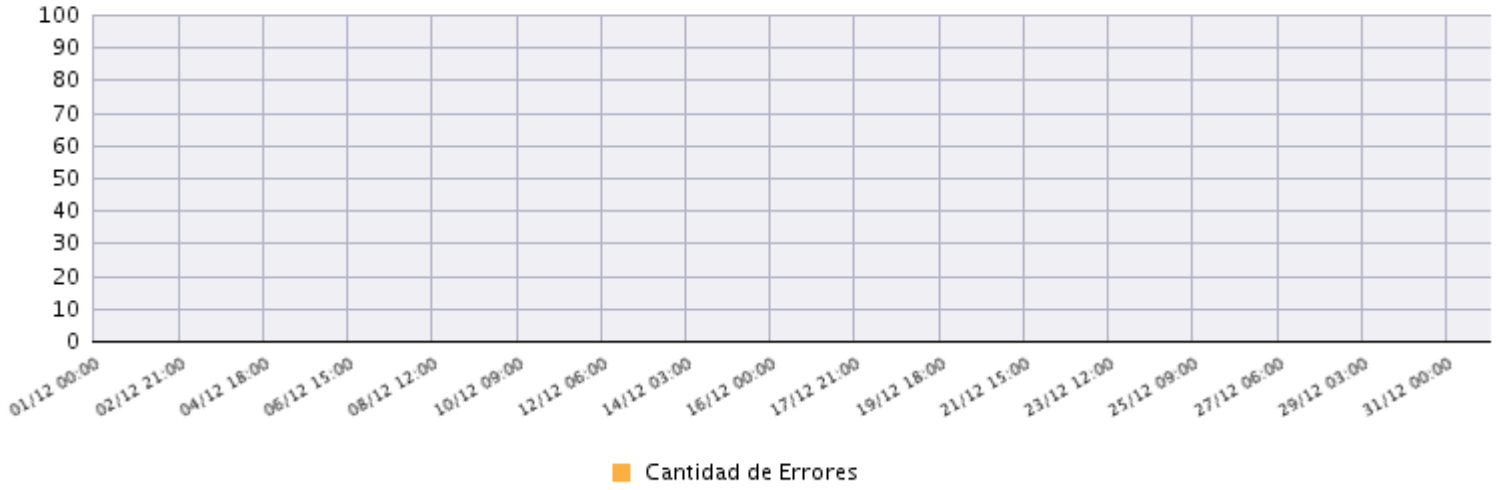
Sede	**OACI - URUGUAY**
Equipo	**ICAO_URUGUAY**
Modelo	**Cisco1921k9**
IP de Gestión	**(172.21.6.198)**
Ciudad	**Montevideo**

Interface: GigabitEthernet0/0 - WAN a psr1.ats1.eze ae0.2324 - Bandwidth: 256 Kbps

VALUES [Kbps]: PROM: (In: 1.08 | Out: 0.73) - MAX (In: 31 | Out: 45) - MIN (In: 1 | Out: 0) - PE95 (In: 1 | Out: 1)



Cantidad de Errores: 0



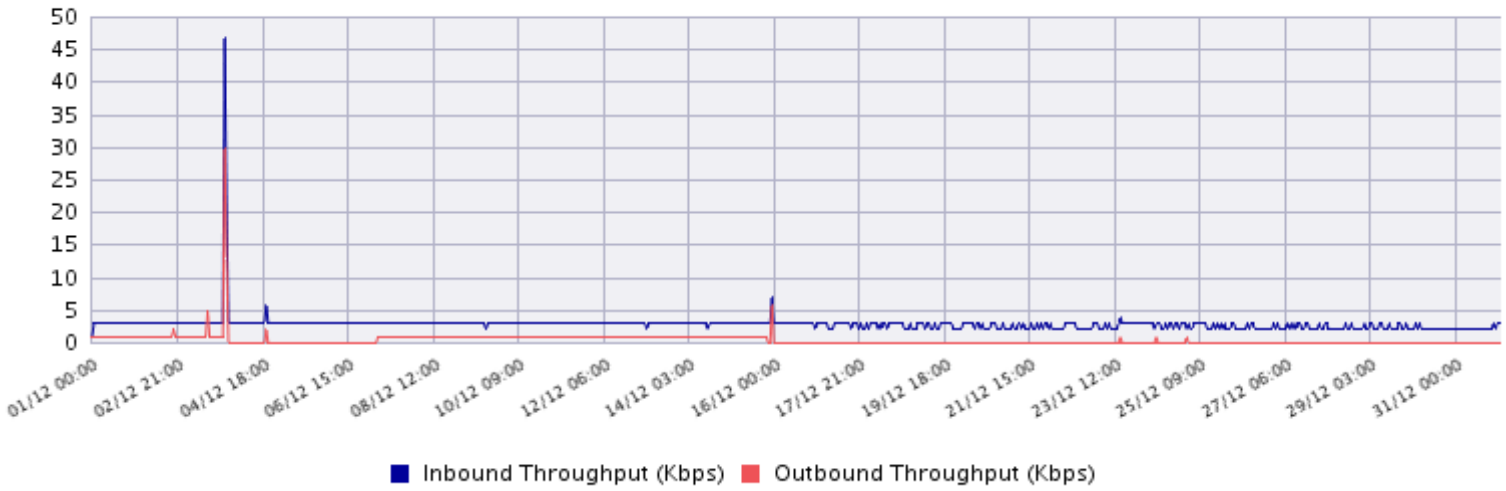
Reporte de Tráfico Entrada/Salida y Errores, Diciembre 2015

INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873

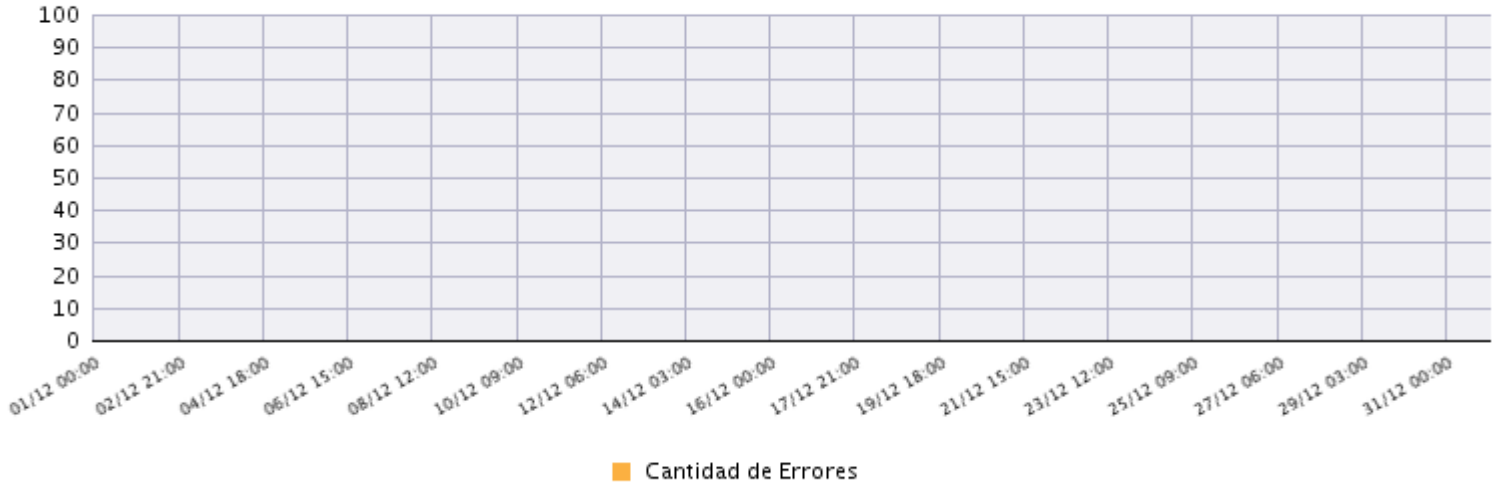
Level (3) COMMUNICATIONS
Connecting and Protecting the Networked World℠

Interface: GigabitEthernet0/1 - LAN de DATOS - Bandwidth: 1,000,000 Kbps

VALUES [Kbps]: PROM: (In: 2.82 | Out: 0.45) - MAX (In: 47 | Out: 30) - MIN (In: 1 | Out: 0) - PE95 (In: 3 | Out: 1)



Cantidad de Errores: 0



Reporte de Tráfico Entrada/Salida y Errores, Diciembre 2015

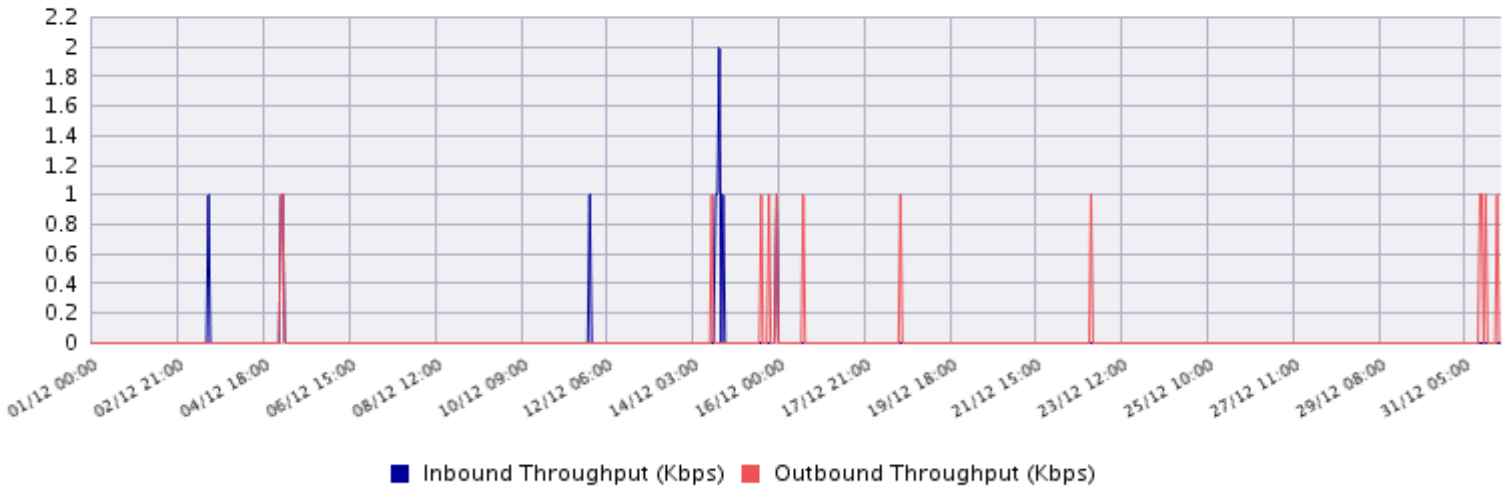
INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873

Level (3) COMMUNICATIONS
Connecting and Protecting the Networked World℠

Sede	**OACI - VENEZUELA**
Equipo	**ICAO_VENEZUELA**
Modelo	**Cisco1921k9**
IP de Gestión	**(172.21.6.202)**
Ciudad	**Maiquetía**

Interface: GigabitEthernet0/0.2196 - "CONEXION WAN" - Bandwidth: 256 Kbps

VALUES [Kbps]: PROM: (In: 0.01 | Out: 0.02) - MAX (In: 2 | Out: 1) - MIN (In: 0 | Out: 0) - PE95 (In: 0 | Out: 0)



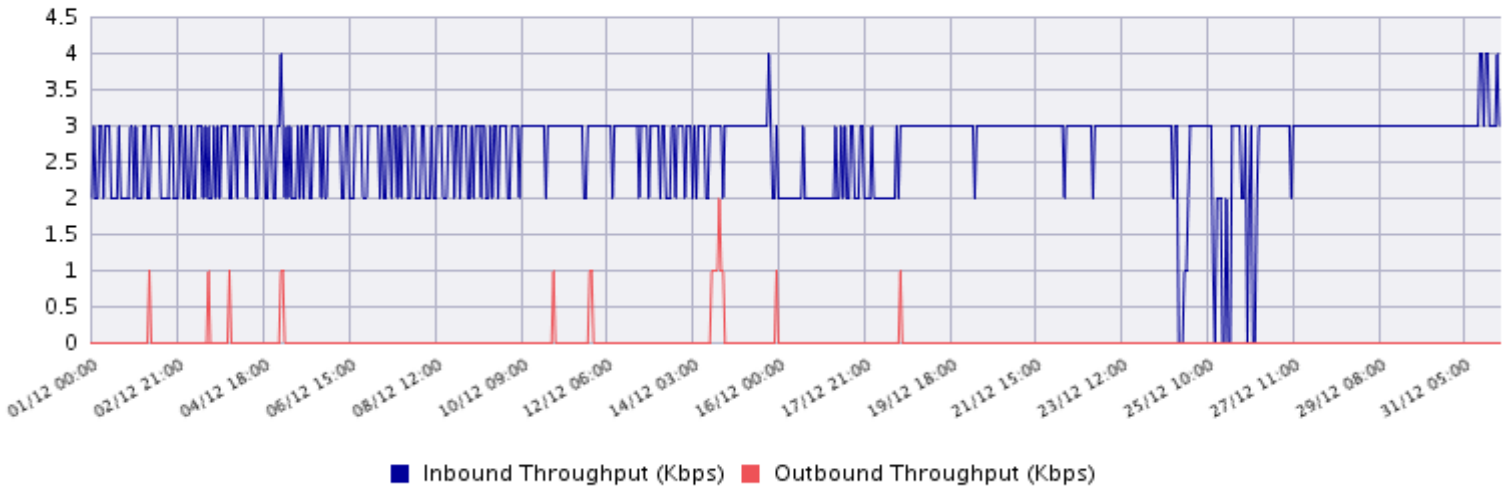
Reporte de Tráfico Entrada/Salida y Errores, Diciembre 2015

INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873

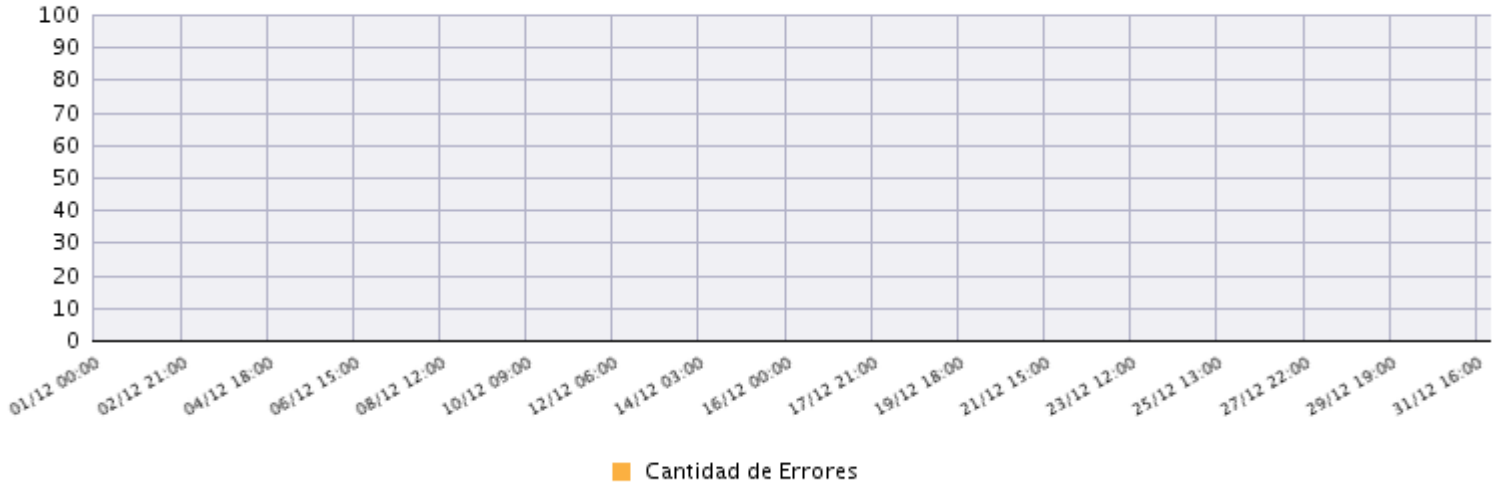
Level (3) COMMUNICATIONS
Connecting and Protecting the Networked World℠

Interface: GigabitEthernet0/1 - "CONEXION LAN" - Bandwidth: 1,000,000 Kbps

VALUES [Kbps]: PROM: (In: 2.7 | Out: 0.02) - MAX (In: 4 | Out: 2) - MIN (In: 0 | Out: 0) - PE95 (In: 3 | Out: 0)



Cantidad de Errores: 0



Reporte de Tráfico Entrada/Salida y Errores, Diciembre 2015

INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873

Level (3) COMMUNICATIONS

Connecting and Protecting the Networked World℠

APPENDIX F

Result of acceptance tests and certification of Brasilia node

International Civil Aviation Organization

Contract No. 22501200 for the Provision of a New Regional Aeronautical Telecommunication Network (REDDIG II) and associated equipment and services for the REDDIG II Member States.

Attachment VI
Model Provisional Site/Final Network* Acceptance Test Certificate - Sample

The present certificate is to attest that the Provisional Site /Final Network* Acceptance Tests as stipulated in Article 13.0 of Contract N°22501200, signed on 6/02/2016, between ICAO and COFELY INEO ES has been carried out and proved to be satisfactory, for the following items (or part of items) :

Comments (if any) : All tests OK, except :

- ibuc and LNB Redundancy NOK
- Level 3 equipment installation pending (with all tests)
- ATS, Mat lines, AFTN pending test
- Teleconference pending

*= mark applicable

Ing. CAMUS DAVID
REDDIG II PROJECT GROUP Representative

06/02/2016
Date

Vitor dos Santos Alves
CAP QOEA COM
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06/02/2016
Date

COFELY INEO
GDF SUEZ

Level(3)

Provisional Site Acceptance Test
Network Acceptance Test

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1 INTRODUCTION

This document presents the procedure for the Provisional Site Acceptance Test of the REDDIG II site of Brasilia (SBBR).

Tests will be processed as follows:

- Checking of the racks cabling and serial numbers
- Tests of communications links between the sites
- Tests of outdoor equipment capabilities
- Tests of indoor equipment capabilities
- Tests of the monitoring system

2 CABLING OF THE RACKS

2.1 CABLE CHECKING

☐ Check that the configuration of the racks are according to the drawings provided

DESIGNATION	Number
Block diagram	SH 2022 2147241 2
Rack layout	PL 2022 2147242L
Cable set	PL 2022 214 2504L

Figure 1 - Plan list

2.2 POWER CHECKING

Verify that new breakers were installed when required, for indoor devices. If the client provided new breakers or new power box, note it as Not Applicable (NA).

Test	Results (Ok/Nok/NA)
New breakers installed	OK
Comment	

3 LEVEL 3 TESTS

The tests for LEVEL 3 network verification will be simple (ping for network delay and delay variation, phone calls for voice quality), as no specific tools are foreseen to check this network, except LEVEL 3's website itself.

Send 100 ping to each gateway (.254) and check the results :

Ping (100 sent)	Dealy min	Delay Max	Delay average	Missed ping (lost)
Argentina				
Bolivia				
Brazil (Curitiba)				
Brazil (Manaus)				
Brazil (Recife)				
Chile				
Colombia				
Ecuador				
French Guiana				
Guyana				
Paraguay				
Peru				
Suriname				
Trinidad and Tobago				
Uruguay				
Venezuela				

06.02.2016 : equipment have not been installed yet.

4 OUTDOOR UNITS

4.1 ANTENNA MODIFICATION

4.1.1 Antenna installation

Check the installation of the different parts of the Antenna:

	Installation OK/NOK	Commentary
Concrete base	OK	
Vault access	OK	
Antenna installation	OK	
Power cables	OK	
Grounding cable	OK	
RF cables	OK	

4.1.2 Outdoor units

This section is to filled at the end of the migration, when all weather protections are installed.

	IBUC A	IBUC B	TX 1+1	RX 1+1	LNB A	LNB B	WG switch Tx	WG switch Rx
Coaxial connector protection	OK	OK	OK	OK	OK	OK	NA	NA
Communication cable protection	OK	OK	OK	OK	OK	OK	OK	OK
Power cable protection	OK	OK	OK	OK	OK	OK	OK	OK

4.2 LINE-UP

4.2.1 SSPA (IBUC)

During outdoor units installation, in accordance with Intelsat, proceed to the polarization and alignment adjustment. No spectrum analyser is foreseen on each site (it depends on each ANSP), hence Intelsat will guide each station.

Test	Results (Ok/Nok)
Polarization alignment	OK
Line-up with Intelsat (during installation)	OK
Comments Cross-polarisation isolation : 30 dB.	

Adjust the SSPA power using their internal attenuator to get the same power (0.1 dB margin). Use a modulated carrier sent by the Skywan, the satellite network being offline.

Device	Attenuation	EsNoOwn
IBUC A	16 dB	NA
IBUC B	16 dB	NA
Skywan A	3 dB	
Skywan B	2 dB.	
Result: IBUC power adjustment (Ok/Nok):	OK/NOK: OK	
Comments		

4.2.2 Skywan line-up

Device	Attenuation	EsToNoOwn/ Max	EsToNoRef
Skywan A	3 dB	12,3 dB	12,5dB
Skywan B	2 dB	12,3 dB	12,5dB
Sync loss when IBUC switching	OK/NOK: OK		
Comments			

5 MIGRATION ON VSAT NETWORK

The communication tests will be achieved on both VSAT chain, A and B.

5.1 ADMINISTRATIVE VOICE

After migrating the service, being in chain A, fill the following table, then do it again for chain B.

Admin	Argentina	Bolivia	Brazil (Curitiba)	Brazil (Manaus)	Brazil (Recife)	Chile	Colombia	Ecuador	French Guiana	Guyana	Paraguay	Peru	Suriname	Trinidad and Tobago	Uruguay	Venezuela	*Tegucigalpa*
Brasilia																	

Figure 2 - Administrative cross matrix – **chain A**

Admin	Argentina	Bolivia	Brazil (Curitiba)	Brazil (Manaus)	Brazil (Recife)	Chile	Colombia	Ecuador	French Guiana	Guyana	Paraguay	Peru	Suriname	Trinidad and Tobago	Uruguay	Venezuela	*Tegucigalpa*
Brasilia																	

Figure 3 - Administrative cross matrix – **chain B**

Check the dialing plan (configuration) with the *show run* command.

- Admin line 3401 ok
- Pending test with switched lines (cable pin pending).

5.2 ATS SWITCHED CIRCUITS

After migrating the service, being in chain A, fill the following table, then do it again for chain B.

Admin	Argentina	Bolivia	Brazil (Curitiba)	Brazil (Manaus)	Brazil (Recife)	Chile	Colombia	Ecuador	French Guiana	Guyana	Paraguay	Peru	Suriname	Trinidad and Tobago	Uruguay	Venezuela	*Tegucigalpa*
Brasilia																	

Figure 4 – ATS/DS cross matrix – **chain A**

Admin	Argentina	Bolivia	Brazil (Curitiba)	Brazil (Manaus)	Brazil (Recife)	Chile	Colombia	Ecuador	French Guiana	Guyana	Paraguay	Peru	Suriname	Trinidad and Tobago	Uruguay	Venezuela	*Tegucigalpa*
Brasilia																	

Figure 5 – ATS/DS cross matrix – **chain B**

- Pending test with switched lines.

5.3 AFTN CIRCUITS

After migrating the service, being in chain A, fill the following table.

Do the tests for both A and B chains.

AFTN	OK/NOK
Brasilia □ Cayenne	NOK
Cayenne □ Brasilia	NOK

Figure 6 - AFTN interfaces

5.4 AMHS

Admin	Argentina	Bolivia	Brazil (Curitiba)	Brazil (Manaus)	Brazil (Recife)	Chile	Colombia	Ecuador	French Guiana	Guyana	Paraguay	Peru	Suriname	Trinidad and Tobago	Uruguay	Venezuela	*Tegucigalpa*
Brasilia	OK																

Figure 7 – AMHS test cross matrix – chain A

Admin	Argentina	Bolivia	Brazil (Curitiba)	Brazil (Manaus)	Brazil (Recife)	Chile	Colombia	Ecuador	French Guiana	Guyana	Paraguay	Peru	Suriname	Trinidad and Tobago	Uruguay	Venezuela	*Tegucigalpa*
Brasilia																	

Figure 29 – AMHS test cross matrix – chain A

Test done with specific VLAN Port : OK

5.5 TELECONFERENCE

Establish a conference with all the members.

Teleconference – Manaus	OK/KO	Comment
Sites participating:	Pending Test	
Comments		

Figure 8 - Teleconference - chain A

Teleconference - Ezeiza	OK/KO	Comment
Sites participating:	Pending Test	
Comments		

Figure 9 - Teleconference - chain B

6 REDUNDANCY TESTS

6.1 OUTDOOR UNITS

6.1.1 Tx Switch

The IBUC (Intelligent Block Up Converter) are in a redundant configuration on every site. This test will validate the redundancy of the C-band power amplifiers.

Check that the LEDs are green.
Check that there are no alarms on the site with the IBUC webpage. Disconnect one RF cable from the online IBUC and check that the standby transmit chain becomes active.

In order to test the switching is working both way, do the test for the other IBUC.

Test	Results (Ok/Nok)
IBUC A to B	NOK
IBUC B to A	NOK
Comments:	
Redondant system is fault	

Figure 10 - TX switch test

6.1.2 Rx Switch

This test will validate the redundancy of the low noise amplifiers (LNB).

Check that the LEDs are green.
Check that there are no alarms on the LNB. Disconnect the cable from the online LNB and check that the standby chain becomes active.

Do the test for the other LNB.

Test	Results (Ok/Nok)
LNB A to B	KO
LNB B to A	KO
Comments:	
Manual is OK But Automatic switching is not.	

Figure 11 - RX switch test

6.2 EQUIPMENT FAILURE

The system must be in primary mode (Skywan A and Cisco A active) for each test. Check that the NMS detects the failure and present it to the user ("Supervision" test).

6.2.1 Cisco failure

Switch off one of the active Cisco. After life-time timeout NMS checking, the system commutes into chain B (transmission over chain B and gateway is set to chain B).

Verify that the gateway is now on the chain B and that the communications are re-established following this procedure

Previous verifications		**Results**	
Gateway check		OK	
RSS position		OK	
NMS state (device A and B are up)		OK	
Service on chain B	**Test**	**OK**	**NOK**
Supervision	Visualisation of the state on the NMS	OK	
AFTN	Cisco bstun checking		
ATS / Maintenance	phone call		
NMS state cisco A	See that equipment is down	OK	
NMS state cisco B	See that equipment is up	OK	
Comments	pending AFTN / ATS / Mnt test		

Figure 12 - Cisco redundancy test table

Switch on the Cisco A.
Once its reboot is finished, go into normal mode

Verify that the services are functional .

Previous verifications		Results	
Gateway check		OK	
RSS position		ok	
Service on chain A	**Test**	**OK**	**NOK**
Supervision	Visualisation of the state on the NMS	OK	
AFTN	Cisco bstun checking		
ATS / Maintenance	phone call		
NMS state cisco A	See that equipment is up	OK	
NMS state cisco B	See that equipment is up	OK	
Comments	Same commentary p. 19		

Figure 13 - Cisco redundancy test table – going to normal

6.2.2 SkyWAN failure

Switch off the active SkywWAN. After life-time timeout of the monitored test, the system commutes into backup mode (chain B becomes active and have the gateway).

Verify that the communications are re-established following this procedure

Previous verifications		Results	
Gateway check		OK	
RSS position		OK	
NMS state (device A and B are up)		OK	
Service on chain B	**Test**	**OK**	**NOK**
Supervision	Visualisation of the state on the NMS	OK	
AFTN	Cisco bstun checking		
ATS / Maintenance	phone call		
Supervision	Visualisation of the state on the NMS	OK	
NMS state SW A	See that equipment is down	OK	
NMS state SW B	See that equipment is up	OK	
Comments	See p.19		

Figure 14 - Skywan redundancy test table

Switch on the equipment and go back to normal. Verify that the services are re-established with those tests:

Previous verifications		Results	
Gateway check		OK	
RSS position		OK	
Service on chain A	**Test**	**OK**	**NOK**
Supervision	Visualisation of the state on the NMS	OK	
AFTN	Cisco bstun checking		
ATS / Maintenance	phone call		
NMS state SW A	See that equipment is up	OK	
NMS state SW B	See that equipment is up	OK	
Comments	See p.19		

Figure 15 - Skywan redundancy test table – going to normal

6.2.3 IP switch failures

Switch off the IP switch of chain A. IP connections to this switch become naturally inactive. Verify that legacy and voice applications are not compromised, and that the system goes to B.

Previous verifications		Results	
Gateway check		OK	
RSS position		OK	
NMS state (device A and B are up)		OK	
Service on chain B	**Test**	**OK**	**NOK**
Supervision	Visualisation of the state on the NMS	OK	
AFTN	Cisco bstun checking		
ATS / Maintenance	phone call		
NMS state SwitchA	See that equipment is down	OK	
NMS state Switch B	See that equipment is up	OK	
Comments	See p.19		

Figure 16 - IP switch A failure test

The IP switch B carries the NMS and the equipments of chain B, so the chain B is still working. Normalize the situation on chain A. Check that the services are fine.

Previous verifications		Results	
Gateway check		OK	
RSS position		OK	
Service on chain A	**Test**	**OK**	**NOK**
Supervision	Visualisation of the state on the NMS	OK	
AFTN	Cisco bstun checking		
ATS / Maintenance	phone call		
NMS state SwitchA	See that equipment is up	OK	
NMS state Switch B	See that equipment is up	OK	
Comments	See p.19		

Switch off the switch of chain B. The system remains on chain A. Check that the services are fine.

Previous verifications		Results	
Gateway check		OK	
RSS position		OK	
Service on chain A	**Test**	**OK**	**NOK**
Supervision	Visualisation of the state on the NMS	OK	
AFTN	Cisco bstun checking		
ATS / Maintenance	phone call		
NMS state SwitchA	See that equipment is up	OK	
NMS state Switch B	See that equipment is down	OK	
Comments	See p19		

When switch B recovers, the system can switch to B, as the monitoring system (which takes the decision to switch from A to B) as no communication to chain A and can detect this situation as chain B failure.

6.2.4 RSS switch failures

Switch off the power supply. Verify that the RSS stood still and that the communications are not affected:

Previous verifications		Results	
Gateway check		OK	
RSS position		OK	
NMS state (device is/are up)		OK	
Service	**Test**	**OK**	**NOK**
Supervision	Visualisation of the state on the NMS	OK	
AFTN	Cisco bstun checking		
ATS / Maintenance	phone call		
NMS state RSS	See that equipment is down	OK	
Comments	See pg 19		

Figure 17 - RSS failure test table

7 GROUND BACKBONE TEST

7.1 BACKUP TEST

Switch of both Skywan modems or disconnect their TX and RX cables. The system goes to B as this failure is seen at first sight as a chain A failure.

After dynamic routing process and routing re-establishment (this process takes up to three minutes, tp be précised during the integration), the services are re-routed to the ground backbone.

Expected down time is 3min (to be adjusted during the integration).

Verify that the services are operational, inside the leased bandwidth and that the other sites remain on VSAT as main link (only the services associated to the "down" station goes through the ground backbone).

Previous verifications		**Results**	
Gateway check			
RSS position			
Service	**Test**	**OK**	**NOK**
Supervision	Visualisation of the state on the NMS		
AFTN	Cisco bstun checking		
ATS / Maintenance	phone call		
Comments			

Figure 18 - Backup test

- pending Level 3 installation.

For each service, verify with wireshark that the DSCP fields are correct.

Service	DSCP	ToS
RADAR and ADS	AF41	PAMA
Asterix	AF41	PAMA
Voice	EF	DAMA real time dynamic
AFTN	AF31	DAMA
AMHS	AF31	DAMA
AIDC	AF31	DAMA
NMS	AF21	DAMA

7.2 DEDICATED LINKS

In the event of VSAT network being down (modem A&B and/or router A&B down), the dedicated links are AFTN and switched voice.

7.2.1 AFTN

The AFTN devices connected to the GBB router are the same as the VSAT backbone, but in restricted quantity. Only some of them are present. For Brasilia, Cayenne connection is maintained.

AFTN on GBB network	OK/ NOK
Brasilia □ Cayenne	
Cayenne □ Brasilia	

- pending Level 3 installation.

7.2.2 Voice

The dialed switched voice of the GBB router are dedicated to the GBB. They are used as emergency interfaces.

ATS switched	Dialled number ATS	Dialled number Mnt
Brasilia	03400	03499

Figure 19 - Dedicated emergency numbers

A telephone must be manually connected to these interfaces.

- pending Level3 installation.

8 NETWORK MANAGEMENT STATIONS (NMS) TESTS

Windows 2008	Local	Central
Login	administrateur	Reddig\Administrator
Password	C0fely_Ine0	PA$$w0rd123

WUG admin	Local	Central
Login	admin	admin
Password	C0fely_Ine0	C0fely_Ine0

WUG user	Local	Central
Login	XXXX	LocalUser
Password	XXXXuser	LocalUser

XXXX is the 4 letter ICAO code of each site.

8.1 SUBMAP CONTENT CONFIGURATION

The purpose of this test is to check the submap configuration.

8.1.1 Tests description:

From the thin client, connect to VSATWUG, and open WUG console, and within each submap check device color is green.
For each device, unplug ethernet cable to test alarm, device goes in with red color.

Local NMS

Device name	Description	IP Address	Results		Alarm test	
			OK	NOK	OK	NOK
Cisco A1	CISCO	10.100.34.101				
Cisco A2	CISCO	103				
Cisco A3	CISCO	/				
Cisco B1	CISCO	102				
Cisco B2	CISCO	104				
Cisco B3	CISCO	/				
Switch A	SWITCH	51				
Switch B	SWITCH	52				
Skywan A	SKYWAN	31				
Skywan B	SKYWAN	32				
Ground Backbone	CISCO	121-122				
Ibuc A	IBUC	41				
Ibuc B	IBUC	42				
VPN	VPN	60				
LNB	LNB	43				
Switch AB	SWITCH RSS	71/72				
Comments:						

Figure 20 – NMS submap

Active monitoring

Tests description:

Connect to WhatsUp Gold web console. Following test will be done:

- Skywan
  - Wan State: disconnecting wan cable,
  - TDMA Frame Synchronization: disconnecting cable
- CISCO
  - Fan status: same as state displayed in equipment console
  - Temperature state: same as state displayed in equipment console
  - Serial port operational status: disconnecting serial cable
  - Digital port operational status: disconnection digital cable
- RSS Switch
  - Power supply status: same as state displayed in equipment console
- IBUC
  - Switch fault: same as state displayed in equipment console
  - Alarm temperature state: same as state displayed in equipment console
  - Input level high: same as state displayed in equipment console
  - Output level high: same as state displayed in equipment console
  - Input level low: disconnecting cable
  - Output level low: disconnecting cable
- LNB
  - Current Level High on A position: same as state displayed in equipment console
  - Current Level Low on A position: same as state displayed in equipment console
  - Voltage Level High on A position: same as state displayed in equipment console
  - Voltage Level Low on A position: same as state displayed in equipment console
  - Input Level Low on A position: disconnecting cable
  - Current Level High on B position: same as state displayed in equipment console
  - Current Level Low on B position: same as state displayed in equipment console
  - Voltage Level High on B position: same as state displayed in equipment console
  - Voltage Level Low on B position: same as state displayed in equipment console
  - Input Level Low on B position: disconnecting cable

On the device detail view, verify that information displayed is correct.

8.1.2 Local NMS

Interface tested	Results OK	NOK
Skywan A		
☐ Wan state in red		
☐ TDMA Frame synchronization in red		
Skywan B		
☐ Wan state in red		
CISCO A		
☐ FAN State same state as displayed		
☐ Temperature State same state as displayed		
☐ Serial port operational status in red		
☐ Digital port operational status in red		
CISCO B		
☐ FAN State same state as displayed		
☐ Temperature State same state as displayed		
☐ Serial port operational status in red		
☐ Digital port operational status in red		
RSS Switch		
☐ Power supply state same state as displayed		
IBUC A		
☐ Switch fault same state as displayed		
☐ Alarm temperature same state as displayed		
☐ Input level high same state as displayed		
☐ Output level high same state as displayed		
☐ Input level low in red		
☐ Output level low in red		
IBUC B		
☐ Switch fault same state as displayed		
☐ Alarm temperature same state as displayed		
☐ Input level high same state as displayed		
☐ Output level high same state as displayed		
☐ Position of the IBUC on waveguide switch same state as displayed		
☐ Input level low in red		
☐ Output level low in red		
LNB		
☐ Current Level High (A) same state as displayed		
☐ Current Level Low (A) same state as displayed		
☐ Voltage level high (A) same state as displayed		
☐ Voltage level low (A) same state as displayed		
☐ Input level low (A) in red		

Interface tested	Results OK	NOK
☐ Current Level High (B) same state as displayed		
☐ Current Level Low (B) same state as displayed		
☐ Voltage level high (B) same state as displayed		
☐ Voltage level low (B) same state as displayed		
☐ Input level low (B) in red		
Comments:		

Figure 21 – Local NMS active monitoring

8.2 PERFORMANCE MONITOR

8.2.1 Tests description:

Connect to WhatsUp Gold web console. Following test will be done:

- Skywan
  - TDMA Frame Utilization Chanel 1 (on master station)
  - TDMA Frame Utilization Chanel 2 (on master station)
  - TDMA Frame Utilization Chanel 3 (on master station)
  - TDMA Es/No Own
- IBUC
  - Input Level
  - Output Level
  - Position of the IBUC on the waveguide switch
  - Position of the waveguide switch
- LNB
  - Current on A position
  - Input Level on A position
  - Current on B position
  - Input Level on B position
  - Switch position
- Switch A/B
  - Cards positions

On the device detail view, verify that information displayed is the same that the one displayed in equipment interface.

8.2.2 Local NMS

Interface tested	Results OK	NOK
Skywan A		NA
☐ TDMA Frame Utilization Chanel 1 (only master)		NA
☐ TDMA Frame Utilization Chanel 2 (only master)		NA
☐ TDMA Frame Utilization Chanel 3 (only master)		NA
☐ TDMA Es/No own	OK	
Skywan B		
☐ TDMA Es/No own	OK	
IBUC A		
☐ Input Level	OK	
☐ Output Level	OK	

Interface tested	Results OK	NOK
☐ Position of the Ibuc on the waveguide switch		
☐ Postion of the waveguide switch		
IBUC B		
☐ Input Level		
☐ Output Level		
☐ Position of the Ibuc on the waveguide switch		
☐ Postion of the waveguide switch		
LNB		
☐ Current Level High (A) same state as displayed		
☐ Current Level Low (A) same state as displayed		
☐ Voltage level high (A) same state as displayed		
☐ Voltage level low (A) same state as displayed		
☐ Input level low (A) in red		
☐ Current Level High (B) same state as displayed		
☐ Current Level Low (B) same state as displayed		
☐ Voltage level high (B) same state as displayed		
☐ Voltage level low (B) same state as displayed		
☐ Input level low (B) in red		
☐ Postion of the waveguide switch		
Switch A/B		
☐ Each card position		
Comments:		

Figure 22 – Local NMS performance monitor

8.3 TEST OF CONNECTION THROUGH SERIAL PORT

Tests description:

Test the connection to equipment native console through serial port.

Local NMS

Test	Results OK	NOK
☐ Cisco A1		
☐ Cisco A2		
☐ Cisco A3		
☐ Cisco B1		
☐ Cisco B2		
☐ Cisco B3		
☐ Switch A		
☐ Switch B		
☐ Skywan A		
☐ Skywan B		
☐ Ground Backbone		
☐ Switch AB		
Comments:		

9 PSAT - LIST OF PARTICIPANTS

ENTERPRISE	NAME	RESPONSABILITY	SIGNATURE
INEO	CAMUS DAVID	Technical Manager	
CINDACTA I	VITOR SANTOS ALVES	CHEFE SEÇÃO ENLACES	
CINDACTA I	THIAGO DE MELO MAIA	TÉCNICO DA SEÇÃO ENLACES	

APPENDIX G

QUOTATION REQUEST FOR THE RELOCATION OF REDDIG II NODE BOGOTA

4202-2015

Bogotá, 13 October 13 2015

Subject: Relocation of REDDIG/MEVA node Bogota

Objective of the contract

Transfer, installation and commissioning of the node ELD REDDIG/MEVA equipment from the current facilities of the Centro Nacional de Aeronavegación (CNA), to the Centro de Gestión Aeronáutico de Colombia (CGAC).

VS Status of the new site

Picture No. 1 shows the location of El Dorado Airport of Bogota City, with the indication of the current locations of the node in the CAN coordinates Lat. 4°41'44.83" N – Long. 74°8'21.89" W and also the new site where the equipment will be installed in the CGAC, inside the internal areas of the airport coordinates Lat. 4°42'21" N – Long. 74°09'11" W (referred to WGS84).

In Picture No. 2 the general perspective of the new Aeronautical Complex of the CGAC and Control Tower can be seen, which has a total high of 89 Mts.

PICTURE No. 1 EL DORADO INTERNATIONAL AIRPORT– BOGOTA (COL)

PICTURE No. 2 CGAC AERONAUTICAL COMPLEX- NEW TWR EL DORADO

Scope of the job

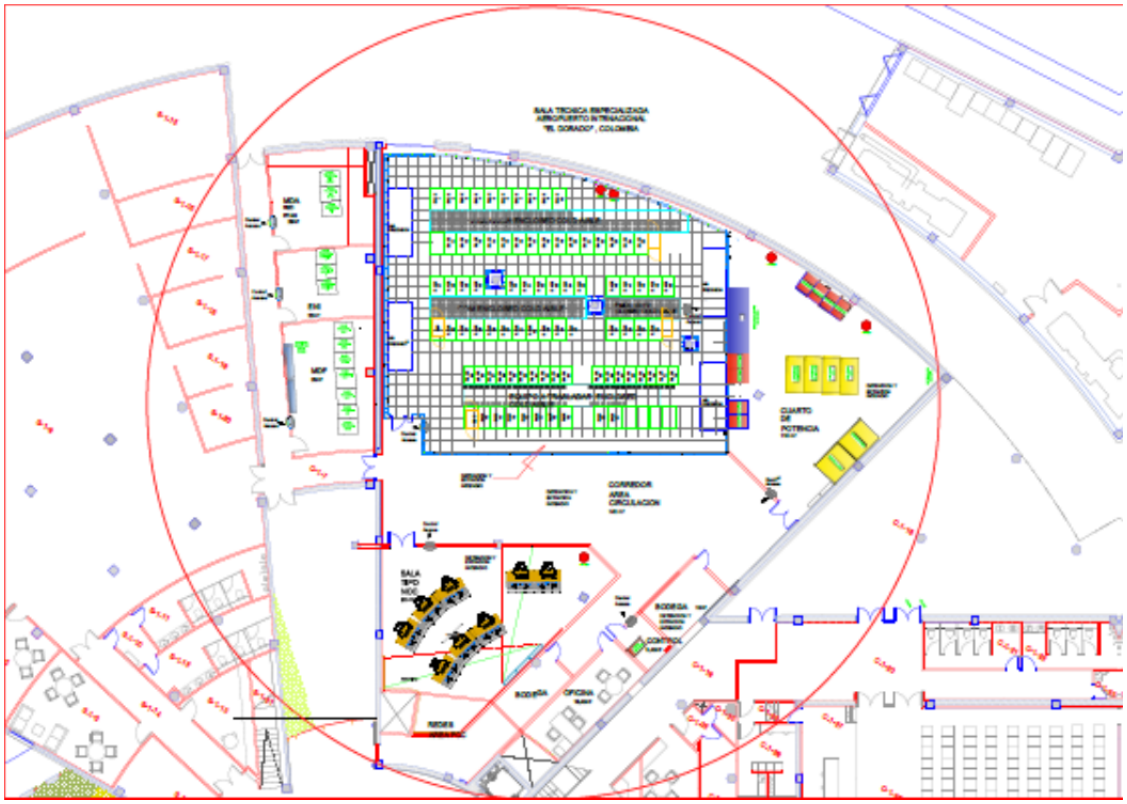
1. Removal of Indoor equipment from the CNA technical room of the CNA to CGAC
2. Removal from the Outdoor equipment from CAN and transfer to the perimeter areas of the CGAC
3. Removal and relocation of the current antenna (See Notes 1 and 2)
4. Installation and commissioning of Indoor equipment in the technical room of the CGAC, including: location of cabinets, rush power and protection from distribution wiring panel, voice and data panel patch.
5. Installation and commissioning of Outdoor equipment in CGAC, including: HPA´s, LNB´s, commutating switches, protection systems and others.
6. Installation IFL cables, protections and required connections between Indoor-Outdoor equipment
7. Commissioning and settings of the node inside the network
8. Accessories supply, wiring and system setup
9. Perform the interconnectivity and guarantee the operability of voice and data services

- Note 1: It should be noted that prior to the process, during the RCC/17 Meeting hold in Lima on April 2014, Colombia mentioned the new building and the project. Also in order to reduce the operational impact for the relocation of the system, the Aerocivil could provide the antenna to be installed in the new premises. Pictures, brochure and technical specifications of the antenna are enclosed for manufacturer validation, with the intention of reducing the operational costs and risks of the relocation.

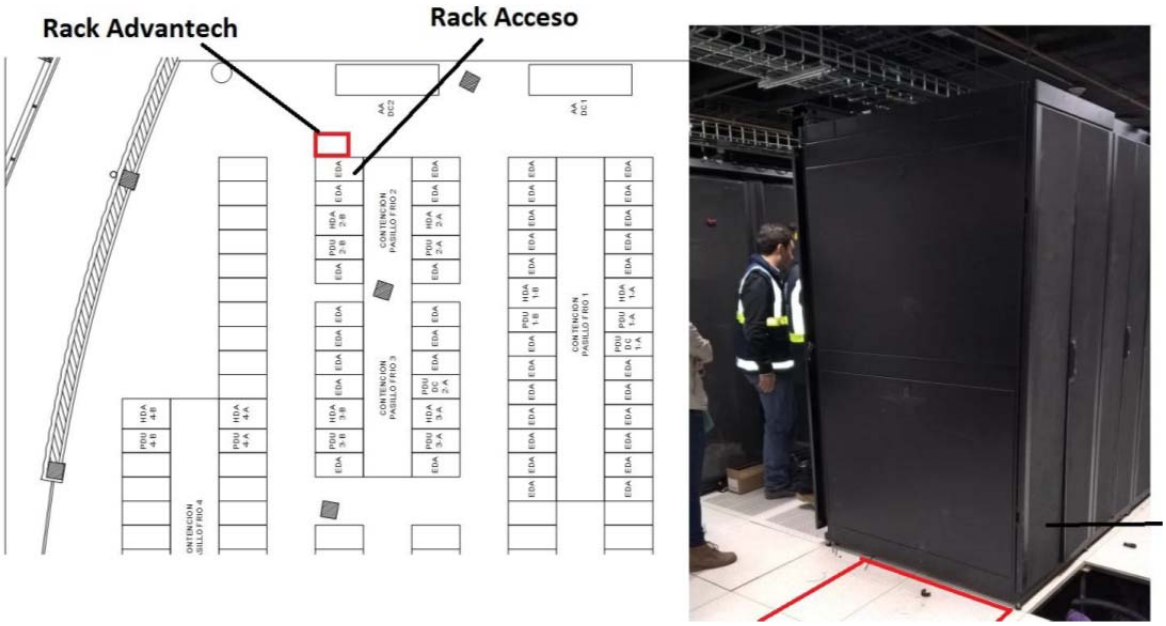
- Note2: Similarly, if the antenna is supported by INEO, it must be mentioned whether the Aerocivil would have the responsibility of mounting it or the manufacturer should make it for warrantee purposes.

Aerocivil provides and guarantees in the new site of installation, spaces or areas required for installation of the OUTDOOR and INDOOR equipment for the node, in the same way the supply of regulated electric power and protection for equipment, cable trays, ducts, boxes step e inspection, cabinets, air conditioning and other accessories that are required for the operation of the REDDIG/MEVA equipment.

In pictures No. 3 and 4 it can be observed the general distribution of the new technical room (NOC) built in the CGAC, which has all the facilities for the equipment installations (cabinets or standard racks that can be arrange for the equipment, power supply, air conditioning, protections, wiring distribution and management system for equipment control of access to room, etc. are available).



PICTURE No. 3 GENERAL DISTRIBUTION OF NOC TECHNICAL ROOM LOCATED AT CGAC

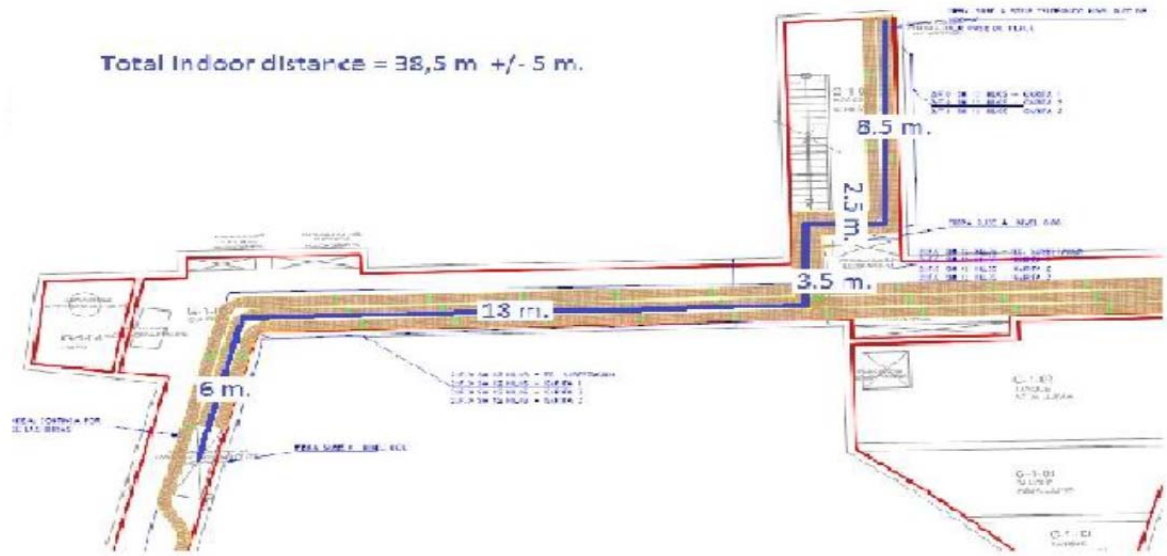


PICTURE No. 4 DISTRIBUCION AND RACK TYPES LOCATED IN THE NOC OF THE GCA

PICTURES BELOW SHOW THE AREA DESIGNATED FOR THE ANTENNA INSTALLATION, POINT FROM WHICH IS HAS VENTILATION AND INSPECTION BOXES FOR IFL LAYING CABLE, GROUND SYSTEM AND POWER

THE FOLLOWING PICTURES SHOW THE APROX. DISTANCE FROM THE ANTENNA TO THE NOC TECHNICAL ROOM AND WIRING FROM THE ANTENNA LOCATION

Antenna to perimeter entrance = 89 m.
Antena to Equipment Room entrance = 89 + 38,5 m = 127, 5 m.
Antenna to Equipments Rack = 127,5 + 25 m. = 152,5 +/- 5 m.



Eng. Smarrelli, according to previously reported and very respectfully, we request your assistance with the contractor INEO/LEVEL3 in order to receive their quotation as soon as possible as well as any requirements deemed necessary for making such transfer.

The urgency of our application responds to our entity internal need to make the corresponding administrative and financial arrangements to guarantee the payment of the service contracted and its incorporation in the current contract of ICAO, with your valuable support as General Coordinator of the project.

Additional requests or extensions to this document will be in total availability to clarify or complement. At the same time Eng. Onofrio has considered pertinent a visit the location by the contractor to assess particular details and evaluate the request more directly. Finally, characteristics and photos of our antenna available for the network are attached for your evaluation and verification. We highly appreciate your attention to this request and look forward to your comments and additional requirements.

3.7M VSAT Antenna (Ref. C37T Banda C disponible para instalar)

Electrical Specification					
Type		C37T		K37T	
Operating Frequency, GHz		C-Band		Ku-Band	
		Receive	Transmit	Receive	Transmit
		3.625~4.2	5.85~6.425	10.95~12.75	13.75~14.5
Gain, Mid-band, dBi		41.94	45.52	51.24	52.55
Polarization		Linear/Circular		Linear	
XPD(on Axis), dB		35	35	35	35
XPD across 1dB Beam Width, dB		33	33	33	33
Axial Ratio (Circular-Polarized)	2-Port Feed 4-Port Feed	1.30 1.06	1.09 1.06		
VSWR		1.25	1.25	1.25	1.25
Antenna Noise Temperature 2-port feed 10° Elevation 30° Elevation 50° Elevation		35K 29K 25K		49K 39K 35K	
-3 dB Beam Width, Mid-band		1.31°	0.87°	0.43°	0.38°
Typical G/T(EL>10°)		24dB/K (30° LNA)		30.6dB/K (70° LNA)	
Tx. Power Capability, KW			5		2
Feed Interface		CPR—229F	CPR—137F	WR-75	WR-75
Feed Insertion Loss,dB		0.2	0.2	0.25	0.25
Isolation, Tx to Rx, dB		85		85	

First Side lobe 90% Peaks under Following Envelop	-14 29-25logθ(1°≤θ<20°)	-14 29-25logθ(1°≤θ<20°)
Mechanical Specification		
Antenna Diameter	3.7m	
Antenna Type	Ring Focus	
Surface Accuracy(RMS)	≤0.35mm	
Antenna Pointing Range	Azimuth Elevation Polarization	±85° 0°~90°(Continuous) ±90°(Continuous)
Drive Mode	Manual or Motorized	
Motor Drive System	Azimuth Travel Rate Elevation Travel Rate	0.30°/S(0.06°/S) 0.20°/S(0.04°/S)
Environmental Specification		
Operational Wind	72km/h gusting to 97km/h	
Survival Wind	200km/h	
Temperature	-40°~+60°	
Relative Humidity	100%	
Solar Radiation	1135Kcal/h/m²	
Seismic(Survival)	0.3g(H), 0.15g(V)	


WARNING

APPENDIX I

AMHS INTERCONNECTION REQUIREMENT AND DATE OF IMPLEMENTATION

STATE	AMHS INTERCONNECTION REQUIREMENT/	DATE OF IMPLEMENTATION/	REMARKS
Argentina	Bolivia	Mar 2016	
	Brazil	Dec 2015	Operational implementation pending.
	Chile	Dec 2016	
	Paraguay	Mar 2012	Implemented
	Peru	Nov 2015	
	Uruguay	Jun 2016	
Bolivia	Argentina	Mar 2016	
	Brazil	Apr 2016	
	Peru	May 2016	
Brazil	Argentina	Dec 2015	Operational implementation pending
	Bolivia	Apr 2016	
	Colombia	Mar 2016	
	Guyana	Mar 2016	
	French Guiana	TBD	AMHS implementation pending
	Paraguay	Dec 2015	
	Peru	Nov 2015	
	Suriname	Dec 2016	
	Uruguay	Dec 2015	
	Venezuela	Dec 2016	
Chile	Argentina	Dec 2016	
	Peru	Dec 2015	
Colombia	Brazil	Mar 2016	
	Ecuador	Dec 2015	
	Panama	Dec 2016	
	Peru	Sep 2010	Implemented
	Venezuela	Jun 2016	
Ecuador	Colombia	Dec 2015	
	Peru	Jul 2012	Implemented
	Venezuela	Dec 2016	
French Guiana (France)	Brazil	TBD	AMHS implementation pending
	Venezuela	TBD	AMHS implementation pending
Guyana	Brazil	Mar 2016	

STATE	AMHS INTERCONNECTION REQUIREMENT/	DATE OF IMPLEMENTATION/	REMARKS
	Suriname	Jun 2011	Implemented
	Venezuela	Dec 2016	
Panama	Colombia	Dec 2016	
Paraguay	Argentina	Mar 2012	Implemented
	Brazil	Dec 2015	
Peru	Argentina	Nov 2015	
	Bolivia	May 2016	
	Brazil	Nov 2015	Operational implementation pending.
	Chile	Dec 2015	
	Colombia	Sep 2010	Implemented
	Ecuador	Jul 2012	Implemented
	Venezuela	Jun 2016	
Suriname	Brazil	Dec 2016	
	Guyana	Jun 2011	Implemented
	Venezuela	Jun 2016	
Uruguay	Argentina	Jun 2016	
	Brazil	Dec 2015	
Venezuela	Brazil	Dec 2016	
	Colombia	Jun 2016	
	Ecuador	Dec 2016	
	Guyana	Dec 2016	
	French Guiana	TBD	AMHS implementation pending.
	Peru	Jun 2016	
	Suriname	Jun 2016	