



Organización de Aviación Civil Internacional
Oficina Regional Sudamericana – Proyecto Regional RLA/03/901
Sistema de Gestión de la REDDIG y Administración del Segmento Satelital
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Cuestión 4 del
Orden del Día: Plan de trabajo para el año 2016

ACTIVIDADES PREVISTAS PARA EL PERÍODO 2016

(Nota de estudio presentada por la Secretaría)

RESUMEN	
Esta nota de estudio presenta información relativa a las actividades previstas a ser realizadas por el Proyecto RLA/03/901 - <i>Sistema de gestión de la REDDIG y administración del segmento satelital</i> , para el 2016.	
Referencia	
<ul style="list-style-type: none">Décimo sexto taller reunión del Grupo de Implantación SAM (Lima, Perú, 19 al 23 de octubre de 2015).	
Objetivos estratégicos de la OACI:	<i>A – Seguridad operacional; y B – Capacidad y eficiencia de la navegación aérea</i>

1. **Introducción**

1.1 Las principales actividades programadas para realizarse en el 2016 son:

- a) Programa de entrenamiento de la REDDIG II; y
- b) Operación de la REDDIG II y análisis de implantación de nuevos servicios.

2. **Descripción**

Programa de entrenamiento de la REDDIG II

2.1 Para el 2016 están previstos los siguientes entrenamientos:

- ✓ *Curso básico de routers y switch IP CISCO parte II*
- ✓ *Curso de operación y mantenimiento de la REDDIG II*

Curso básico de router y switch IP CISCO parte II

2.2 Para completar el curso básico de router y switch CISCO del 4 al 8 de abril de 2016, está prevista la realización del segundo curso “*Interconnecting Cisco Network Devices Part 2 (ICND2)*”. El costo del curso (ICND2) para un máximo de 16 personas es de aproximadamente USD 7,200.00 (SIETE MIL DOSCIENTOS DÓLARES AMERICANOS). Adicionalmente a este costo hay que agregar el costo de la traducción simultánea, el costo de una misión (pasajes y viáticos del administrador de la REDDIG) de Manaus a Lima y el costo correspondiente a una beca por nodo.

2.3 El curso está orientado a personal a cargo de la operación y mantenimiento de la REDDIG preferiblemente que haya asistido al primer curso de “*Interconnecting Cisco Network Devices Part 1 (ICND1)*”. Los participantes tienen que tener una base sólida en redes de datos (data networking) y alguna experiencia de manejo de routers y switches CISCO.

2.4 En el curso ICND2 los participantes tendrán la oportunidad una vez completado el mismo de:

- Operar una red mediana (LAN) con múltiples switches, soporte VLANs, trunking, y protocolos de árbol de expansión
- Solución de problemas de conectividad IP
- Configurar y solucionar problemas de EIGRP en IPv4, ambiente y configuración EIGRP para IPv6
- Configurar y solucionar problemas de OSPF en IPv4, ambiente y configuración OSPF para IPv6
- Definir características, funciones y componentes de una WAN
- Describir SNMP, syslog y NetFlow y manejo de configuración de dispositivos Cisco, Cisco IOS imágenes y licencias

2.5 El **Apéndice A** resume el contenido del programa del curso ICND2.

Curso de operación y mantenimiento de la REDDIG II

2.6 Se tiene programado la realización de un curso de operación y mantenimiento de la REDDIG II para el personal técnico de los Estados miembros de la REDDIG II que no hayan asistido a los cursos de operación y mantenimiento de la REDDIG II que se efectuaron en el 2015.

2.7 Este curso se dictará uno en español del 5 al 9 de septiembre de 2016 en un Estado miembro de la Región SAM a determinar y otro en lengua inglesa del 26 al 30 de septiembre de 2016 en Georgetown, Guyana. El contenido del curso se presenta como **Apéndice B** de esta nota de estudio.

2.8 Los costos de ambos cursos incluyen para cada uno: misión (pasajes y viáticos del administrador de la REDDIG) de Manaos a la locación del curso y una beca por nodo.

Operación de la REDDIG II y análisis de implantación de nuevos servicios

Operación de la REDDIG II

Actividades para solucionar problemas pendientes de la REDDIG II

2.9 Tal como se describe en forma detallada en la NE/03 para el 2016 está previsto completar las actividades correspondientes a corregir el problema aleatorio de congelamiento de algunos de los MODEMs satelitales. La solución del problema ha sido sugerida por la empresa fabricante de los MODEMs ND SATCOM.

2.10 Las actividades para solucionar el problema de congelamiento están previstas completarse para marzo de 2016. En caso que la solución implementada solucione el problema de congelamiento se procederá a ejecutar las pruebas de aceptación final de la red REDDIG II (FSAT).

Pruebas FSAT

2.11 En este sentido para completar las pruebas de aceptación final de la REDDIG II (FSAT) el proveedor de la REDDIG II (INEO) de acuerdo al contrato de la REDDIG II (2250120) someterá a la gerencia del Proyecto de la REDDIG II un protocolo de pruebas y fecha de ejecución para la realización de las pruebas finales de aceptación. El protocolo de pruebas FSAT preliminar fue presentado por el consorcio INEO LEVEL 3 como parte de la documentación de diseño de la REDDIG II (SDD) el mismo se presenta como **Apéndice C** de esta nota de estudio. Este documento deberá ser actualizado por INEO en vista que la FSAT se hará solo para la red satelital considerando que la FSAT para la red terrestre ya se efectuó.

Servicios red terrestre LEVEL 3

2.12 Con la implantación de la Enmienda IV al contrato de la REDDIG II tal como se describe en forma detallada en la Nota de Estudio NE/03 se procedió a la aceptación final de los servicios de la red terrestre, de esta forma el 31 de diciembre de 2015 se completaron los seis meses de arrendamiento de los servicios sobre la red terrestre (LEVEL 3) previstos en el contrato de la REDDIG II.

2.13 De esta forma a partir del 1 de enero de 2016 se inició el periodo de 54 meses de arrendamiento de los servicios en la red terrestre de LEVEL 3 directamente entre la OACI en representación de todos los Estados miembros de la REDDIG y la empresa Level 3 Perú.

2.14 Como **Apéndice D** de esta nota de estudio se presenta el Acuerdo de Nivel de Servicio (SLA) contenido en el contrato de la REDDIG II como Apéndice XI. Tomando en cuenta que este SLA corresponde a los primeros seis meses de servicios, la Reunión tomando en cuenta el comportamiento de los servicios en este tiempo debería revisar si el mismo pueda seguir utilizándose de la misma forma para el restante periodo.

2.15 Level 3 informó a la gerencia del proyecto que presentará un informe mensual sobre la disponibilidad de los servicios en la red terrestre en este sentido como muestra del informe mensual se presenta como **Apéndice E** de esta nota de estudio, el informe de disponibilidad del mes de diciembre de 2015.

2.16 Asimismo LEVEL 3 informó que está revisando la información de la página WEB de correspondiente a nuestra red terrestre así como el procedimiento de reporte de falla y presentará los resultados a la brevedad. Para entrar a la página WEB de Level 3 hay que entrar al siguiente portal <http://latam.ucommand.com/nm/InfoViewApp/logon.jsp> colocar nombre de usuario: *icao* y clave: *level 3*.

Implementación nodo de Brasilia

2.17 El nuevo nodo de Brasilia entró en operación el 4 de febrero de 2016. Las pruebas de aceptación fueron realizadas y firmadas el 5 de febrero de 2016, como **Apéndice F** de esta nota de estudio se presenta el resultado de las pruebas y el certificado de aceptación del nodo. En estas pruebas de aceptación la prueba de conmutación del IBUC y LNB no estuvo bien y quedaron pendientes las pruebas AFTN, líneas calientes, telefonía IP y las pruebas con los servicios de la red terrestre por no estar disponible.

2.18 Al respecto INEO informó que las pruebas en los aspectos pendientes se realizaran en la fecha en la cual LEVEL 3 completará la instalación de conexión de su red al nodo de Brasilia que está estimada para finales del mes de marzo de 2016.

Traslado del nodo de Bogotá

2.19 El punto focal de Colombia el 13 de octubre de 2015 solicitó por intermedio de la gerencia del proyecto de la REDDIG II una cotización al consorcio INEO& LEVEL 3 para el traslado del actual nodo de Bogotá a una nueva localidad donde serán instalados los equipos del nuevo Centro de Gestión Aeronáutico de Colombia (CGAC), el cual se encuentra dentro de las áreas internas del actual Aeropuerto internacional de Bogotá en las coordenadas Lat. 4°42'21" N – Long. 74°09'11" W.

2.20 Las actividades inicialmente consideradas para el traslado del nodo de Bogotá se presentan como **Apéndice G** de esta nota de estudio, en la misma se solicita que INEO analice la posibilidad de utilizar una antena perteneciente a Colombia de marca Andrew modelo C37T en Banda C de 3.7m de diámetro con el fin de agilizar los trabajos de traslado reduciendo al mínimo las interrupciones de los servicios en el nodo.

2.21 Al respecto, el 8 de febrero de 2016 INEO presentó una propuesta económica para el traslado del nodo de Bogotá con dos opciones una que incluye la instalación de una nueva antena y la otra que considera el traslado de la actual antena de la REDDIG del nodo de Bogotá. El uso de la antena Andrew fue descartada por parte de INEO por los riesgos que esto podría tener pero informó que si Colombia asumía la responsabilidad de instalar dicha antena INEO previa verificación de la operación de la misma completaría los trabajos de traslados. Como **Apéndice H** de esta nota de estudio se presenta copia de la propuesta.

2.22 La propuesta está siendo analizada por Colombia y se espera que para esta Reunión se conozca los resultados del análisis de la propuesta.

Nuevos servicios en la REDDIG II

2.23 Para el 2016 está prevista la implantación de nuevos circuitos AMHS, el **Apéndice I** presenta un cuadro con los circuitos a implantar y la fecha estimada de implantación. A inicio de 2016 entró en operación el circuito AMHS entre Brasil y Perú.

3 Acción sugerida

3.1 Se invita al Comité de Coordinación a:

- a) Tomar nota de la información suministrada;
- b) analizar las actividades previstas para el 2016 descritas en la Sección 2 y en los Apéndices A a I de esta nota de estudio; y
- c) analizar cualquier otra consideración relacionada con las actividades del proyecto REDDIG RLA/03/901 para el 2016 que considere necesaria.

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
-

APÉNDICE B**CURSO OPERACIÓN & MANTENIMIENTO DE LA REDDIG II****Contenido**

- 1. Arquitectura de la REDDIG II**
 - Red Satelital
 - Red Terrestre de respaldo
 - Plan Global de Direccionamiento IP
- 2. Nodos REDDIG II**
 - Tipos y Componentes
 - Plan Local de Direccionamiento IP
- 3. Equipos de RF**
 - IBUC + Redundancia
 - LNB + Redundancia
 - Acceso vía HHT y TCP/IP (Web)
- 4. Modem Skywan**
 - Modelo 7000
 - Modelo 1070
 - Redundancia
 - Acceso vía ‘Telnet’ y ‘LineUp Manager’
 - Performance
- 5. Ethernet Switch Netgear**
- 6. Router Cisco**
 - Interfaces
 - Protocolo de redundancia VRRP
 - Protocolo de ruteo OSPF
 - VLANs
 - Comandos en línea
 - Monitoría de las interfaces
 - Configuraciones
- 7. Conmutador de banda de base (RSS) y ‘Patch Panel’**
- 8. NMS – WhatsUp Gold**
 - Servidor Central NMS
 - Servidor Remoto NMS (Local)
 - Acceso vía Web
 - Módulos y visualizaciones
 - Monitores
 - Active Monitor
 - Performance Monitor
 - Alarmas



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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FINAL SITE ACCEPTANCE TEST	1
FILE : FSAT NT 2022-2141166R REV B.DOC.....	1
1 INTRODUCTION	6
2 PSAT TESTS	7
2.1 OUTDOOR UNITS TESTS	7
2.1.1 Tx Switch.....	7
2.1.2 Rx Switch	7
2.2 COMMUNICATION TESTS	9
2.2.1 RADAR and ASterix.....	9
2.2.2 ATS/DS circuits.....	10
2.2.3 ATS switcheched circuits	14
2.2.4 Administrative voice.....	21
2.2.5 Teleconference.....	26
2.2.6 AFTN circuits.....	27
2.2.7 AMHS and AIDC	31
2.3 REDUNDANCY TESTS	35
2.3.1 Master station failure test	35
2.3.2 Equipment failure	36
2.4 GROUND BACKBONE TEST	42
2.4.1 backup test	42
2.4.2 Dedicated links	43
2.5 NETWORK MANAGEMENT STATIONS (NMS) TESTS	47
2.5.1 NMS Equipment	47
2.5.2 IP Address.....	49
2.5.3 SUBMAP content configuration.....	51
2.5.4 Active monitoring.....	52
2.5.5 Performance monitor.....	55
2.5.6 Switching from Chain A to Chain B.....	57
2.5.7 User access control.....	58
2.5.8 Central server	65
2.5.9 Failover server.....	67
2.5.10 Test of connection through serial port	69
2.5.11 Database	72
3 PSAT - LIST OF PARTICIPANTS	73
4 NETWORK ACCEPTANCE TESTS.....	74
4.1 PSAT	74
4.2 LEVEL 3 - WEB MANAGEMENT SERVICE	75
4.3 GLOBAL NMS	75
4.3.1 Central server	75
4.3.2 Failover server.....	80
5 LIST OF PARTICIPANTS.....	87



Figure 1 - TX switch test.....	7
Figure 2 - RX switch test	8
Figure 3- Serial RADAR tests	9
Figure 4 – ATS/DS cross matrix – chain A	12
Figure 5 – ATS/DS cross matrix – chain B	13
Figure 6 - ATS switched cross matrix – chain A.....	16
Figure 7 - ATS switched cross matrix – chain B	18
Figure 8 - MEVAII test - chain A	20
Figure 9 - MEVAII test – chain B.....	20
Figure 10 - Administrative cross matrix – chain A.....	23
Figure 11 - Administrative cross matrix – chain B	25
Figure 12 - Teleconference - chain A	26
Figure 13 - Teleconference - chain B.....	27
Figure 14 - AFTN test mounting.....	27
Figure 15 - AFTN interfaces.....	28
Figure 16 - AFTN tests results – chain A	29
Figure 17 - AFTN tests results – chain B.....	30
Figure 18 - AMHS cross matrix.....	32
Figure 19 - AMHS test cross matrix – chain A.....	33
Figure 20 - AMHS test cross matrix – chain B.....	34
Figure 21 - Master station failure test table	35
Figure 22 - Cisco redundancy test table.....	36
Figure 23 - Cisco redundancy test table – going to normal	37
Figure 24 - Skywan redundancy test table	38
Figure 25 - Skywan redundancy test table – going to normal	38
Figure 26 - IP switch A failure test.....	39
Figure 27 - RSS failure test table	41
Figure 28 - Backup test	42
Figure 29 - AFTN - dedicated to GBB cross matrix.....	44
Figure 30 - AFTN - dedicated to GBB test table	45
Figure 31 - Dedicated emergency numbers	46
Figure 33 - NMS serial number table.....	48
Figure 34 - NMS IP address.....	50
Figure 35 – NMS submap	51
Figure 36 – Local NMS active monitoring	54
Figure 37 – Local NMS performance monitor.....	56
Figure 38 - Local NMS switching control	57
Figure 39 - Central server tests	66
Figure 40 - Failover server tests.....	68
Figure 41 – Database redundancy tests.....	72
Figure 42 – Database redundancy tests.....	72
Figure 43 - NAT - PSAT summary.....	74
Figure 44 - NAT - WEB management tests.....	75
Figure 45 – NAT – Central NMS tests	80



Figure 45 – NAT – Failover NMS tests86



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 WERE 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	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal
Bolivia		Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal
Brazil (Curitiba)			Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal
Brazil (Manaus)				Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal
Brazil (Recife)					Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal
Chile						Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal
Colombia							Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal
Ecuador								Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal
French Guiana									Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal
Guyana										Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal
Paraguay											Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal
Peru												Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal
Suriname													Diagonal	Diagonal	Diagonal	Diagonal	Diagonal
Trinidad and Tobago														Diagonal	Diagonal	Diagonal	Diagonal



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	Grey	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal
Bolivia		Grey	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal
Brazil (Curitiba)			Grey	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal
Brazil (Manaus)				Grey	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal
Brazil (Recife)					Grey	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal
Chile						Grey	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal
Colombia							Yellow	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal
Ecuador								Grey	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal
French Guiana									Grey	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal
Guyana										Grey	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal
Paraguay											Grey	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal
Peru												Grey	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal
Suriname													Grey	Diagonal	Diagonal	Diagonal	Diagonal
Trinidad and Tobago														Grey	Diagonal	Diagonal	Diagonal



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	Grey	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal
Bolivia	Diagonal	Grey	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal
Brazil (Curitiba)	Diagonal	Diagonal	Grey	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal
Brazil (Manaus)	Diagonal	Diagonal	Diagonal	Grey	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal
Brazil (Recife)	Diagonal	Diagonal	Diagonal	Diagonal	Grey	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal
Chile	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Grey	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal
Colombia	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Yellow	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal
Ecuador	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Grey	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal
French Guiana	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Grey	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal
Guyana	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Grey	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal
Paraguay	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Grey	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal
Peru	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Grey	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal
Suriname	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Grey	Diagonal	Diagonal	Diagonal	Diagonal
Trinidad and Tobago	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Grey	Diagonal	Diagonal	Diagonal



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	Grey	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal
Bolivia		Grey	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal
Brazil (Curitiba)			Grey	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal
Brazil (Manaus)				Grey	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal
Brazil (Recife)					Grey	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal
Chile						Grey	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal
Colombia							Yellow	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal
Ecuador								Grey	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal
French Guiana									Grey	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal
Guyana										Grey	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal
Paraguay											Grey	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal
Peru												Grey	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal
Suriname													Grey	Diagonal	Diagonal	Diagonal	Diagonal
Trinidad and Tobago														Grey	Diagonal	Diagonal	Diagonal



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	Grey	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal
Bolivia		Grey	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal
Brazil (Curitiba)			Grey	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal
Brazil (Manaus)				Grey	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal
Brazil (Recife)					Grey	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal
Chile						Grey	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal
Colombia							Yellow	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal
Ecuador								Grey	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal
French Guiana									Grey	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal
Guyana										Grey	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal
Paraguay											Grey	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal
Peru												Grey	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal
Suriname													Grey	Diagonal	Diagonal	Diagonal	Diagonal
Trinidad and Tobago														Grey	Diagonal	Diagonal	Diagonal



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
<u>Sites participating:</u>		
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 .

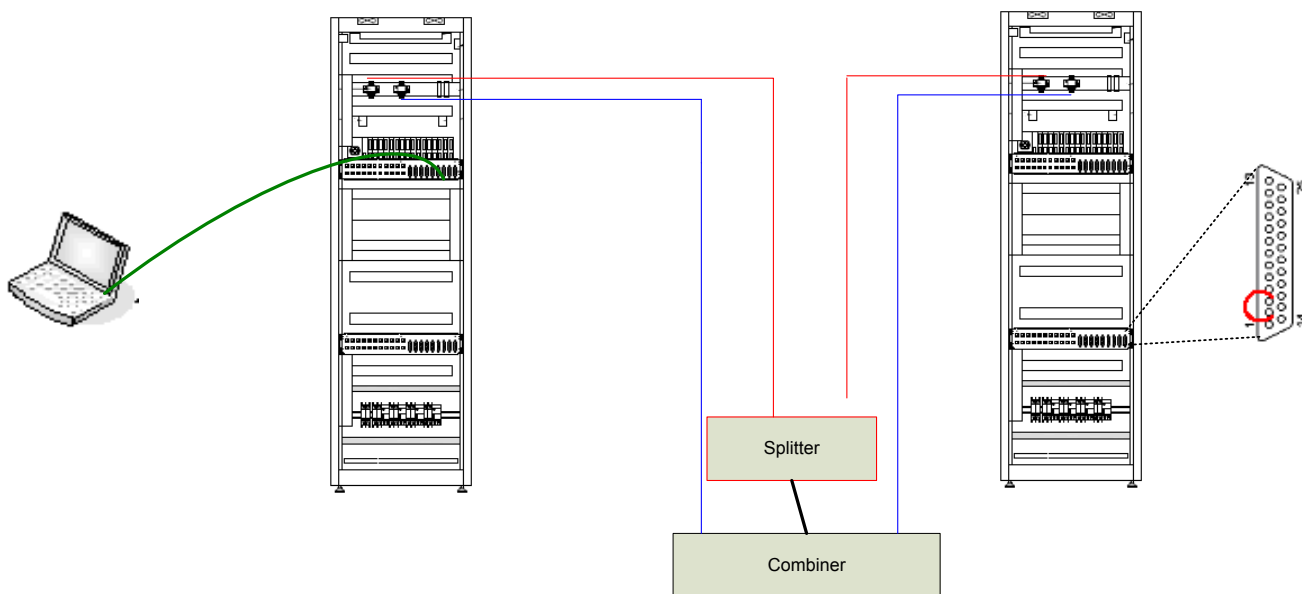


Figure 14 - AFTN test mounting



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

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

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

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



2.3 REDUNDANCY TESTS

2.3.1 Master station failure test

Master Station Failure Test	
<i>Purpose:</i> To check that the backup master takes over correctly the master role in case of master failure.	
<i>Test:</i> 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.	
<i>Expected Results:</i> 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	
AMHS	DSCP field AF31		
	ping		
ATS	DSCP field AF31		
	phone call		
Maintenance	DSCP field EF		
	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)																	
Brazil (Recife)																	
Chile	1																
Colombia				1													
Ecuador							1										
French Guiana																	
Guyana				1													
Paraguay	1																
Peru	1	1		1			1										
Suriname																	
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	Grey	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal
Bolivia	Grey	Grey	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal
Brazil (Curitiba)	Grey	Grey	Grey	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal
Brazil (Manaus)	Grey	Grey	Grey	Grey	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal
Brazil (Recife)	Grey	Grey	Grey	Grey	Grey	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal
Chile	Grey	Grey	Grey	Grey	Grey	Grey	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal
Colombia	Grey	Grey	Grey	Grey	Grey	Grey	Yellow	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal
Ecuador	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal
French Guiana	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal
Guyana	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal
Paraguay	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal
Peru	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal
Suriname	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Diagonal	Diagonal	Diagonal	Diagonal
Trinidad and Tobago	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Diagonal	Diagonal	Diagonal
Uruguay	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Diagonal	Diagonal
Venezuela	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Yellow
Tegucigalpa	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey

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
<ul style="list-style-type: none"> • Position of the waveguide switch 		
IBUC B		
<ul style="list-style-type: none"> • Input Level 		
<ul style="list-style-type: none"> • Output Level 		
<ul style="list-style-type: none"> • Position of the Ibuc on the waveguide switch 		
<ul style="list-style-type: none"> • Position of the waveguide switch 		
LNB		
<ul style="list-style-type: none"> • Current Level High (A) same state as displayed 		
<ul style="list-style-type: none"> • Current Level Low (A) same state as displayed 		
<ul style="list-style-type: none"> • Voltage level high (A) same state as displayed 		
<ul style="list-style-type: none"> • Voltage level low (A) same state as displayed 		
<ul style="list-style-type: none"> • Input level low (A) in red 		
<ul style="list-style-type: none"> • Current Level High (B) same state as displayed 		
<ul style="list-style-type: none"> • Current Level Low (B) same state as displayed 		
<ul style="list-style-type: none"> • Voltage level high (B) same state as displayed 		
<ul style="list-style-type: none"> • Voltage level low (B) same state as displayed 		
<ul style="list-style-type: none"> • Input level low (B) in red 		
Switch A/B		
<ul style="list-style-type: none"> • 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		
<ul style="list-style-type: none"> User can access device view, device details view and dashboard 		
<ul style="list-style-type: none"> User can't add/remove device of monitors on device 		
<ul style="list-style-type: none"> User can't add dashboard or modify dashboard 		
<ul style="list-style-type: none"> User can't change password 		
<ul style="list-style-type: none"> User can't add/remove user 		
GlobalUser		
<ul style="list-style-type: none"> User can't access device view, device details view and dashboard 		
<ul style="list-style-type: none"> User can't add/remove device of monitors on device 		
<ul style="list-style-type: none"> User can't add dashboard or modify dashboard 		
<ul style="list-style-type: none"> User can't change password 		
<ul style="list-style-type: none"> User can't add/remove user 		
LocalAdmin		
<ul style="list-style-type: none"> User can access device view, device details view and dashboard 		
<ul style="list-style-type: none"> User can add/remove device of monitors on device 		
<ul style="list-style-type: none"> User can add dashboard or modify dashboard 		
<ul style="list-style-type: none"> User can change password 		
<ul style="list-style-type: none"> User can add/remove user 		
LocalAdmin		
<ul style="list-style-type: none"> User can't access device view, device details view and dashboard 		
<ul style="list-style-type: none"> User can't add/remove device of monitors on device 		
<ul style="list-style-type: none"> User can't add dashboard or modify dashboard 		
<ul style="list-style-type: none"> User can't change password 		
<ul style="list-style-type: none"> User can't add/remove user 		



Test	Results	
	OK	NOK
Comments:		

Failover Server

Test	Results	
	OK	NOK
LocalUser		
<ul style="list-style-type: none"> User can't access device view, device details view and dashboard 		
<ul style="list-style-type: none"> User can't add/remove device of monitors on device 		
<ul style="list-style-type: none"> User can't add dashboard or modify dashboard 		
<ul style="list-style-type: none"> User can't change password 		
<ul style="list-style-type: none"> User can't add/remove user 		
GlobalUser		
<ul style="list-style-type: none"> User can access device view, device details view and dashboard 		
<ul style="list-style-type: none"> User can't add/remove device of monitors on device 		
<ul style="list-style-type: none"> User can't add dashboard or modify dashboard 		
<ul style="list-style-type: none"> User can't change password 		
<ul style="list-style-type: none"> User can't add/remove user 		
LocalAdmin		
<ul style="list-style-type: none"> User can't access device view, device details view and dashboard 		
<ul style="list-style-type: none"> User can't add/remove device of monitors on device 		
<ul style="list-style-type: none"> User can't add dashboard or modify dashboard 		
<ul style="list-style-type: none"> User can't change password 		
<ul style="list-style-type: none"> User can't add/remove user 		
LocalAdmin		
<ul style="list-style-type: none"> User can access device view, device details view and dashboard 		
<ul style="list-style-type: none"> User can add/remove device of monitors on device 		



Test	Results	
	OK	NOK
<ul style="list-style-type: none"> User can add dashboard or modify dashboard 		
<ul style="list-style-type: none"> User can change password 		
<ul style="list-style-type: none"> User can add/remove user 		
Comments:		



2.5.7.2 Manaus

Local NMS

Test	Results	
	OK	NOK
LocalUser		
<ul style="list-style-type: none"> User can access device view, device details view and dashboard 		
<ul style="list-style-type: none"> User can't add/remove device of monitors on device 		
<ul style="list-style-type: none"> User can't add dashboard or modify dashboard 		
<ul style="list-style-type: none"> User can't change password 		
<ul style="list-style-type: none"> User can't add/remove user 		
GlobalUser		
<ul style="list-style-type: none"> User can't access device view, device details view and dashboard 		
<ul style="list-style-type: none"> User can't add/remove device of monitors on device 		
<ul style="list-style-type: none"> User can't add dashboard or modify dashboard 		
<ul style="list-style-type: none"> User can't change password 		
<ul style="list-style-type: none"> User can't add/remove user 		
LocalAdmin		
<ul style="list-style-type: none"> User can access device view, device details view and dashboard 		
<ul style="list-style-type: none"> User can add/remove device of monitors on device 		
<ul style="list-style-type: none"> User can add dashboard or modify dashboard 		
<ul style="list-style-type: none"> User can change password 		
<ul style="list-style-type: none"> User can add/remove user 		
LocalAdmin		
<ul style="list-style-type: none"> User can't access device view, device details view and dashboard 		
<ul style="list-style-type: none"> User can't add/remove device of monitors on device 		
<ul style="list-style-type: none"> User can't add dashboard or modify dashboard 		
<ul style="list-style-type: none"> User can't change password 		
<ul style="list-style-type: none"> User can't add/remove user 		



Test	Results	
	OK	NOK
Comments:		

Central Server

Test	Results	
	OK	NOK
LocalUser		
<ul style="list-style-type: none"> User can't access device view, device details view and dashboard 		
<ul style="list-style-type: none"> User can't add/remove device of monitors on device 		
<ul style="list-style-type: none"> User can't add dashboard or modify dashboard 		
<ul style="list-style-type: none"> User can't change password 		
<ul style="list-style-type: none"> User can't add/remove user 		
GlobalUser		
<ul style="list-style-type: none"> User can access device view, device details view and dashboard 		
<ul style="list-style-type: none"> User can't add/remove device of monitors on device 		
<ul style="list-style-type: none"> User can't add dashboard or modify dashboard 		
<ul style="list-style-type: none"> User can't change password 		
<ul style="list-style-type: none"> User can't add/remove user 		
LocalAdmin		
<ul style="list-style-type: none"> User can't access device view, device details view and dashboard 		
<ul style="list-style-type: none"> User can't add/remove device of monitors on device 		
<ul style="list-style-type: none"> User can't add dashboard or modify dashboard 		
<ul style="list-style-type: none"> User can't change password 		
<ul style="list-style-type: none"> User can't add/remove user 		
LocalAdmin		
<ul style="list-style-type: none"> User can access device view, device details view and dashboard 		
<ul style="list-style-type: none"> User can add/remove device of monitors on device 		
<ul style="list-style-type: none"> User can add dashboard or modify dashboard 		
<ul style="list-style-type: none"> User can change password 		



Test	Results	
	OK	NOK
<ul style="list-style-type: none"> User can add/remove user 		
Comments:		

Site Local NMS

Test	Results	
	OK	NOK
LocalUser		
<ul style="list-style-type: none"> User can access device view, device details view and dashboard 		
<ul style="list-style-type: none"> User can't add/remove device of monitors on device 		
<ul style="list-style-type: none"> User can't add dashboard or modify dashboard 		
<ul style="list-style-type: none"> User can't change password 		
<ul style="list-style-type: none"> User can't add/remove user 		
GlobalUser		
<ul style="list-style-type: none"> User can't access device view, device details view and dashboard 		
<ul style="list-style-type: none"> User can't add/remove device of monitors on device 		
<ul style="list-style-type: none"> User can't add dashboard or modify dashboard 		
<ul style="list-style-type: none"> User can't change password 		
<ul style="list-style-type: none"> User can't add/remove user 		
LocalAdmin		
<ul style="list-style-type: none"> User can access device view, device details view and dashboard 		
<ul style="list-style-type: none"> User can add/remove device of monitors on device 		
<ul style="list-style-type: none"> User can add dashboard or modify dashboard 		
<ul style="list-style-type: none"> User can change password 		
<ul style="list-style-type: none"> User can add/remove user 		
LocalAdmin		
<ul style="list-style-type: none"> User can't access device view, device details view and dashboard 		
<ul style="list-style-type: none"> User can't add/remove device of monitors on device 		
<ul style="list-style-type: none"> User can't add dashboard or modify dashboard 		



Test	Results	
	OK	NOK
<ul style="list-style-type: none"> User can't change password 		
<ul style="list-style-type: none"> 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%.

APÉNDICE E

Informe de disponibilidad del mes de diciembre de 2015

Level 3

Network Management

Service Support



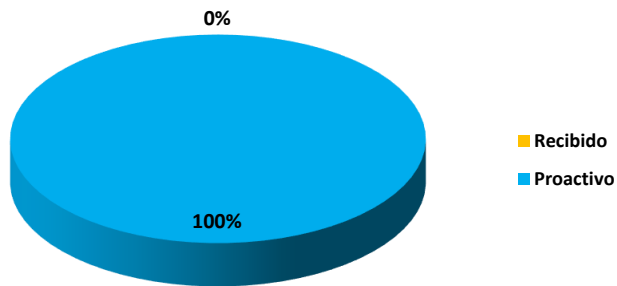
Trouble Tickets

INTERNATIONAL CIVIL AVIATION
DICIEMBRE 2015



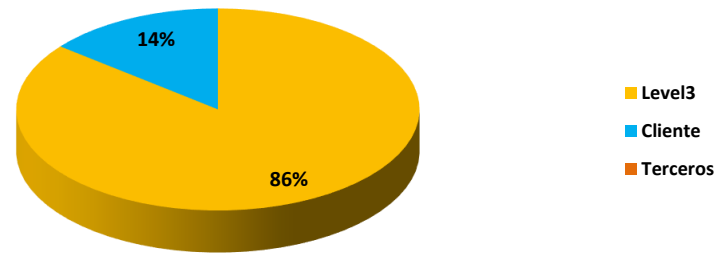
Trouble tickets del período: DICIEMBRE 2015

Distribución de trouble tickets según su origen



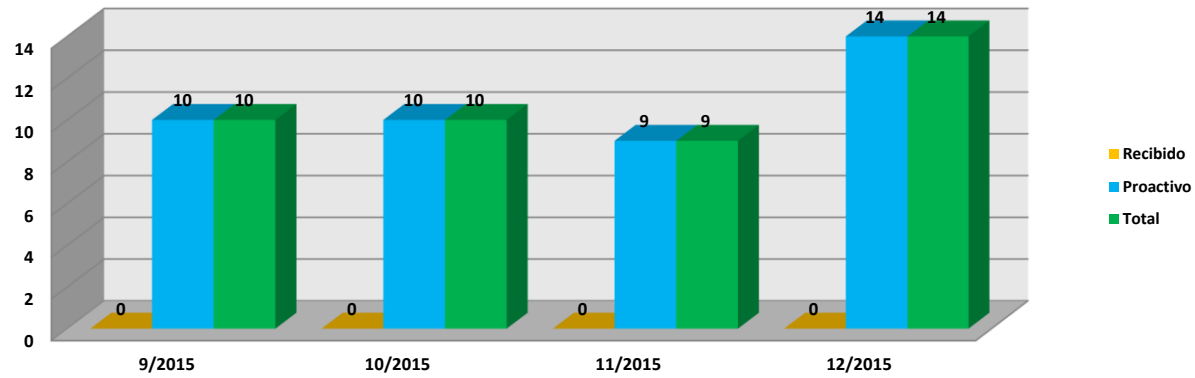
Total	Recibido	Proactivo
14	0	14

Distribución de trouble tickets según el responsable



Level3	Cliente	Terceros
12	2	0

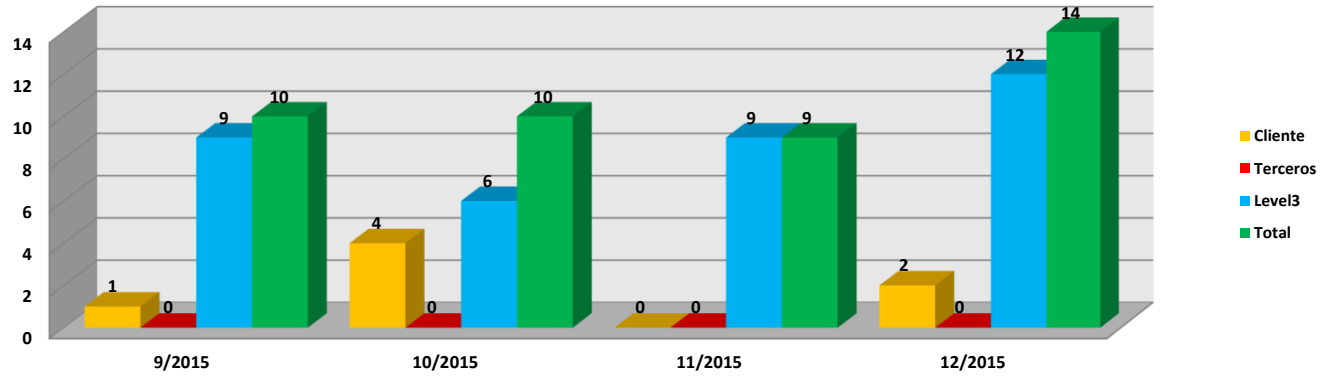
Evolución histórica de Trouble Tickets registrados según el generador.



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

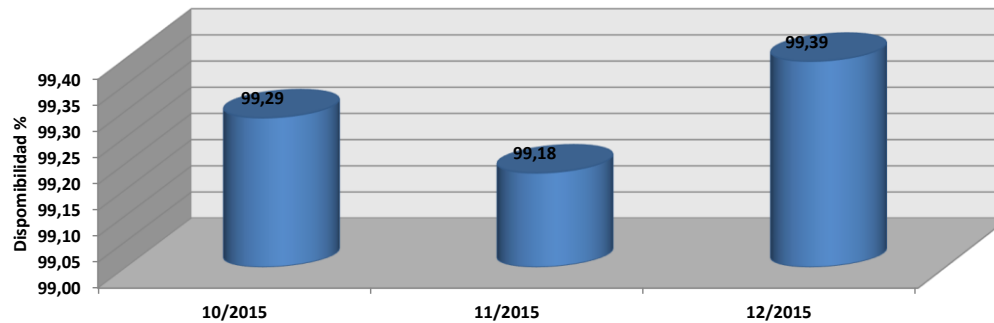
La disponibilidad de red es calculada usando la siguiente fórmula:

$$Total_Network_Availability = \left[1 - \left(\frac{Total_Minutes_of_Down_time}{n \cdot Total_Monthly_Minutes} \right) \right] * 100\%$$

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

Tiempo total de teporte [Min]	Tiempo de caída 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:

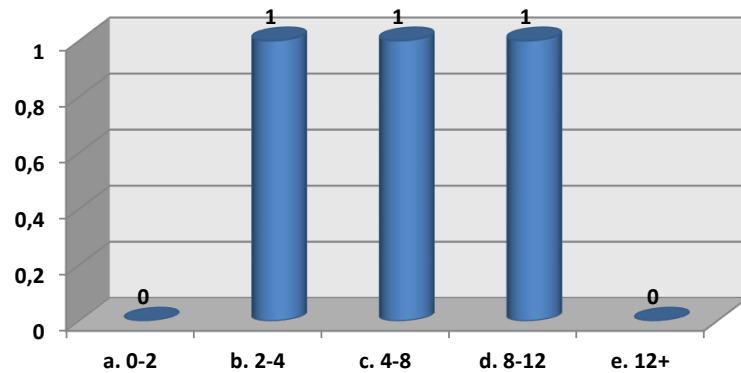
$$Availability = \left[1 - \left(\frac{Total_Minutes_of_Network_Down_Time}{Total_Monthly_Minutes} \right) \right] * 100\%$$

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

Sitio	Tickets	Tiempo de caída Total [Min]	Disponibilidad	MTR
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 caída [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-MANAUAS	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-MANAUAS	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 caída [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
	<p>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</p>							
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
	<p>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.ferretr Network Management Monitoring Engineer - Level 3e-mail: servicedeskmp@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</p>							
10081228	OACI-MANAUAS	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
	<p>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</p>							
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
	<p>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.ferretr Network Management Monitoring Engineer - Level 3e-mail: servicedeskmp@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</p>							

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
	<p>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. ferretr 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</p>							
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
	<p>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</p>							
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
	<p>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</p>							
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
	<p>Circuit is operational, per LEC circuit normalized without technical intervention.</p>							

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
	<p>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</p>							
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
	<p>Ticket duplicado. El seguimiento de este caso se esta realizando a traves del ticket No. 10161685.</p>							
10122857	OACI-MANAUS	12/15/2015 1:58:20 PM	12/16/2015 2:02:06 AM	Customer	0	Impaired	System Generated	Not Applicable
	<p>Ja temos o chamado : 10122913 para a tratativa deste caso.</p>							
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
	<p>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.</p>							
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
	<p>Feito contato com Sandro 55-92-3652 5714, foi confirmado a normalizacio do link e autorizado encerrar o ticket.</p>							
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
	<p>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</p>							

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	<p>Indica la responsabilidad por la falla del servicio.</p> <ul style="list-style-type: none">• 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	<p>Indica el grado de afectación con el cual fue catalogado el reclamo.</p> <ul style="list-style-type: none">• Indisponible: el servicio no puede utilizarse.• Disponible degradado: el servicio puede utilizarse pero tiene una performance 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 caída (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

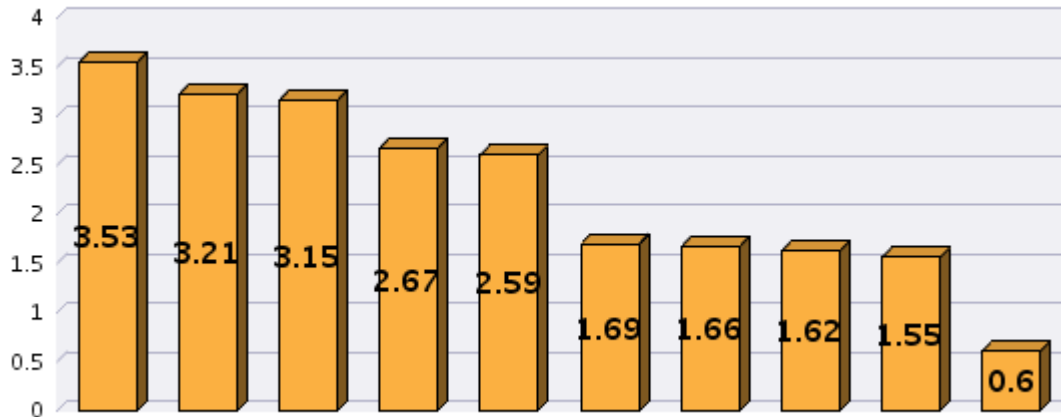
Reporte de Utilización de Memoria y CPU, Diciembre 2015

INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873



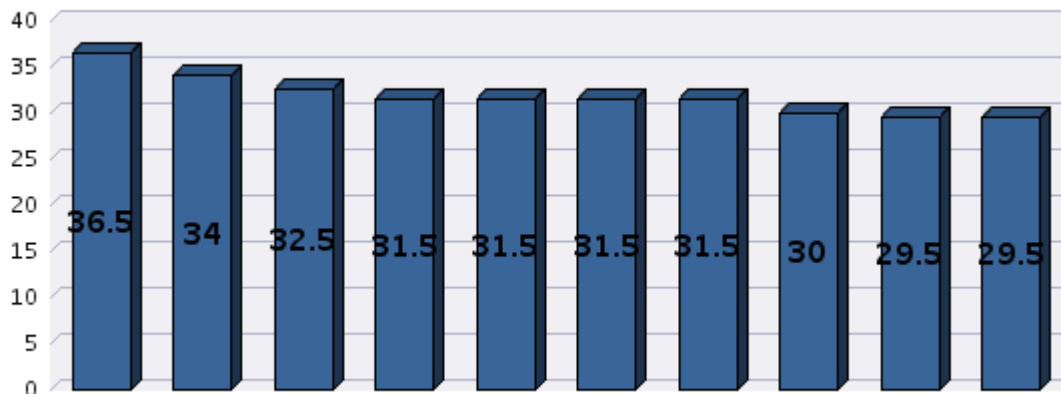
Top Promedio CPU (%)

OACI - TRINIDAD & TOBAGO / ICAO_TRI NIDAD.yo urdomain. com // 172.21.6.1 94	OACI - ECUADOR // ICAO_EC UADOR // 172.21.6.1 95	OACI - CHILE // ICAO_CHI LE.yourdo main.com // 172.21.6.1 97	OACI - COLOMBIA // ICAO_CO LOMBIA // 172.21.6.1 96	OACI - ARGENTINA // ICAO_AR GENTINA // 172.21.6.1 93	OACI - BRASIL RECIFE // ICAO_RE CIFE // 172.20.26. 62	OACI - BRASIL CURITIBA // ICAO_CU RITIBA // 172.20.26. 63	OACI - LIMA // ICAO_PE RU // 172.20.26. 50	OACI - URUGUAY // ICAO_UR UGUAY // 172.21.6.1 98	OACI - PARAGUAY // ICAO_PA RAGUAY.i neo.com.p y // 172.21.6.1 99
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_TRI NIDAD.yo urdomain. com // 172.21.6.1 94	OACI - PARAGUAY // ICAO_PA RAGUAY.i neo.com.p y // 172.21.6.1 99	OACI - CHILE // ICAO_CHI LE.yourdo main.com // 172.21.6.1 97	OACI - ARGENTINA // ICAO_AR GENTINA // 172.21.6.1 93	OACI - GUYANA FRANCES A // ICAO_FR _GUYANA .eq.ignetw orks.com / // 172.21.6.2 01	OACI - LIMA // ICAO_PE RU // 172.20.26. 50	OACI - VENEZUELA // ICAO_VE NEZUELA // 172.21.6.2 02	OACI - BRASIL RECIFE // ICAO_RE CIFE // 172.20.26. 62	OACI - GUYANA // ICAO_GU YANA.yo rdomain.c om // 172.21.6.2 00	OACI - SURINAME // ICAO_SU RINAME.y ourdomain .com // 172.21.6.2 03
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



Resumen:

Sede	IP Loopback	Diciembre 2015			
		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



Sede OACI - ARGENTINA

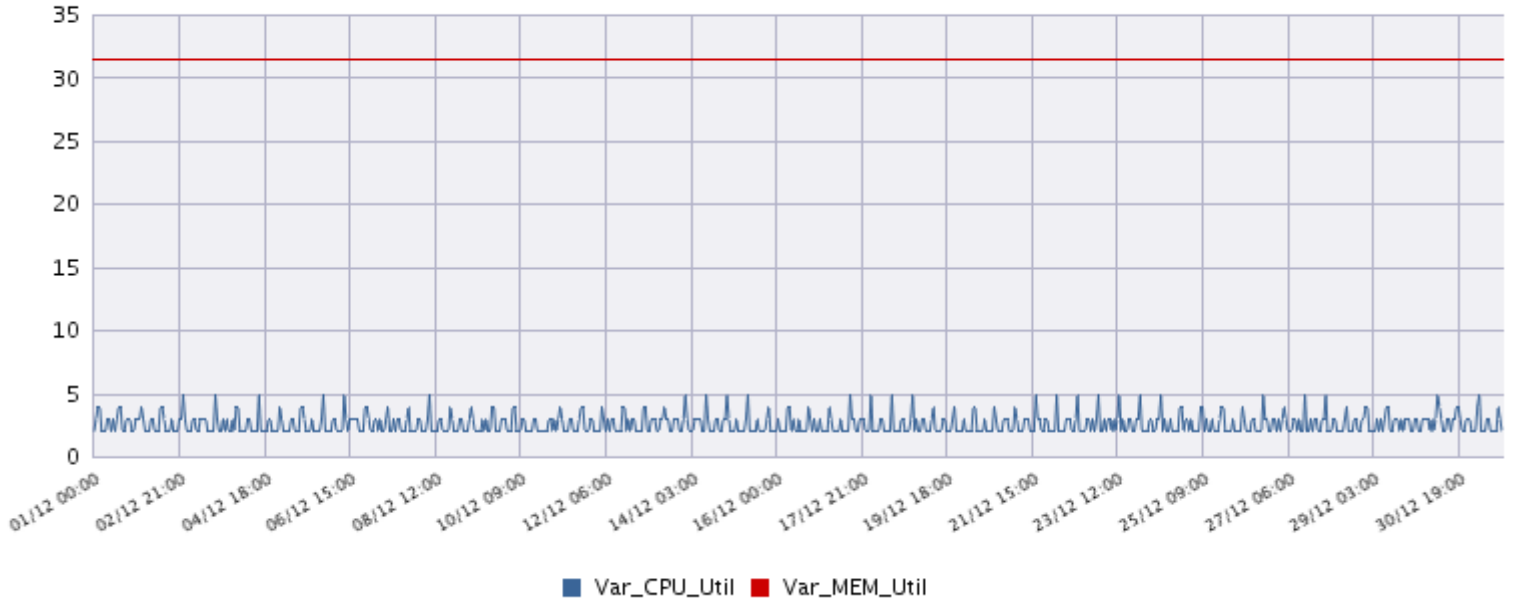
Equipo ICAO_ARGENTINA

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



Sede OACI - BOLIVIA

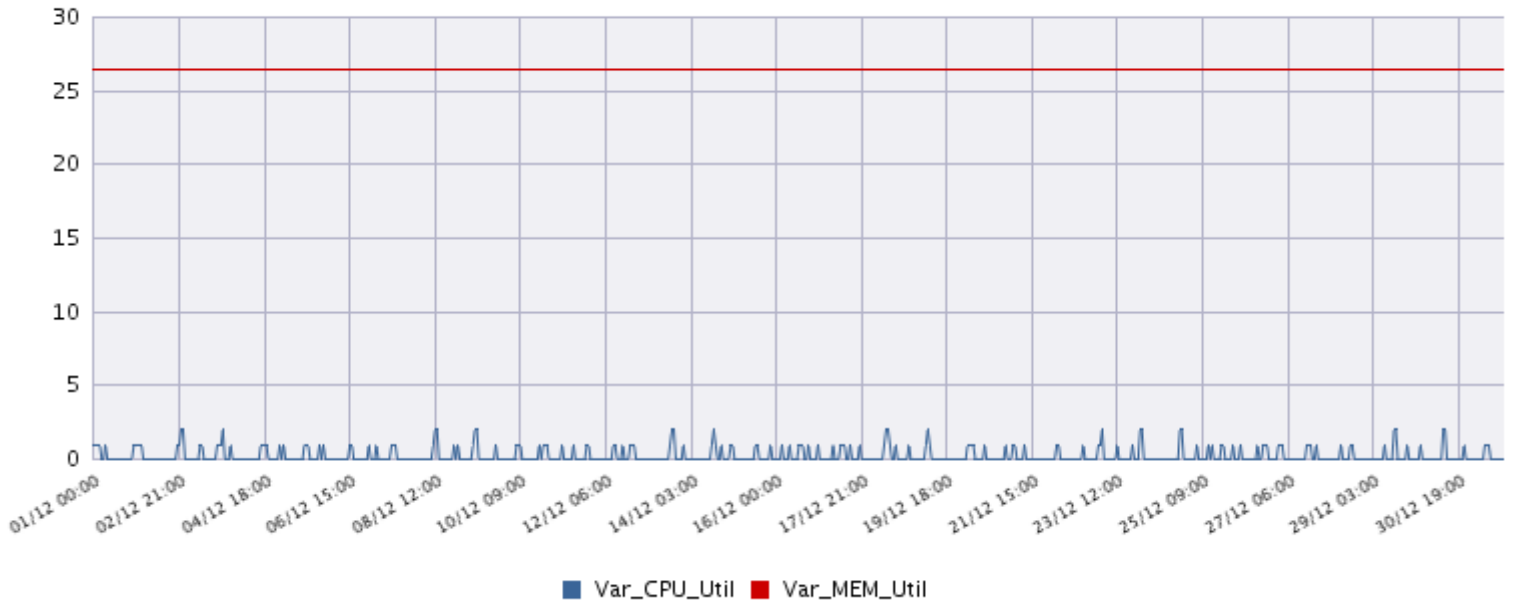
Equipo ICAO_BOLIVIA.tigo.net.bo

Modelo Cisco1921k9

IP de Gestión (172.21.6.204)

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



Sede OACI - BRASIL CURITIBA

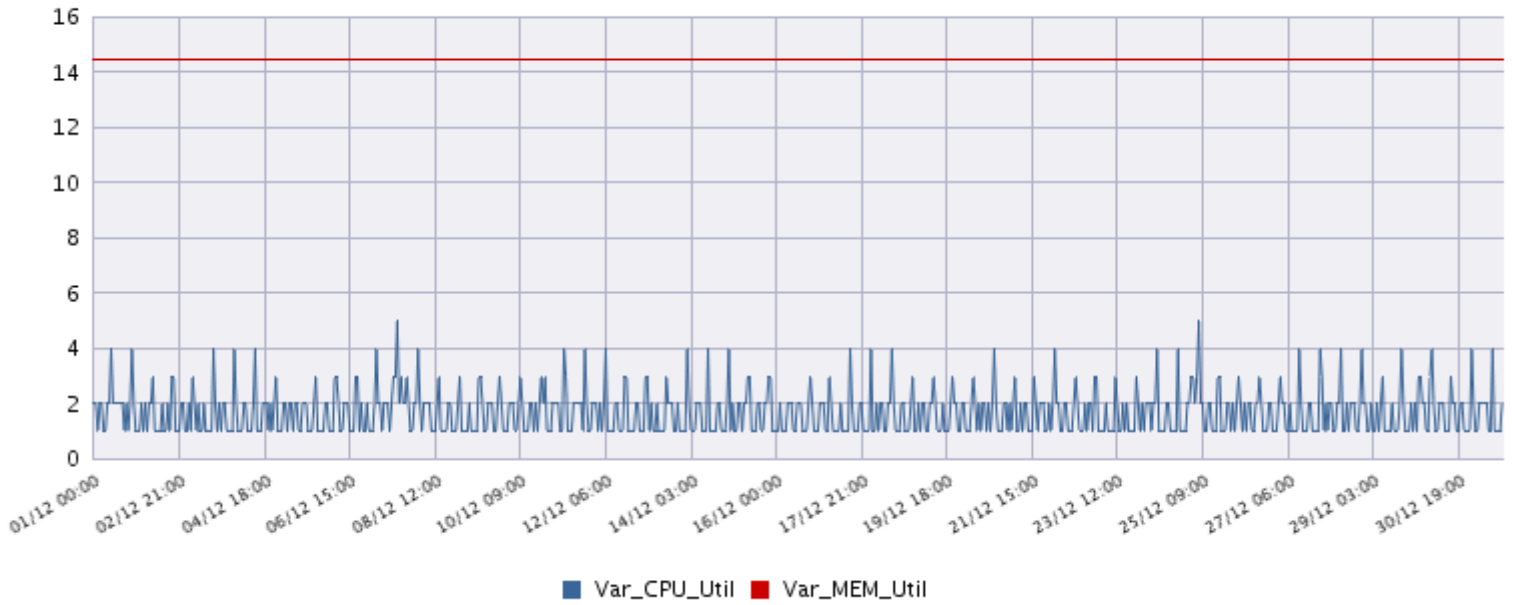
Equipo ICAO_CURITIBA

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



Sede OACI - BRASIL MANAUS

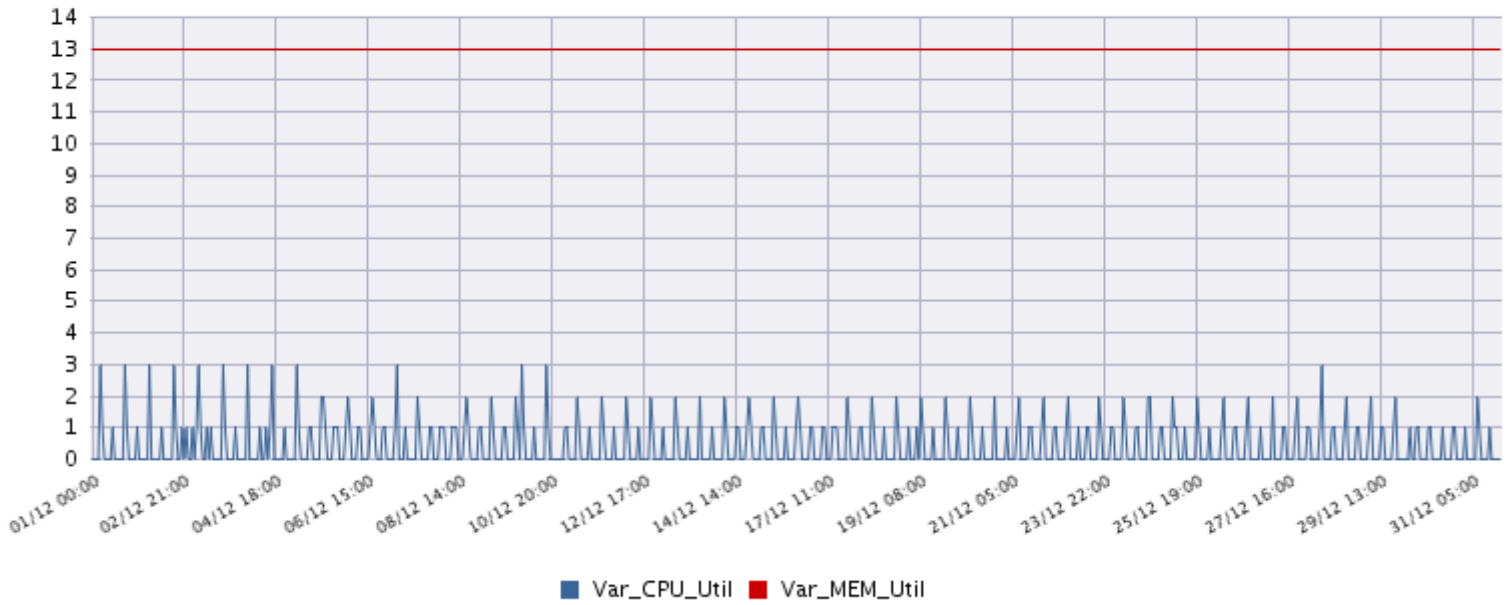
Equipo ICAO_MANAUSBRASIL

IP de Gestión (172.21.6.192)

Modelo Cisco1921k9

Ciudad Manaus

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



Reporte de Utilización de Memoria y CPU, Diciembre 2015

INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873



Sede OACI - BRASIL RECIFE

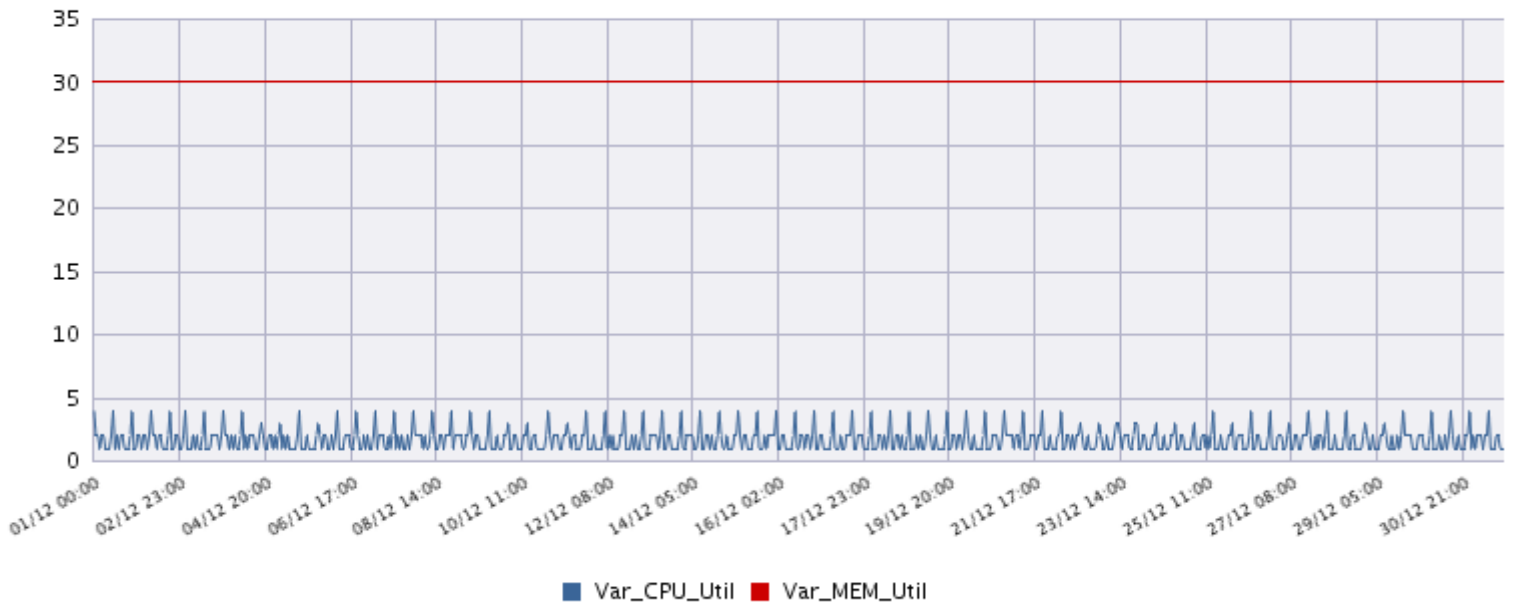
Equipo ICAO_RECIFE

IP de Gestión (172.20.26.62)

Modelo Cisco1921k9

Ciudad Recife

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



Reporte de Utilización de Memoria y CPU, Diciembre 2015

INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873



Sede OACI - CHILE

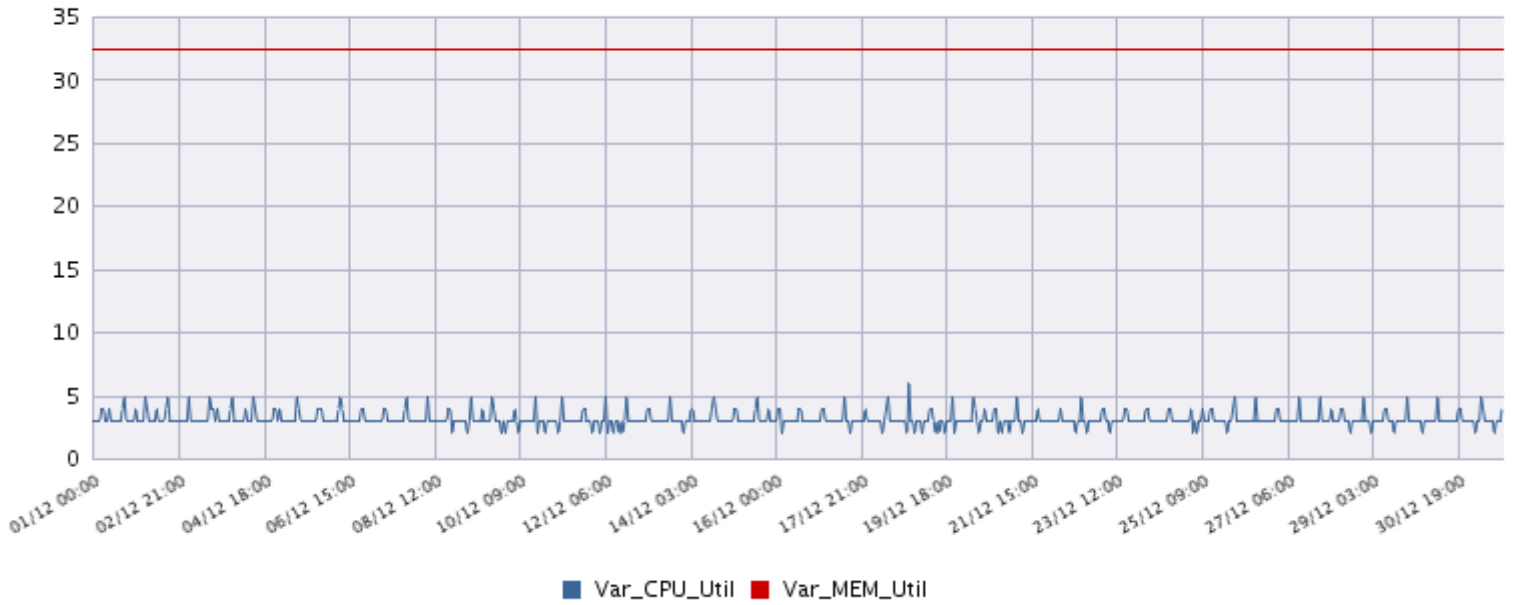
Equipo ICAO_CHILE.yourdomain.com

Modelo Cisco1921k9

IP de Gestión (172.21.6.197)

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



Sede OACI - COLOMBIA

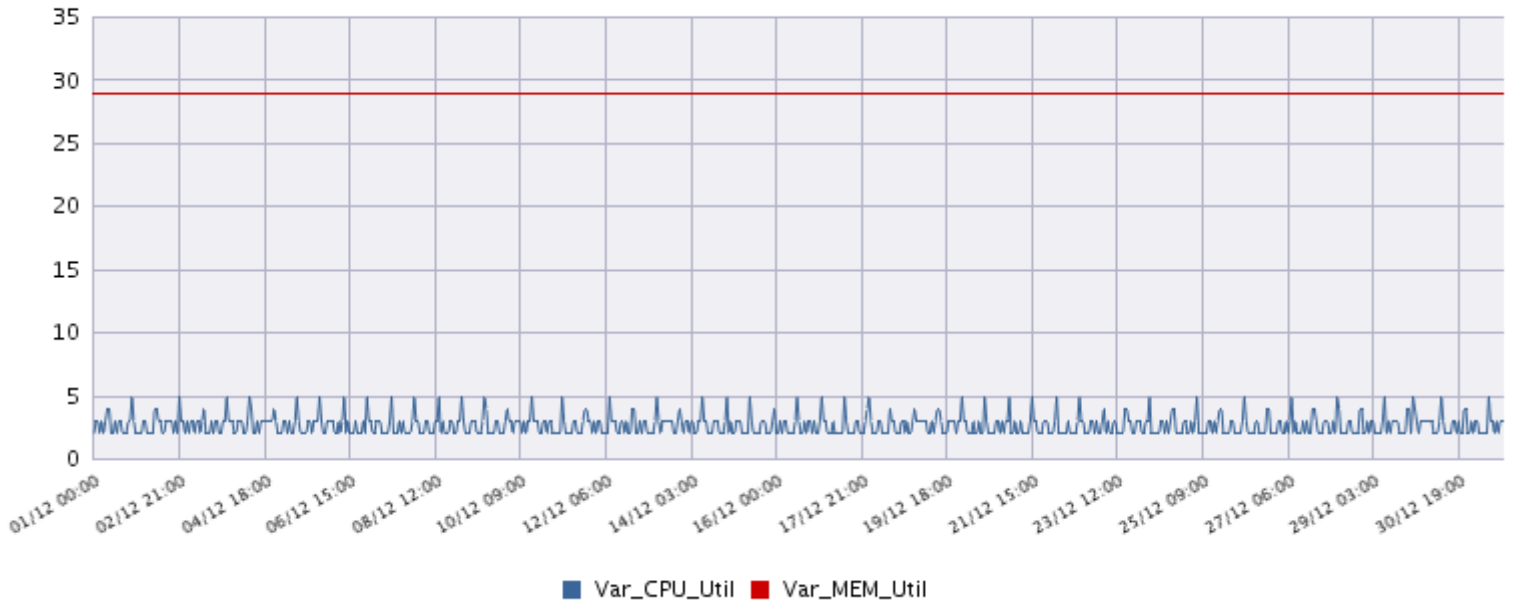
Equipo ICAO_COLOMBIA

IP de Gestión (172.21.6.196)

Modelo Cisco1921k9

Ciudad Bogotá

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



Reporte de Utilización de Memoria y CPU, Diciembre 2015

INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873



Sede OACI - ECUADOR

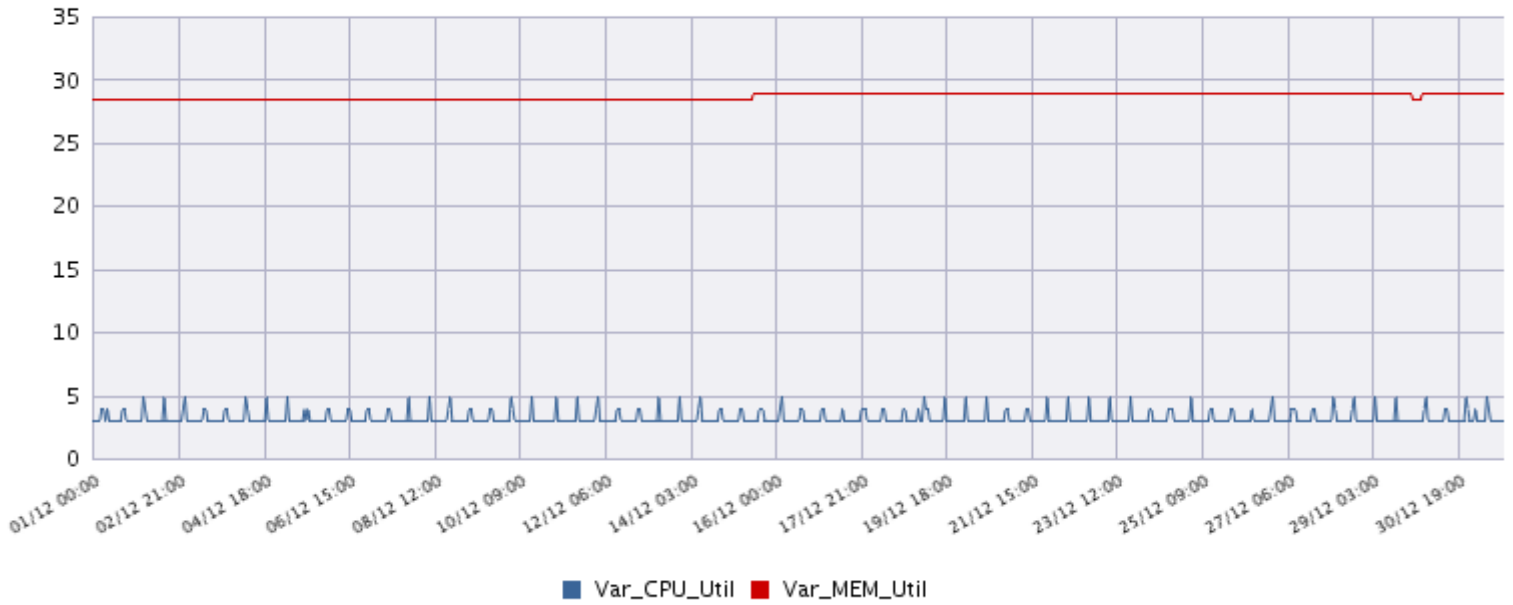
Equipo ICAO_ECUADOR

IP de Gestión (172.21.6.195)

Modelo Cisco1921k9

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



Sede OACI - GUYANA

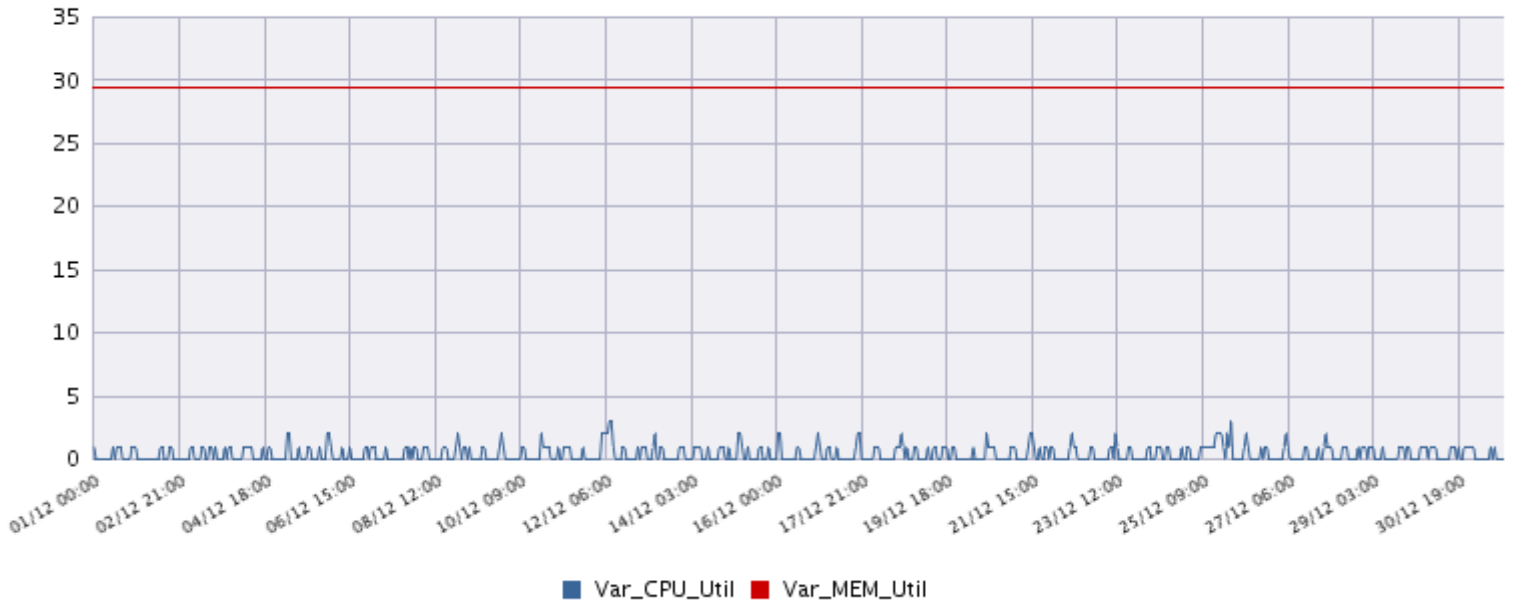
Equipo ICAO_GUYANA.yourdomain.com

Modelo Cisco1921k9

IP de Gestión (172.21.6.200)

Ciudad Georgetown

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



Reporte de Utilización de Memoria y CPU, Diciembre 2015

INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873



Sede OACI - GUYANA FRANCESA

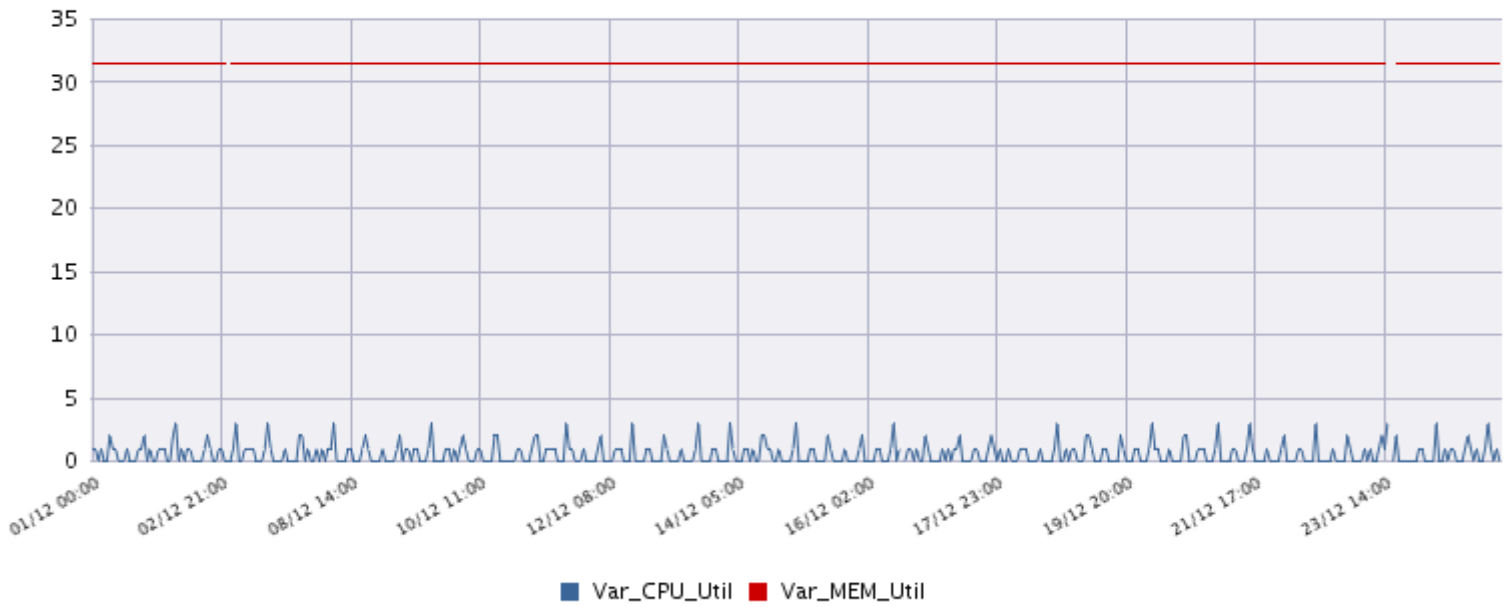
Equipo ICAO_FR_GUYANA.eq.ignetworks.com

Modelo Cisco1921k9

IP de Gestión (172.21.6.201)

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



Sede OACI - LIMA

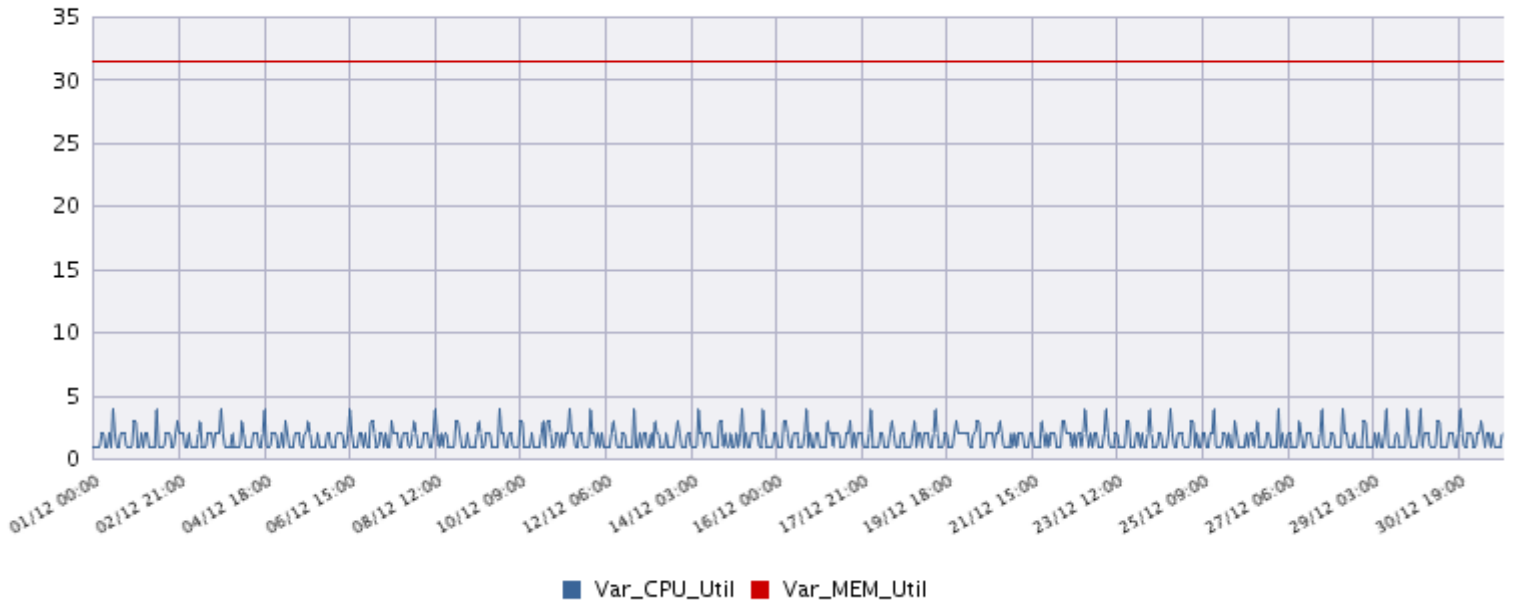
Equipo ICAO_PERU

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



Sede OACI - PARAGUAY

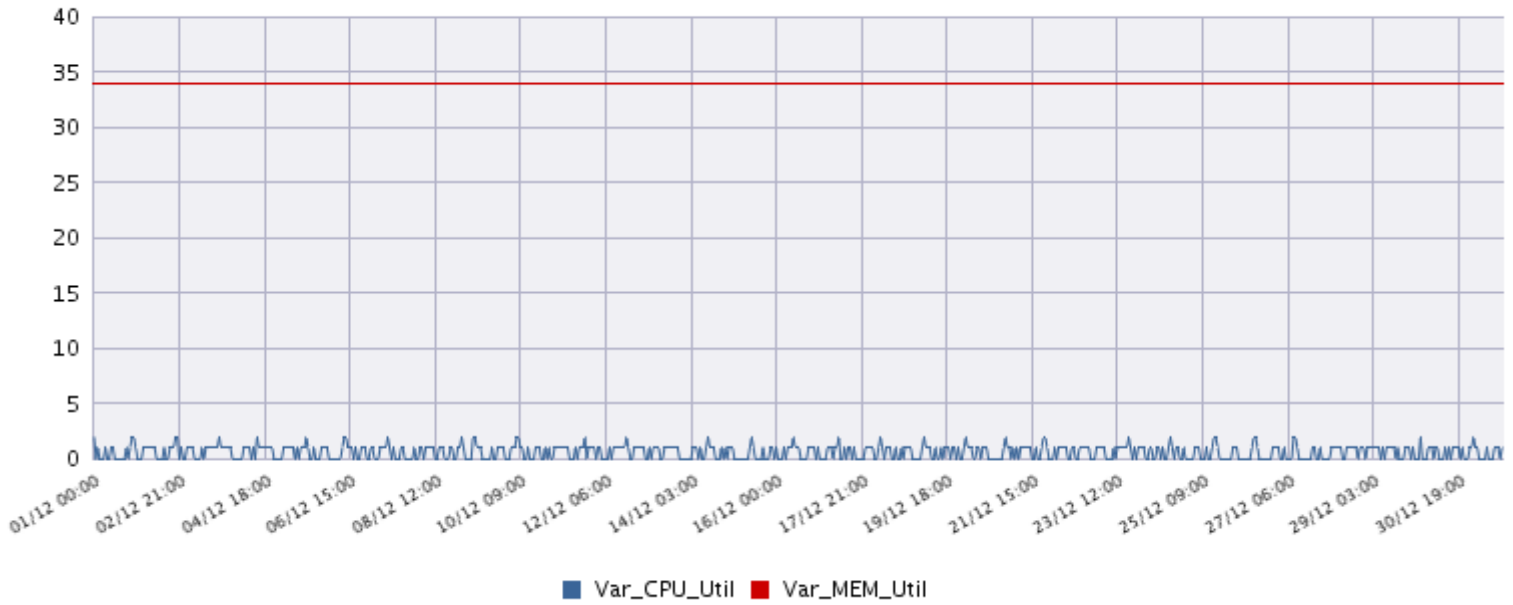
Equipo ICAO_PARAGUAY.ineo.com.py

Modelo Cisco1941

IP de Gestión (172.21.6.199)

Ciudad Asunción

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



Reporte de Utilización de Memoria y CPU, Diciembre 2015

INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873



Sede OACI - SURINAME

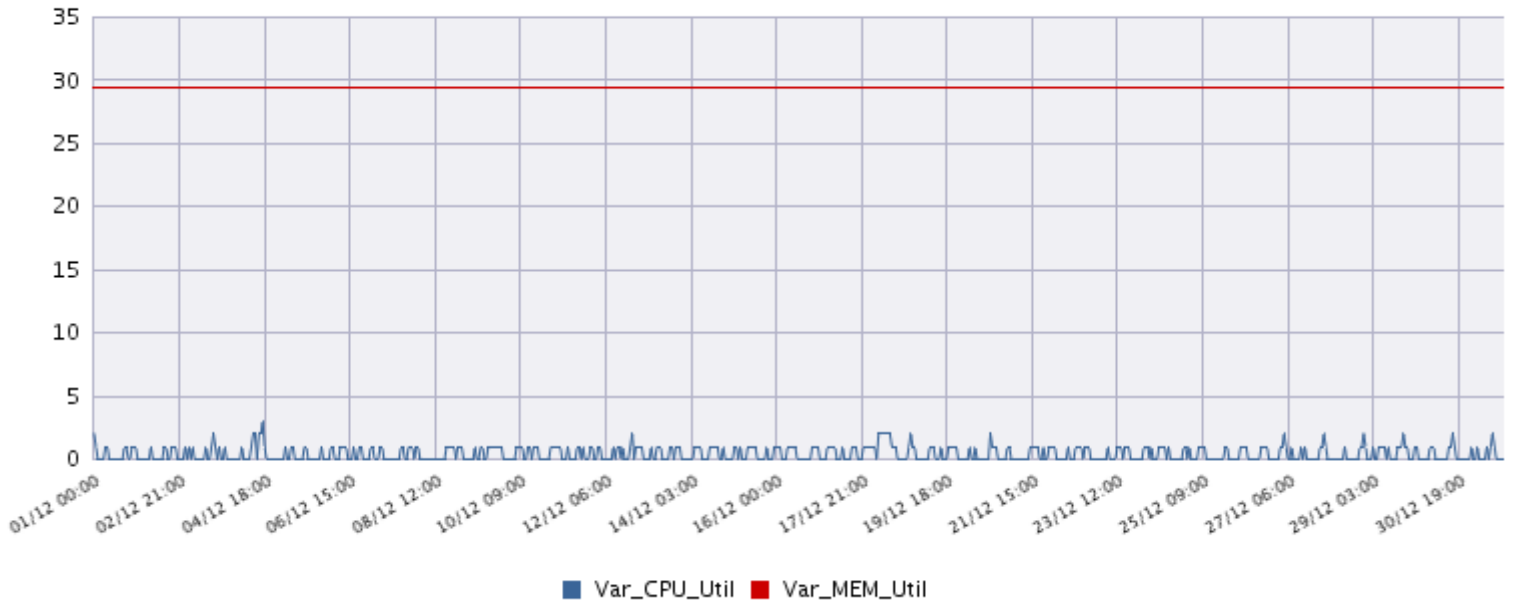
Equipo ICAO_SURINAME.yourdomain.com

Modelo Cisco1921k9

IP de Gestión (172.21.6.203)

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



Sede OACI - TRINIDAD & TOBAGO

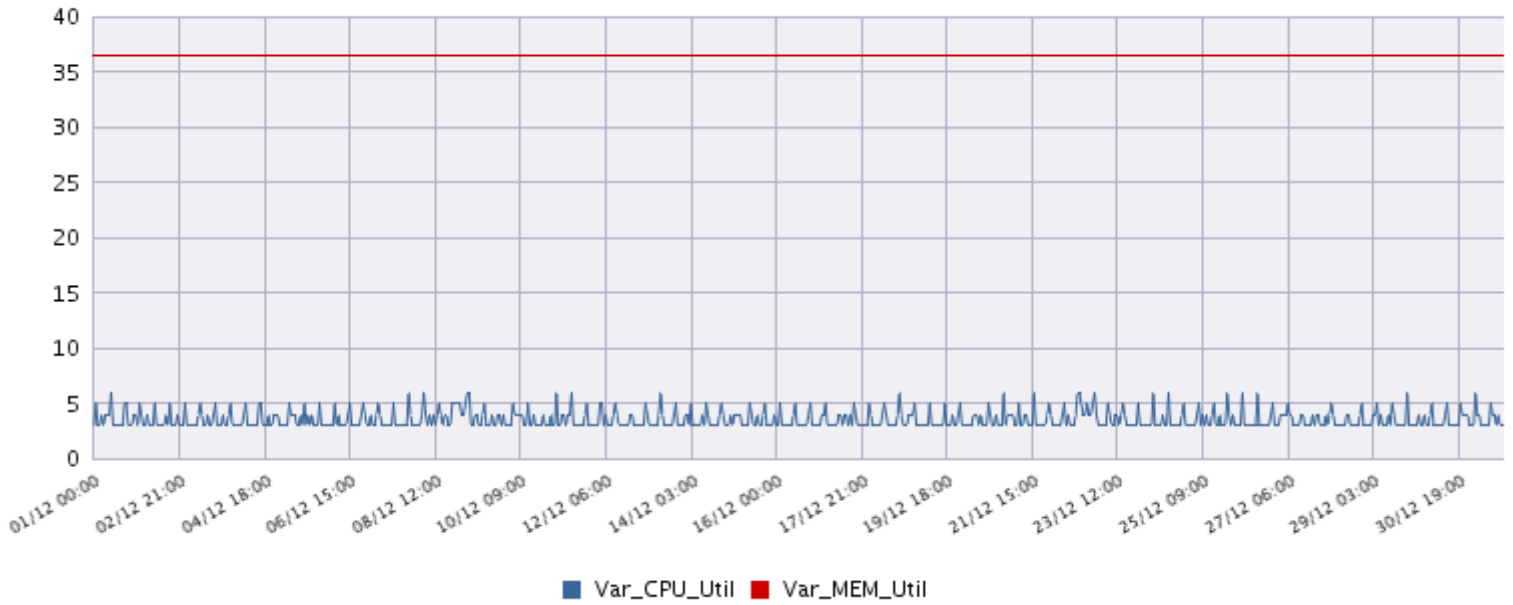
Equipo ICAO_TRINIDAD.yourdomain.com

Modelo Cisco1921k9

IP de Gestión (172.21.6.194)

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



Sede OACI - URUGUAY

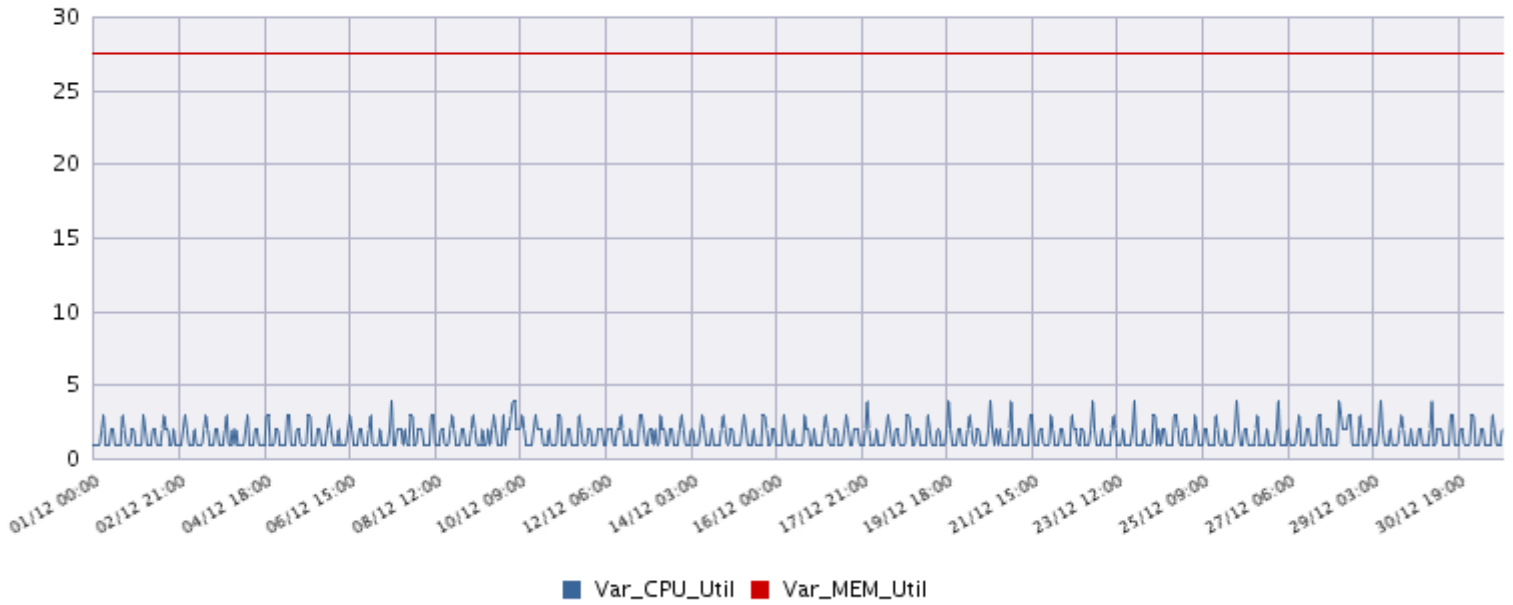
Equipo ICAO_URUGUAY

IP de Gestión (172.21.6.198)

Modelo Cisco1921k9

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



Sede OACI - VENEZUELA

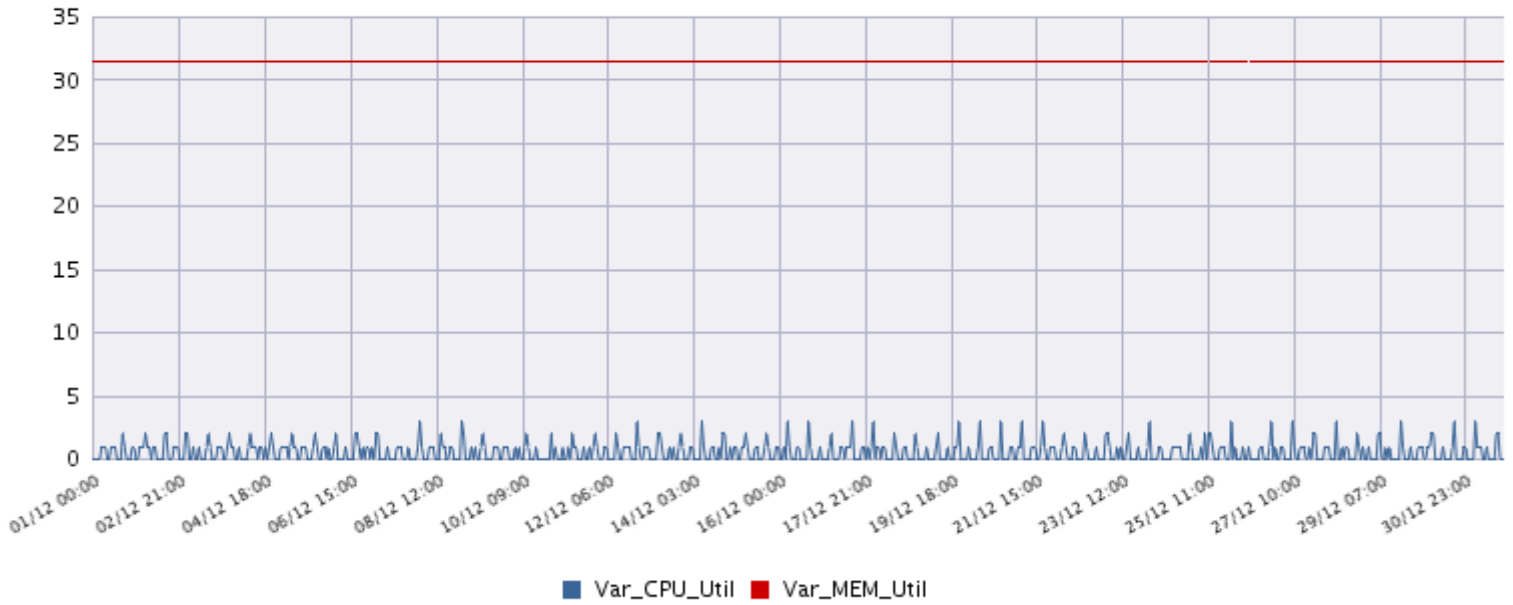
Equipo ICAO_VENEZUELA

IP de Gestión (172.21.6.202)

Modelo Cisco1921k9

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



NETWORK MANAGEMENT

CAPACIDAD Y RENDIMIENTO

Delay, Jitter, Packet Loss

INTERNATIONAL CIVIL AVIATION ORGANIZATION

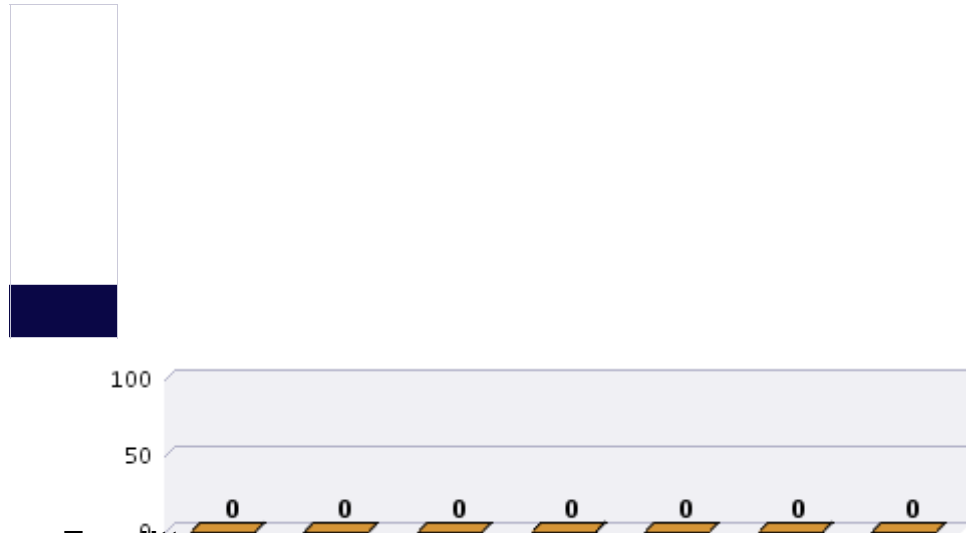
1-7GO-1873

INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873

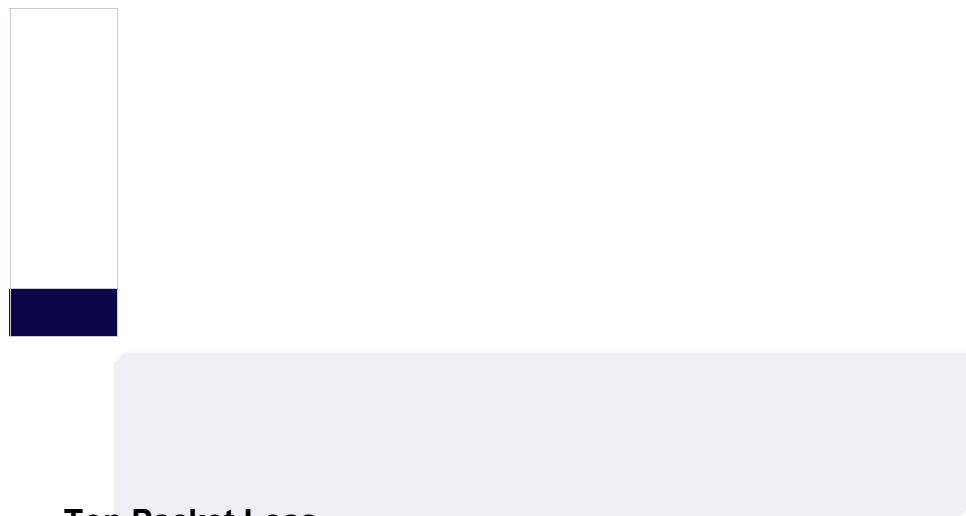
Level(3)
COMMUNICATIONS

Connecting and Protecting
the Networked World

Top Delay



Top Jitter



Top Packet Loss



Reporte de Delay, Jitter y Packet Loss, Diciembre 2015

INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873



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



Sede OACI - ARGENTINA

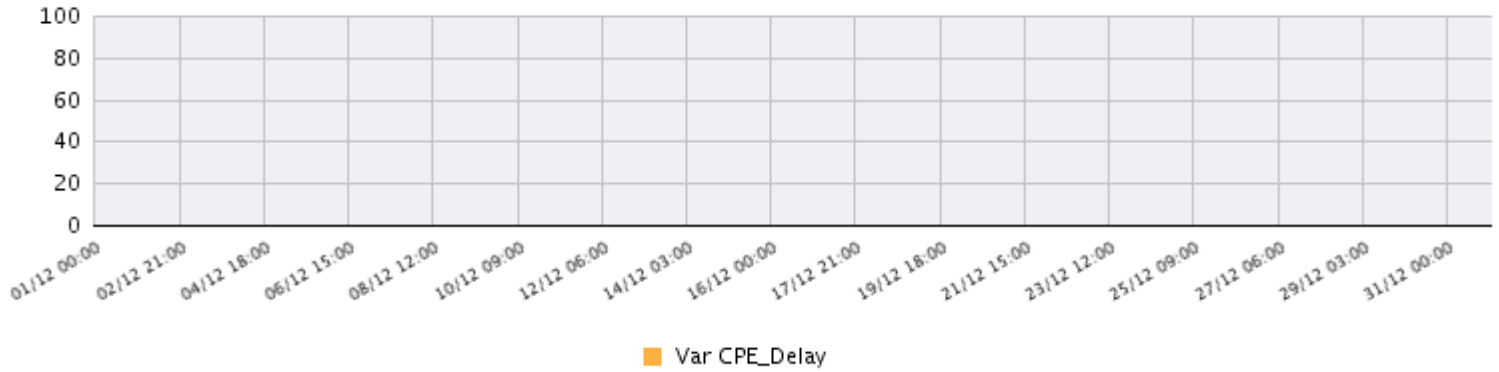
Equipo ICAO_ARGENTINA

IP de Gestión (172.21.6.193)

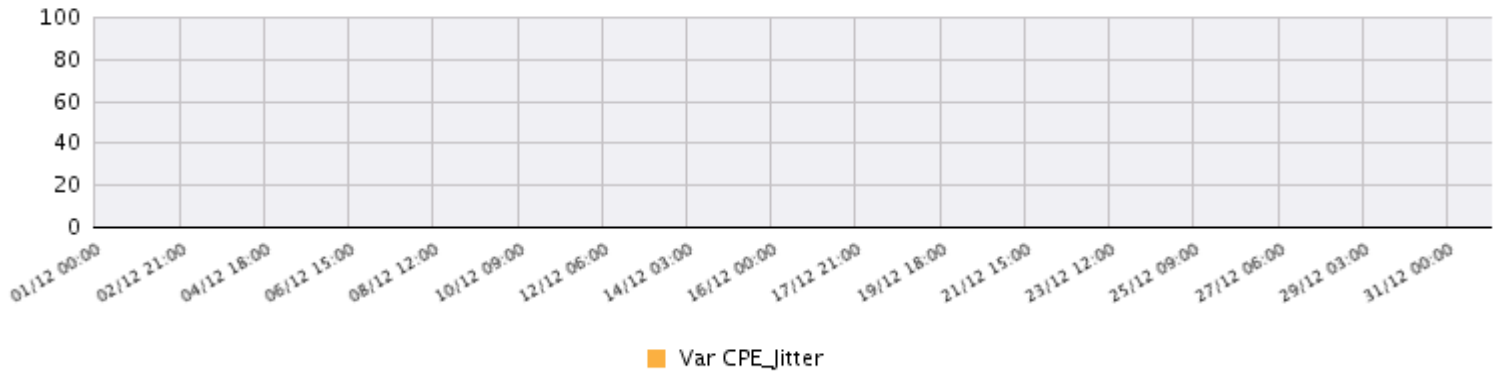
Modelo cisco1921k9

Ciudad Ezeiza

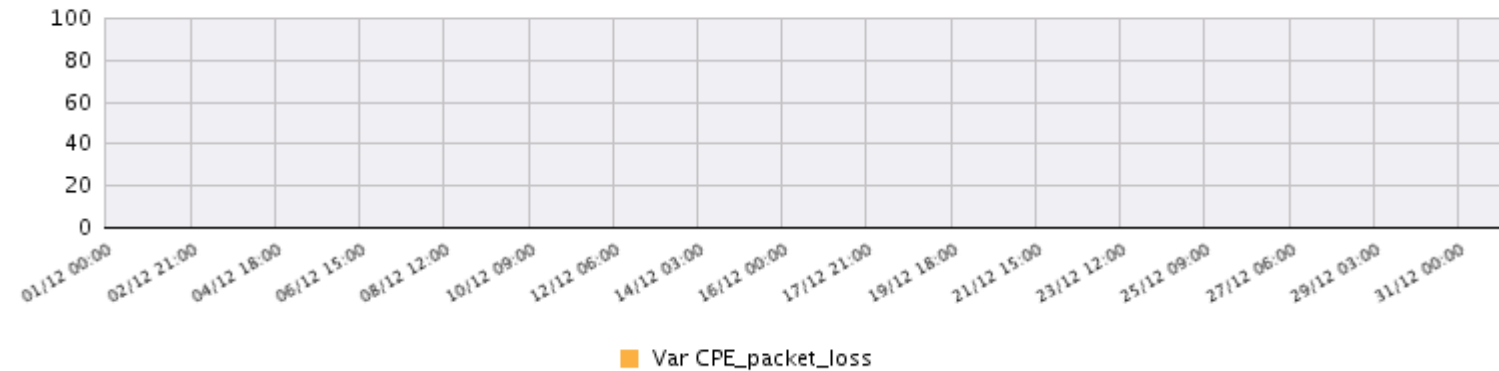
PROM: 0 [ms]



PROM: 0 [ms]



PROM: 0



Reporte de Delay, Jitter y Packet Loss, Diciembre 2015

INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873



Sede OACI - BRASIL CURITIBA

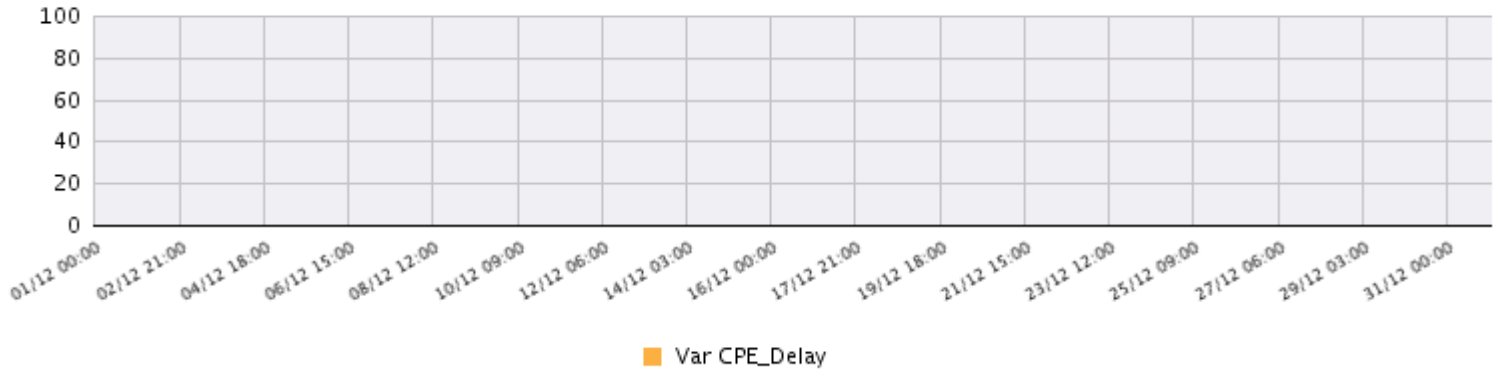
Equipo ICAO_CURITIBA

Modelo cisco1921k9

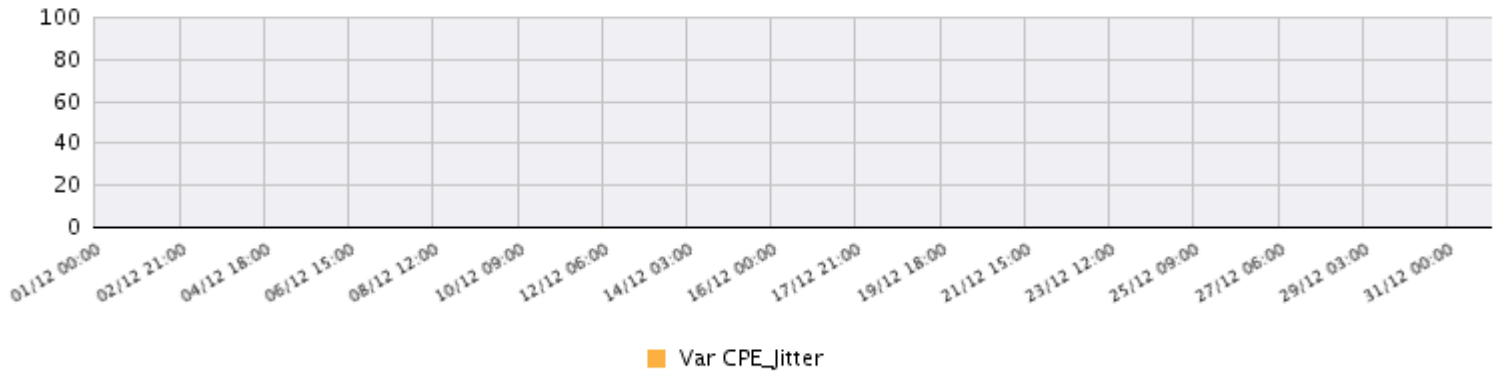
IP de Gestión (172.20.26.63)

Ciudad Curitiba

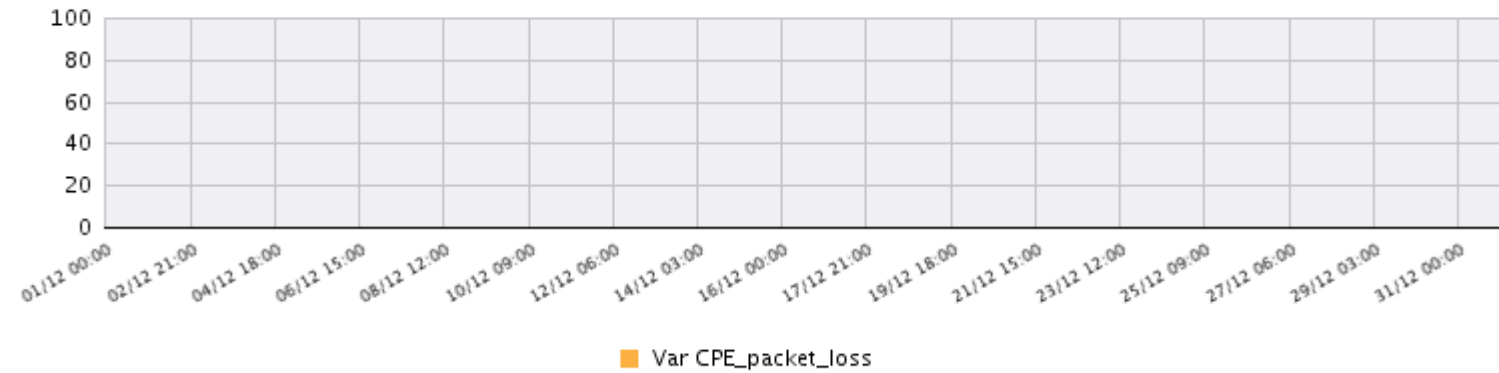
PROM: 0 [ms]



PROM: 0 [ms]



PROM: 0



Reporte de Delay, Jitter y Packet Loss, Diciembre 2015

INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873



Sede OACI - CHILE

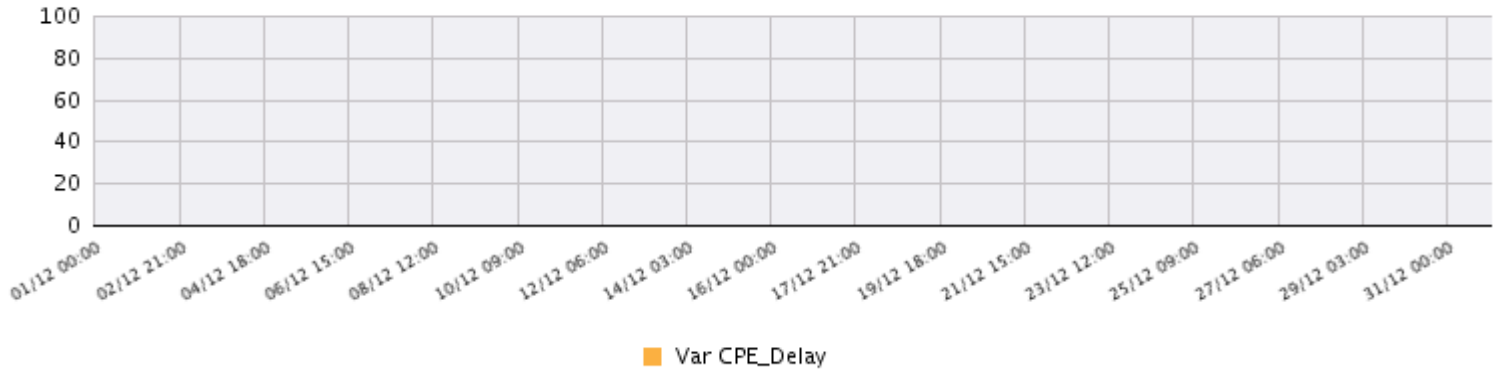
Equipo ICAO_CHILE.yourdomain.com

IP de Gestión (172.21.6.197)

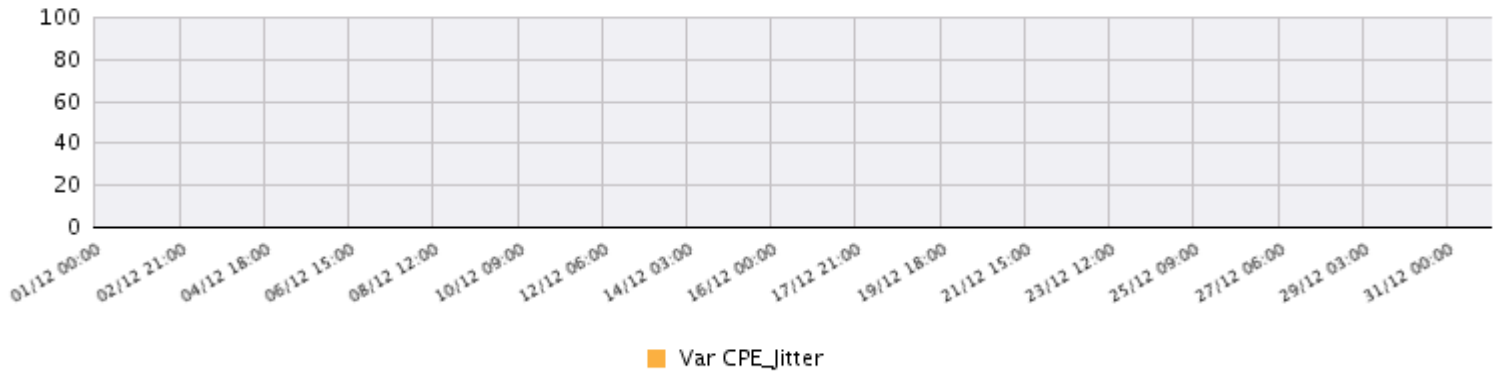
Modelo cisco1921k9

Ciudad Santiago de Chile

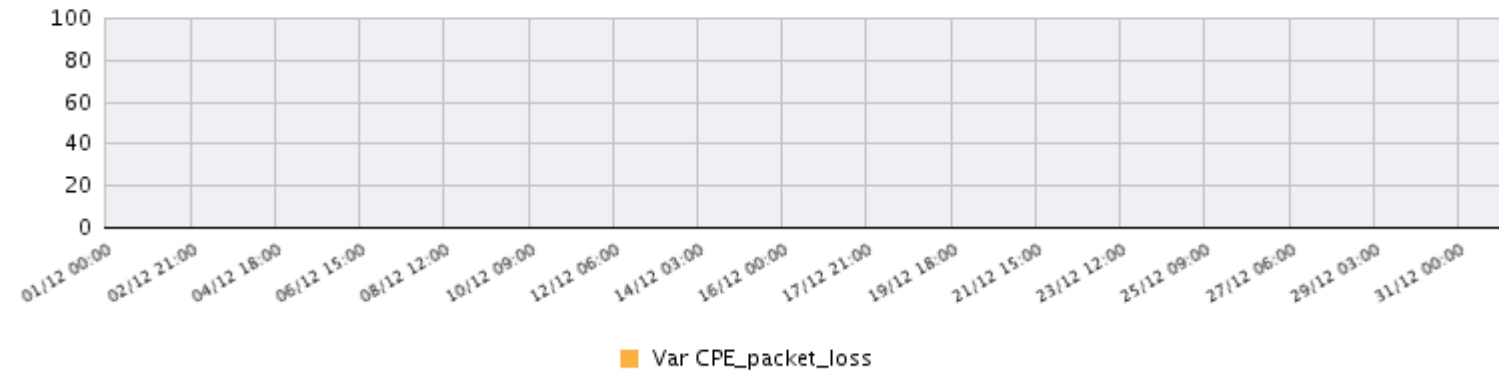
PROM: 0 [ms]



PROM: 0 [ms]



PROM: 0



Reporte de Delay, Jitter y Packet Loss, Diciembre 2015

INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873



Sede OACI - COLOMBIA

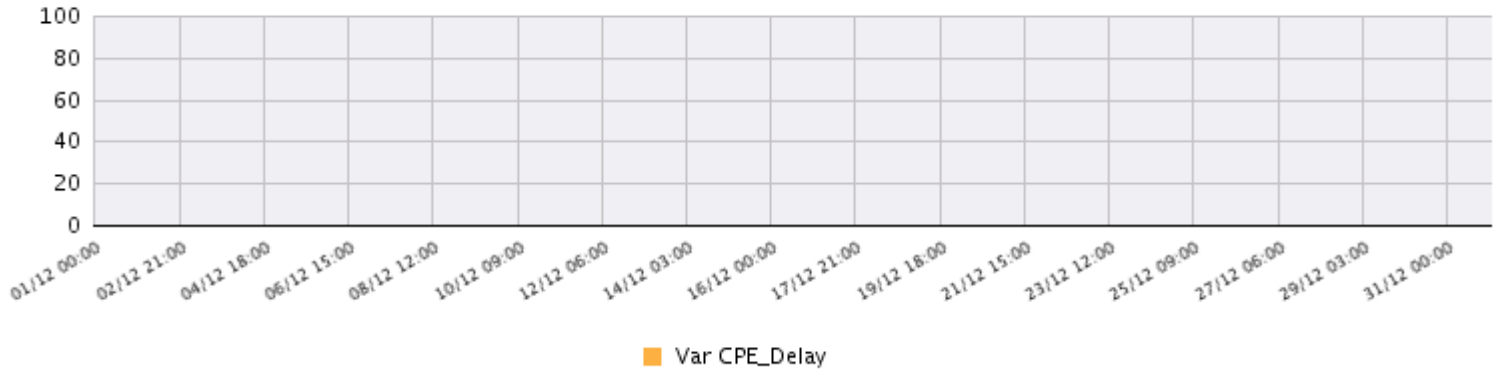
Equipo ICAO_COLOMBIA

IP de Gestión (172.21.6.196)

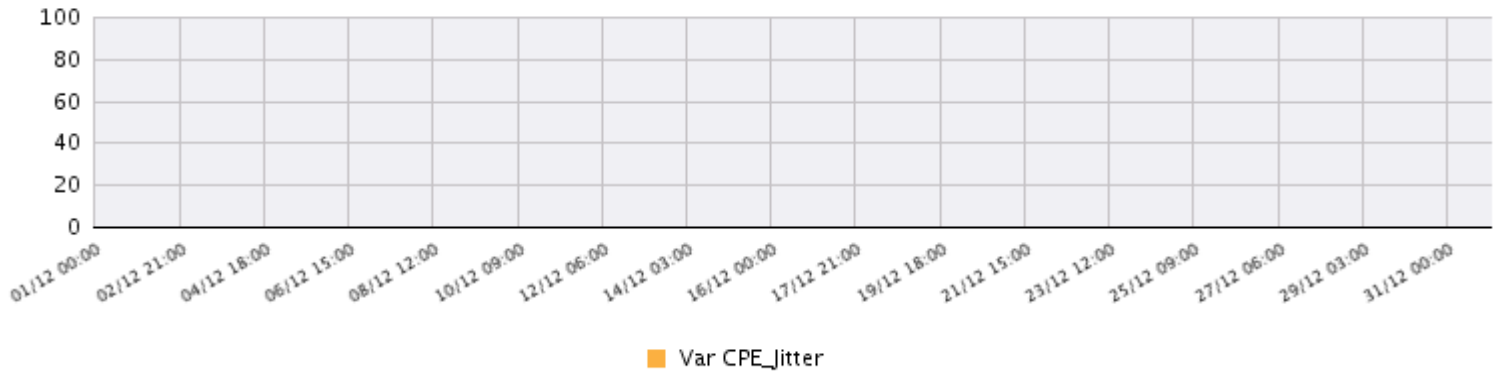
Modelo cisco1921k9

Ciudad Bogotá

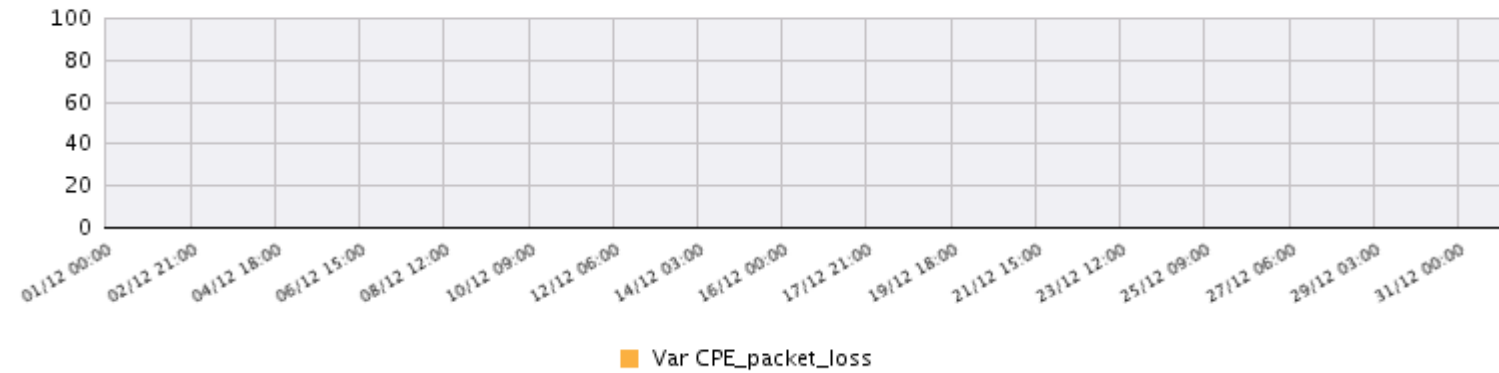
PROM: 0 [ms]



PROM: 0 [ms]



PROM: 0



Reporte de Delay, Jitter y Packet Loss, Diciembre 2015

INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873



Sede OACI - ECUADOR

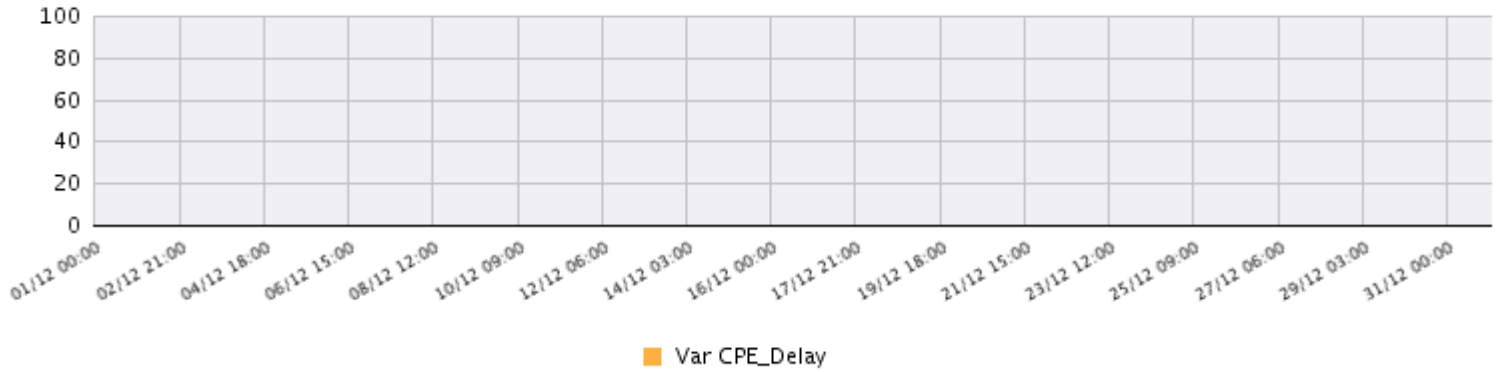
Equipo ICAO_ECUADOR

IP de Gestión (172.21.6.195)

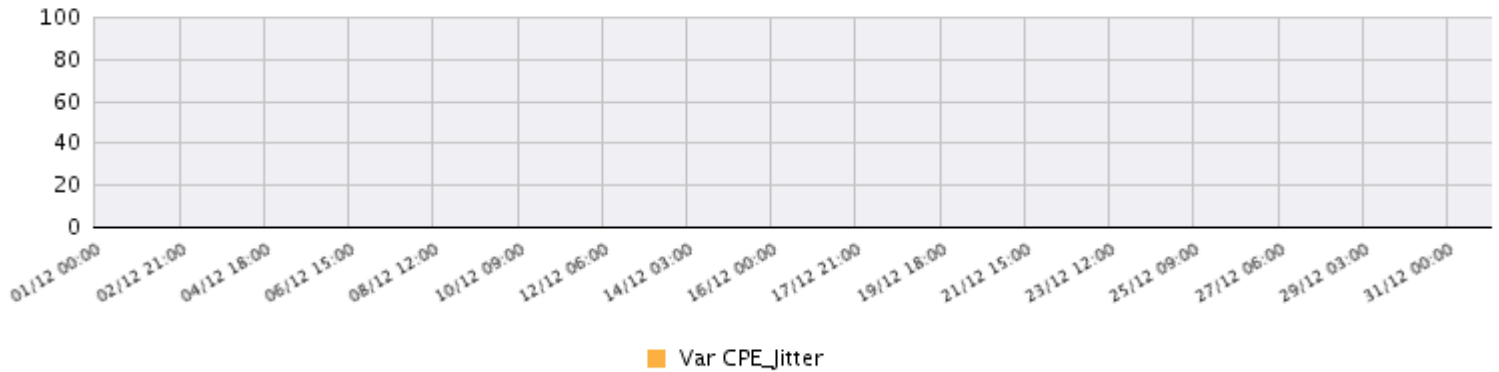
Modelo cisco1921k9

Ciudad Guayaquil

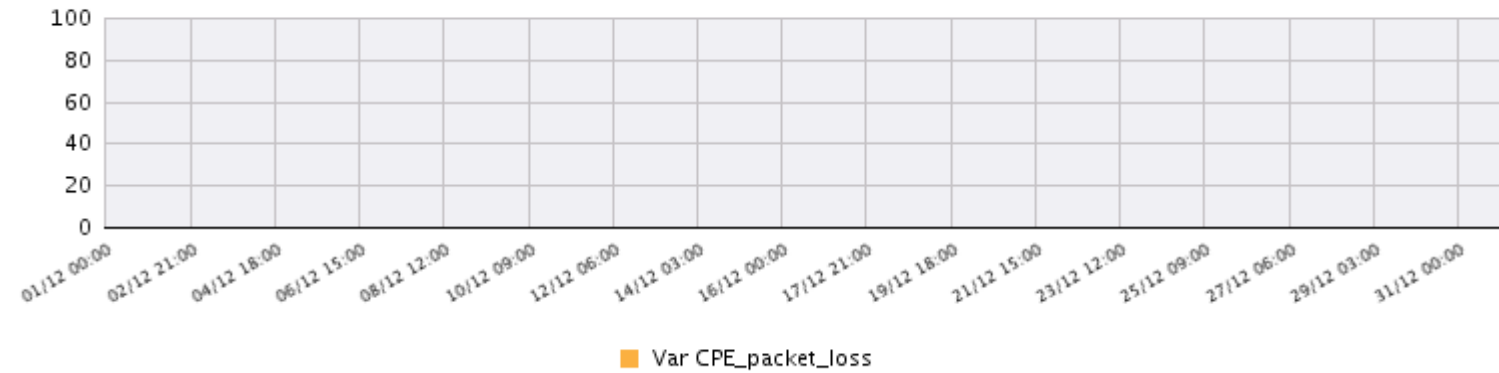
PROM: 0 [ms]



PROM: 0 [ms]



PROM: 0



Reporte de Delay, Jitter y Packet Loss, Diciembre 2015

INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873



Sede OACI - TRINIDAD & TOBAGO

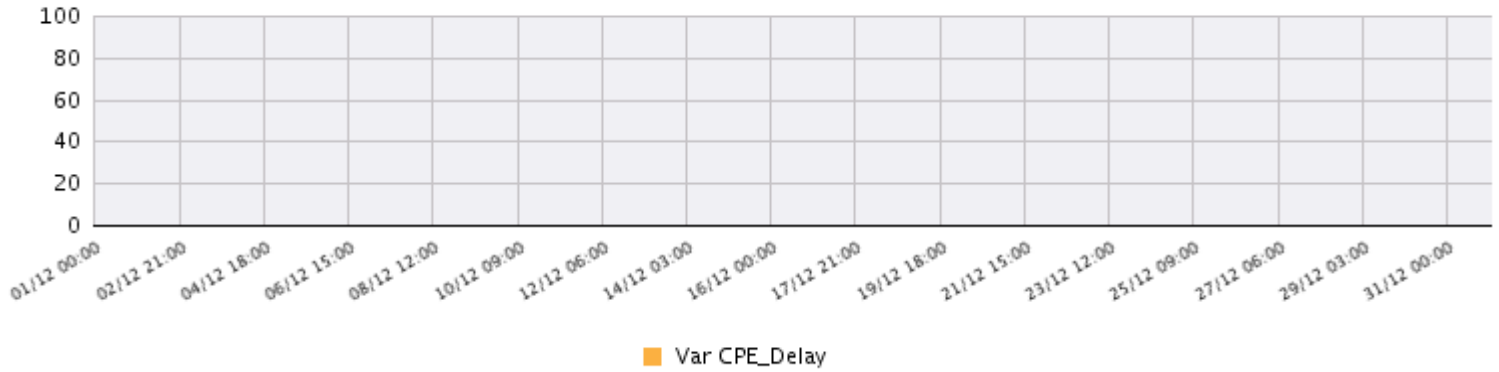
Equipo ICAO_TRINIDAD.yourdomain.com

IP de Gestión (172.21.6.194)

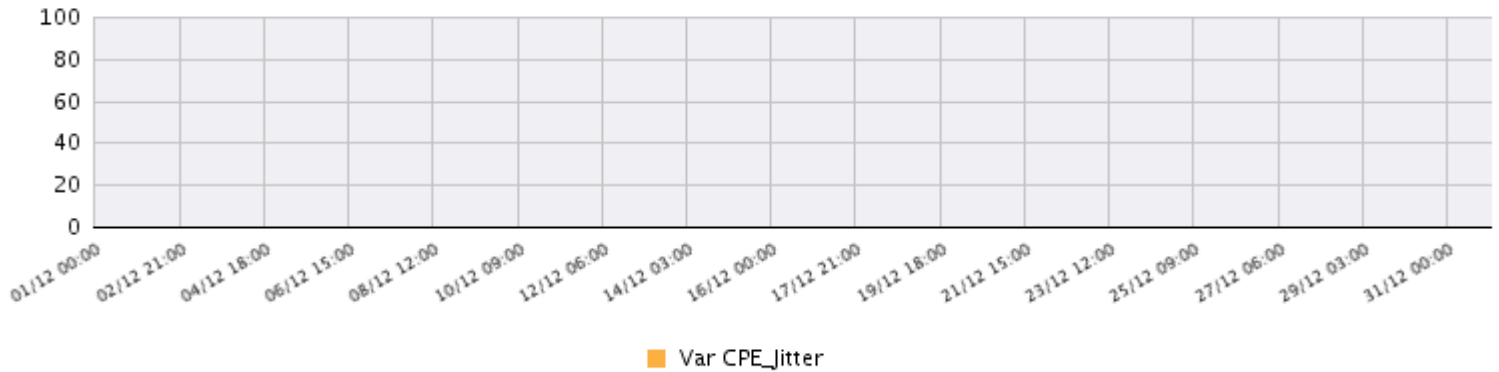
Modelo cisco1921k9

Ciudad Port of Spain

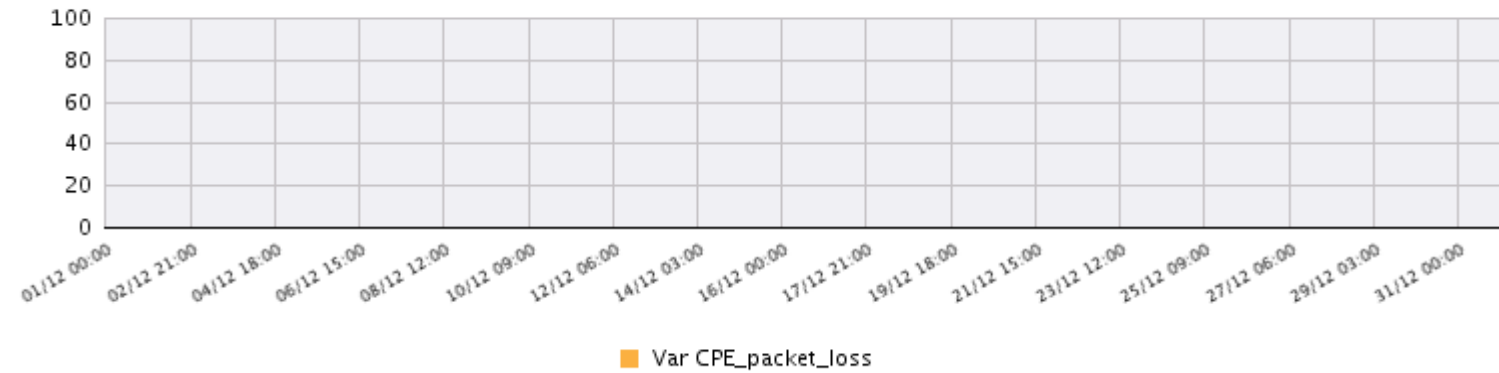
PROM: 0 [ms]



PROM: 0 [ms]



PROM: 0



Reporte de Delay, Jitter y Packet Loss, Diciembre 2015

INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873



Sede OACI - URUGUAY

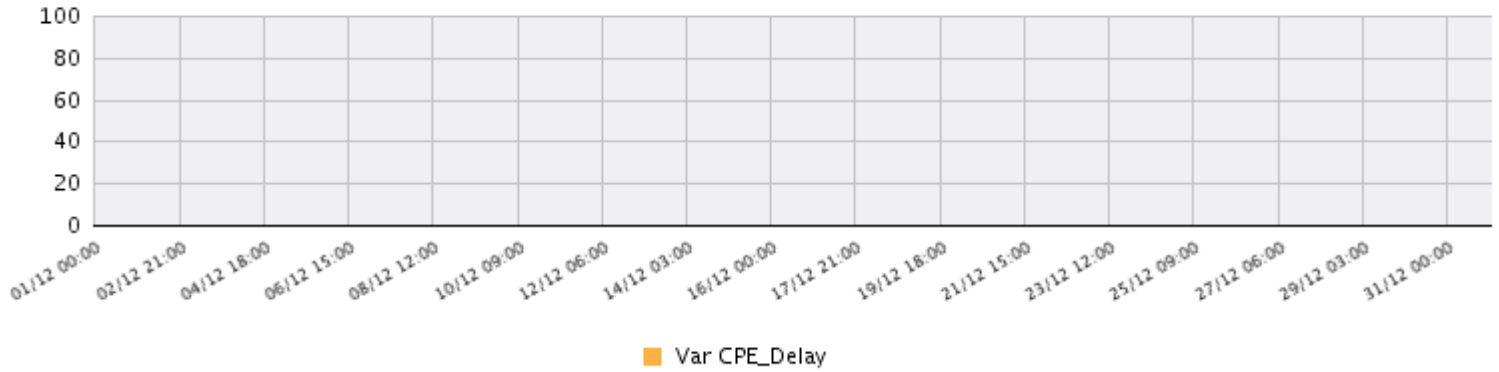
Equipo ICAO_URUGUAY

IP de Gestión (172.21.6.198)

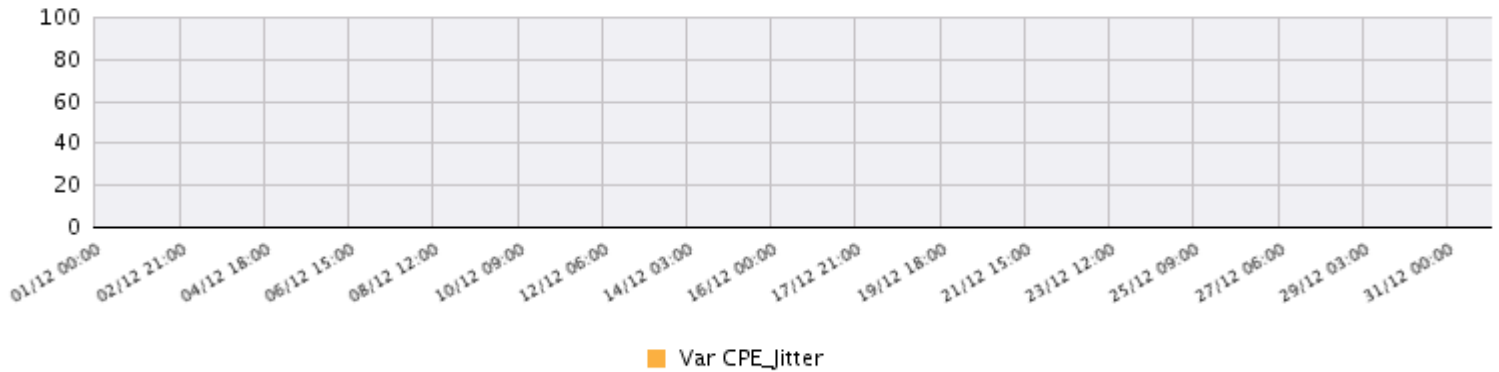
Modelo cisco1921k9

Ciudad Montevideo

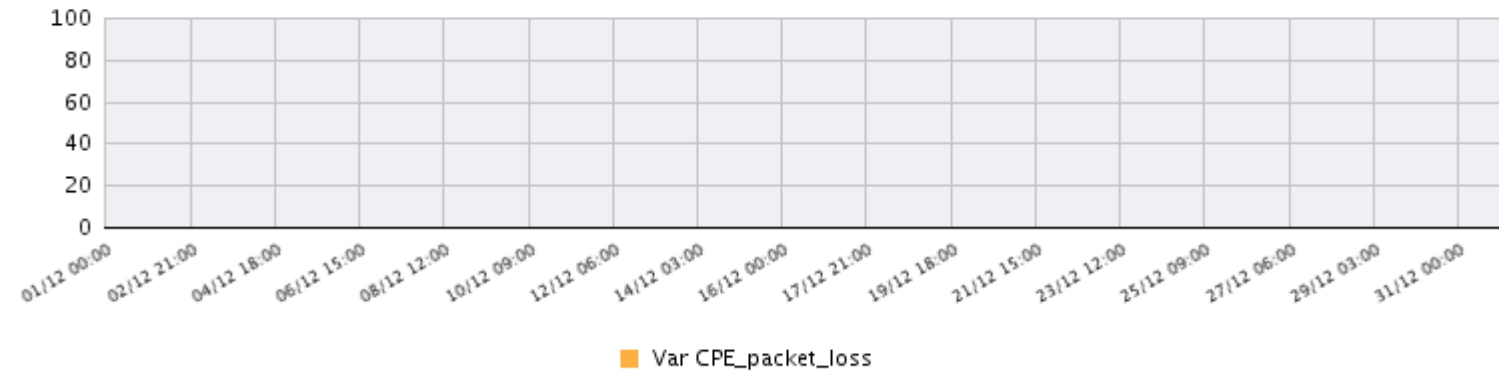
PROM: 0 [ms]



PROM: 0 [ms]



PROM: 0



Reporte de Delay, Jitter y Packet Loss, Diciembre 2015

INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873



NETWORK MANAGEMENT NETFLOW

Flujo de Conversación, Aplicaciones y TOS



Level(3)
COMMUNICATIONS

Connecting and Protecting
the Networked World

1. APLICACIÓN

APPLICATION
■

Volume(Mbytes)

2. DESTINO (TOP 20)

3. ORIGEN (TOP 20)

4. QoS

DSCP
■

% Total

4. CONVERSACIONES

NETWORK MANAGEMENT

CAPACIDAD Y RENDIMIENTO

Calidad de Servicio

INTERNATIONAL CIVIL AVIATION ORGANIZATION
1-7GO-1873

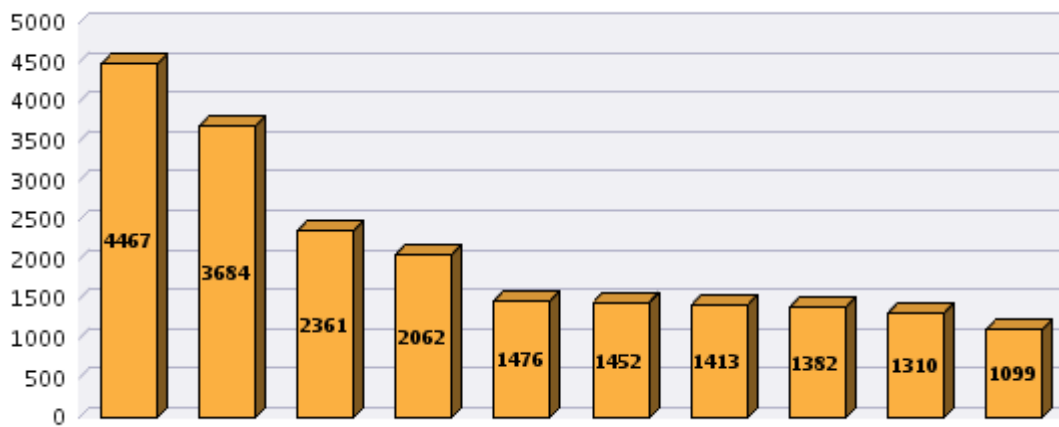
INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873

Level(3)
COMMUNICATIONS

Connecting and Protecting
the Networked World

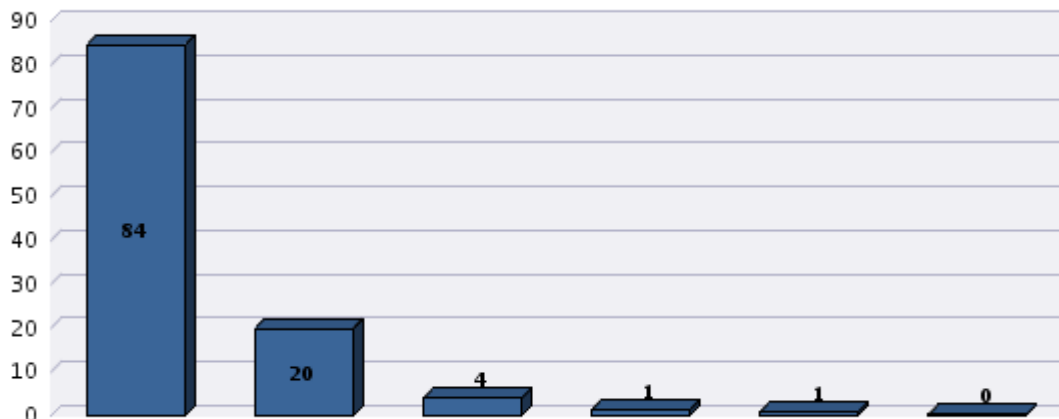
Top Policy (kbps)

OACI - BRASIL MANAUS // ICAO_MA NAUSBRA SIL // GigabitEth ernet0/0	OACI - ECUADOR // ICAO_ECU ADOR // GigabitEth ernet0/0.13 67	OACI - ECUADOR // ICAO_ECU ADOR // GigabitEth ernet0/1	OACI - LIMA // ICAO_PER U // GigabitEth ernet0/0.24 28	OACI - ARGENTI NA // ICAO_AR GENTINA / / GigabitEth ernet0/1	OACI - LIMA // ICAO_PER U // GigabitEth ernet0/1	OACI - URUGUAY // ICAO_UR UGUAY // GigabitEth ernet0/1	OACI - CHILE // ICAO_CHI LE.yourdo main.com / / GigabitEth ernet0/0	OACI - TRINIDAD & TOBAGO // ICAO_TRI NIDAD.you rdomain.co m // GigabitEth ernet0/0	OACI - CHILE // ICAO_CHI LE.yourdo main.com / / GigabitEth ernet0/1
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_ECU ADOR // GigabitEth ernet0/0.13 67	OACI - LIMA // ICAO_PER U // GigabitEth ernet0/0.24 28	OACI - PARAGUA Y // ICAO_PAR AGUAY.ine o.com.py // GigabitEth ernet0/0	OACI - TRINIDAD & TOBAGO // ICAO_TRI NIDAD.you rdomain.co m // GigabitEth ernet0/0	OACI - BRASIL CURITIBA // ICAO_CU RITIBA // Multilink1	OACI - CHILE // ICAO_CHI LE.yourdo main.com / / GigabitEth ernet0/0
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



Evolución histórica:

Sede	Dirección IP	Nombre de Interfaz	Clase	Diciembre 2015	
				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

Reporte de Calidad de Servicio, Diciembre 2015

INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873



Sede	Dirección IP	Nombre de Interfaz	Clase	Diciembre 2015				
				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						

Reporte de Calidad de Servicio, Diciembre 2015

INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873



				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			

Reporte de Calidad de Servicio, Diciembre 2015

INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873



				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
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	

Reporte de Calidad de Servicio, Diciembre 2015

INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873



				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
			class-default	1,954.58	0
		GigabitEthernet0/1	CRITICAL	88.7	0
			No Match	108.11	0
			PRIORITY	0	0
			VIDEO	0	0
			VOZ	209.15	0
			class-default	385.18	0
OACI - GUYANA ICAO_GUYANA.yourdomain.com	172.21.6.200	GigabitEthernet0/0	CRITICAL	0.17	0
			No Match	13.34	0
			PRIORITY	0	0
			VIDEO	0	0
			VOZ	1.3	0
			class-default	792.28	0
		GigabitEthernet0/1	CRITICAL	8.76	0
			No Match	23.45	0

Reporte de Calidad de Servicio, Diciembre 2015

INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873



				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
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	

Reporte de Calidad de Servicio, Diciembre 2015

INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873



				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
			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



				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
			class-default	868.9	0
		GigabitEthernet0/1	CRITICAL	0.17	0
			No Match	26.02	0
			PRIORITY	0	0
			VIDEO	0	0
			VOZ	0.29	0
			class-default	1,267.57	0.59
OACI - TRINIDAD & TOBAGO ICAO_TRINIDAD.yourdomain.com	172.21.6.194	GigabitEthernet0/0	CRITICAL	0.2	0
			No Match	40.17	0
			PRIORITY	0	0
			VIDEO	0	0
			VOZ	1.93	0.54
			class-default	848.03	0
		GigabitEthernet0/1	CRITICAL	0.21	0
			No Match	26	0

Reporte de Calidad de Servicio, Diciembre 2015

INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873



Sede	Dirección IP	Nombre de Interfaz	Clase	Diciembre 2015	
				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
		GigabitEthernet0/1	PRIORITY	0	0
			VIDEO	0	0
			VOZ	42.95	0
			class-default	1,274.09	0
			CRITICAL	35.25	0
			No Match	60.22	0
OACI - VENEZUELA ICAO_VENEZUELA	172.21.6.202	GigabitEthernet0/0	PRIORITY	0	0
			VIDEO	0	0
			VOZ	43.01	0
		GigabitEthernet0/0	class-default	451.95	0
			CRITICAL	3.33	0
			No Match	14.92	0
GigabitEthernet0/0	PRIORITY	0	0		
	VIDEO	0	0		

Reporte de Calidad de Servicio, Diciembre 2015

INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873



				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

Sede OACI - ARGENTINA

Equipo ICAO_ARGENTINA

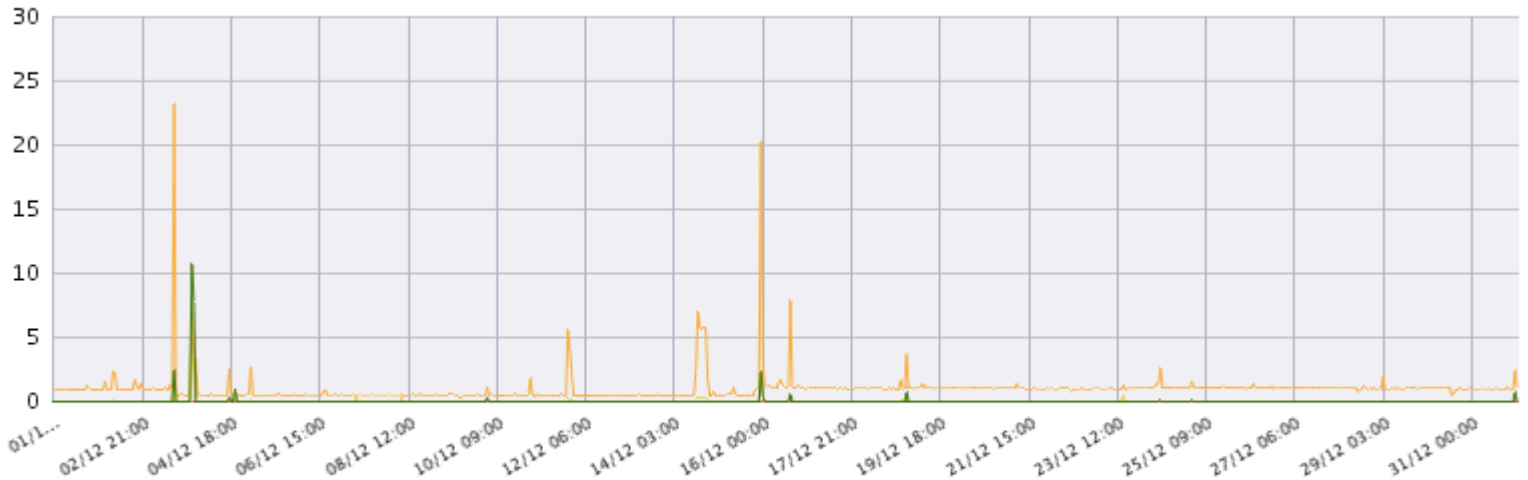
Modelo Cisco1921k9

IP de Gestión (172.21.6.193)

Ciudad Ezeiza

Interface: GigabitEthernet0/0

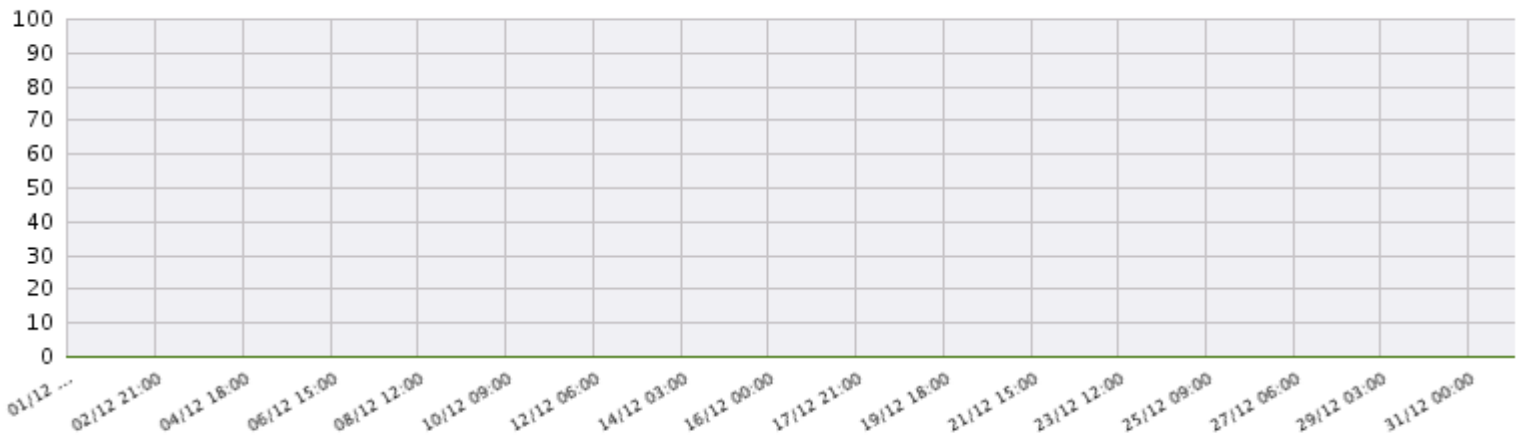
Policy Map (kbps)



Class_Map_Name

■ class-default
 ■ CRITICAL
 ■ No Match
 ■ PRIORITY
 ■ VIDEO
 ■ VOZ

Drops (kbps)

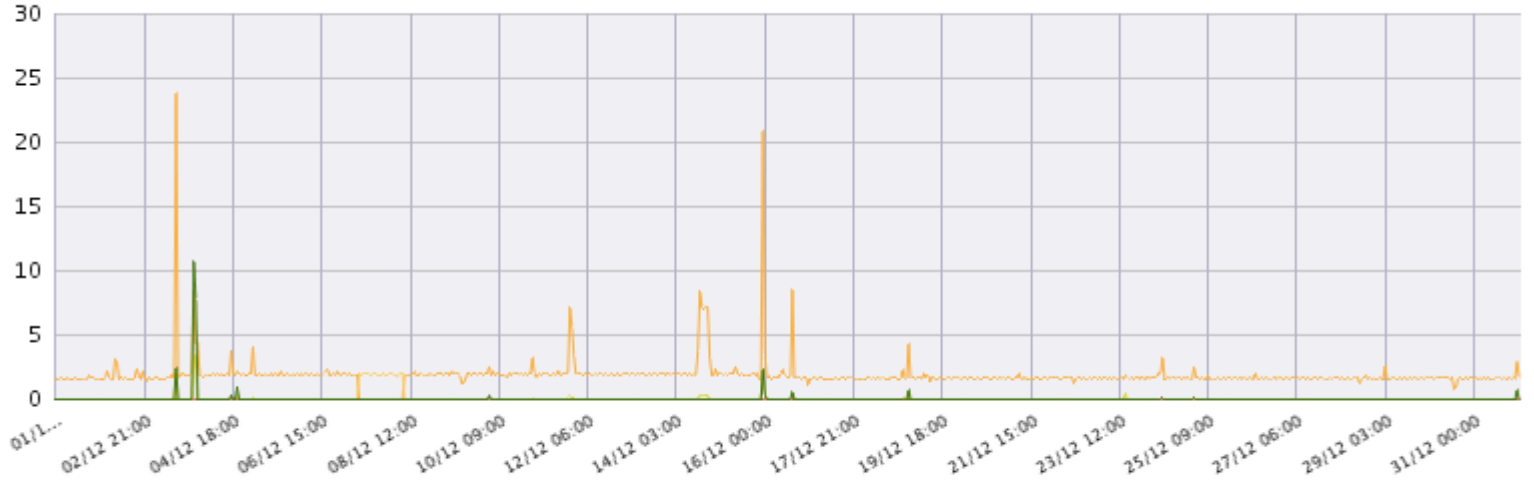


Class_Map_Name

■ class-default
 ■ CRITICAL
 ■ No Match
 ■ PRIORITY
 ■ VIDEO
 ■ VOZ

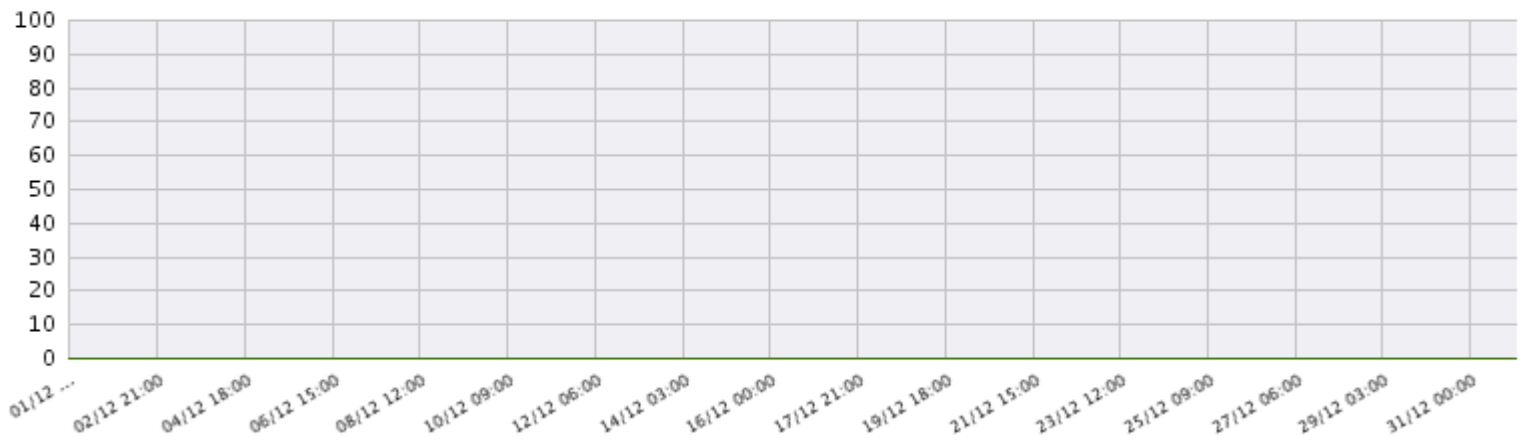
Interface: GigabitEthernet0/1

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 - BOLIVIA

Equipo ICAO_BOLIVIA.tigo.net.bo

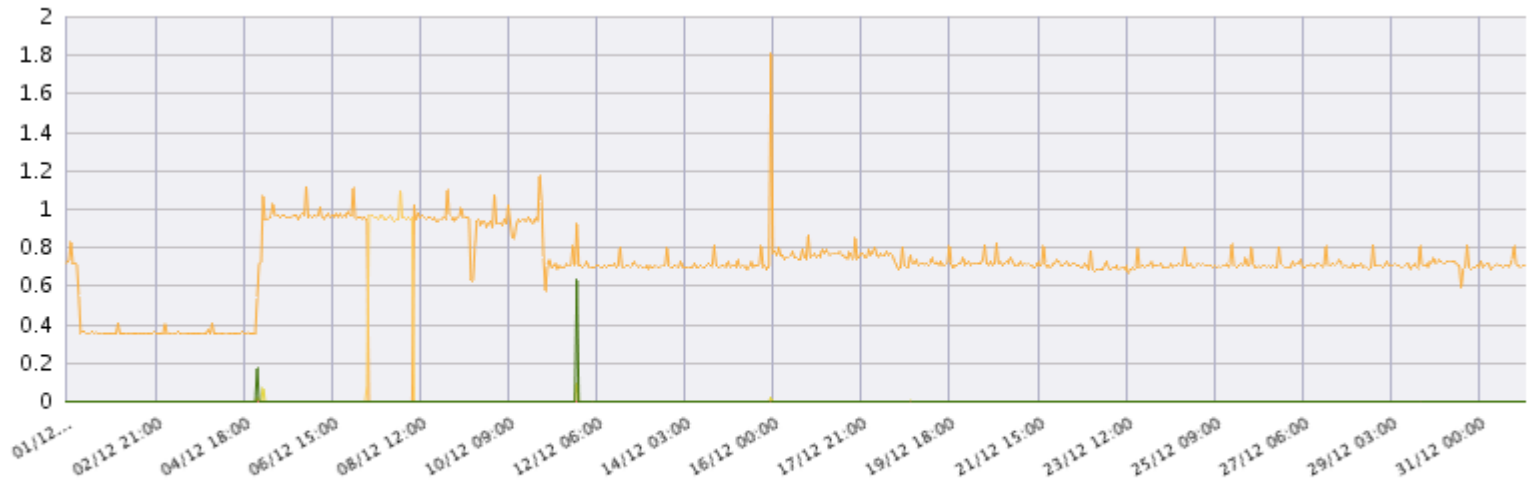
Modelo Cisco1921k9

IP de Gestión (172.21.6.204)

Ciudad La Paz

Interface: GigabitEthernet0/0

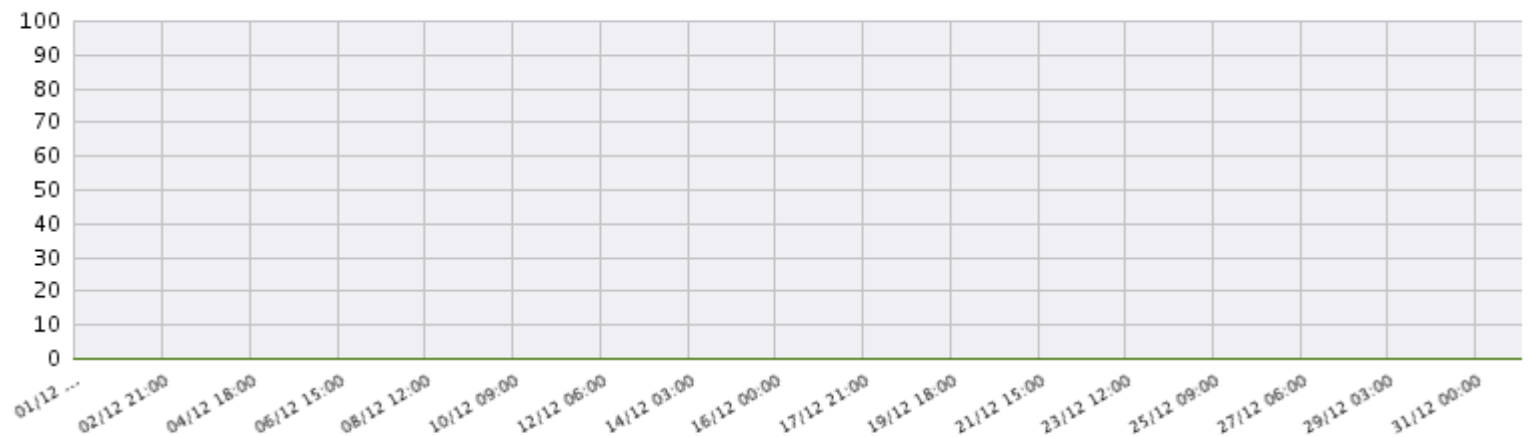
Policy Map (kbps)



Class_Map_Name

■ class-default
 ■ CRITICAL
 ■ No Match
 ■ PRIORITY
 ■ VIDEO
 ■ VOZ

Drops (kbps)

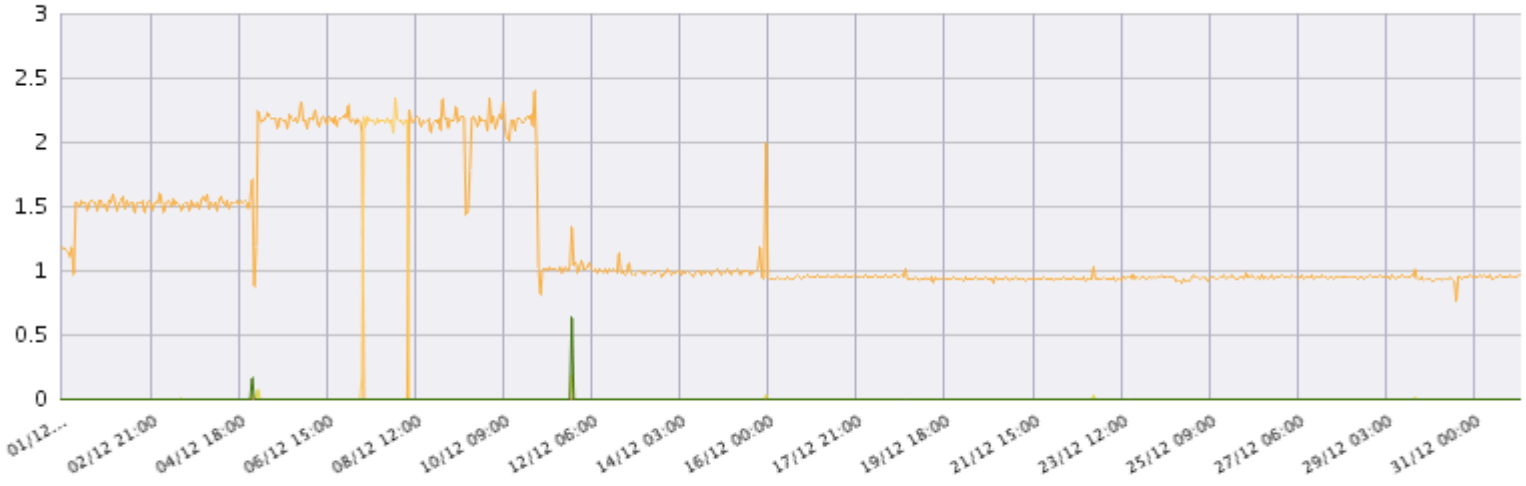


Class_Map_Name

■ class-default
 ■ CRITICAL
 ■ No Match
 ■ PRIORITY
 ■ VIDEO
 ■ VOZ

Interface: GigabitEthernet0/1

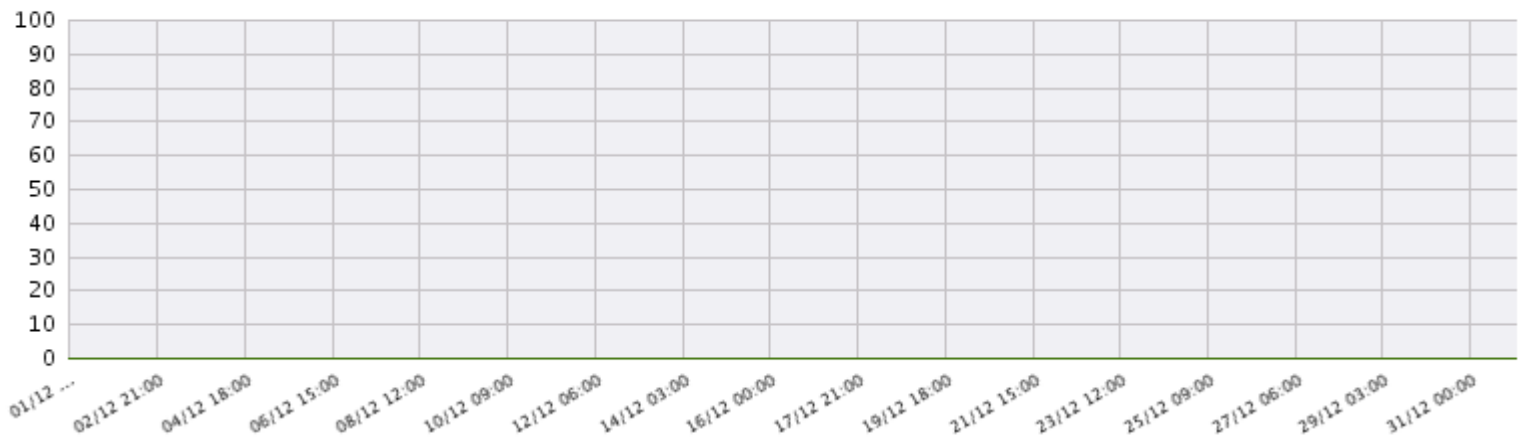
Policy Map (kbps)



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



Sede OACI - BRASIL CURITIBA

Equipo ICAO_CURITIBA

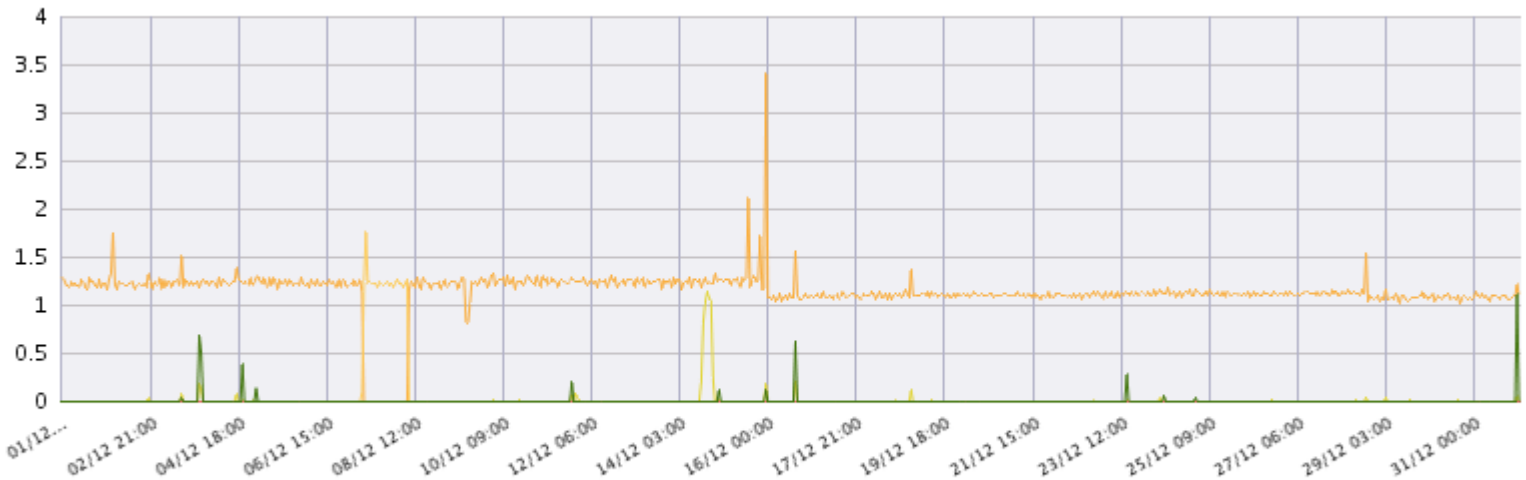
Modelo Cisco1921k9

IP de Gestión (172.20.26.63)

Ciudad Curitiba

Interface: GigabitEthernet0/0

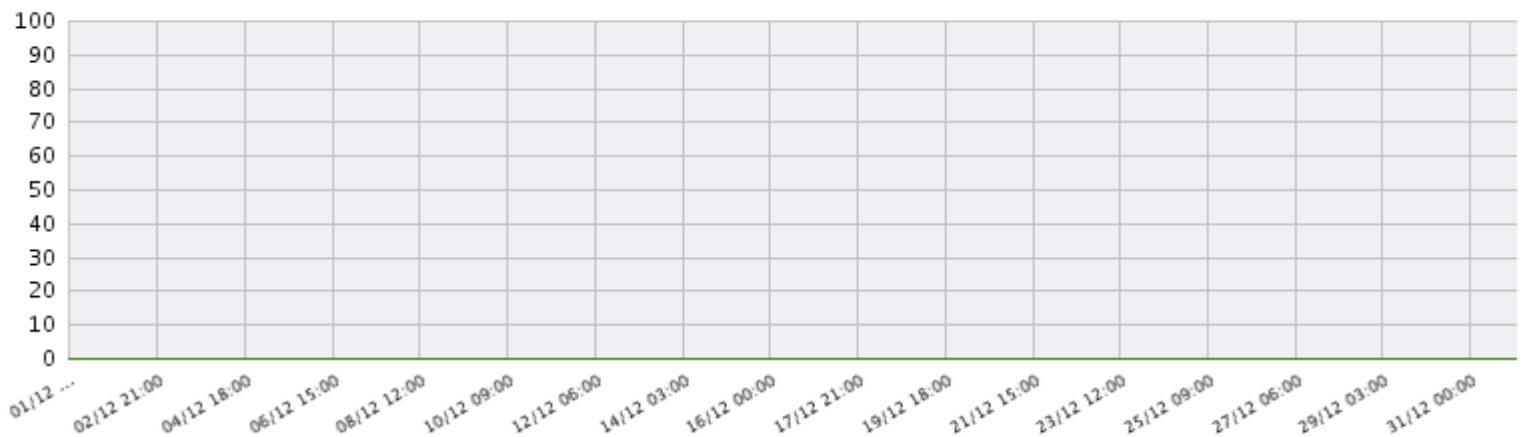
Policy Map (kbps)



Class_Map_Name

class-default CRITICAL No Match PRIORITY VIDEO VOZ

Drops (kbps)

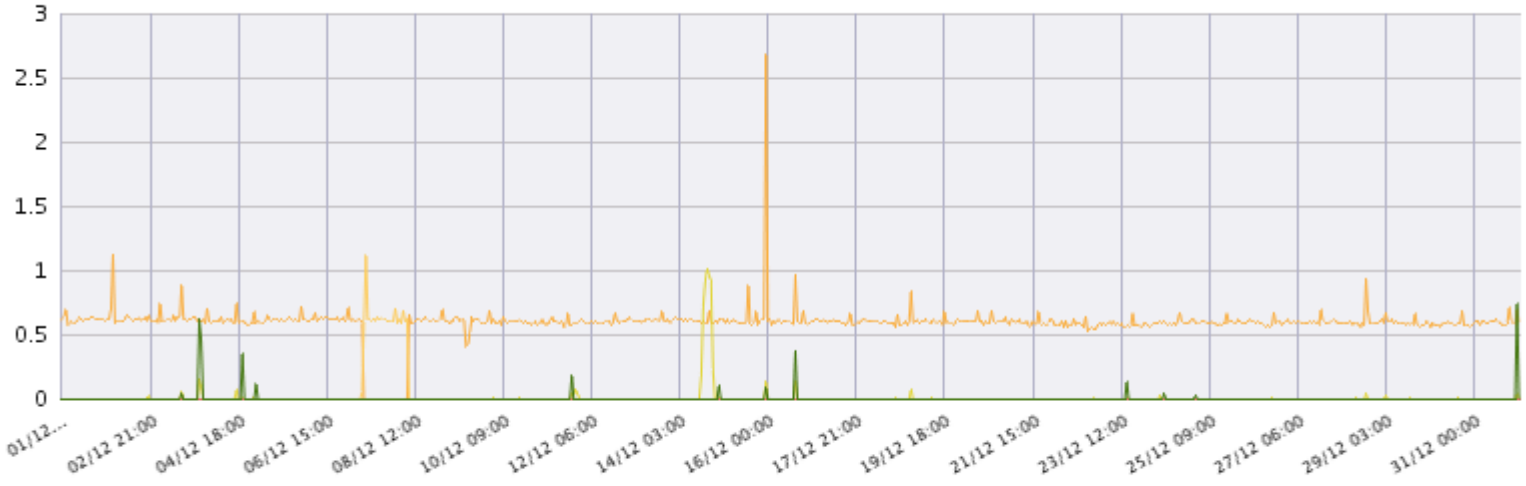


Class_Map_Name

class-default CRITICAL No Match PRIORITY VIDEO VOZ

Interface: Multilink1

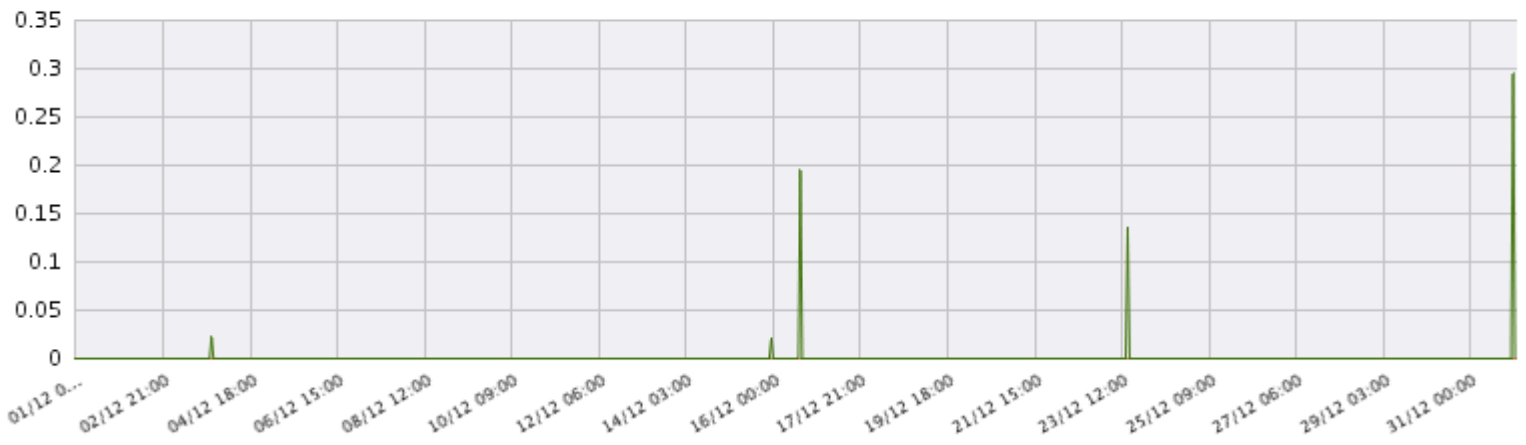
Policy Map (kbps)



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

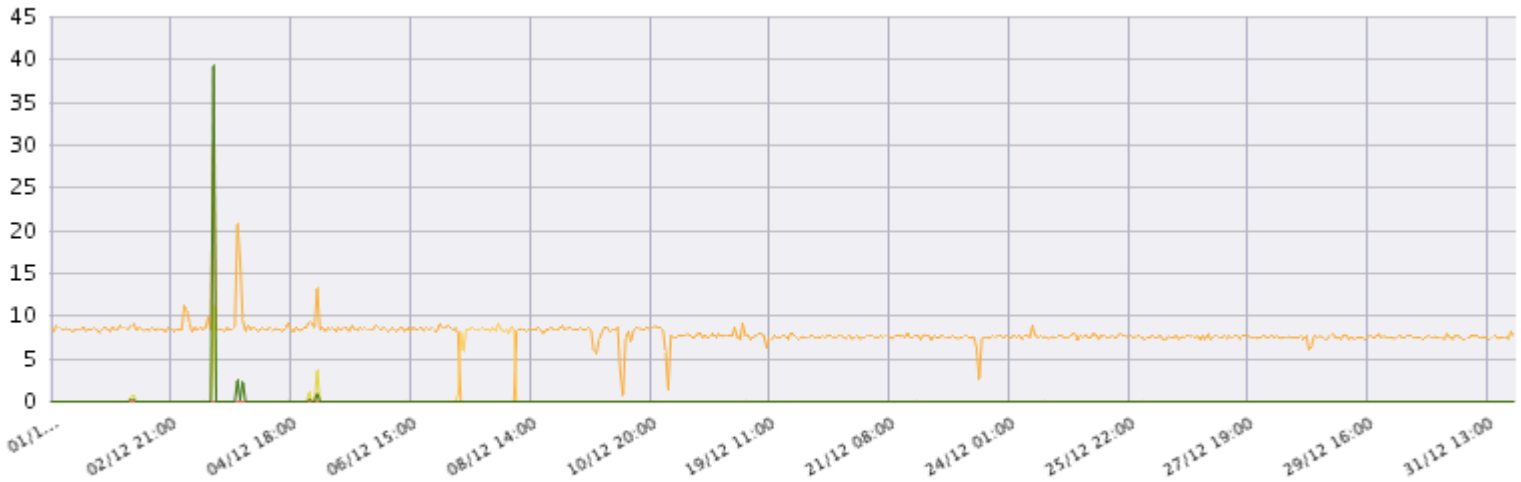
Modelo Cisco1921k9

IP de Gestión (172.21.6.192)

Ciudad Manaus

Interface: GigabitEthernet0/0

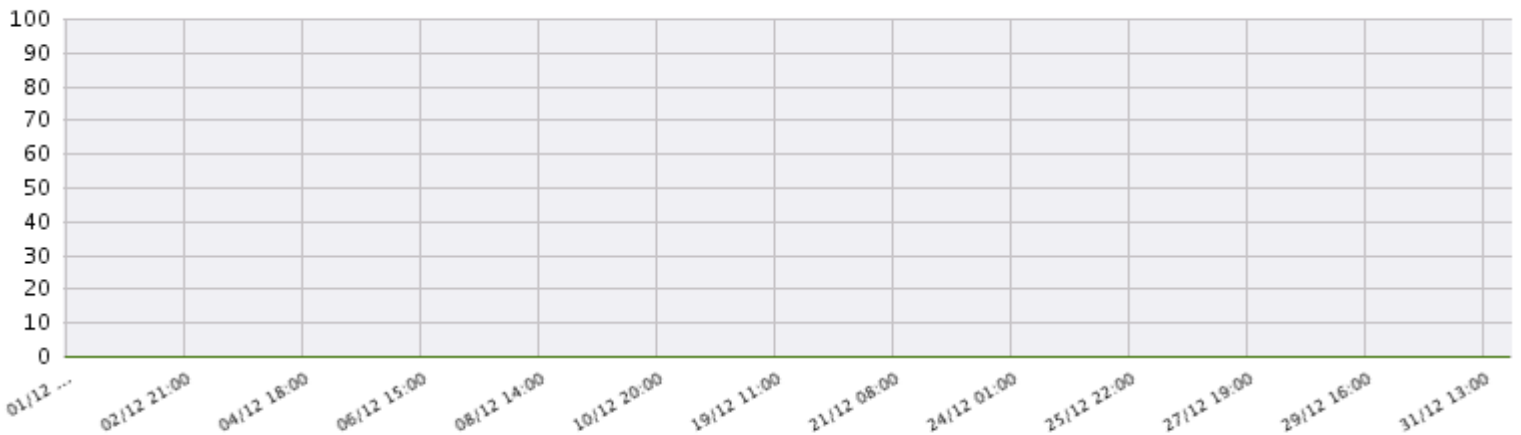
Policy Map (kbps)



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

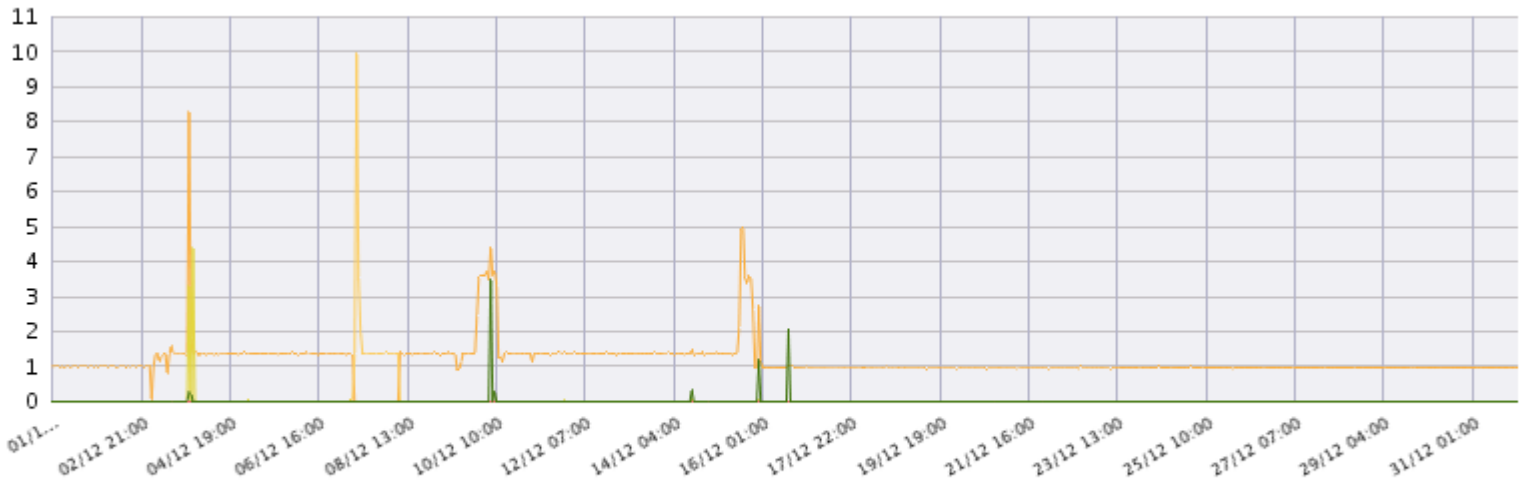
Modelo Cisco1921k9

IP de Gestión (172.20.26.62)

Ciudad Recife

Interface: GigabitEthernet0/0

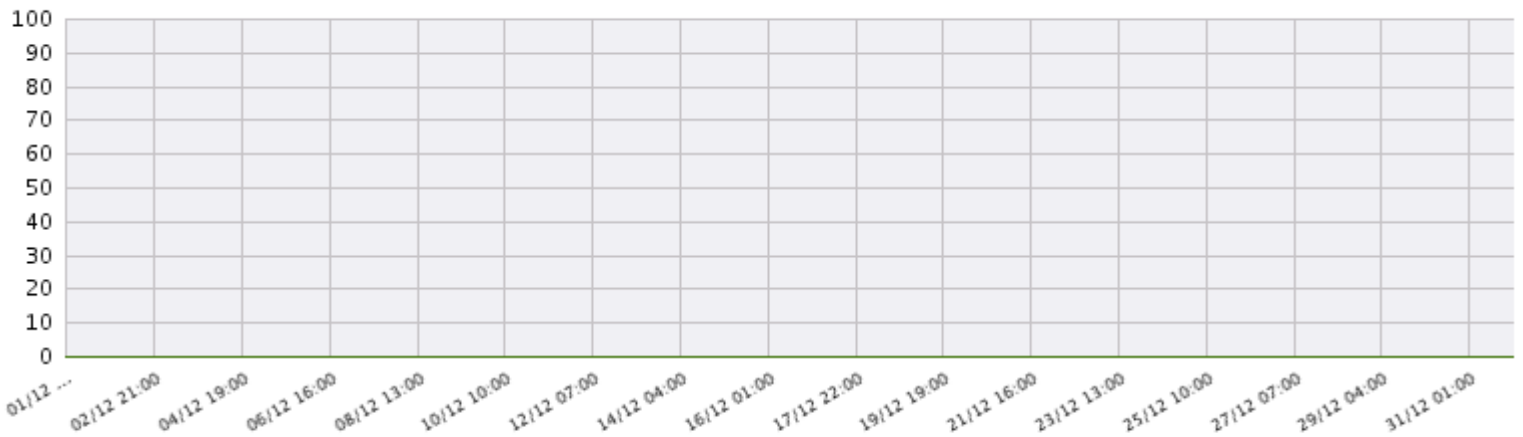
Policy Map (kbps)



Class_Map_Name

■ class-default
 ■ CRITICAL
 ■ No Match
 ■ PRIORITY
 ■ VIDEO
 ■ VOZ

Drops (kbps)

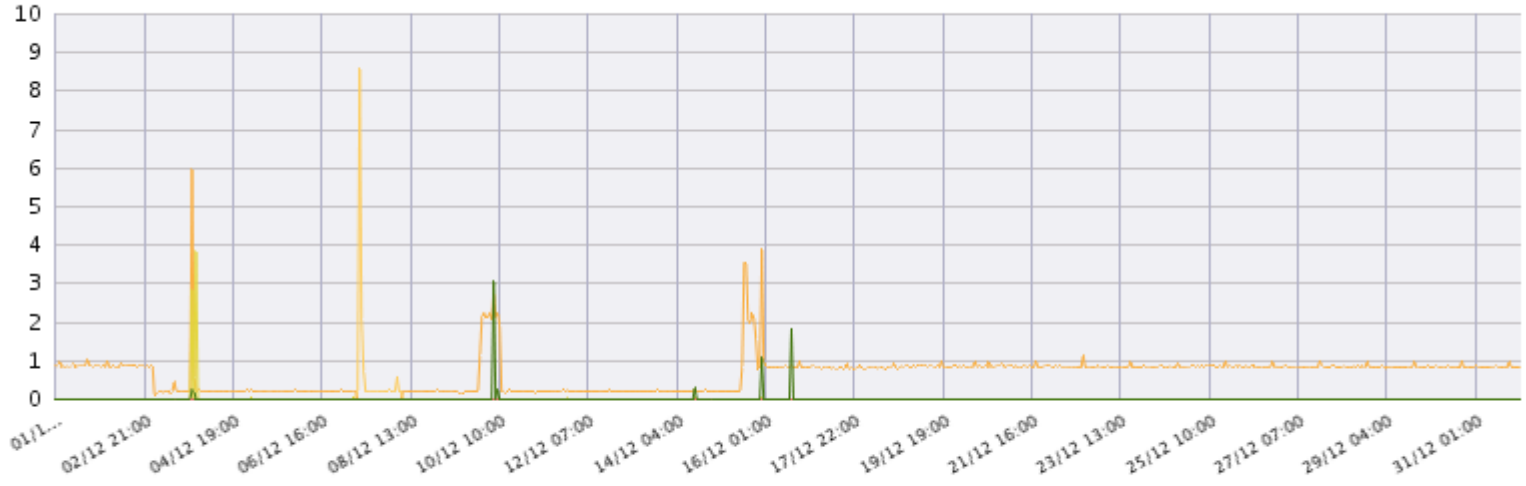


Class_Map_Name

■ class-default
 ■ CRITICAL
 ■ No Match
 ■ PRIORITY
 ■ VIDEO
 ■ VOZ

Interface: Multilink1

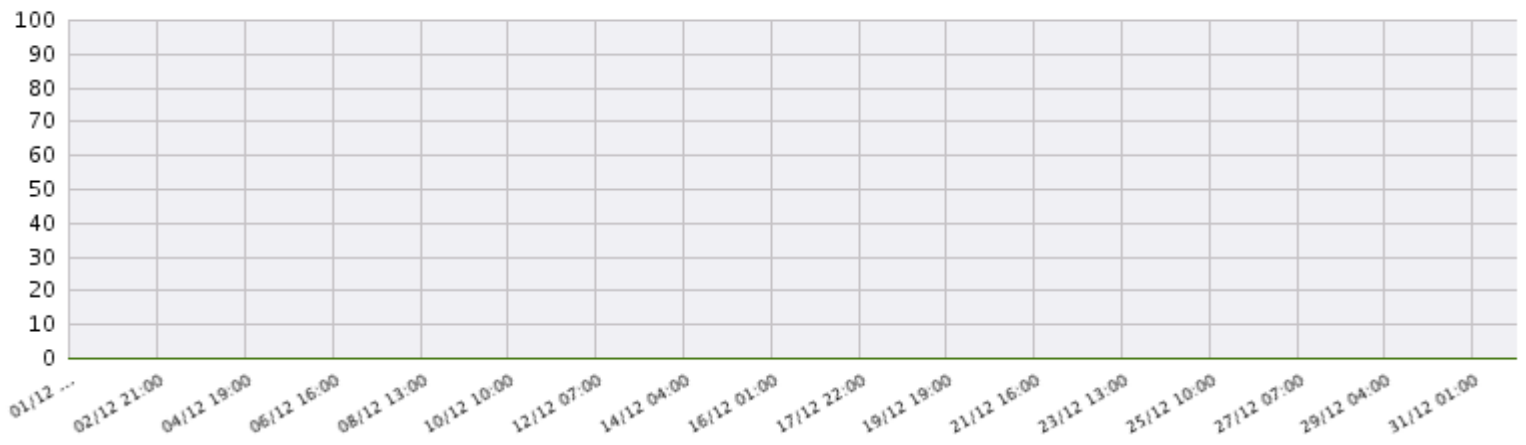
Policy Map (kbps)



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



Sede OACI - CHILE

Equipo ICAO_CHILE.yourdomain.com

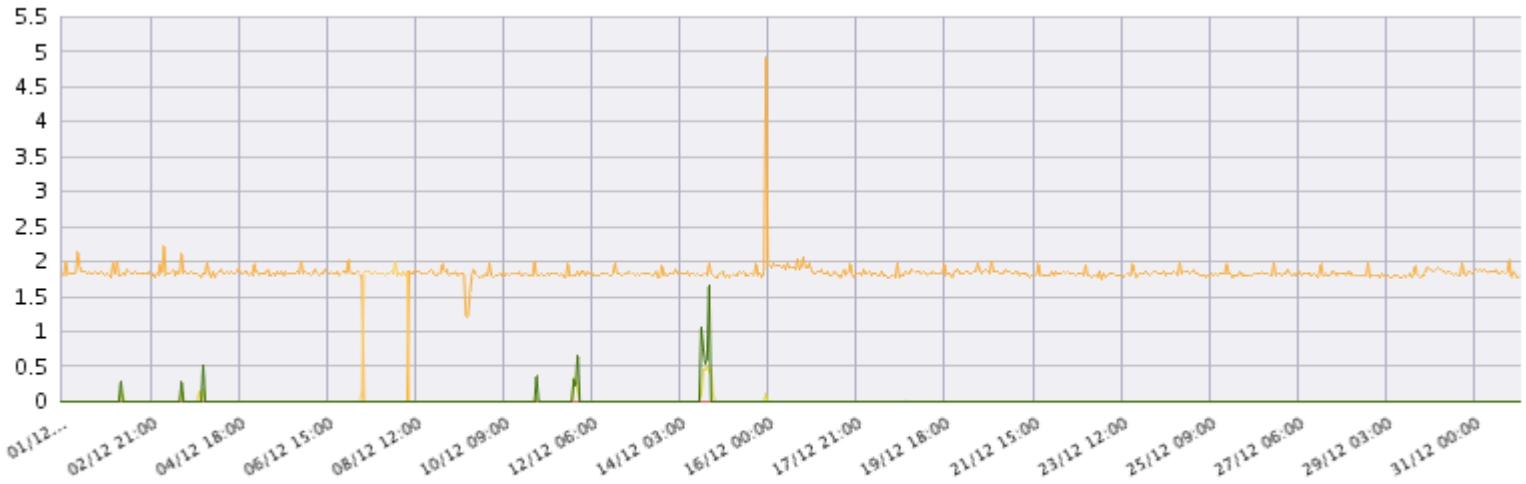
Modelo Cisco1921k9

IP de Gestión (172.21.6.197)

Ciudad Santiago de Chile

Interface: GigabitEthernet0/0

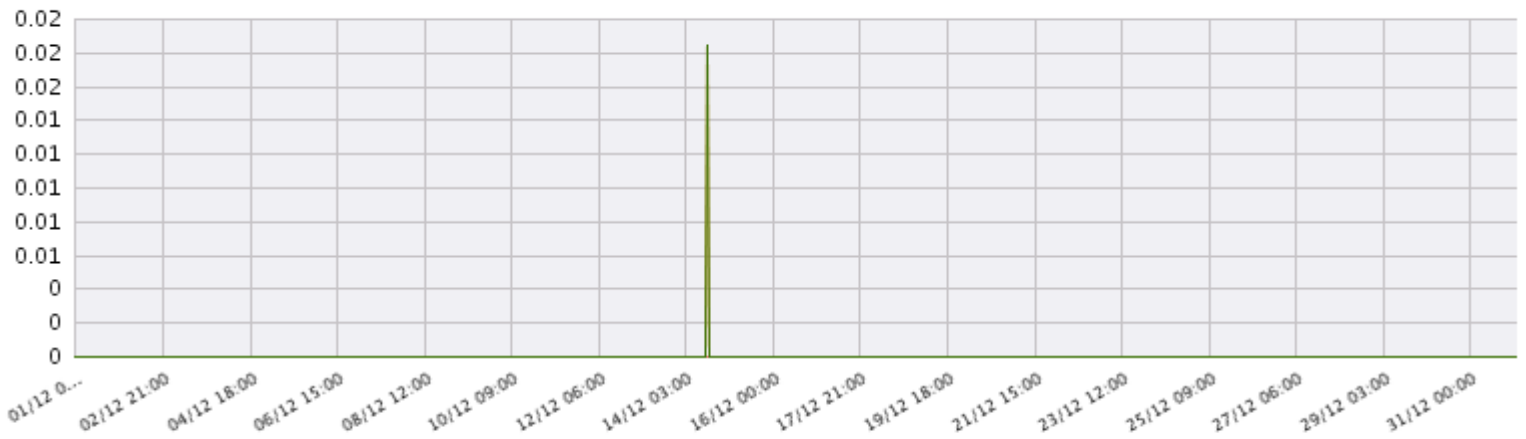
Policy Map (kbps)



Class_Map_Name

■ class-default
 ■ CRITICAL
 ■ No Match
 ■ PRIORITY
 ■ VIDEO
 ■ VOZ

Drops (kbps)

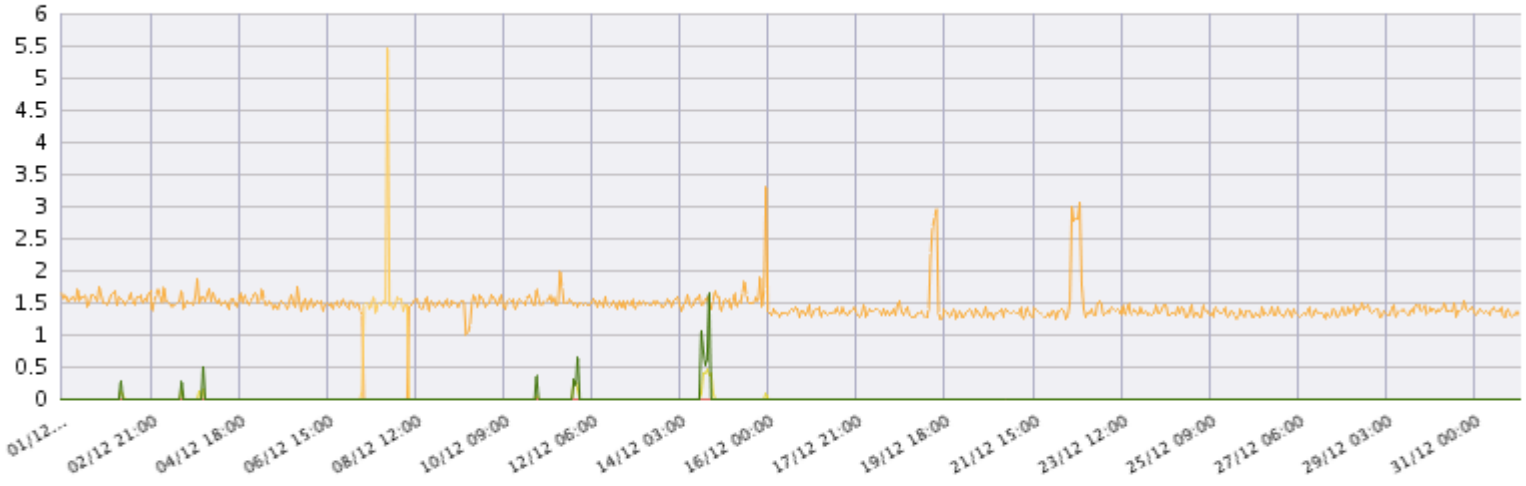


Class_Map_Name

■ class-default
 ■ CRITICAL
 ■ No Match
 ■ PRIORITY
 ■ VIDEO
 ■ VOZ

Interface: GigabitEthernet0/1

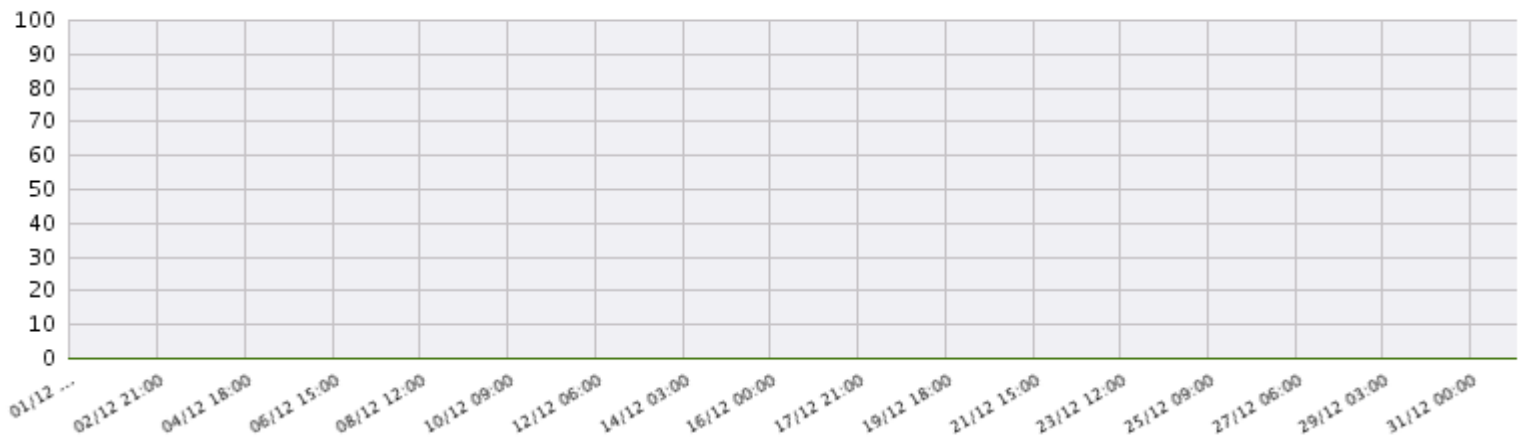
Policy Map (kbps)



Class_Map_Name

■ class-default
 ■ CRITICAL
 ■ No Match
 ■ PRIORITY
 ■ VIDEO
 ■ VOZ

Drops (kbps)



Class_Map_Name

■ class-default
 ■ CRITICAL
 ■ No Match
 ■ PRIORITY
 ■ VIDEO
 ■ VOZ

Reporte de Calidad de Servicio, Diciembre 2015

INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873



Sede OACI - COLOMBIA

Equipo ICAO_COLOMBIA

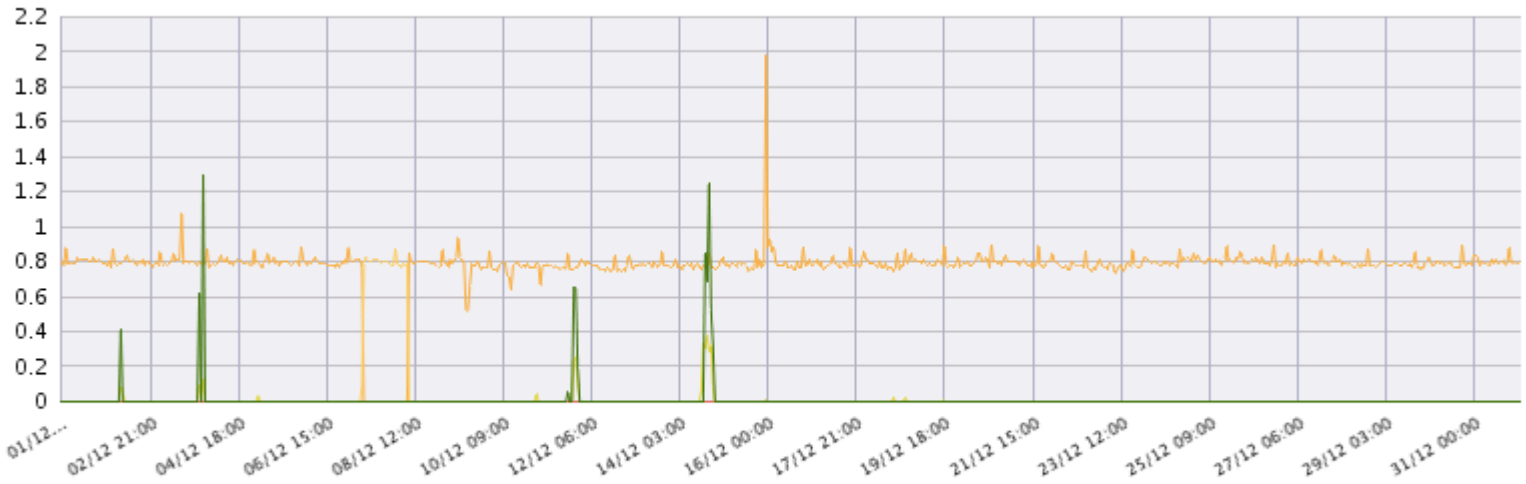
Modelo Cisco1921k9

IP de Gestión (172.21.6.196)

Ciudad Bogotá

Interface: GigabitEthernet0/0

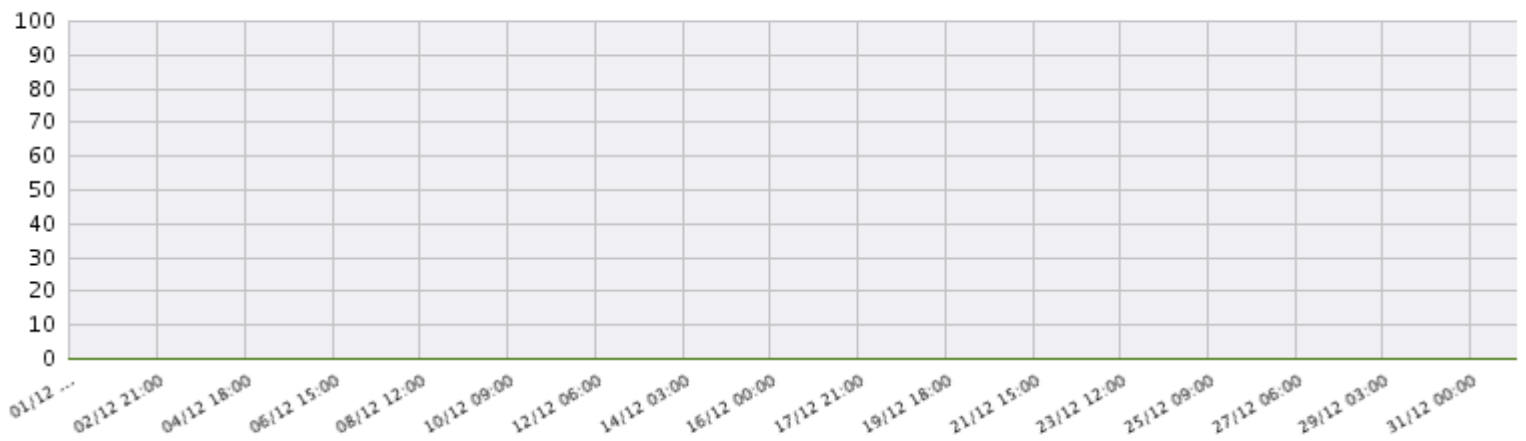
Policy Map (kbps)



Class_Map_Name

■ class-default
 ■ CRITICAL
 ■ No Match
 ■ PRIORITY
 ■ VIDEO
 ■ VOZ

Drops (kbps)

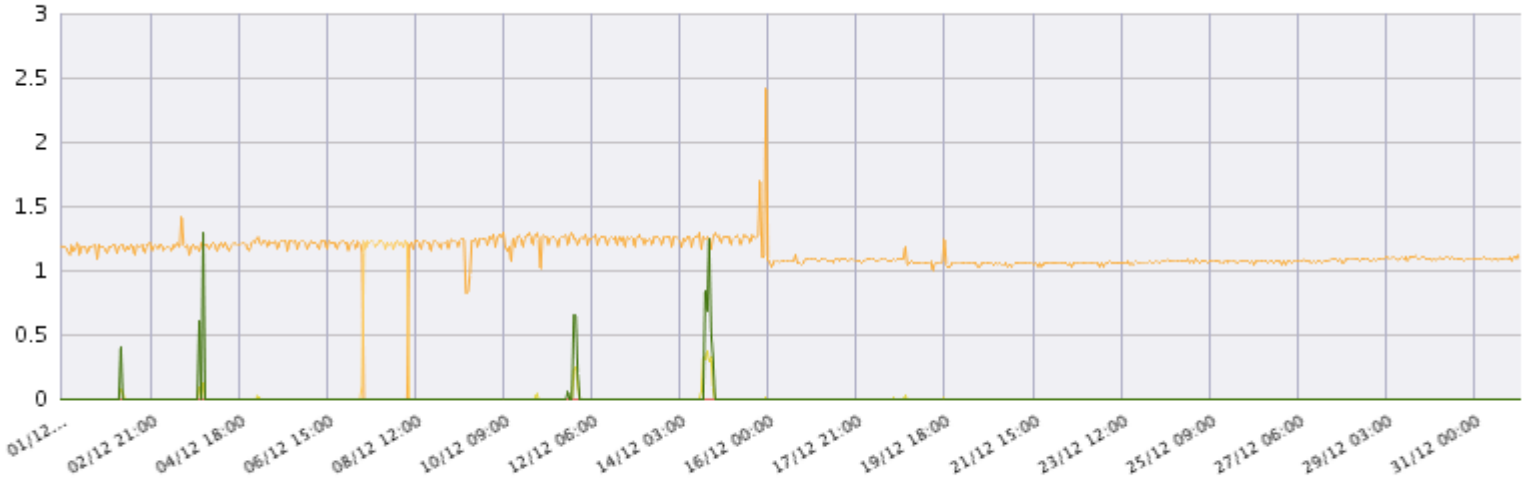


Class_Map_Name

■ class-default
 ■ CRITICAL
 ■ No Match
 ■ PRIORITY
 ■ VIDEO
 ■ VOZ

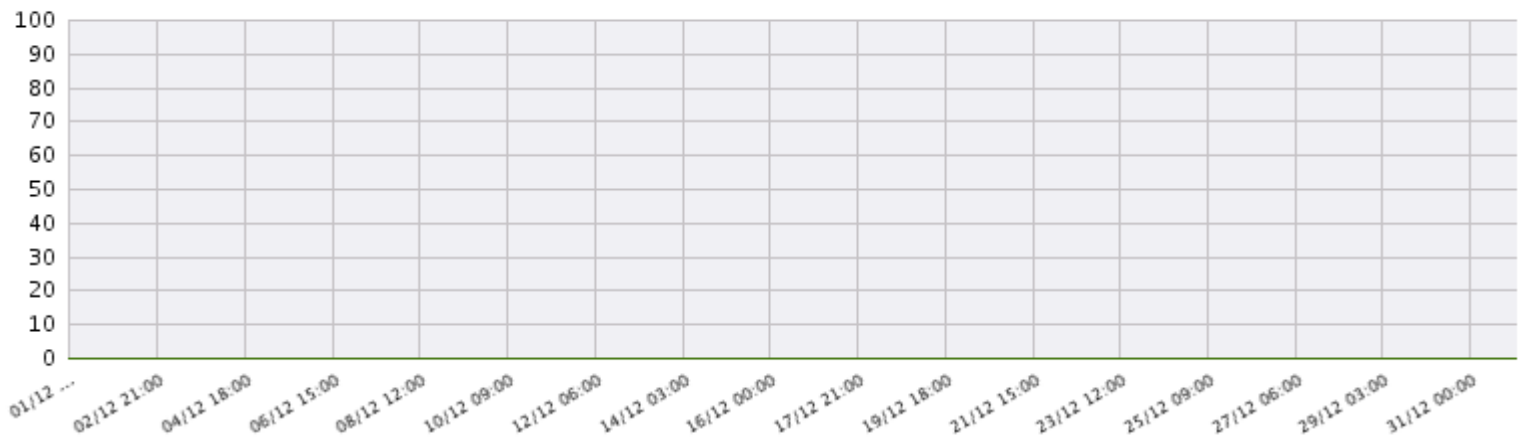
Interface: GigabitEthernet0/1

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



Sede OACI - ECUADOR

Equipo ICAO_ECUADOR

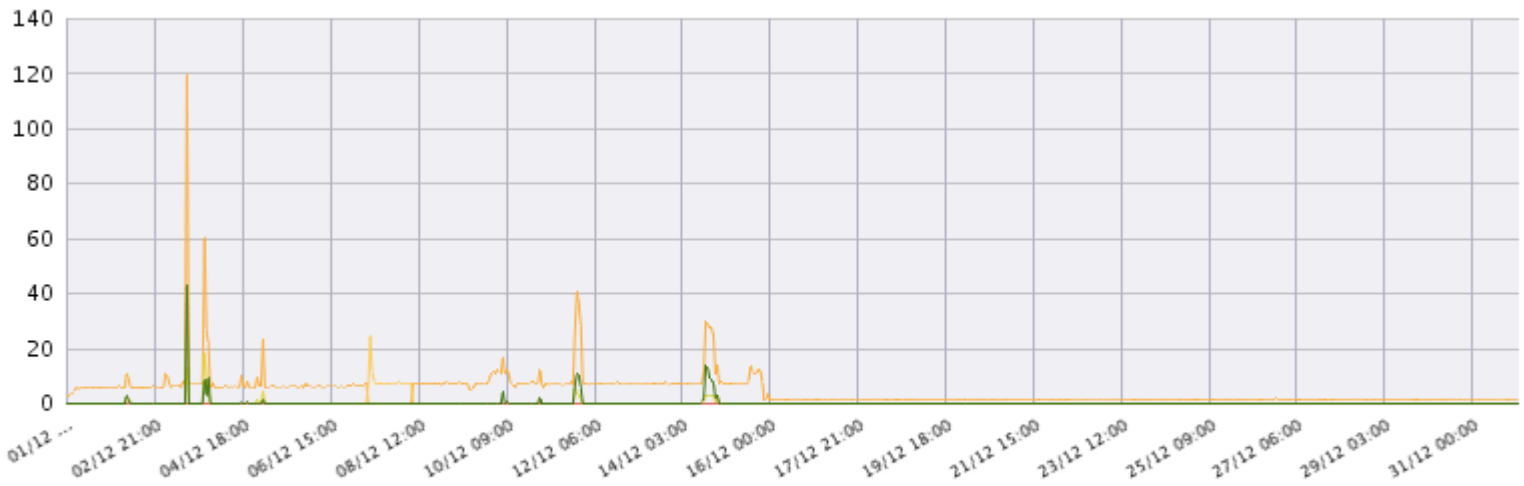
Modelo Cisco1921k9

IP de Gestión (172.21.6.195)

Ciudad Guayaquil

Interface: GigabitEthernet0/0.1367

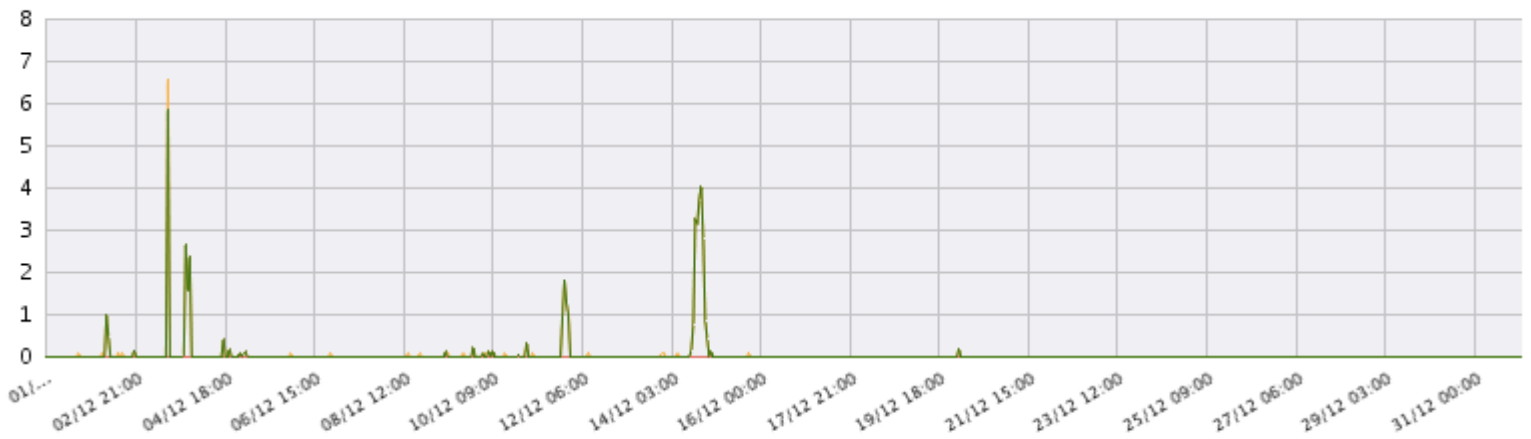
Policy Map (kbps)



Class_Map_Name

■ class-default ■ CRITICAL ■ No Match ■ PRIORITY ■ VIDEO ■ VOZ

Drops (kbps)

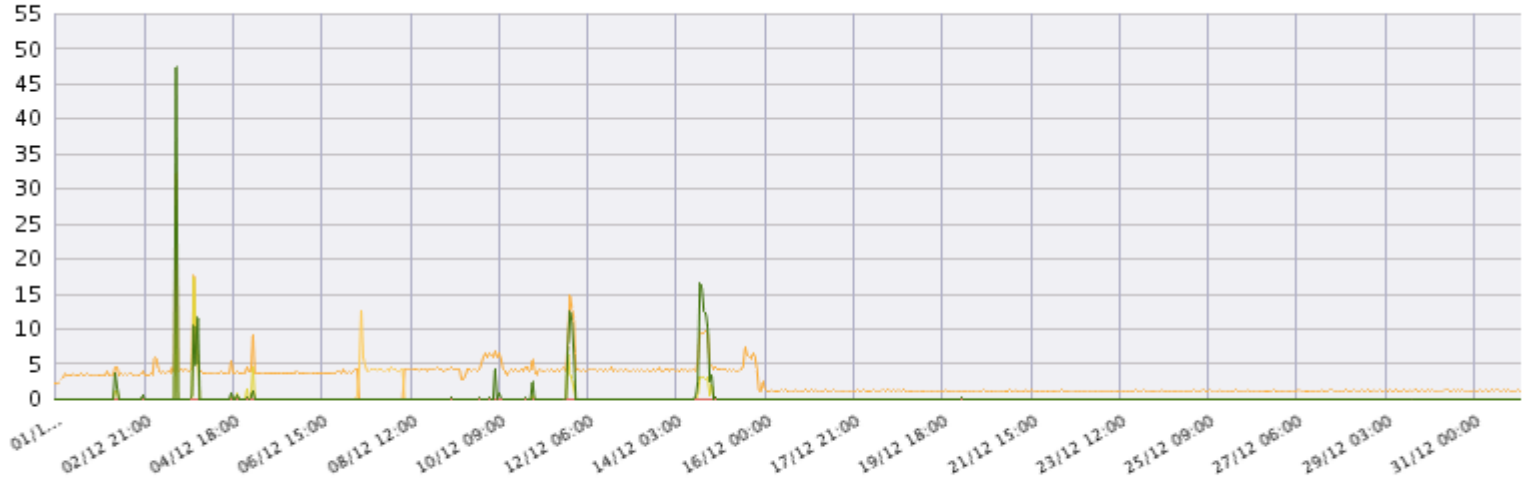


Class_Map_Name

■ class-default ■ CRITICAL ■ No Match ■ PRIORITY ■ VIDEO ■ VOZ

Interface: GigabitEthernet0/1

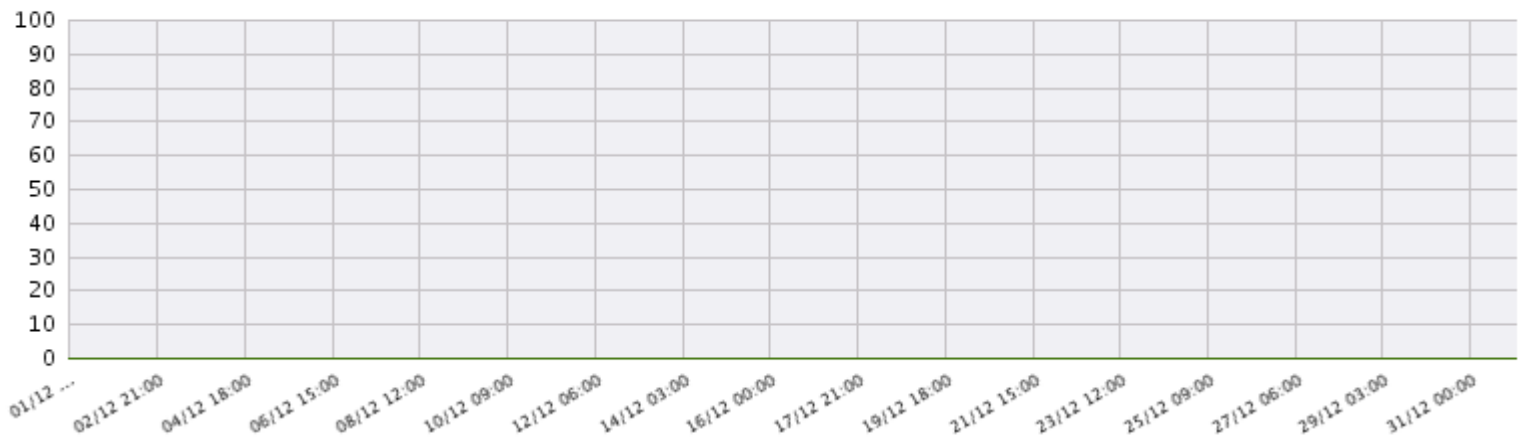
Policy Map (kbps)



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 - GUYANA

Equipo ICAO_GUYANA.yourdomain.com

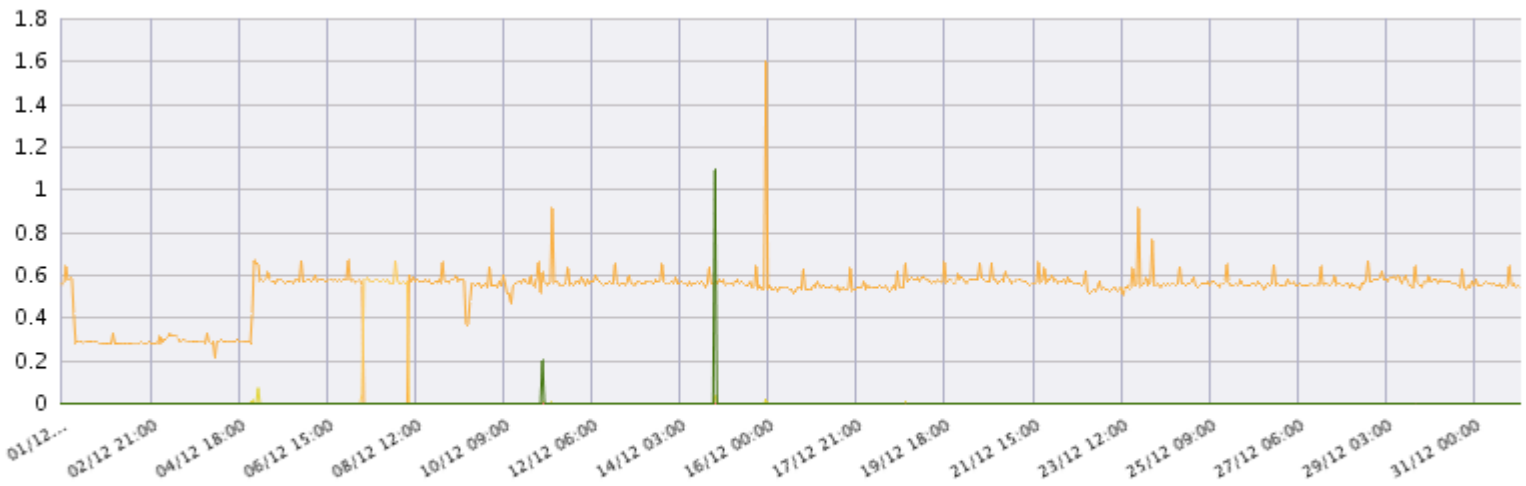
Modelo Cisco1921k9

IP de Gestión (172.21.6.200)

Ciudad Georgetown

Interface: GigabitEthernet0/0

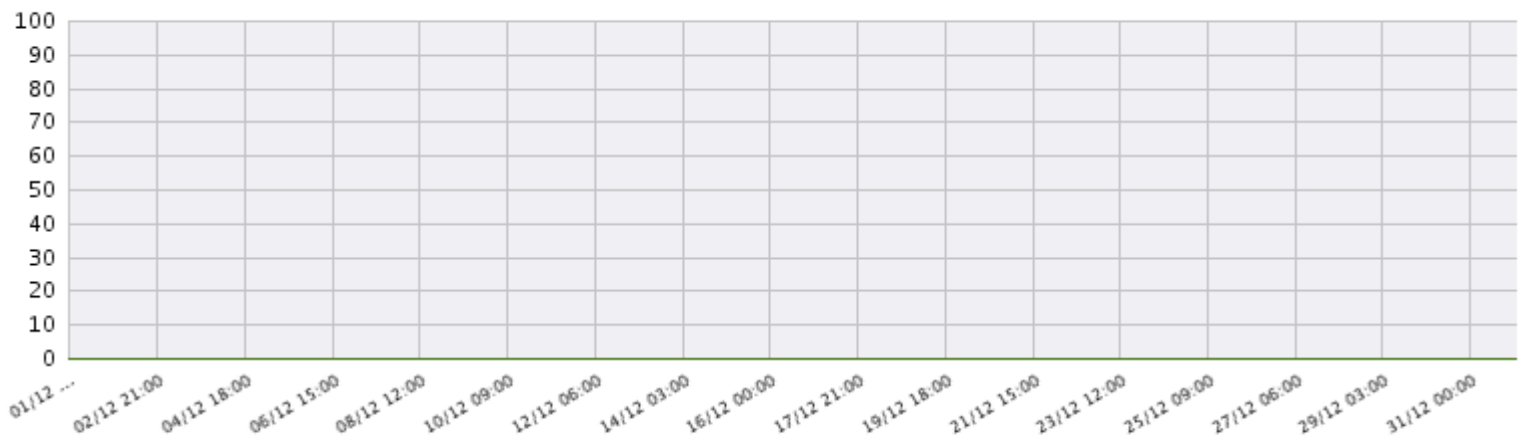
Policy Map (kbps)



Class_Map_Name

class-default CRITICAL No Match PRIORITY VIDEO VOZ

Drops (kbps)

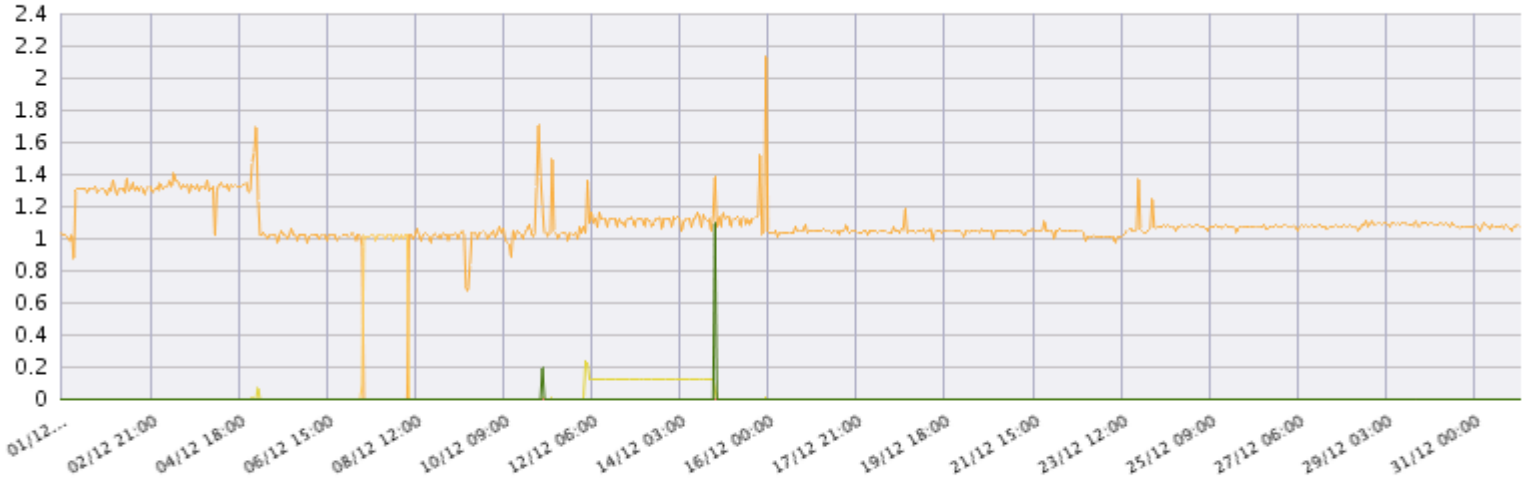


Class_Map_Name

class-default CRITICAL No Match PRIORITY VIDEO VOZ

Interface: GigabitEthernet0/1

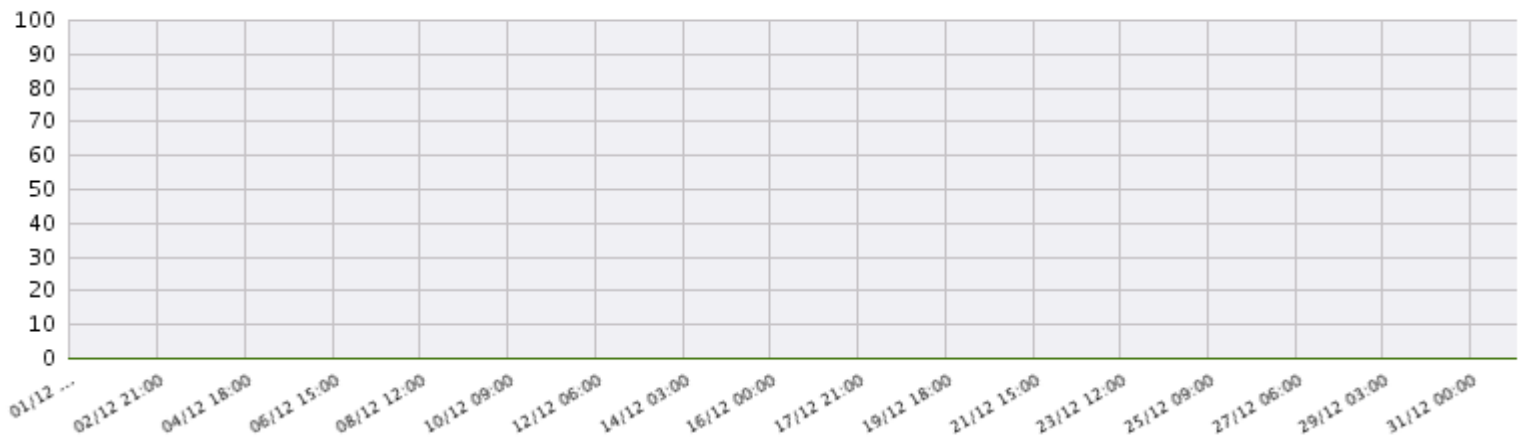
Policy Map (kbps)



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 - GUYANA FRANCESA

Equipo ICAO_FR_GUYANA.eq.ignetworks.com

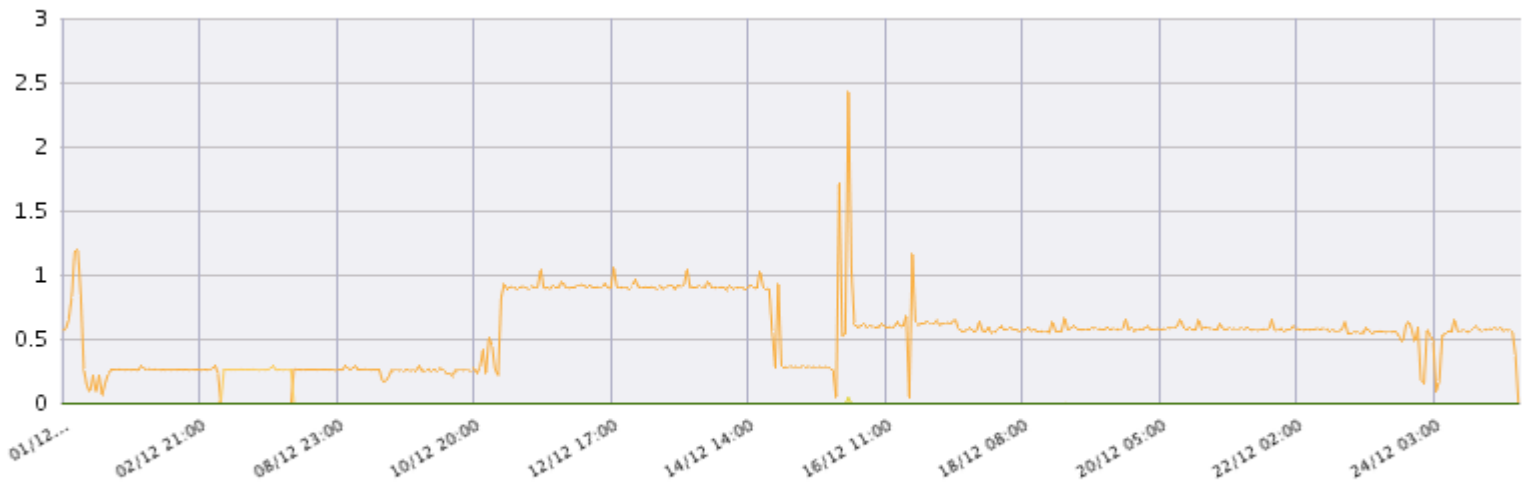
Modelo Cisco1921k9

IP de Gestión (172.21.6.201)

Ciudad Cayena

Interface: GigabitEthernet0/0

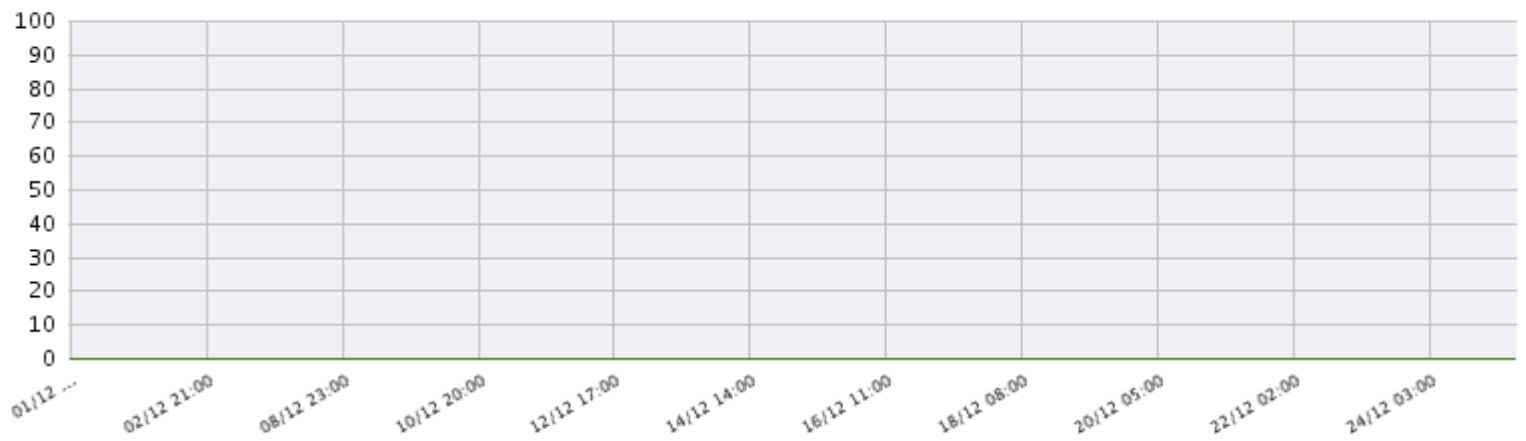
Policy Map (kbps)



Class_Map_Name

■ class-default
 ■ CRITICAL
 ■ No Match
 ■ PRIORITY
 ■ VIDEO
 ■ VOZ

Drops (kbps)

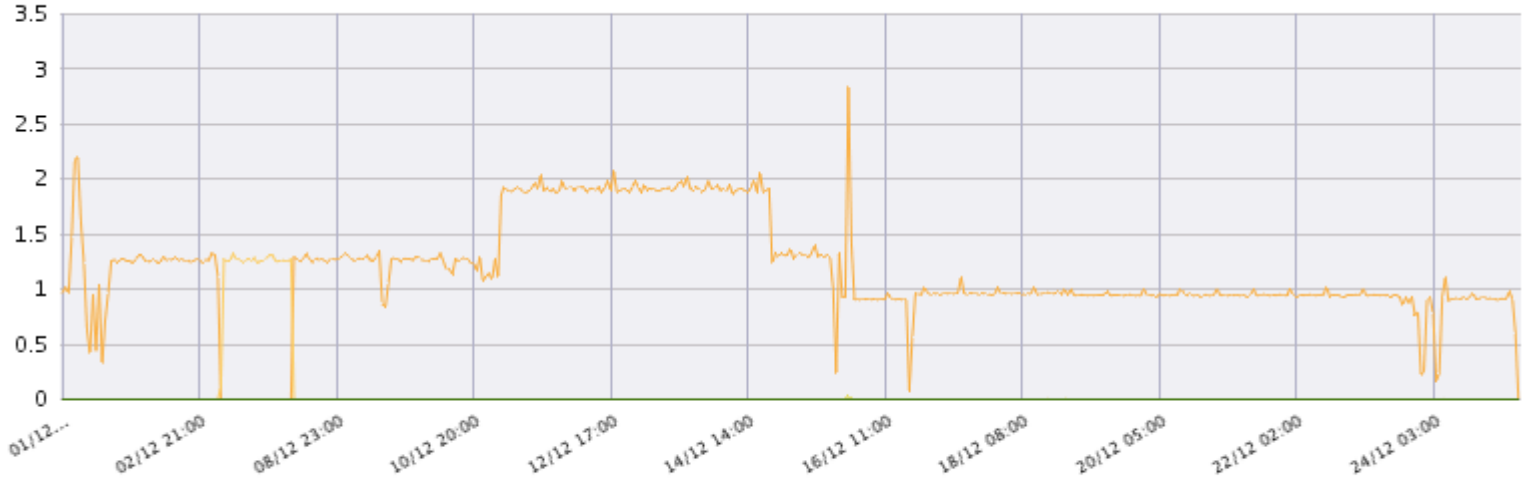


Class_Map_Name

■ class-default
 ■ CRITICAL
 ■ No Match
 ■ PRIORITY
 ■ VIDEO
 ■ VOZ

Interface: GigabitEthernet0/1

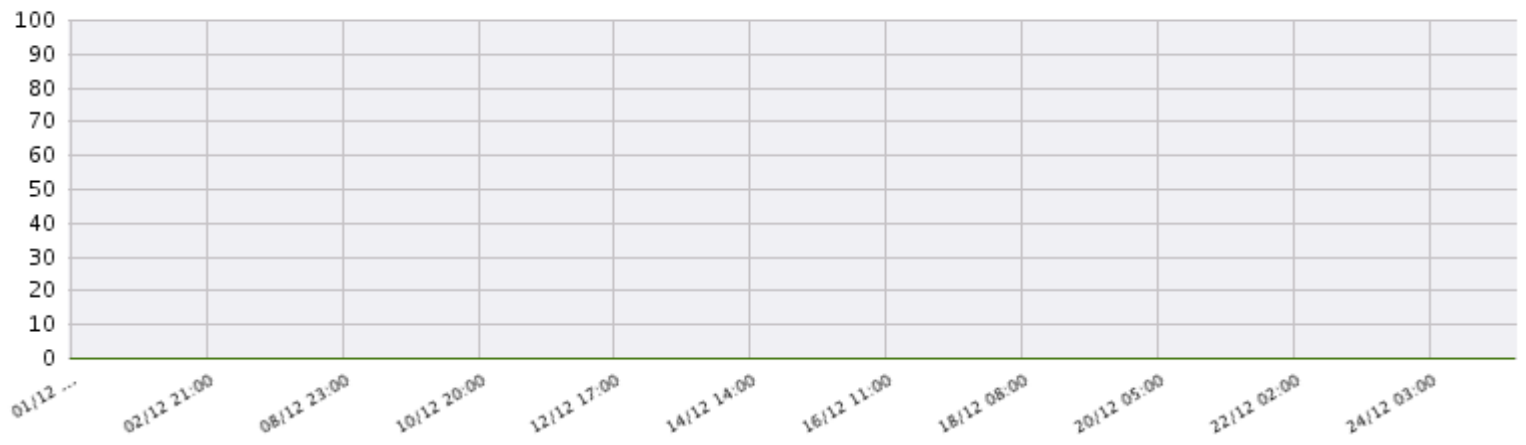
Policy Map (kbps)



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



Sede OACI - LIMA

Equipo ICAO_PERU

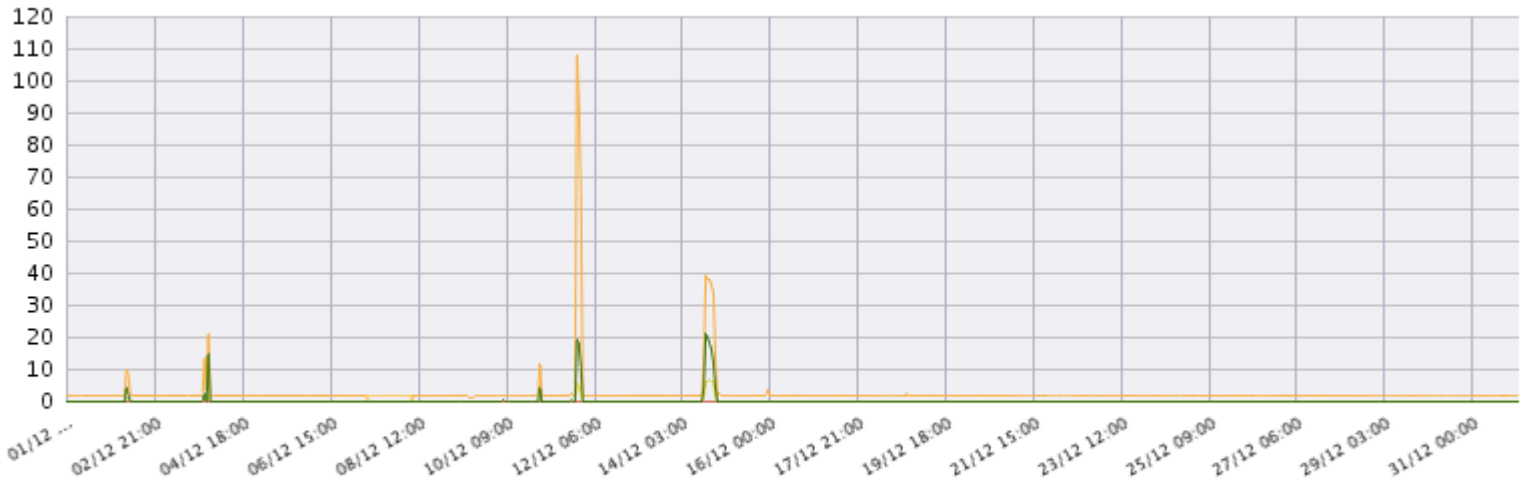
Modelo Cisco1921k9

IP de Gestión (172.20.26.50)

Ciudad Callao

Interface: GigabitEthernet0/0.2428

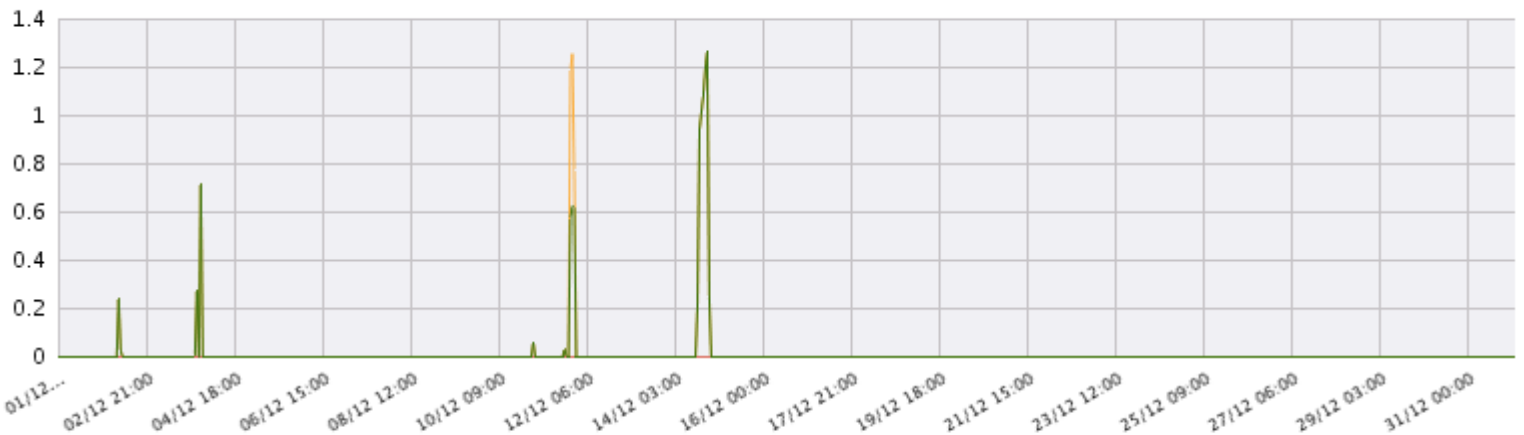
Policy Map (kbps)



Class_Map_Name

■ class-default ■ CRITICAL ■ No Match ■ PRIORITY ■ VIDEO ■ VOZ

Drops (kbps)

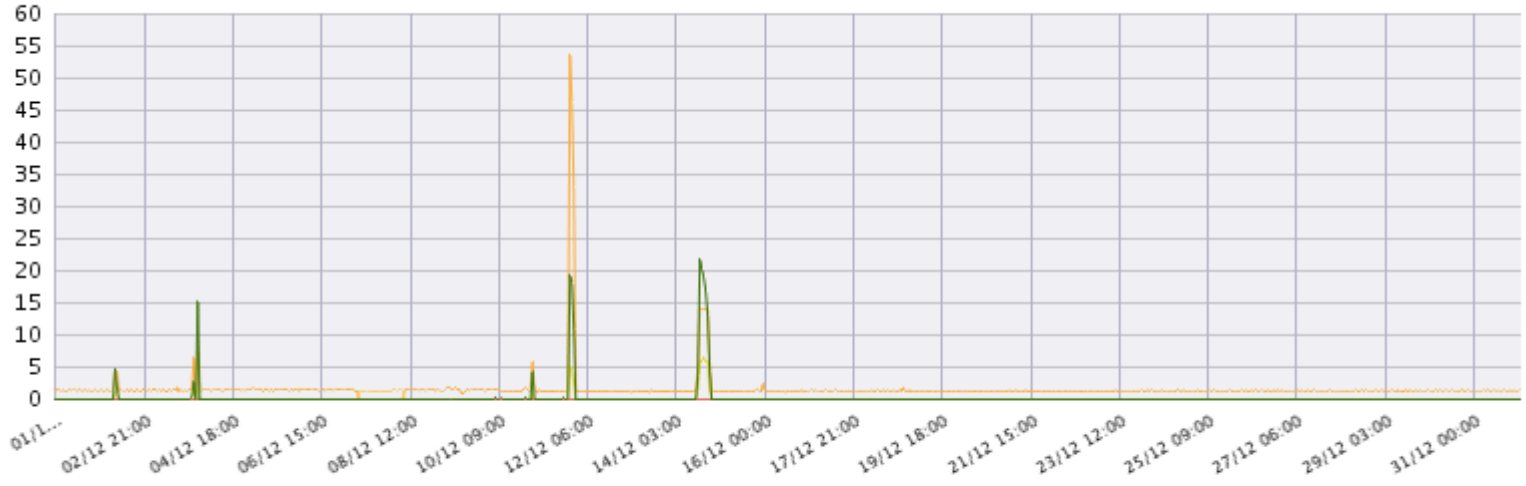


Class_Map_Name

■ class-default ■ CRITICAL ■ No Match ■ PRIORITY ■ VIDEO ■ VOZ

Interface: GigabitEthernet0/1

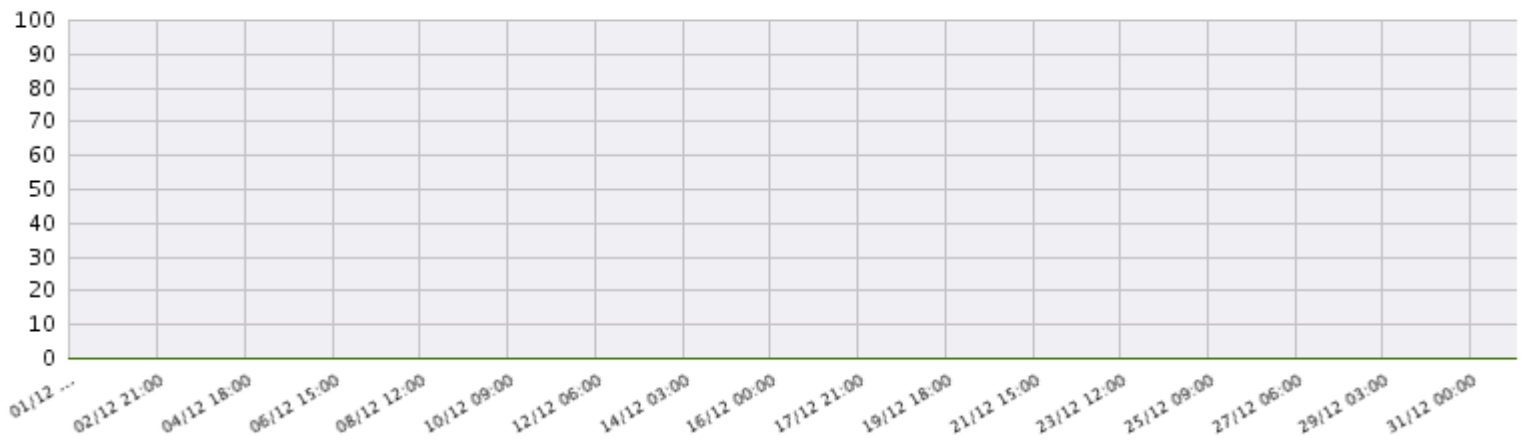
Policy Map (kbps)



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 - PARAGUAY

Equipo ICAO_PARAGUAY.ineo.com.py

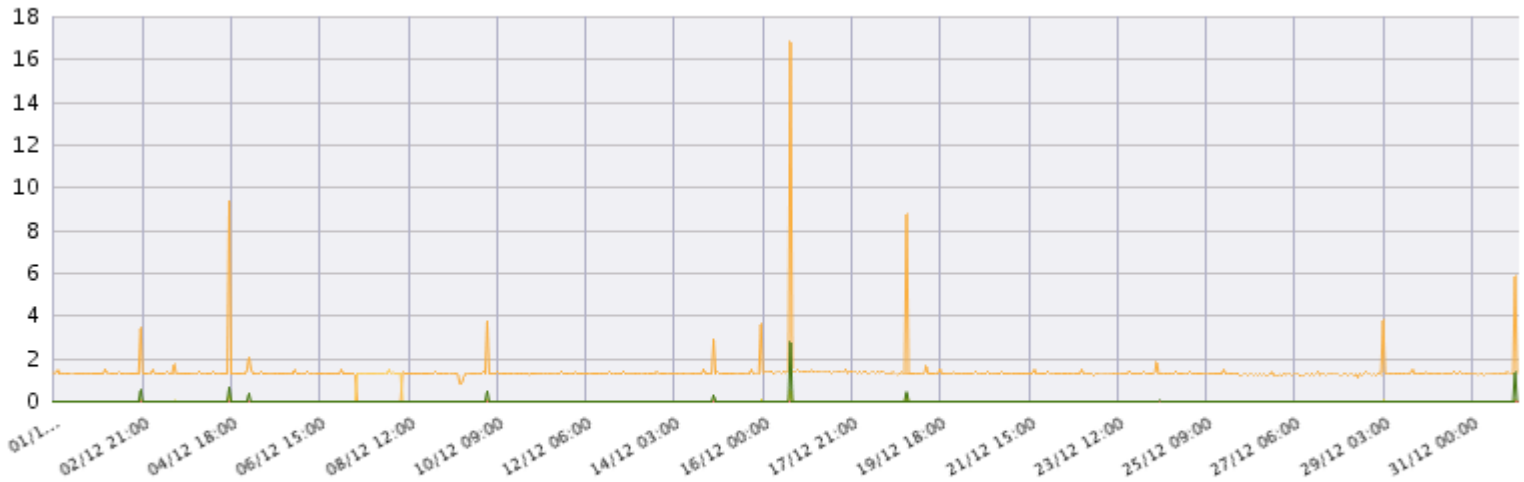
Modelo Cisco1941

IP de Gestión (172.21.6.199)

Ciudad Asunción

Interface: GigabitEthernet0/0

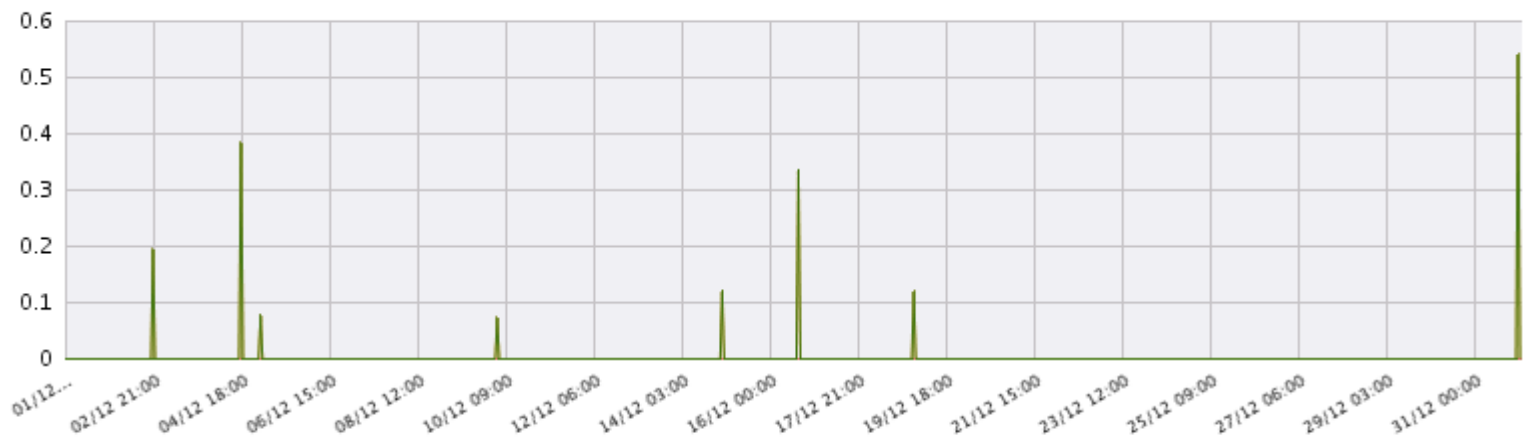
Policy Map (kbps)



Class_Map_Name

■ class-default
 ■ CRITICAL
 ■ No Match
 ■ PRIORITY
 ■ VIDEO
 ■ VOZ

Drops (kbps)

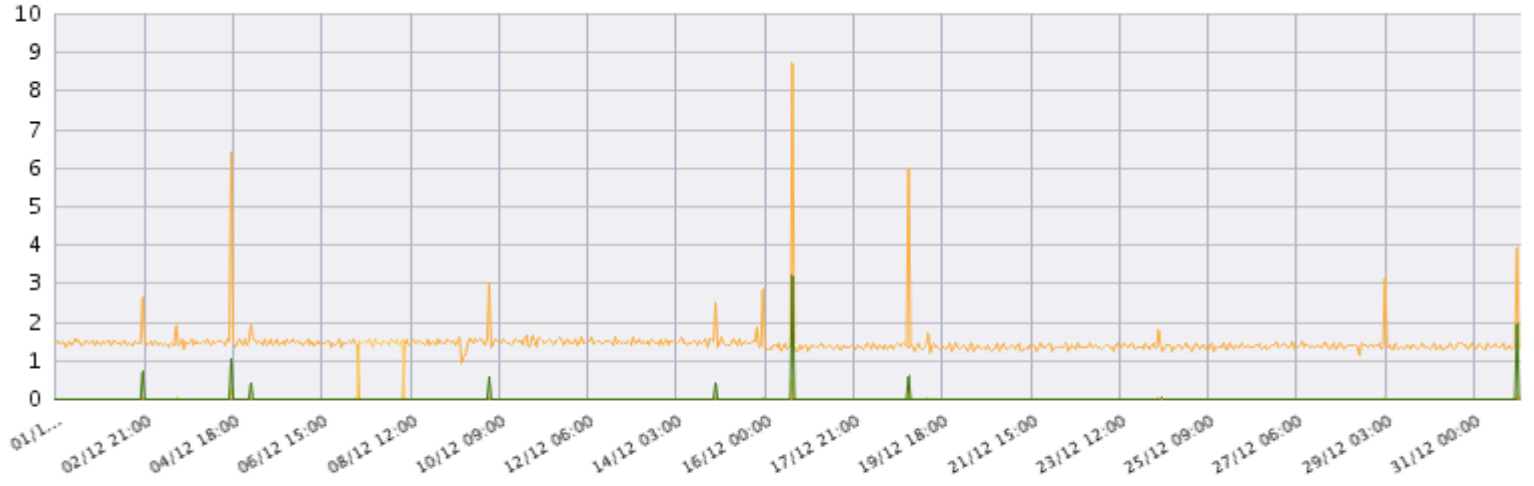


Class_Map_Name

■ class-default
 ■ CRITICAL
 ■ No Match
 ■ PRIORITY
 ■ VIDEO
 ■ VOZ

Interface: GigabitEthernet0/1

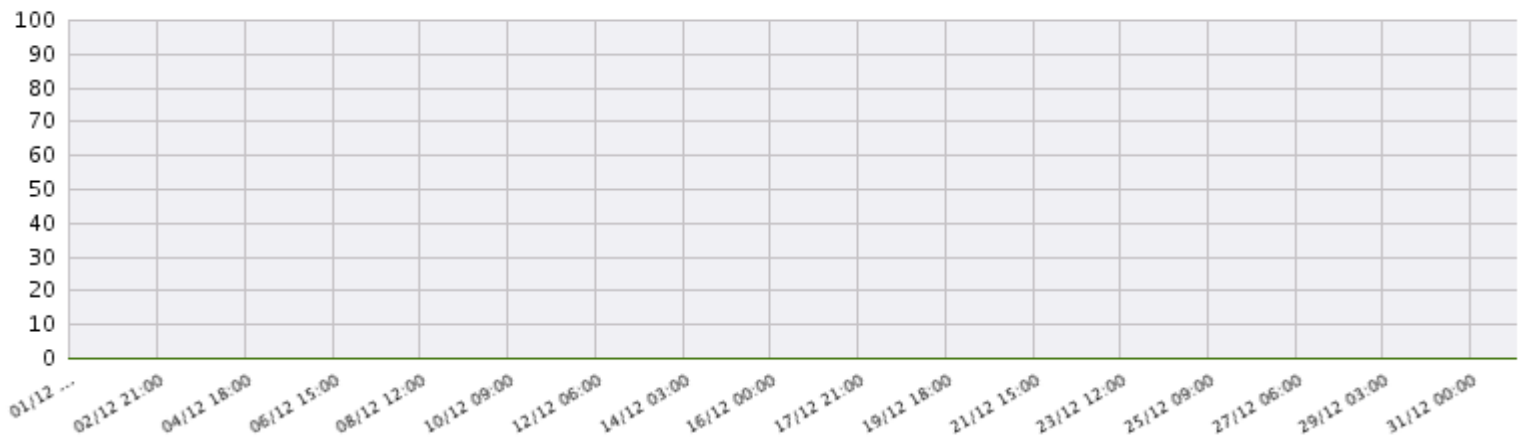
Policy Map (kbps)



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 - SURINAME

Equipo ICAO_SURINAME.yourdomain.com

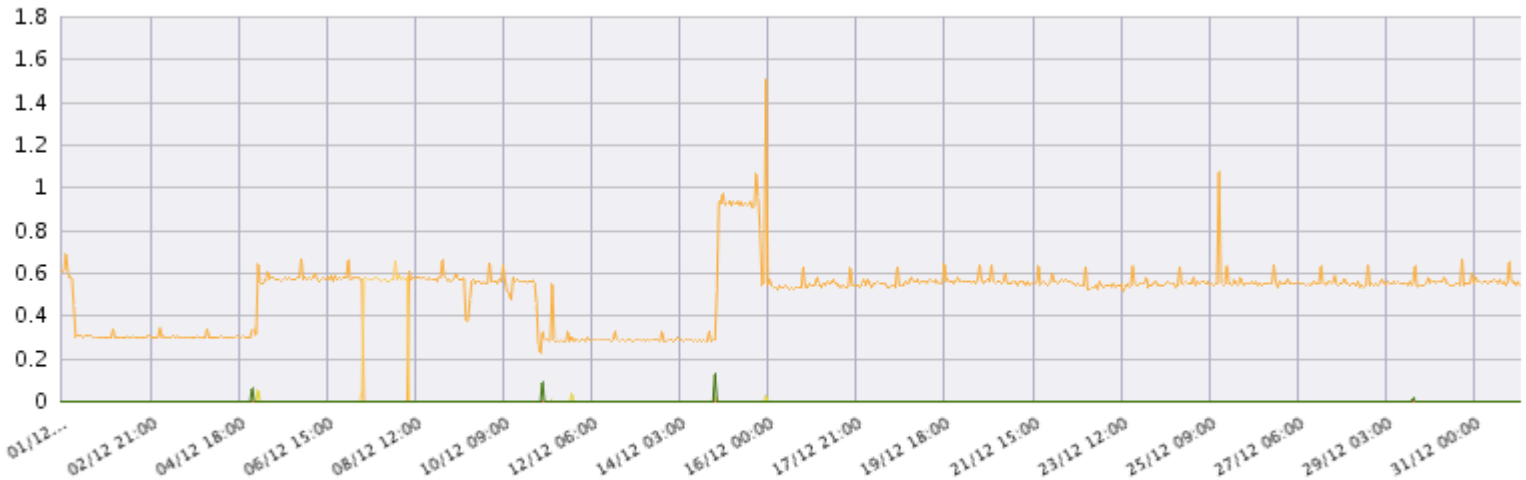
Modelo Cisco1921k9

IP de Gestión (172.21.6.203)

Ciudad Paramaribo

Interface: GigabitEthernet0/0

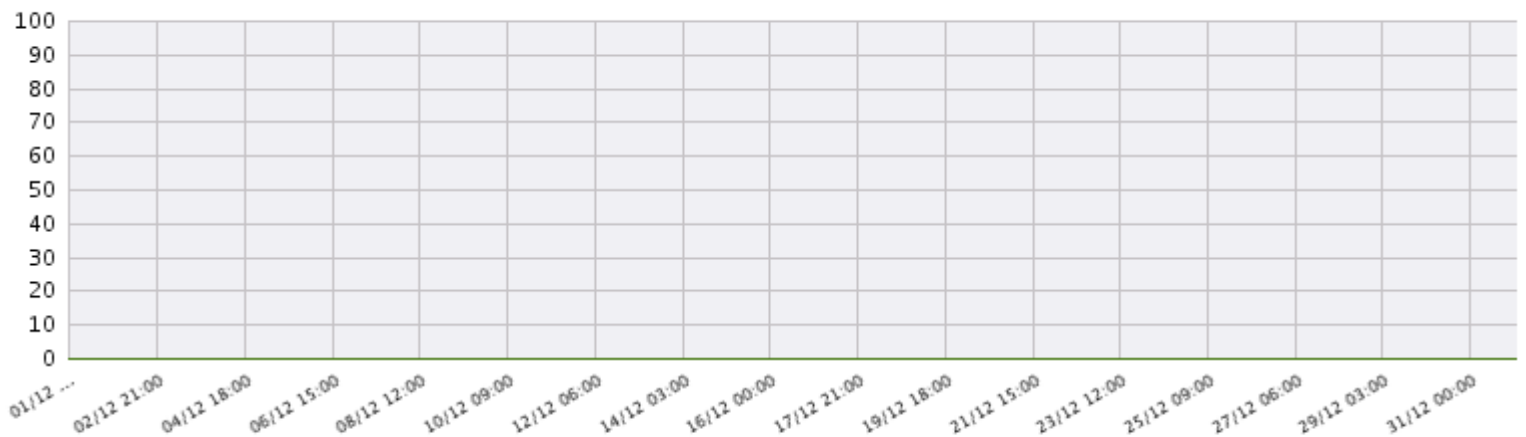
Policy Map (kbps)



Class_Map_Name

■ class-default
 ■ CRITICAL
 ■ No Match
 ■ PRIORITY
 ■ VIDEO
 ■ VOZ

Drops (kbps)

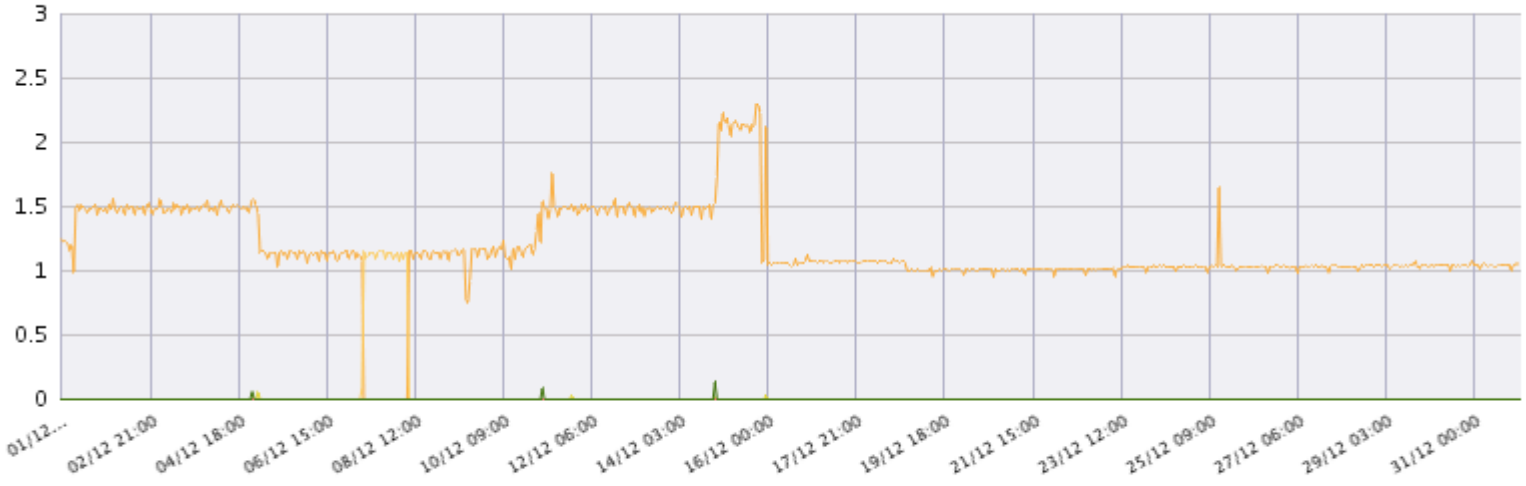


Class_Map_Name

■ class-default
 ■ CRITICAL
 ■ No Match
 ■ PRIORITY
 ■ VIDEO
 ■ VOZ

Interface: GigabitEthernet0/1

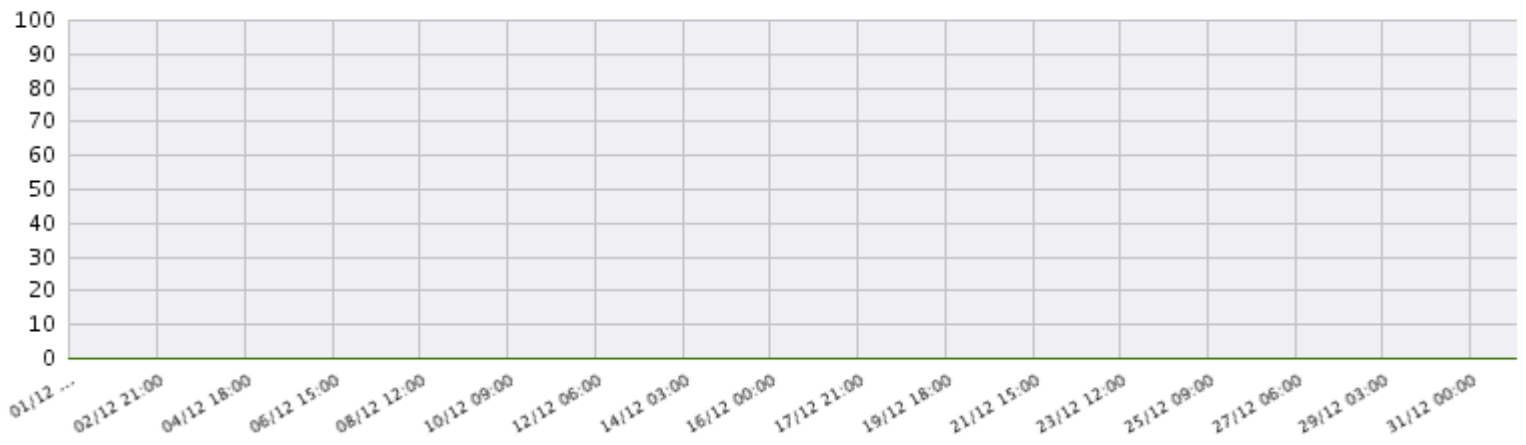
Policy Map (kbps)



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

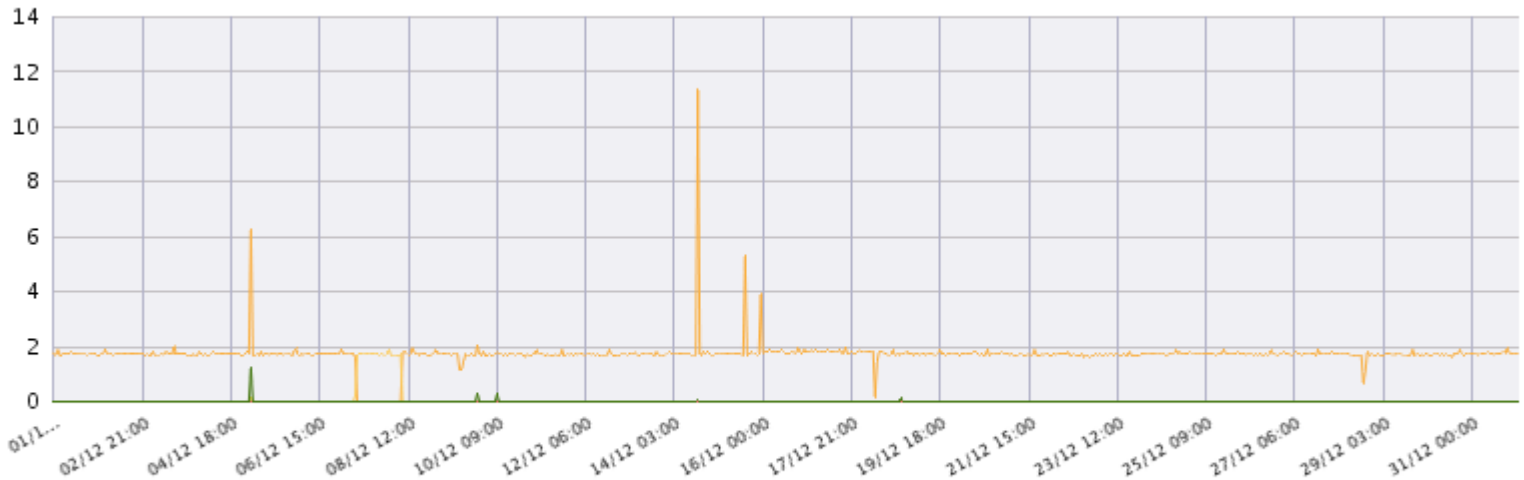
Modelo Cisco1921k9

IP de Gestión (172.21.6.194)

Ciudad Port of Spain

Interface: GigabitEthernet0/0

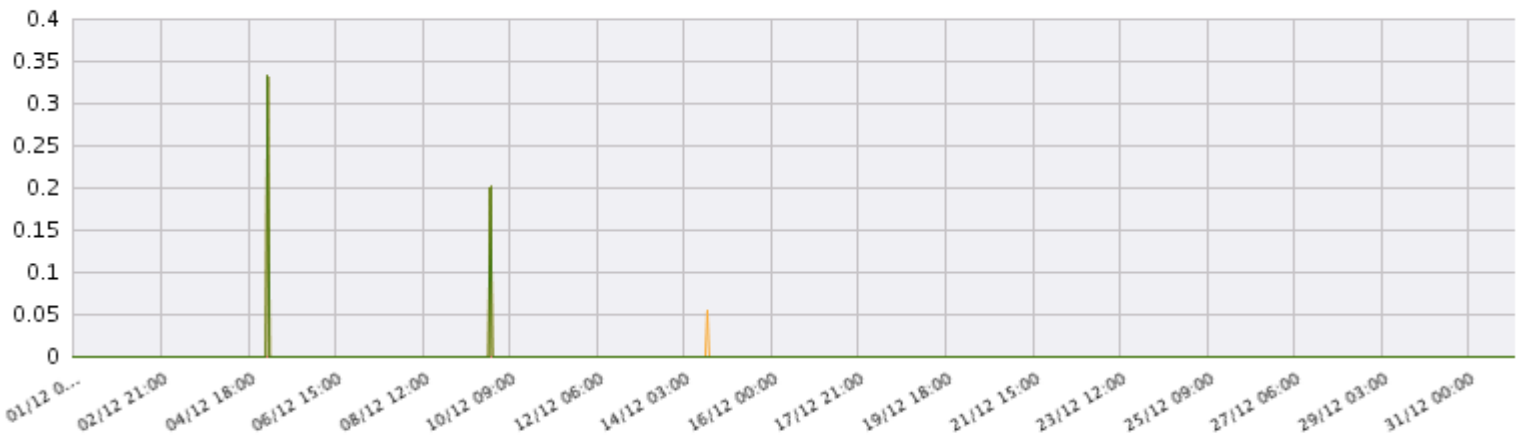
Policy Map (kbps)



Class_Map_Name

■ class-default
 ■ CRITICAL
 ■ No Match
 ■ PRIORITY
 ■ VIDEO
 ■ VOZ

Drops (kbps)

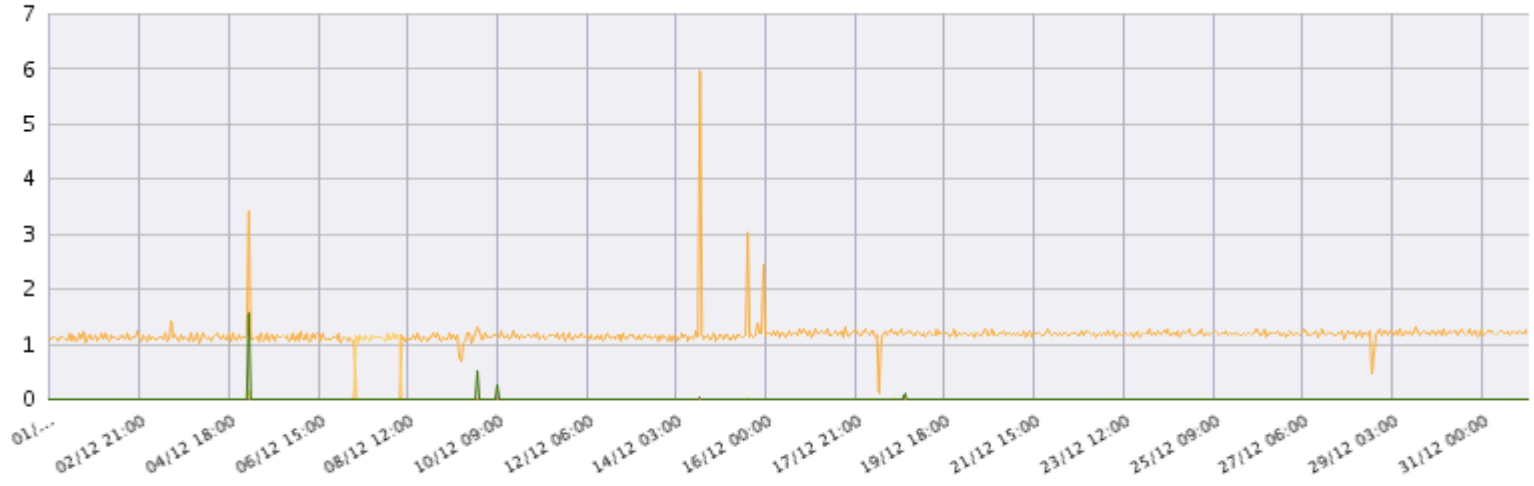


Class_Map_Name

■ class-default
 ■ CRITICAL
 ■ No Match
 ■ PRIORITY
 ■ VIDEO
 ■ VOZ

Interface: GigabitEthernet0/1

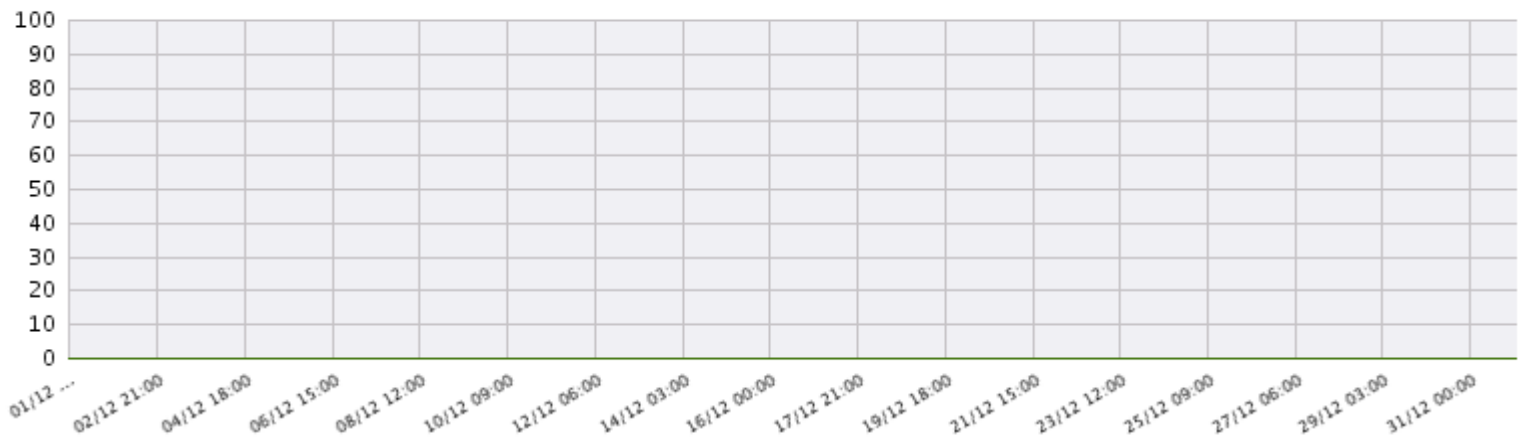
Policy Map (kbps)



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 - URUGUAY

Equipo ICAO_URUGUAY

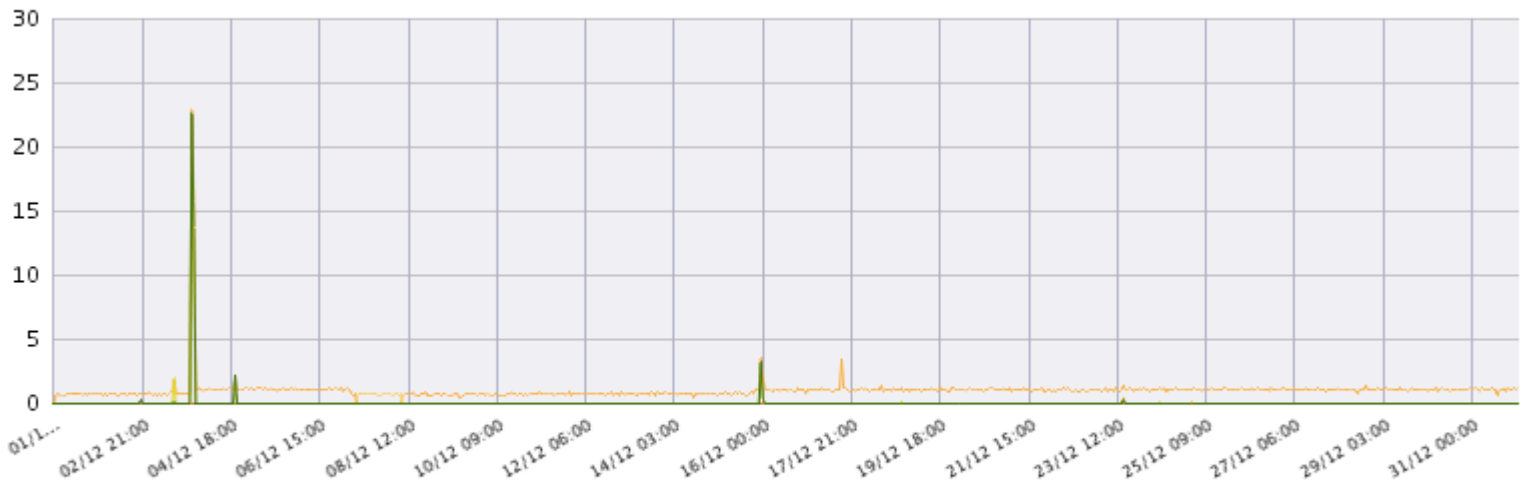
Modelo Cisco1921k9

IP de Gestión (172.21.6.198)

Ciudad Montevideo

Interface: GigabitEthernet0/0

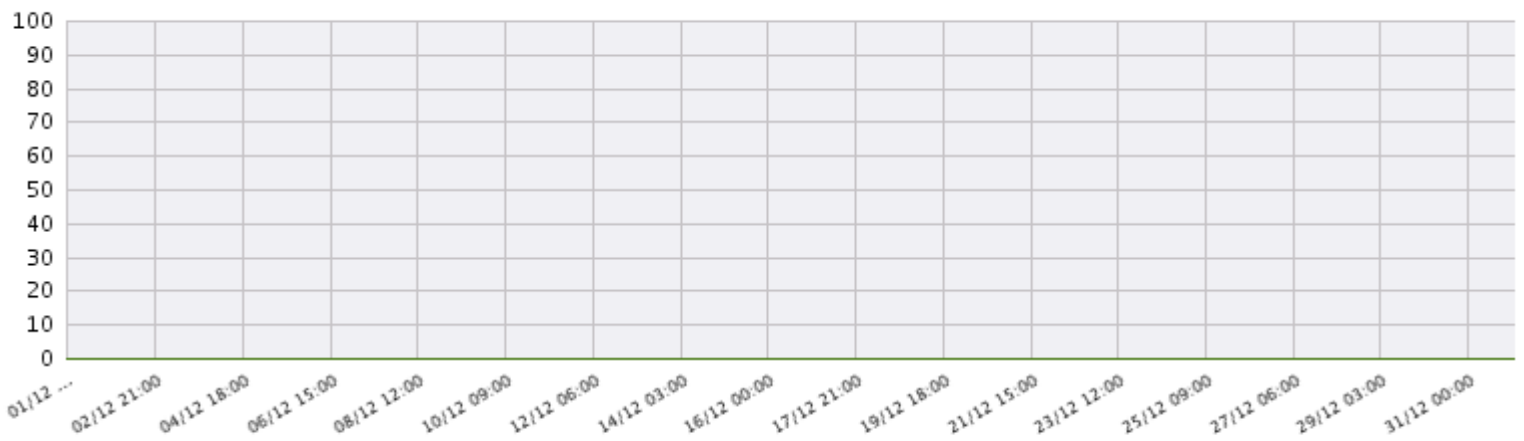
Policy Map (kbps)



Class_Map_Name

■ class-default
 ■ CRITICAL
 ■ No Match
 ■ PRIORITY
 ■ VIDEO
 ■ VOZ

Drops (kbps)

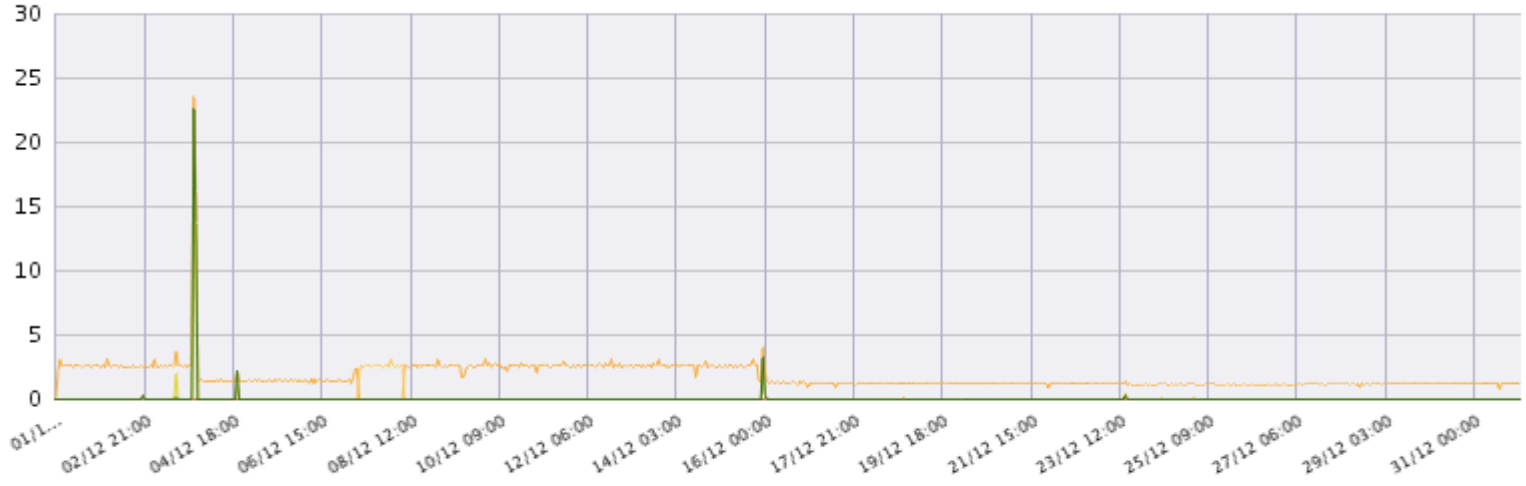


Class_Map_Name

■ class-default
 ■ CRITICAL
 ■ No Match
 ■ PRIORITY
 ■ VIDEO
 ■ VOZ

Interface: GigabitEthernet0/1

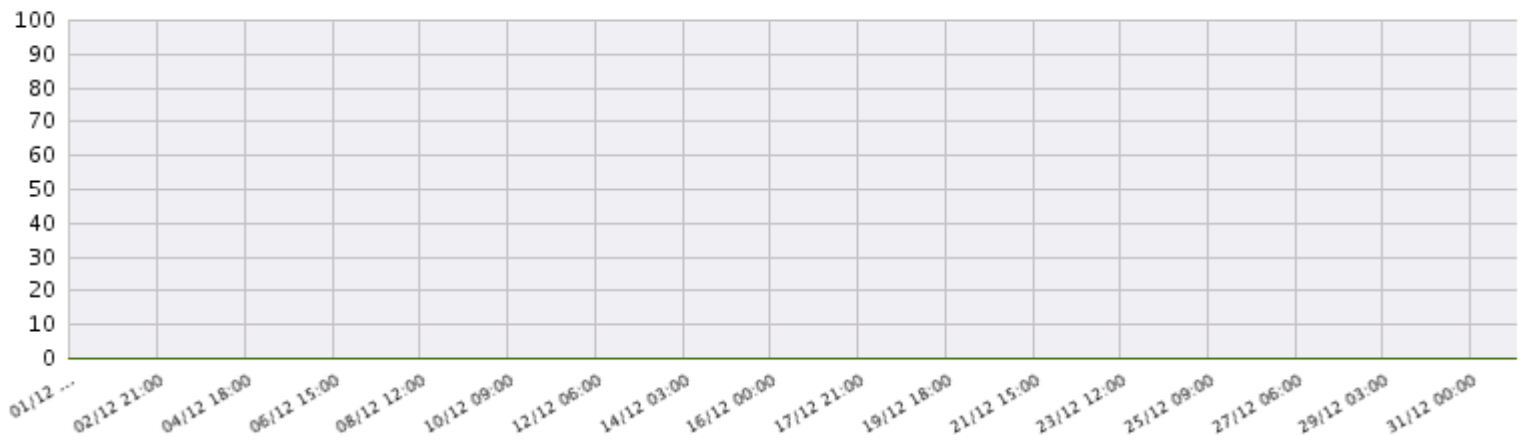
Policy Map (kbps)



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 - VENEZUELA

Equipo ICAO_VENEZUELA

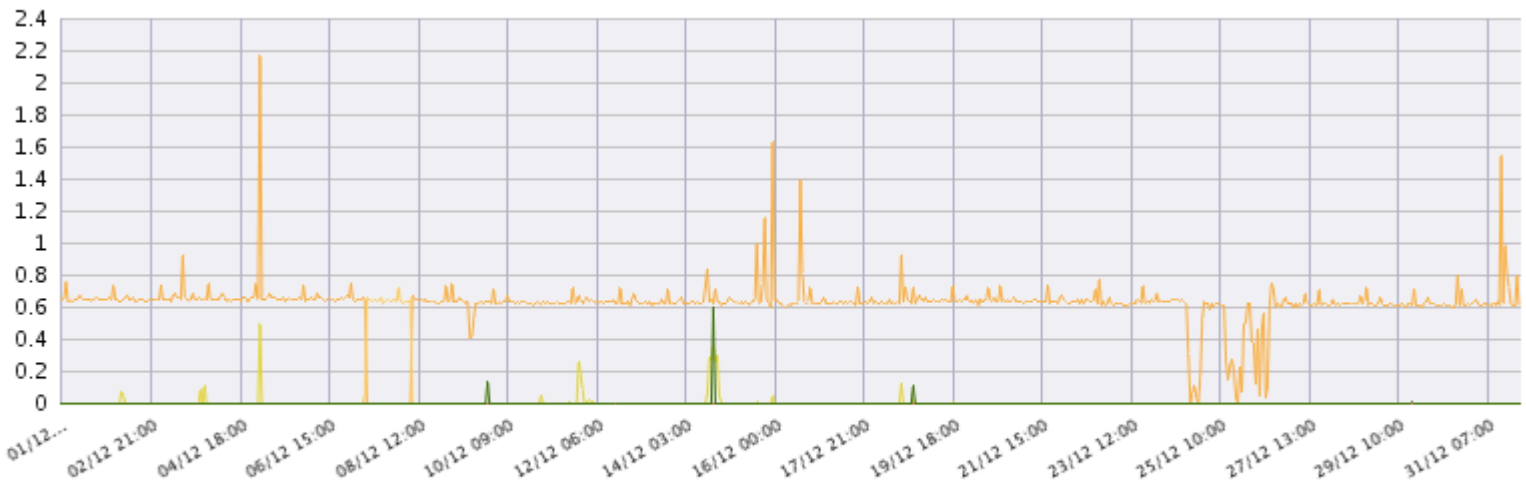
Modelo Cisco1921k9

IP de Gestión (172.21.6.202)

Ciudad Maiquetía

Interface: GigabitEthernet0/0

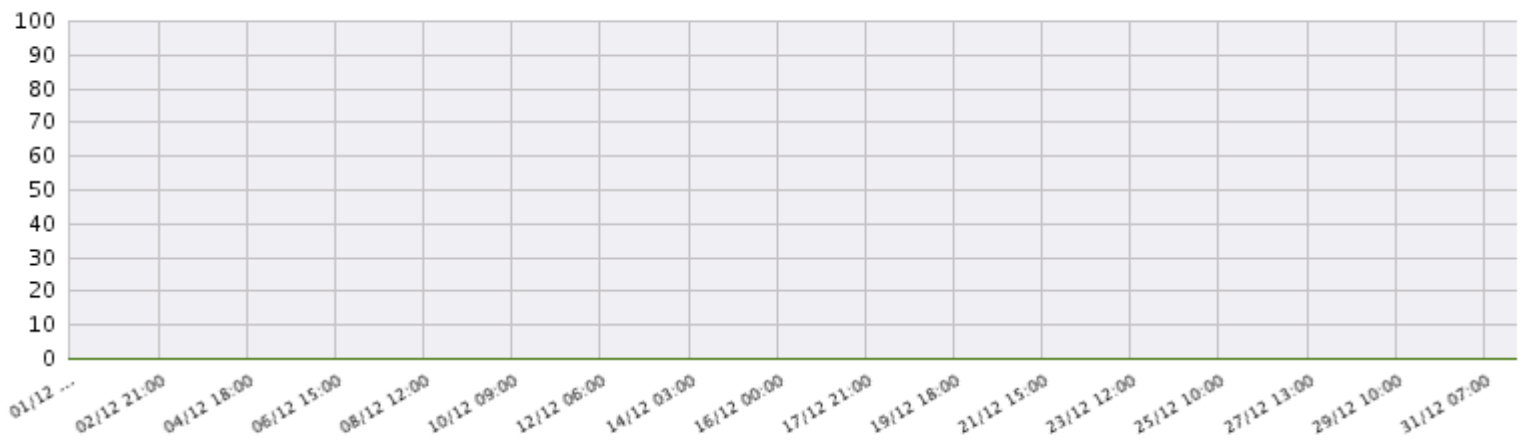
Policy Map (kbps)



Class_Map_Name

■ class-default
 ■ CRITICAL
 ■ No Match
 ■ PRIORITY
 ■ VIDEO
 ■ VOZ

Drops (kbps)

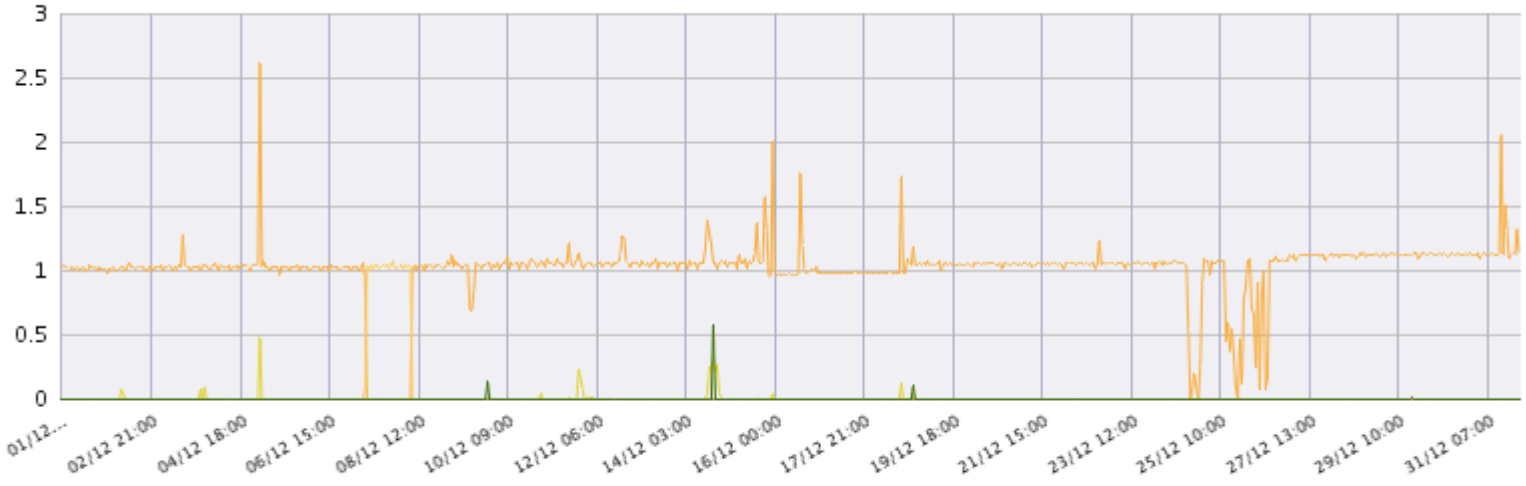


Class_Map_Name

■ class-default
 ■ CRITICAL
 ■ No Match
 ■ PRIORITY
 ■ VIDEO
 ■ VOZ

Interface: GigabitEthernet0/1

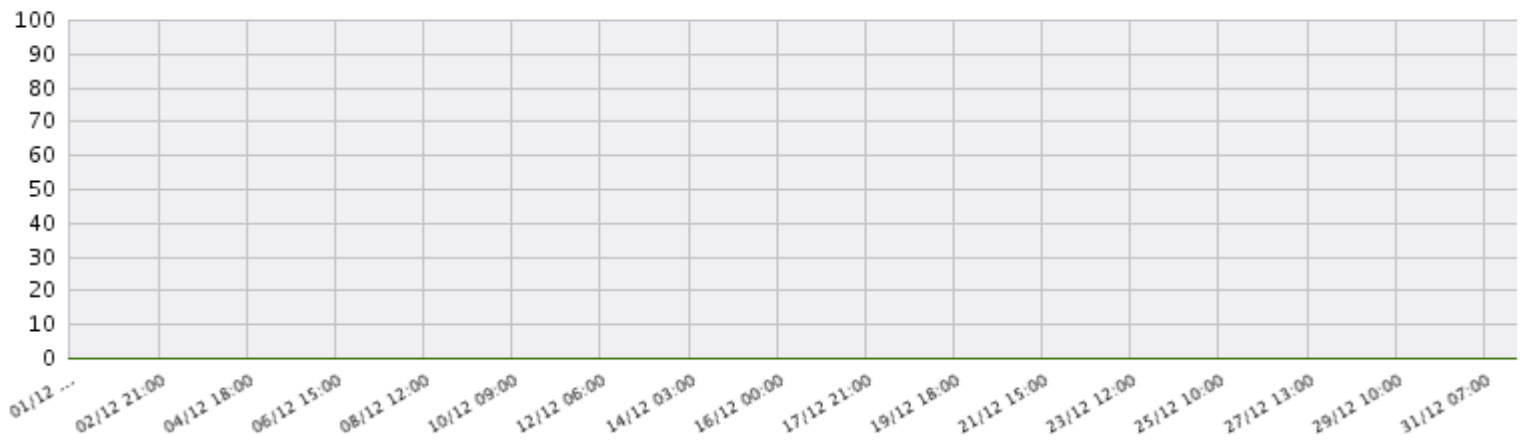
Policy Map (kbps)



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



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

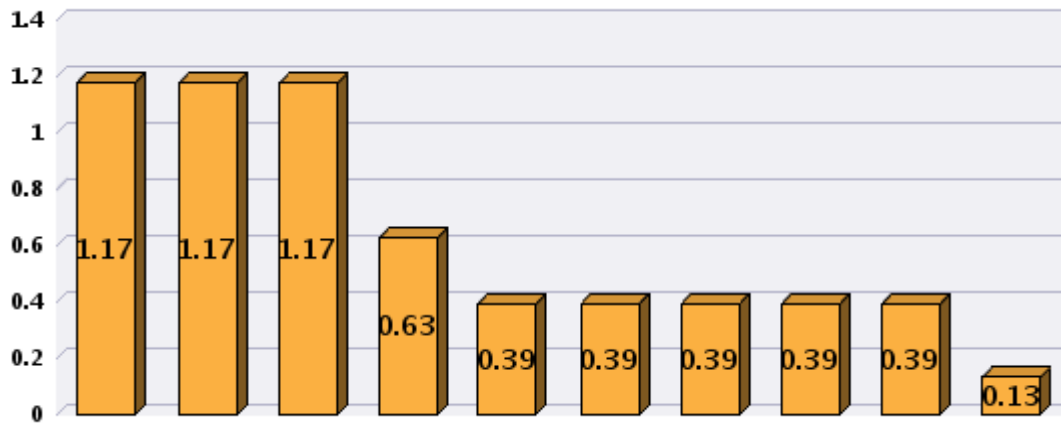
Reporte de Tráfico Entrada/Salida y Errores, Diciembre 2015

INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873



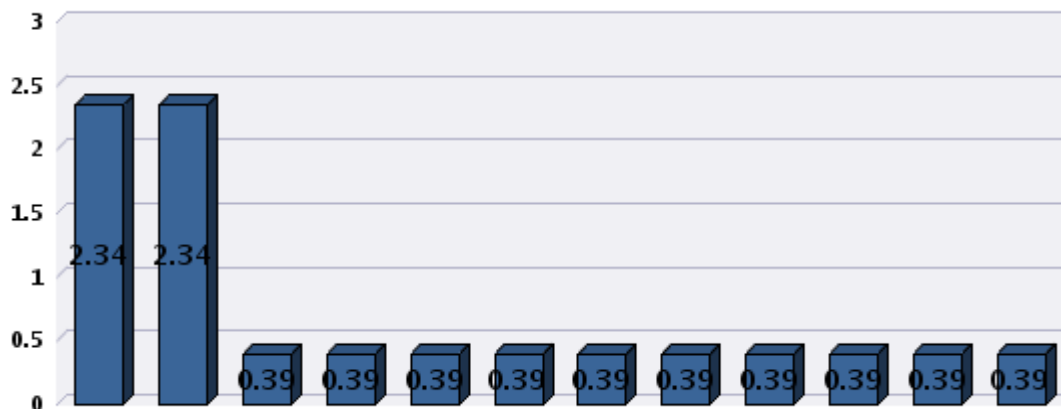
Top Percentil 95 IN (%)

OACI - BOLIVIA // ICAO_BOLIVIA.tigo.net.bo // GigabitEthernet0/1	OACI - COLOMBIA // ICAO_COLOMBIA // GigabitEthernet0/1	OACI - GUYANA FRANCESAS // ICAO_FR_GUYANA.q.ignetworks.com // GigabitEthernet0/1	OACI - BRASIL MANAUS // ICAO_MANAUSBRA // SIL // Multilink1	OACI - ARGENTINA // ICAO_ARGENTINA // GigabitEthernet0/0	OACI - BOLIVIA // ICAO_BOLIVIA.tigo.net.bo // GigabitEthernet0/0	OACI - GUYANA FRANCESAS // ICAO_FR_GUYANA.q.ignetworks.com // GigabitEthernet0/0	OACI - LIMA // ICAO_PERU // GigabitEthernet0/0.2428	OACI - URUGUAY // ICAO_URUGUAY // GigabitEthernet0/0	OACI - BRASIL MANAUS // ICAO_MANAUSBRA // SIL // 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_MANAUSBRA // SIL // 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 FRANCESAS // ICAO_FR_GUYANA.q.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



Resumen:

Sede	IP Loopback	Nombre de Interfaz	Alias	BW [Kbps]	Errores Prom	Tráfico Entrada					Tráfico Salida				
						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_1BRAA01 D.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_1BRAA01 D.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_1BRAA01 D.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_1BRAA01 D.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



Sede	IP Loopback	Nombre de Interfaz	Alias	BW [Kbps]	Errores Prom	Tráfico Entrada					Tráfico Salida				
						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



Sede OACI - ARGENTINA

Equipo ICAO_ARGENTINA

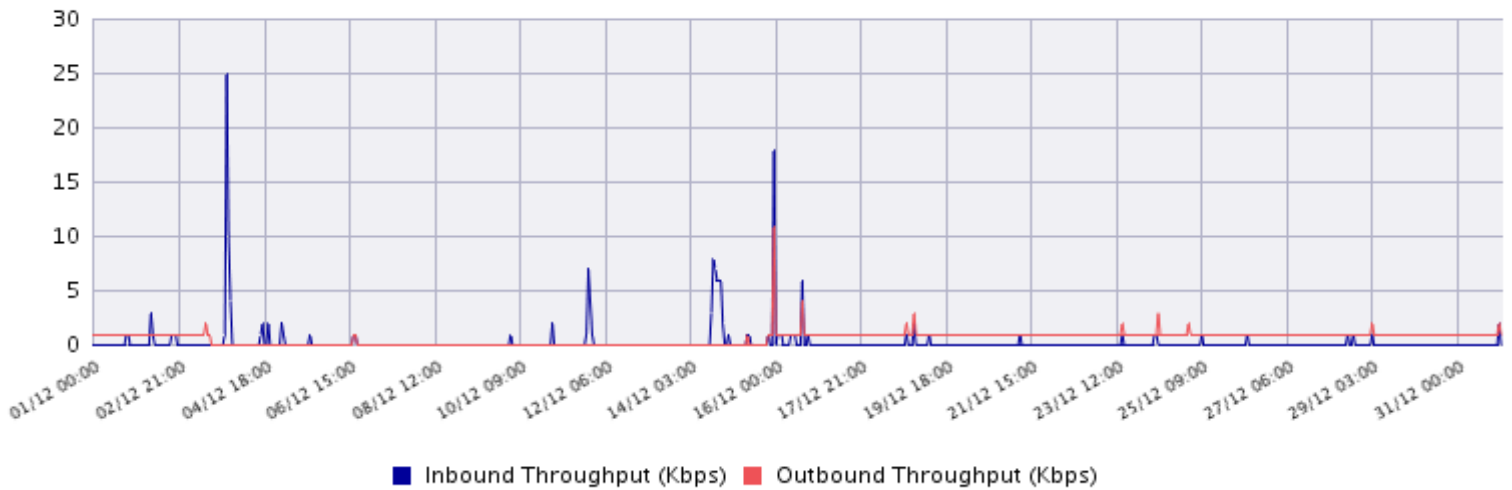
IP de Gestión (172.21.6.193)

Modelo Cisco1921k9

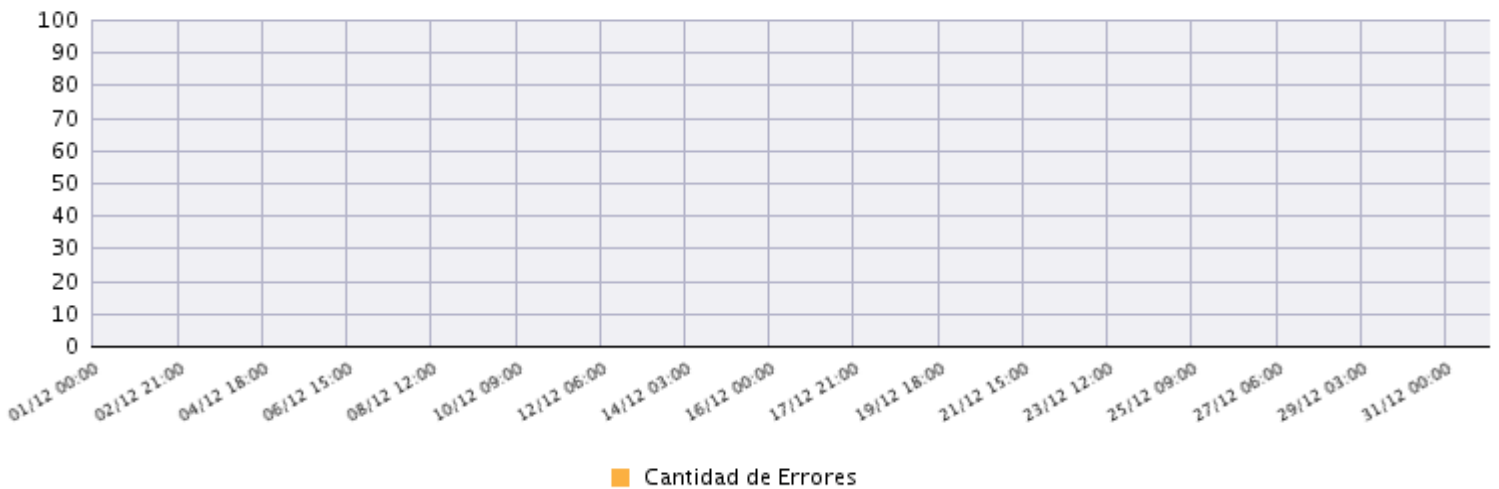
Ciudad Ezeiza

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



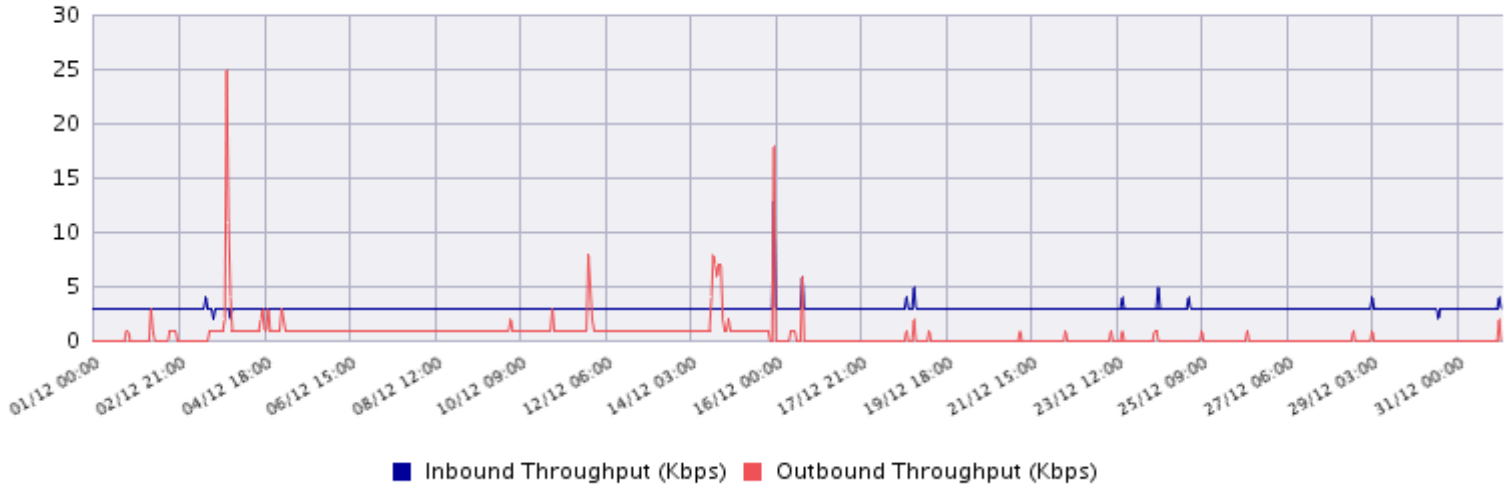
Reporte de Tráfico Entrada/Salida y Errores, Diciembre 2015

INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873

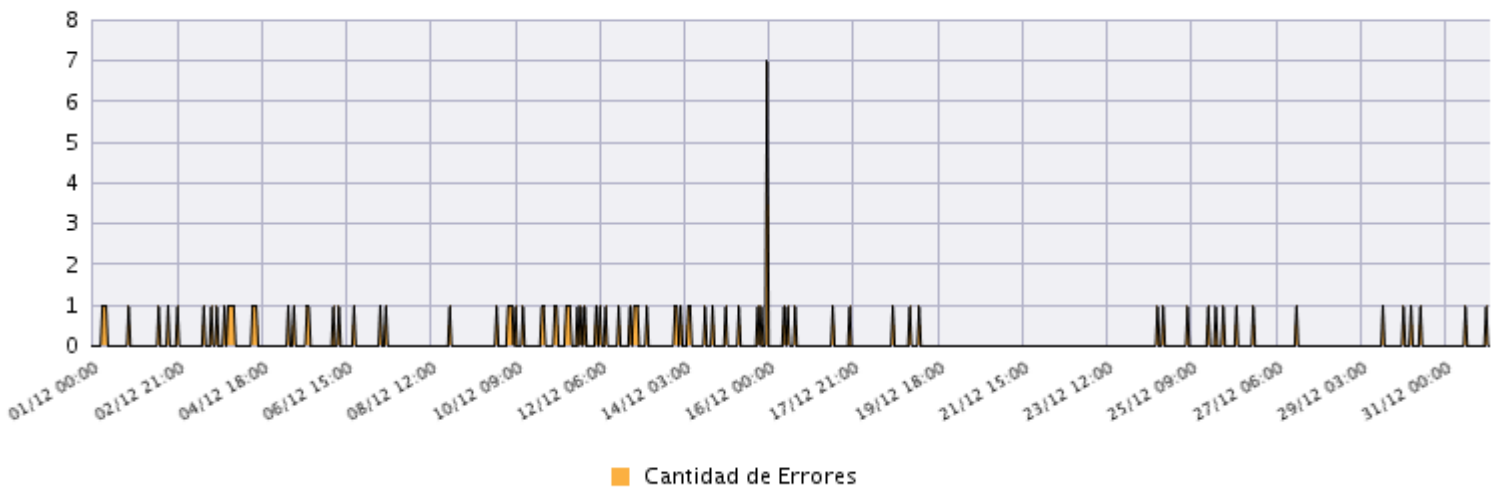


Interface: GigabitEthernet0/1 - LAN - Bandwidth: 100,000 Kbps

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



Sede OACI - BOLIVIA

Equipo ICAO_BOLIVIA.tigo.net.bo

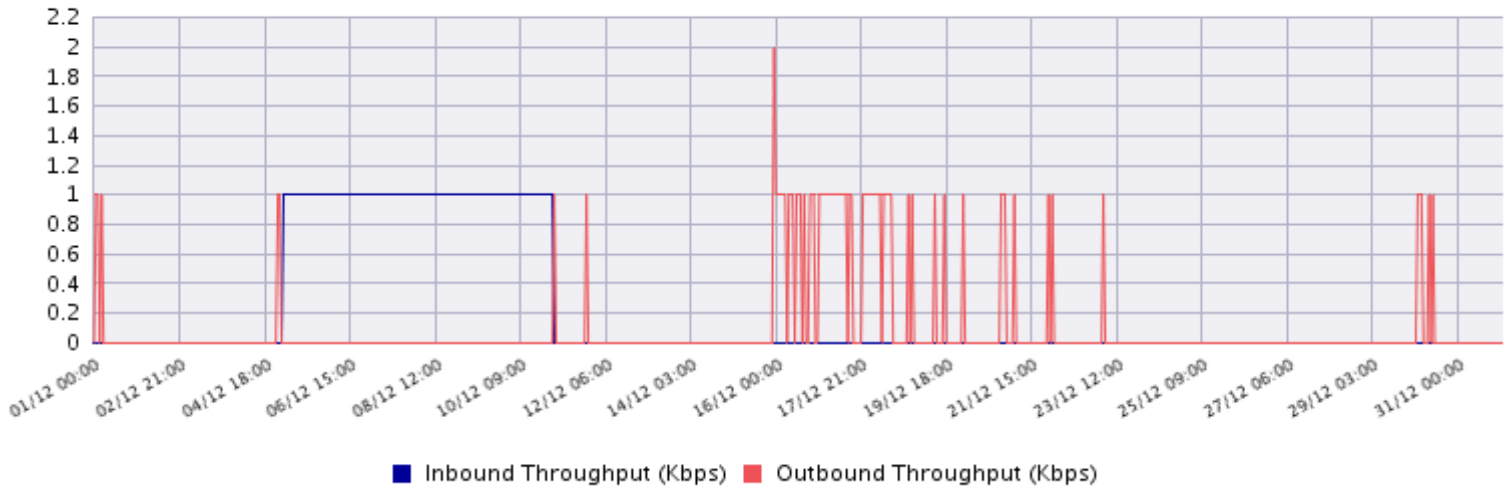
IP de Gestión (172.21.6.204)

Modelo Cisco1921k9

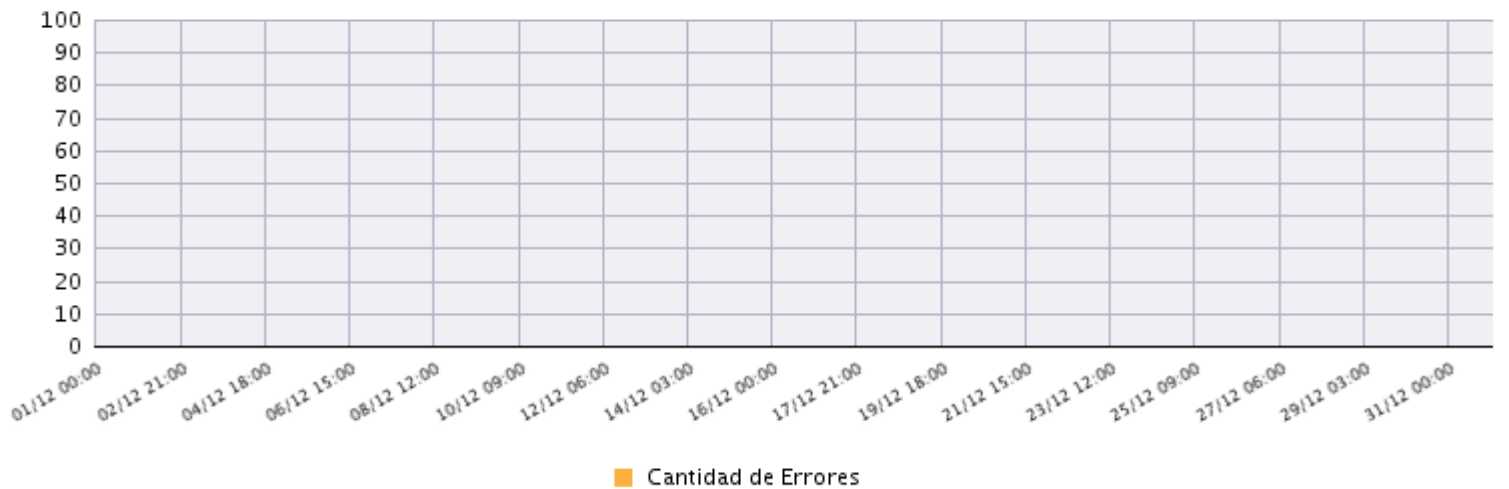
Ciudad La Paz

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



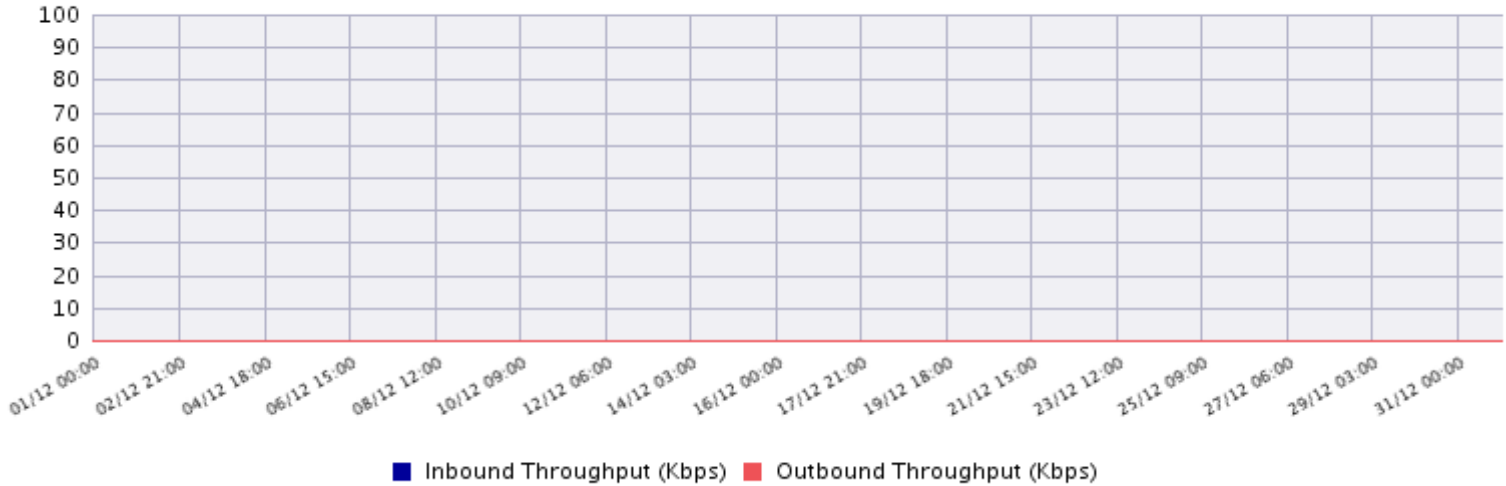
Reporte de Tráfico Entrada/Salida y Errores, Diciembre 2015

INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873

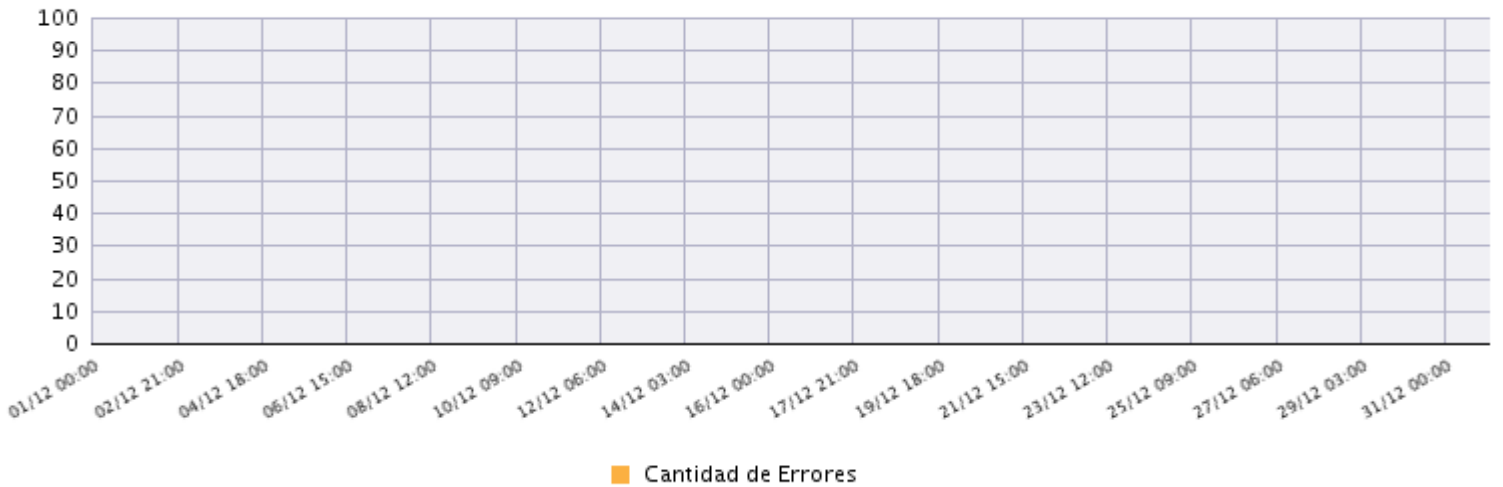


Interface: GigabitEthernet0/0/0 - Iface Fisica Acceso - Bandwidth: 1,000,000 Kbps

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



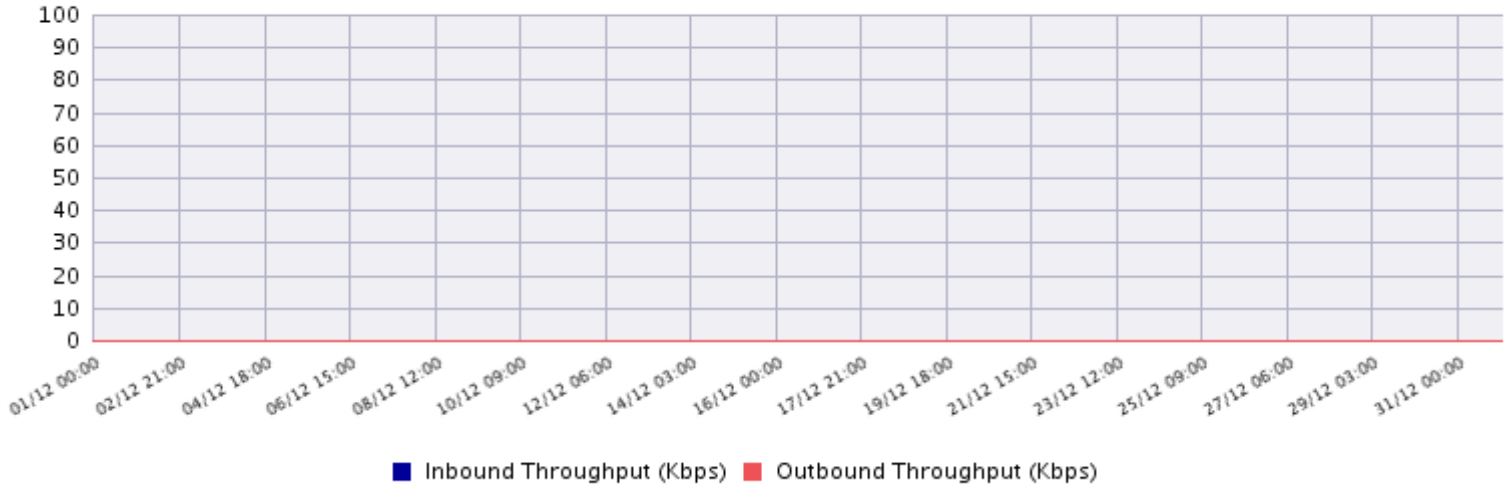
Reporte de Tráfico Entrada/Salida y Errores, Diciembre 2015

INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873



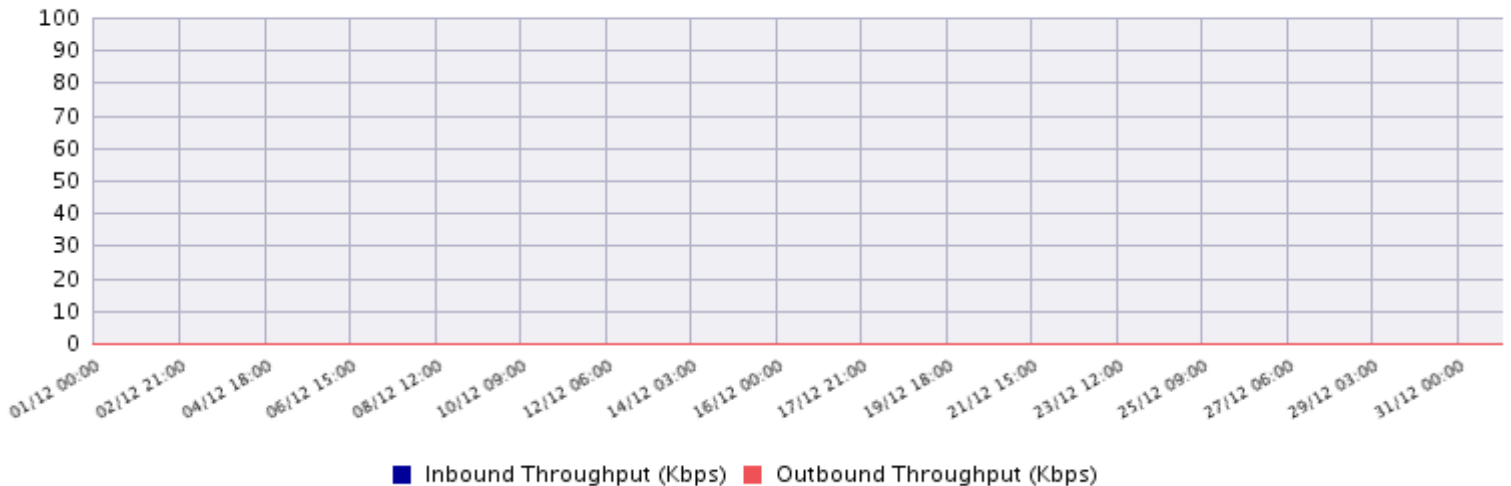
Interface: GigabitEthernet0/0/0.1000 - lface trafico - Bandwidth: 1,000,000 Kbps

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 - lface 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)



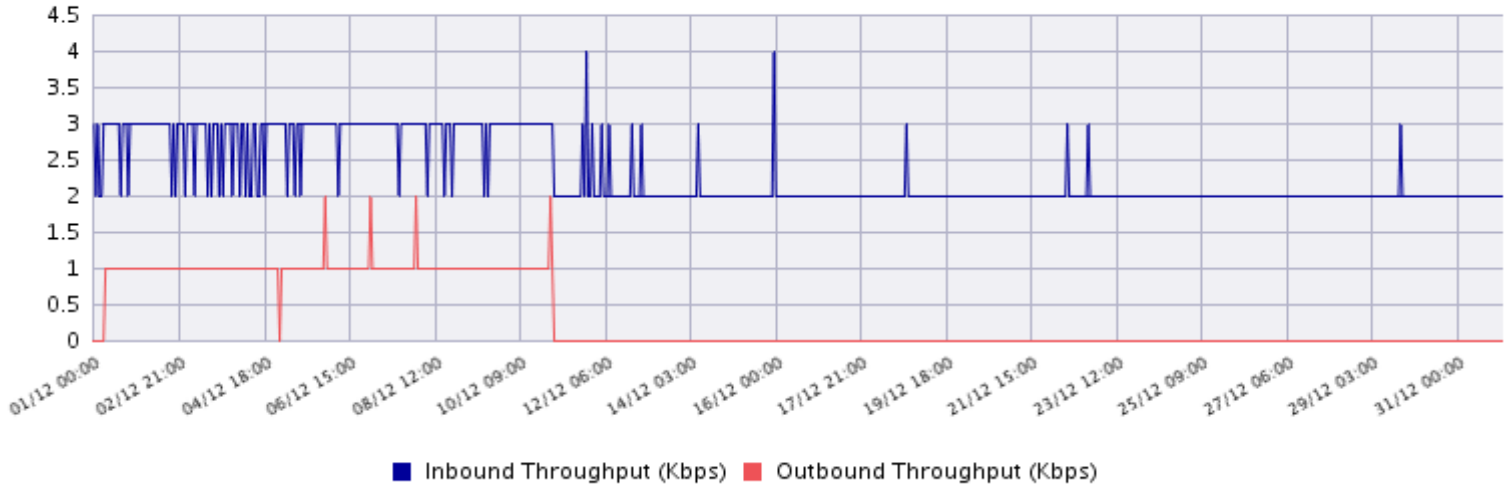
Reporte de Tráfico Entrada/Salida y Errores, Diciembre 2015

INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873

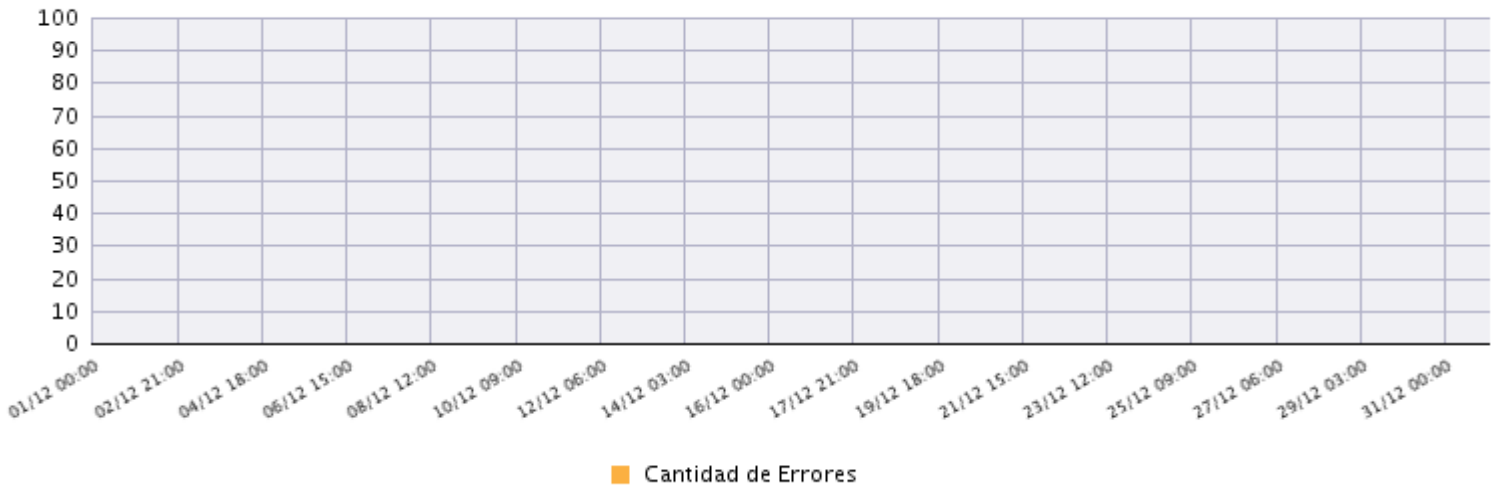


Interface: GigabitEthernet0/1 - --- LAN INTERNA --- - Bandwidth: 256 Kbps

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



Sede OACI - BRASIL CURITIBA

Equipo ICAO_CURITIBA

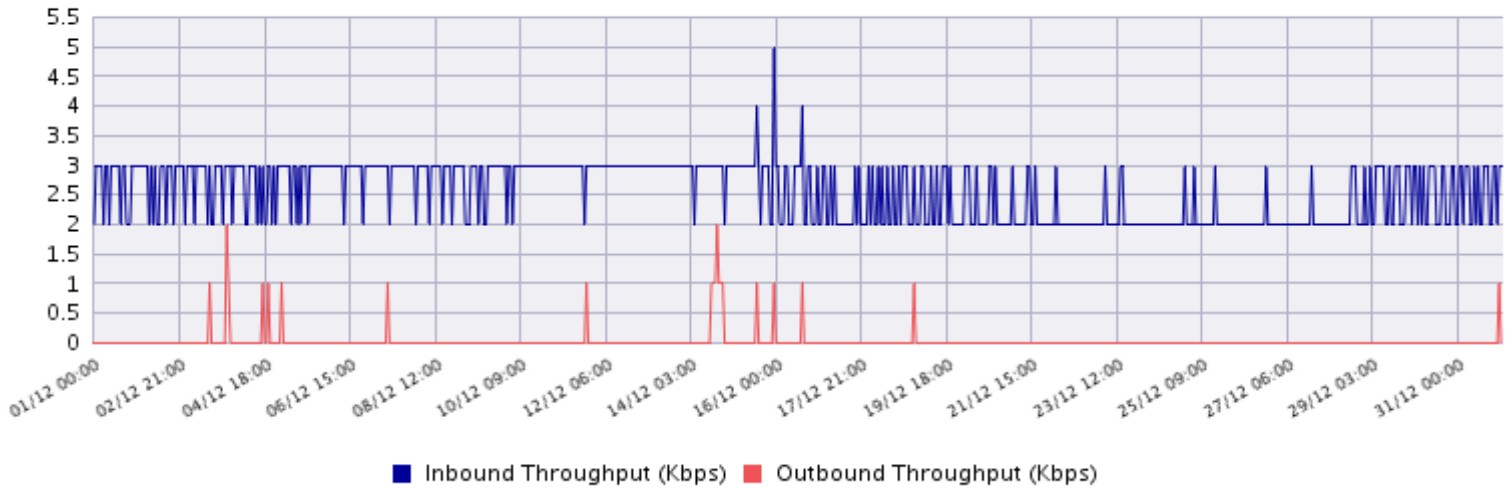
IP de Gestión (172.20.26.63)

Modelo Cisco1921k9

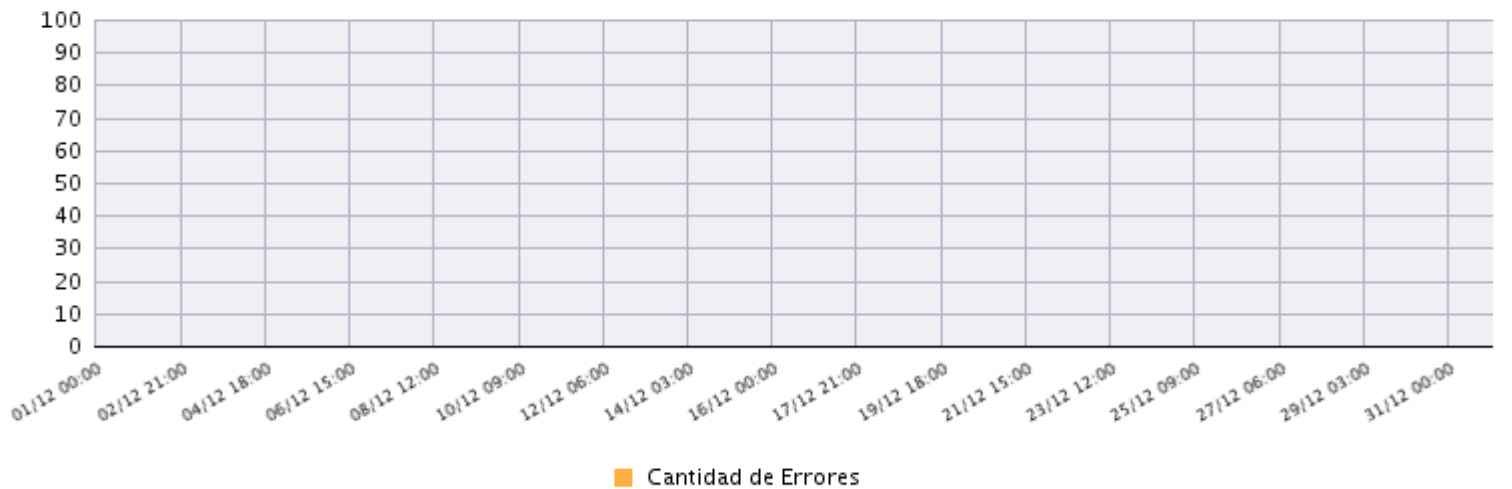
Ciudad Curitiba

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



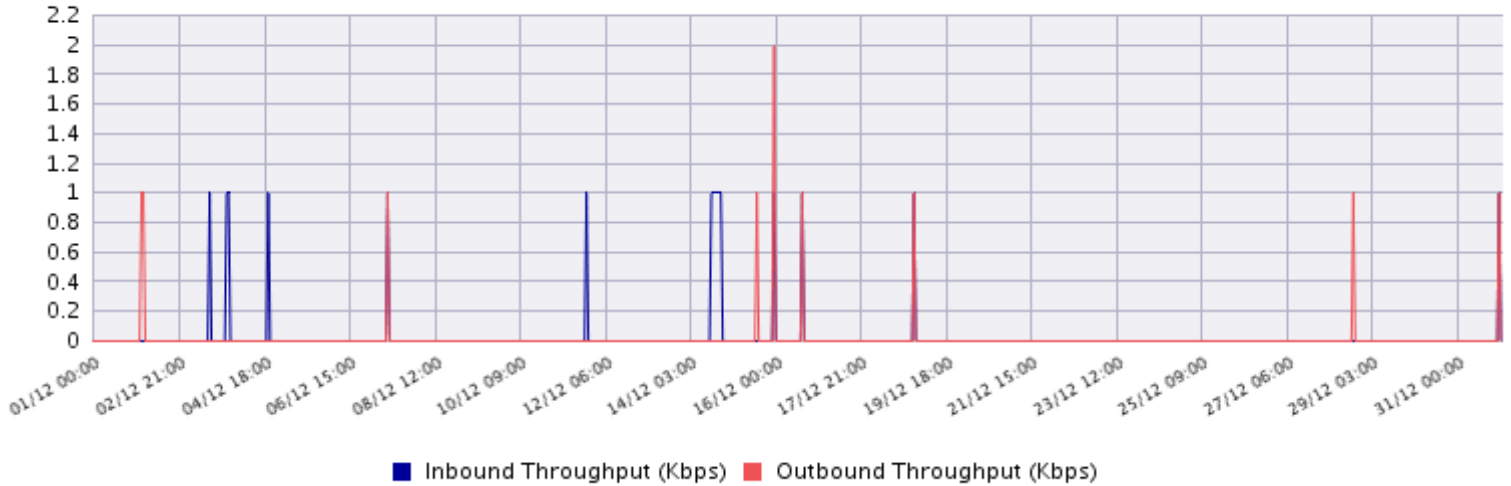
Reporte de Tráfico Entrada/Salida y Errores, Diciembre 2015

INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873

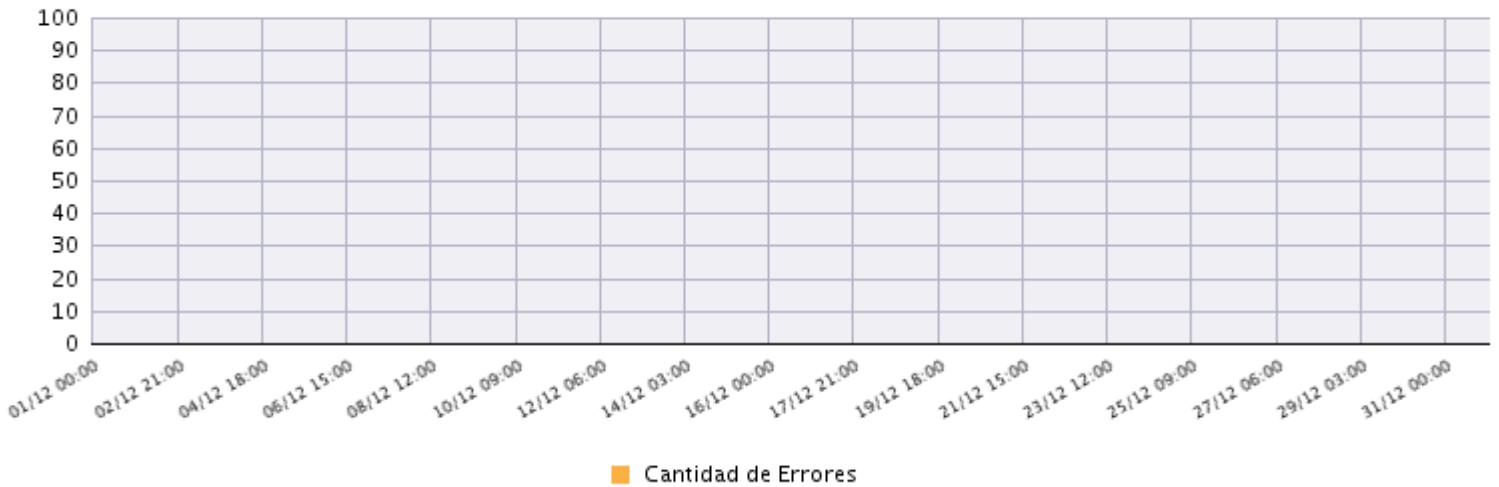


Interface: Multilink1 - WAN - Bandwidth: 256 Kbps

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



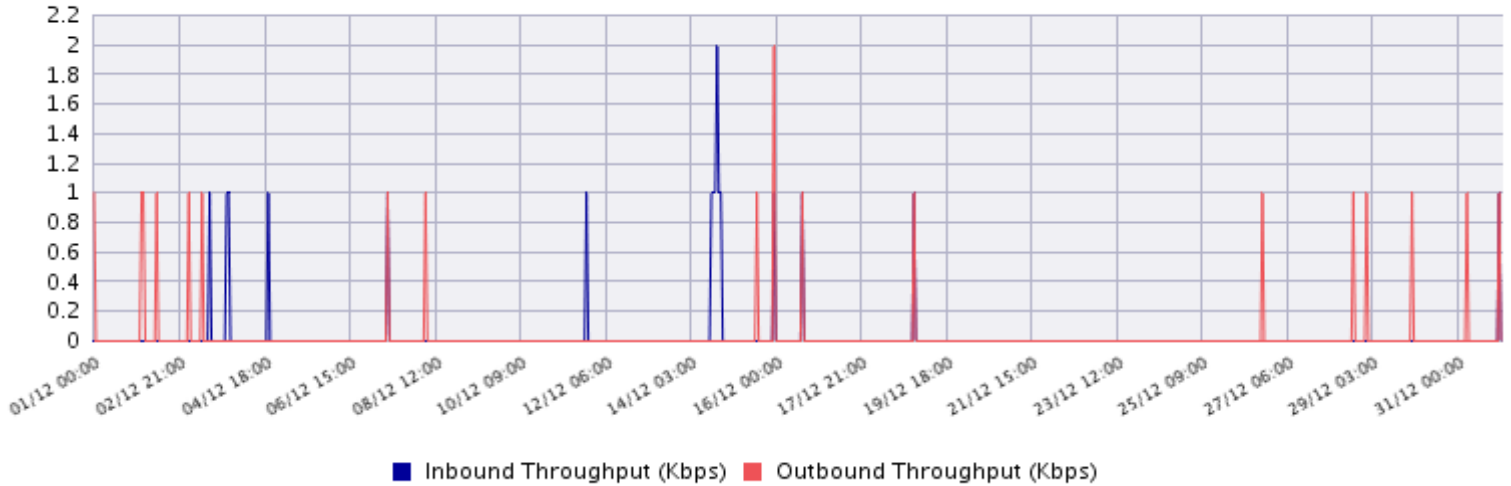
Reporte de Tráfico Entrada/Salida y Errores, Diciembre 2015

INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873

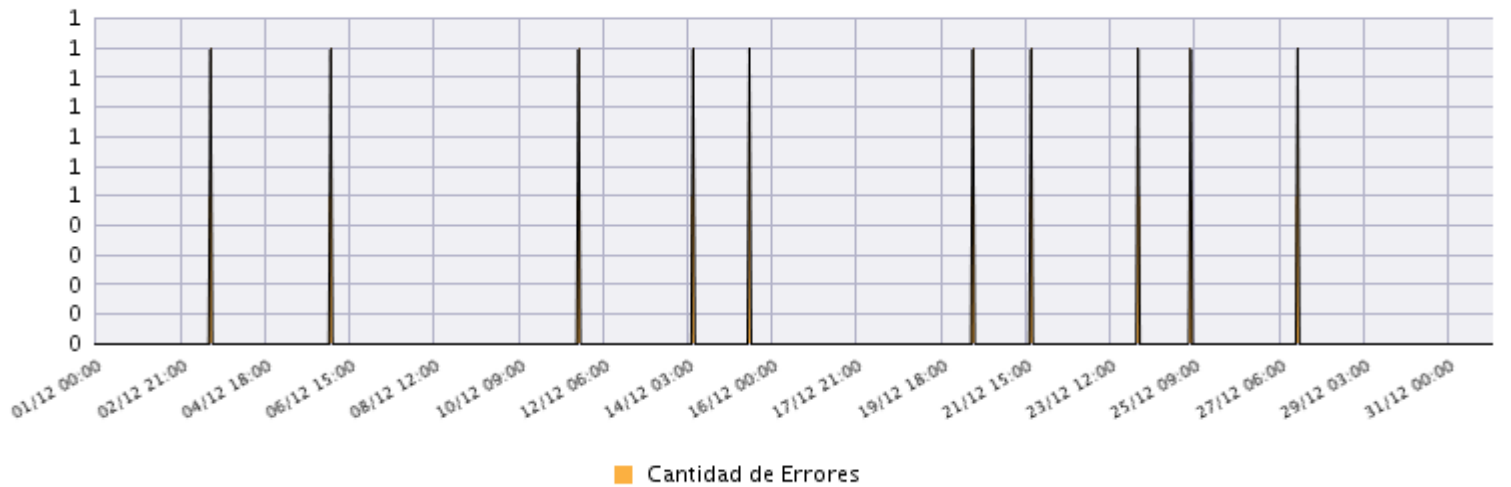


Interface: Serial0/0/0 - WAN - Bandwidth: 256 Kbps

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



Sede OACI - BRASIL MANAUS

Equipo ICAO_MANAUSBRASIL

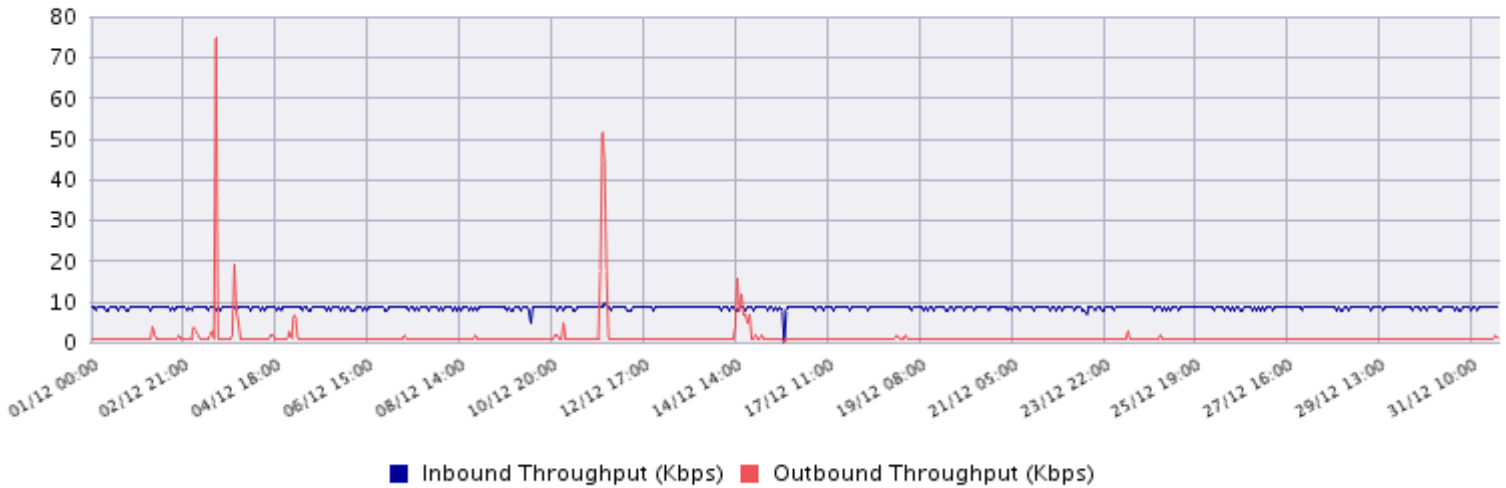
IP de Gestión (172.21.6.192)

Modelo Cisco1921k9

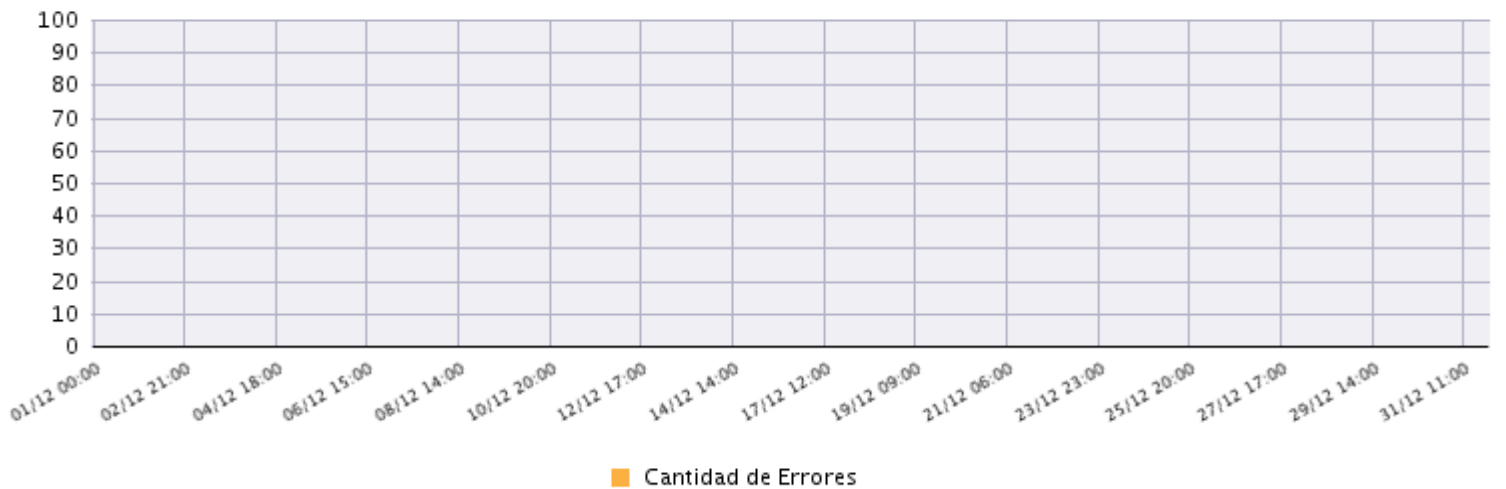
Ciudad Manaus

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



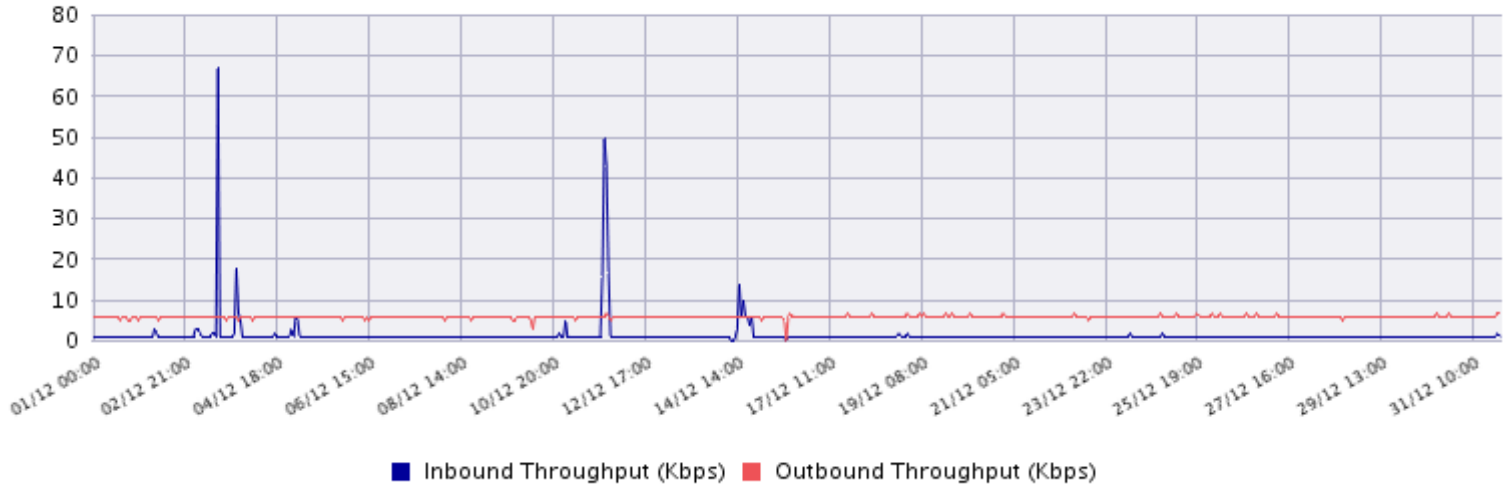
Reporte de Tráfico Entrada/Salida y Errores, Diciembre 2015

INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873



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



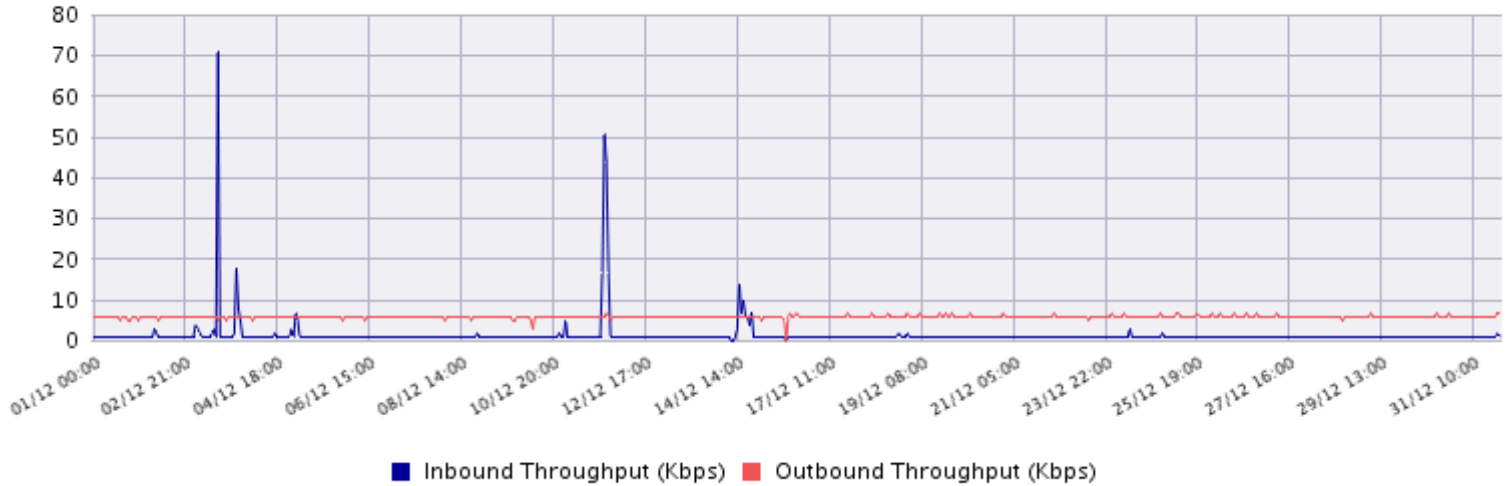
Reporte de Tráfico Entrada/Salida y Errores, Diciembre 2015

INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873



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



Sede OACI - BRASIL RECIFE

Equipo ICAO_RECIFE

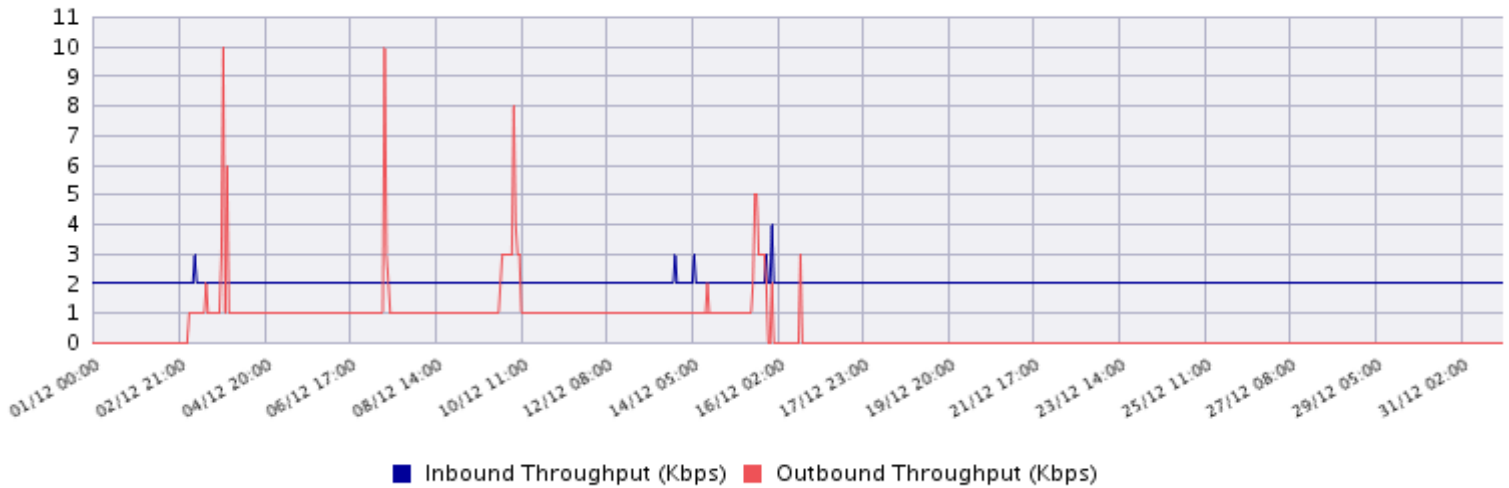
IP de Gestión (172.20.26.62)

Modelo Cisco1921k9

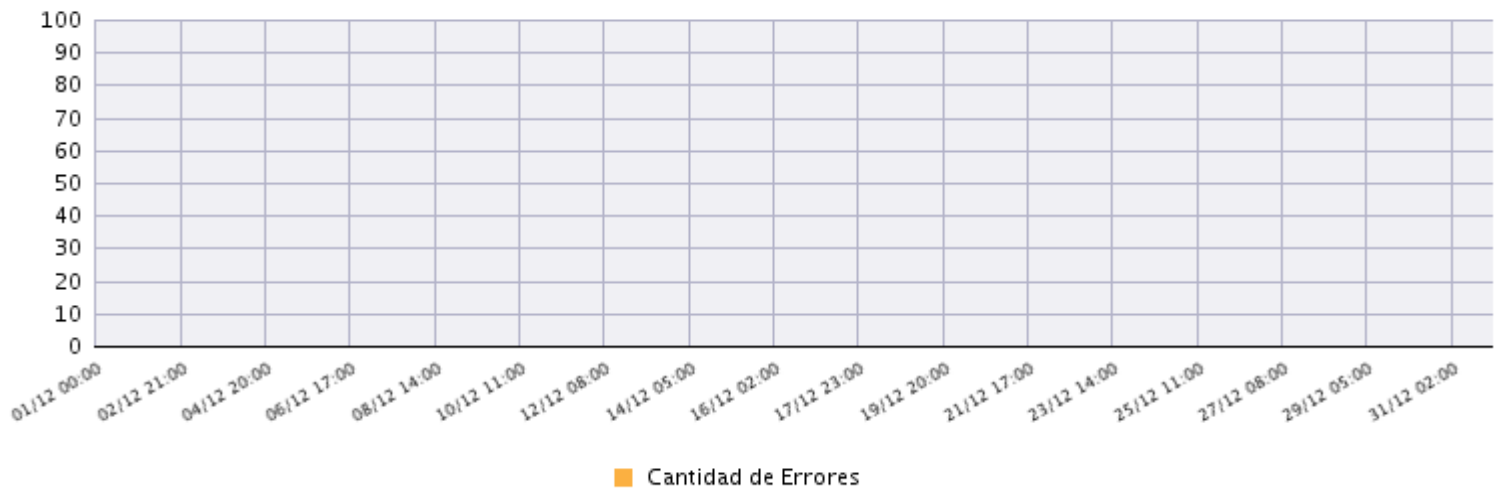
Ciudad Recife

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



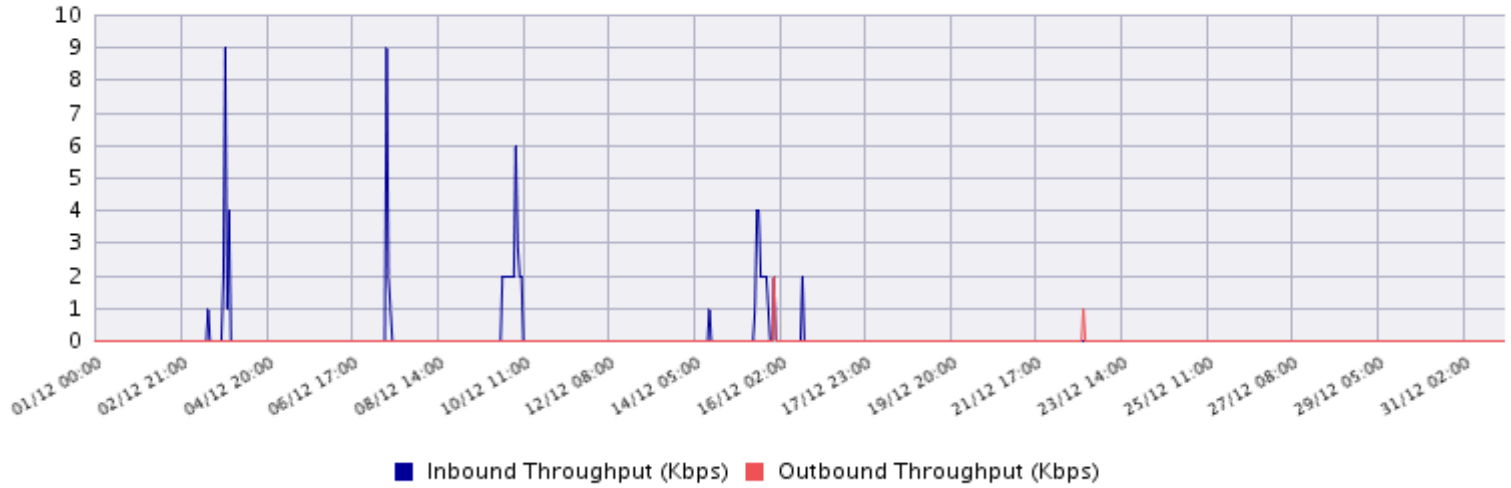
Reporte de Tráfico Entrada/Salida y Errores, Diciembre 2015

INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873

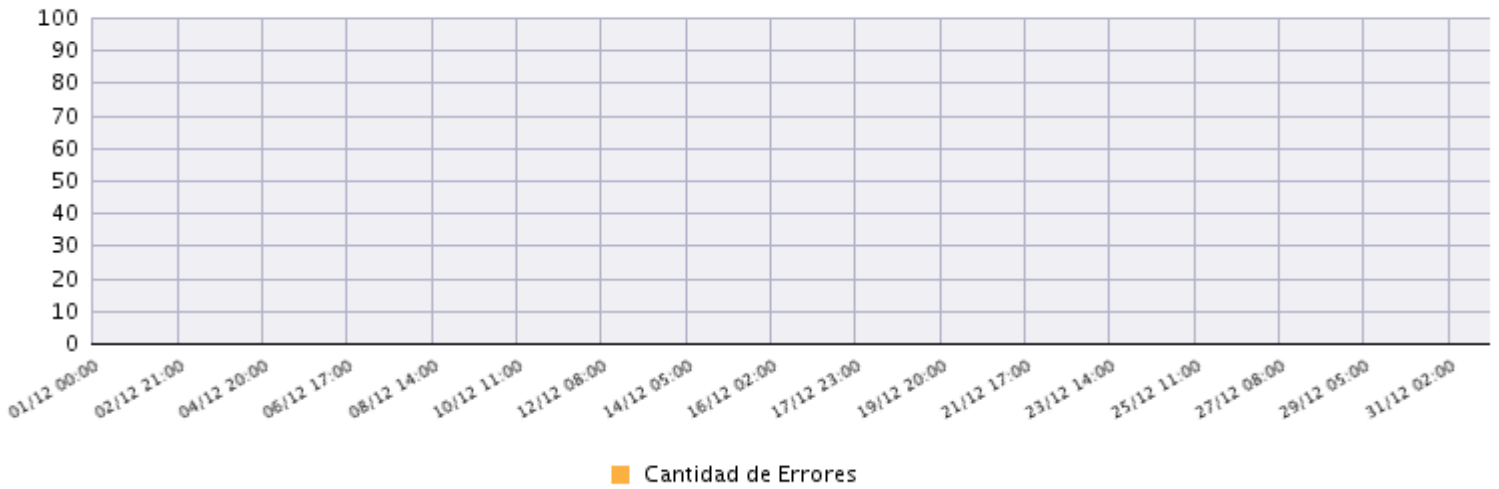


Interface: Multilink1 - WAN_P24944_1BRAA01D.0006 - Bandwidth: 256 Kbps

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



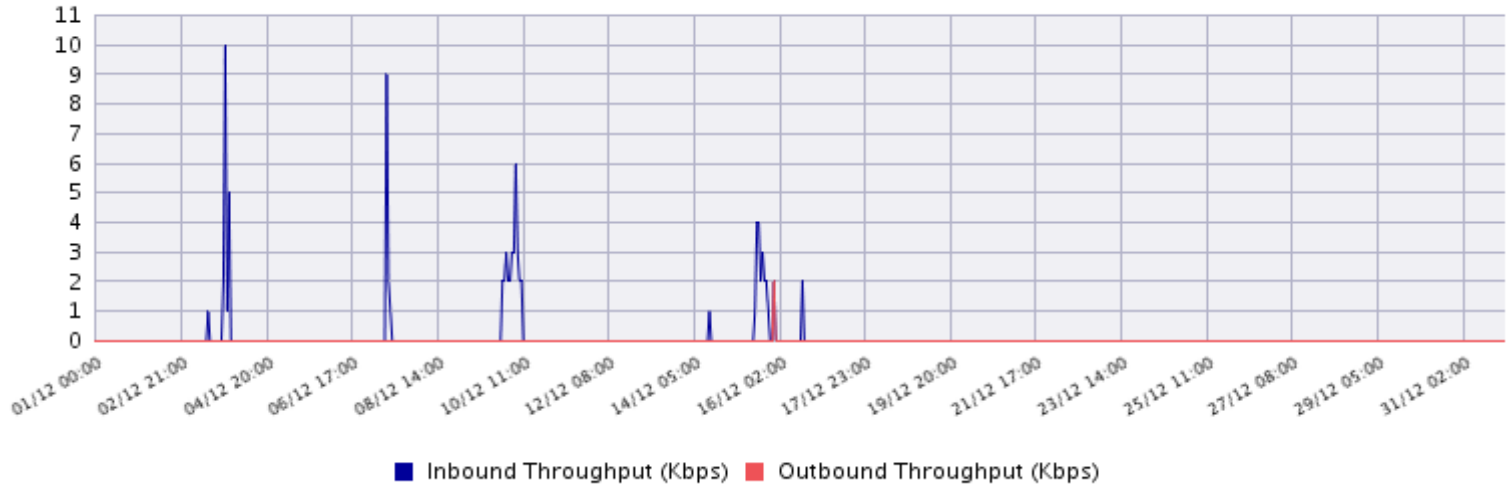
Reporte de Tráfico Entrada/Salida y Errores, Diciembre 2015

INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873

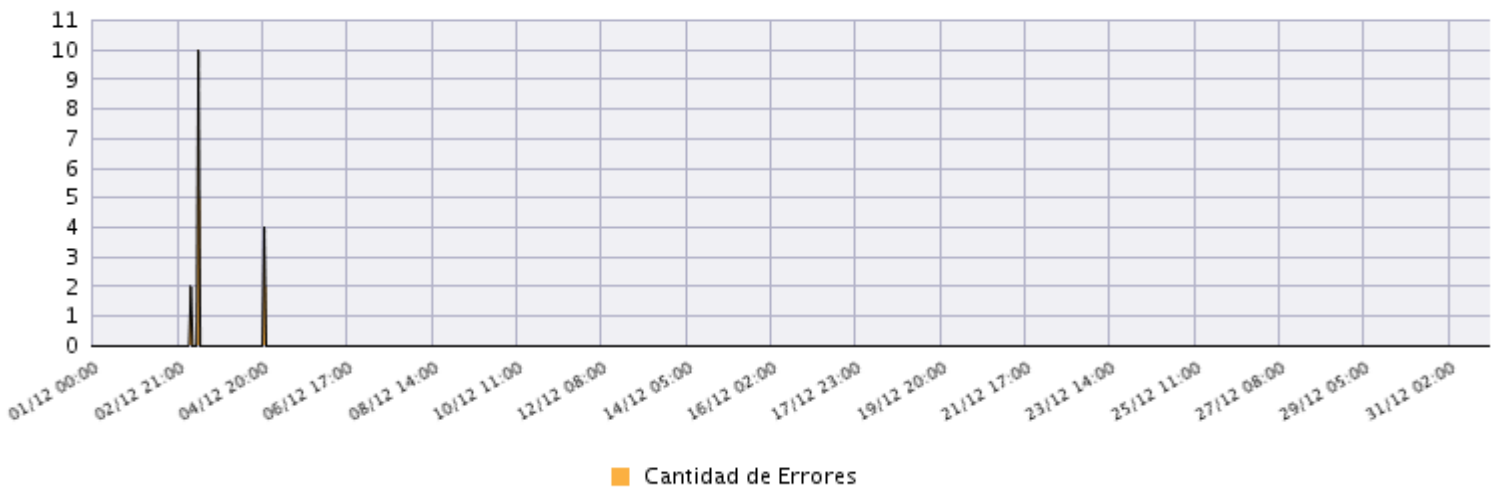


Interface: Serial0/0/0 - WAN_P24944_1BRAA01D.0006 - Bandwidth: 256 Kbps

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



Sede OACI - CHILE

Equipo ICAO_CHILE.yourdomain.com

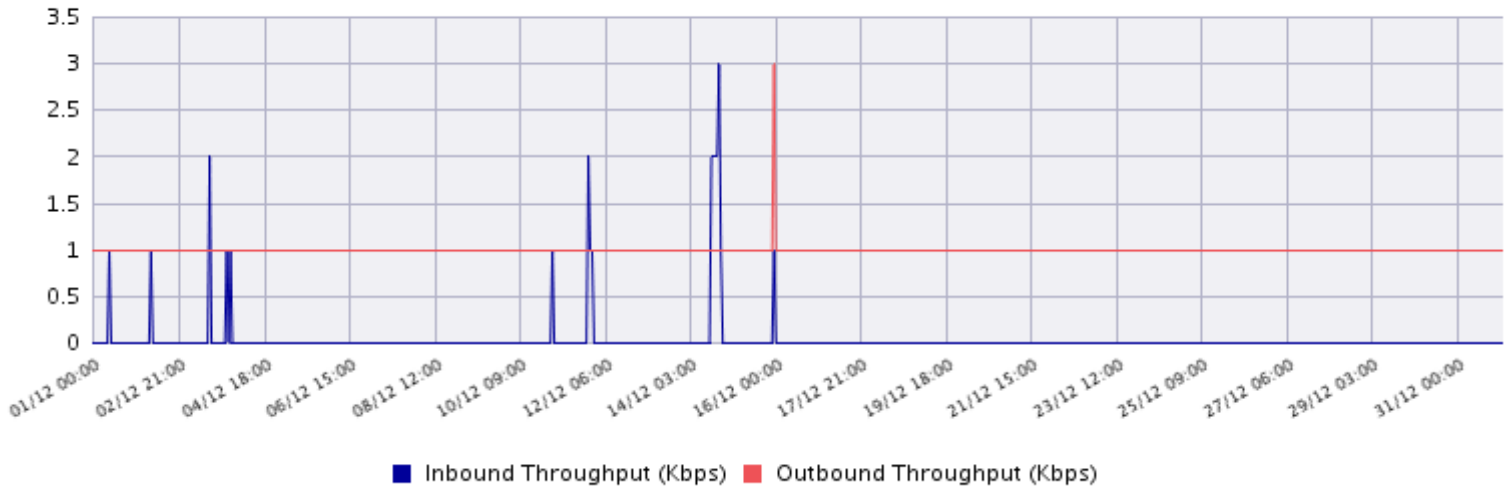
IP de Gestión (172.21.6.197)

Modelo Cisco1921k9

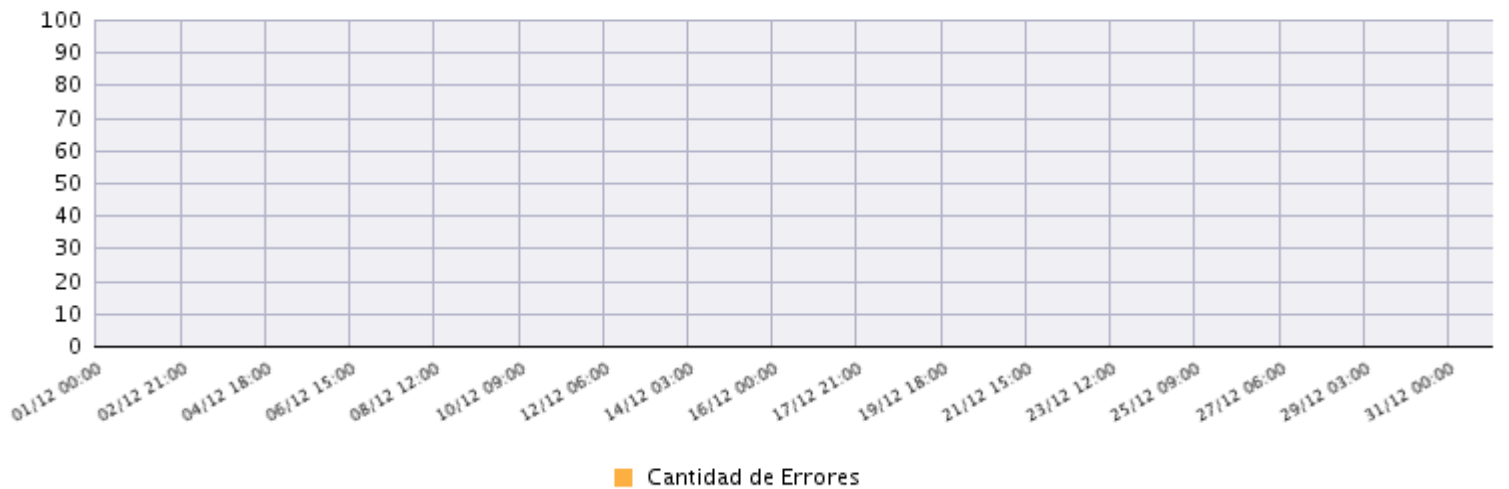
Ciudad Santiago de Chile

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



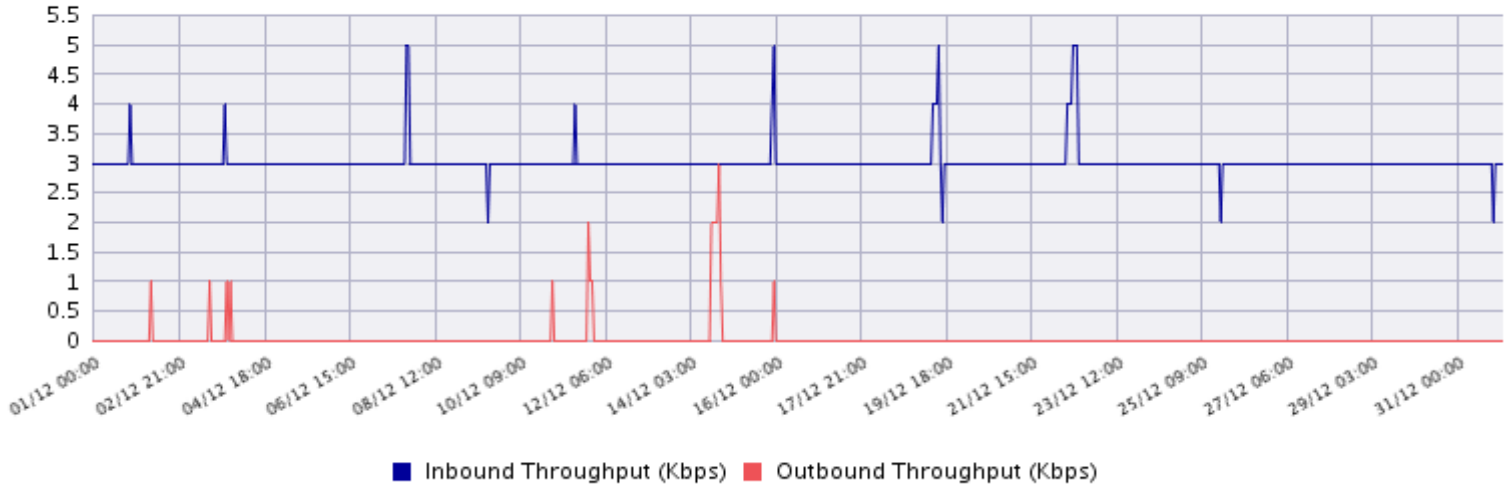
Reporte de Tráfico Entrada/Salida y Errores, Diciembre 2015

INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873

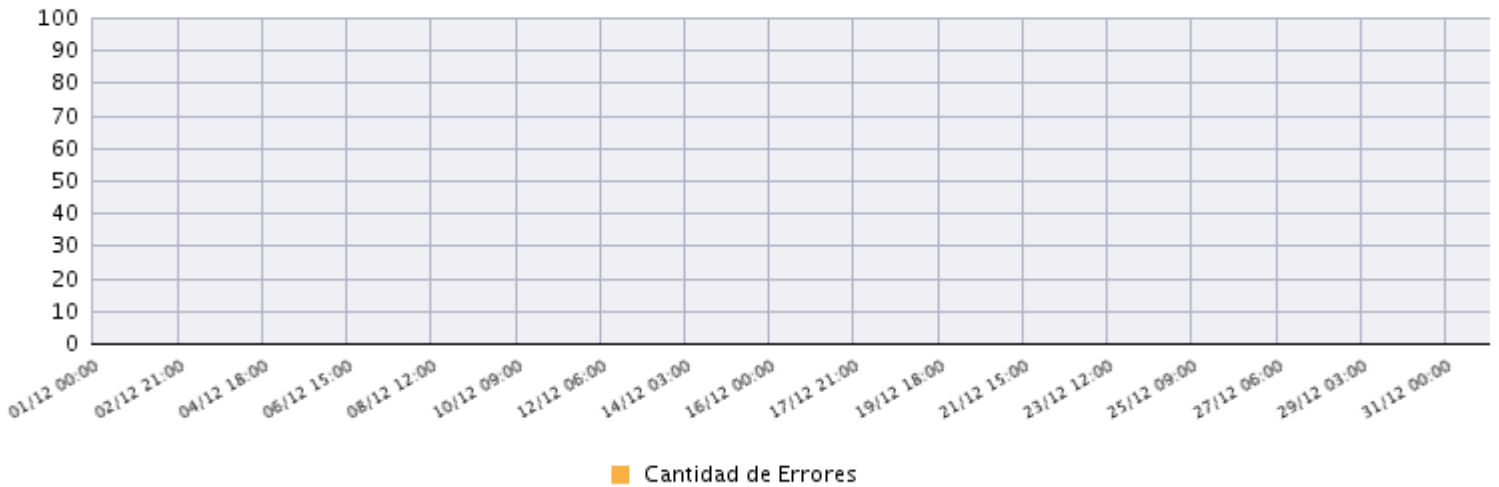


Interface: GigabitEthernet0/1 - LAN PRINCIPAL - Bandwidth: 1,000,000 Kbps

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



Sede OACI - COLOMBIA

Equipo ICAO_COLOMBIA

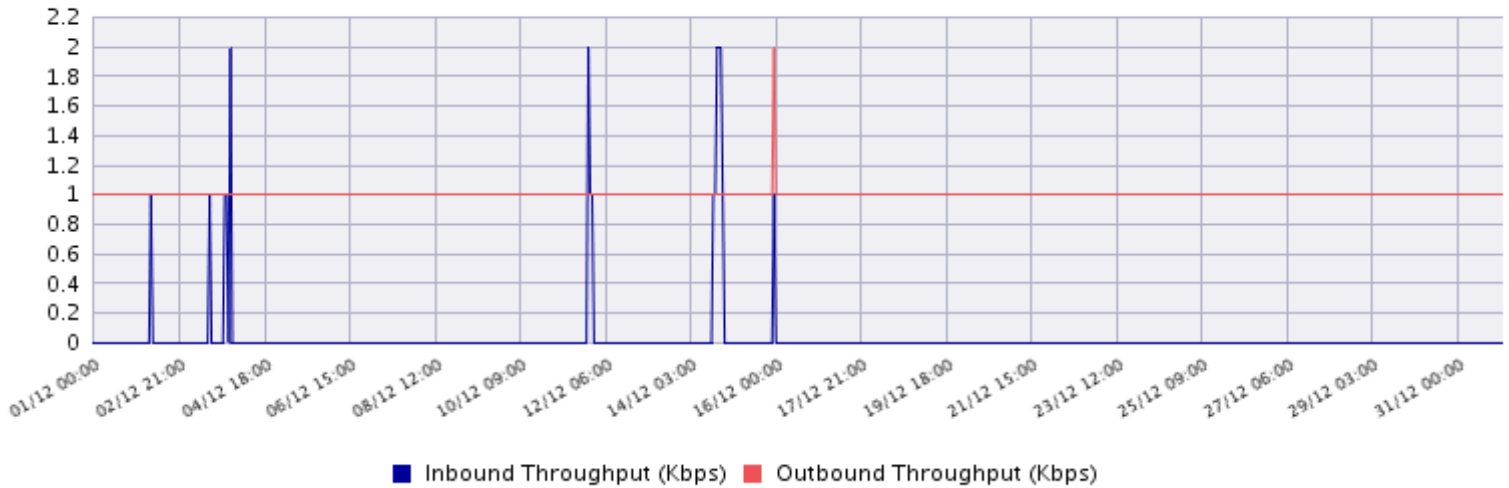
IP de Gestión (172.21.6.196)

Modelo Cisco1921k9

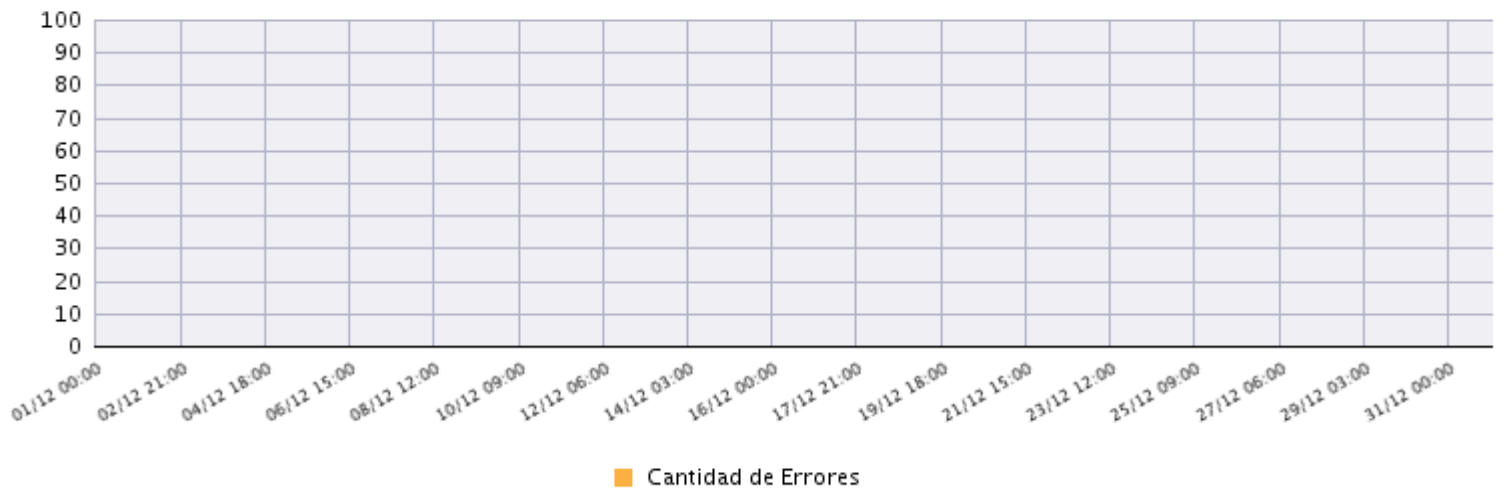
Ciudad Bogotá

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



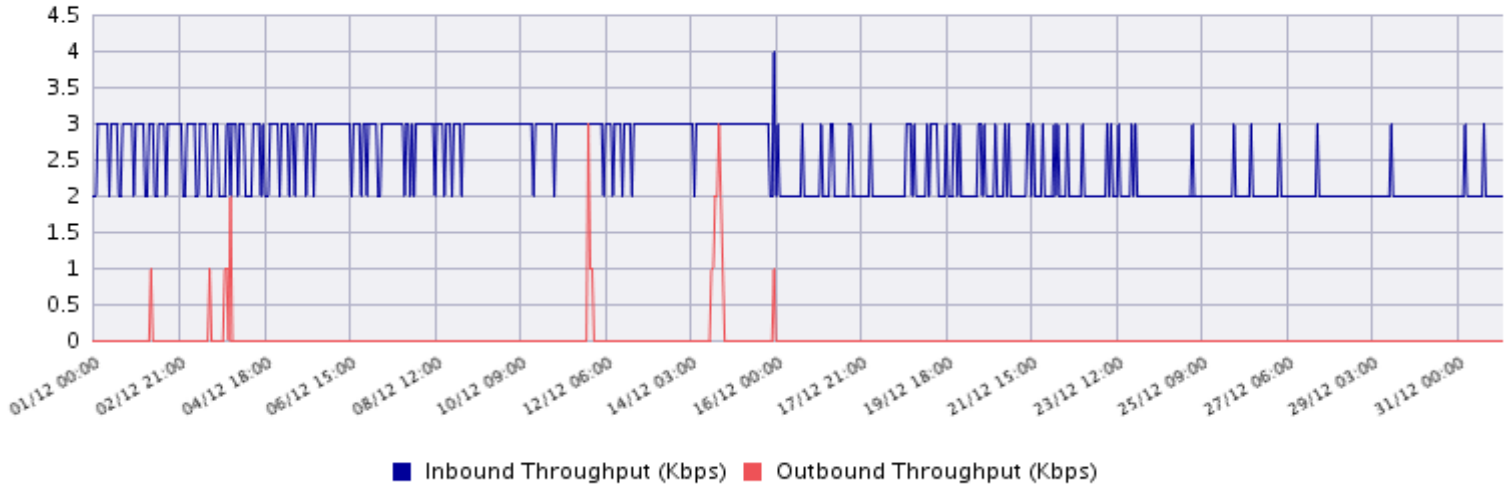
Reporte de Tráfico Entrada/Salida y Errores, Diciembre 2015

INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873



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



Sede OACI - ECUADOR

Equipo ICAO_ECUADOR

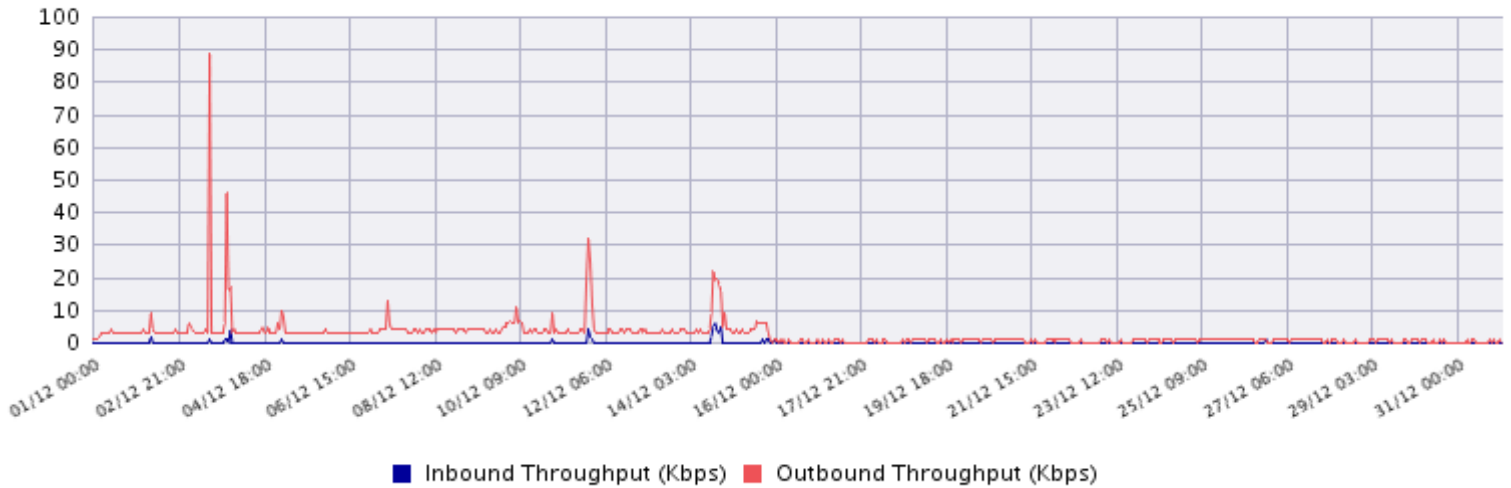
IP de Gestión (172.21.6.195)

Modelo Cisco1921k9

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



Sede OACI - GUYANA

Equipo ICAO_GUYANA.yourdomain.com

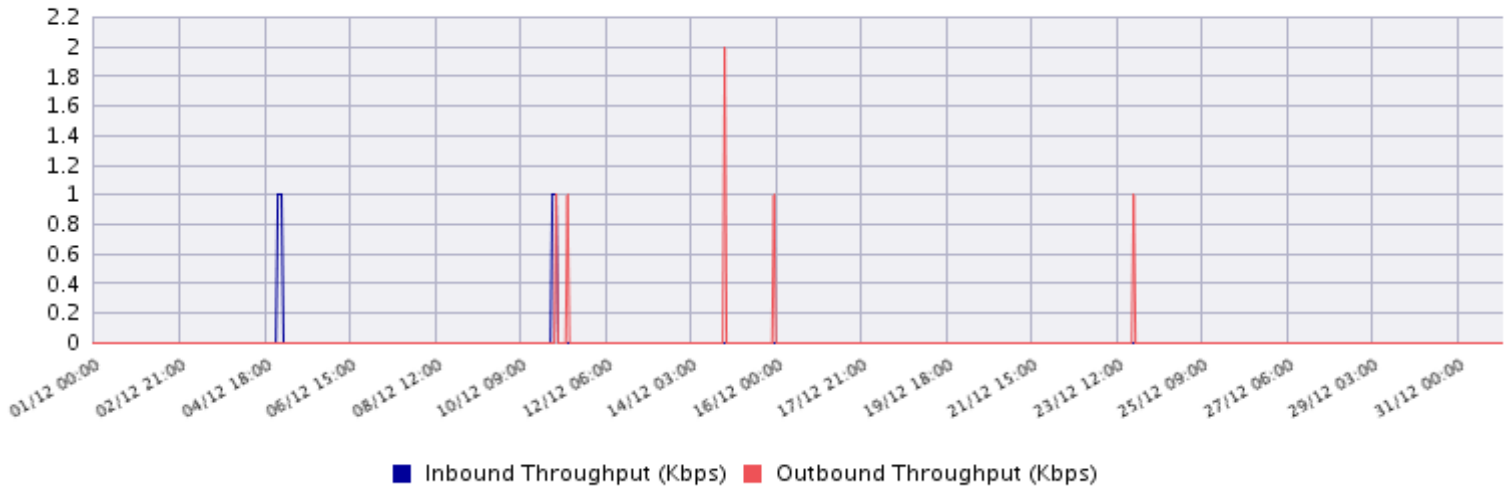
IP de Gestión (172.21.6.200)

Modelo Cisco1921k9

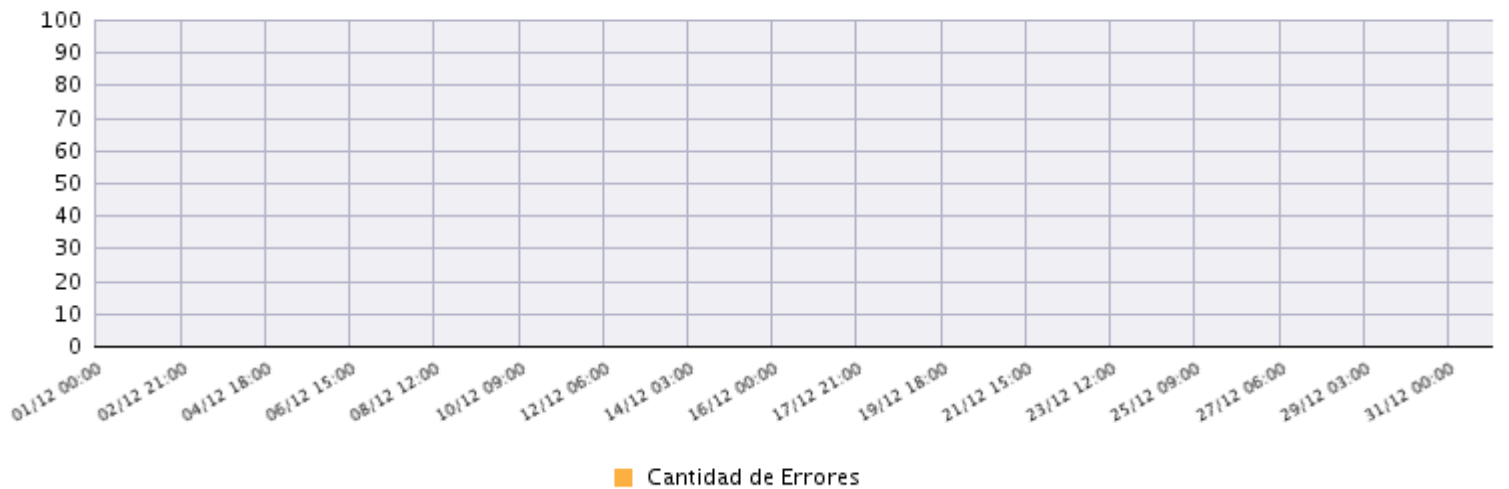
Ciudad Georgetown

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



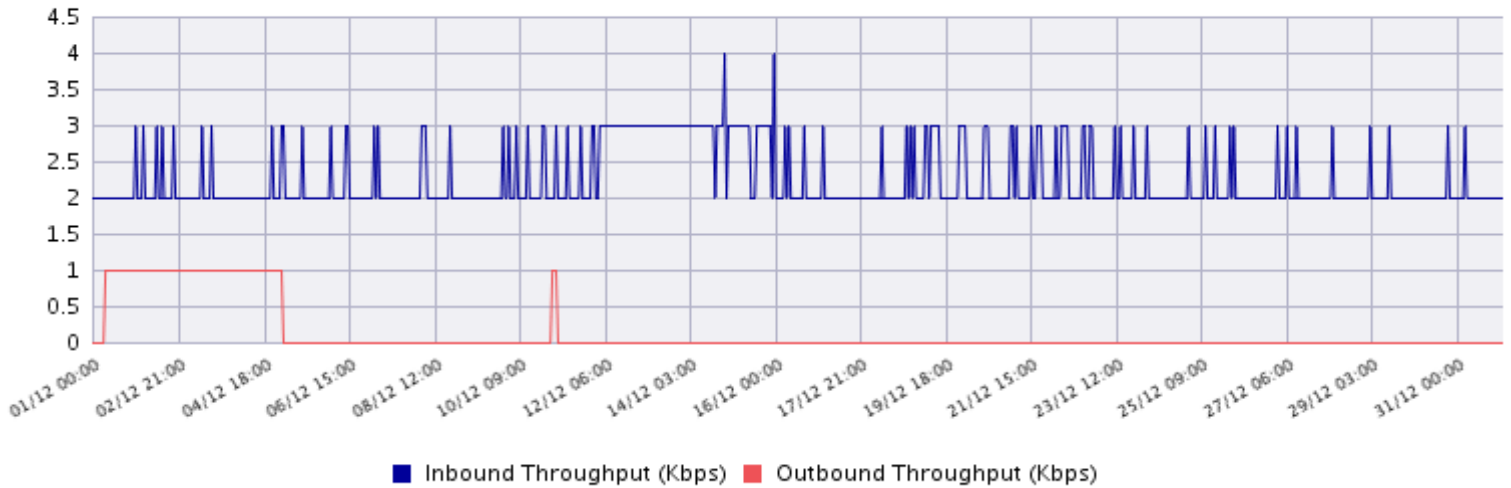
Reporte de Tráfico Entrada/Salida y Errores, Diciembre 2015

INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873

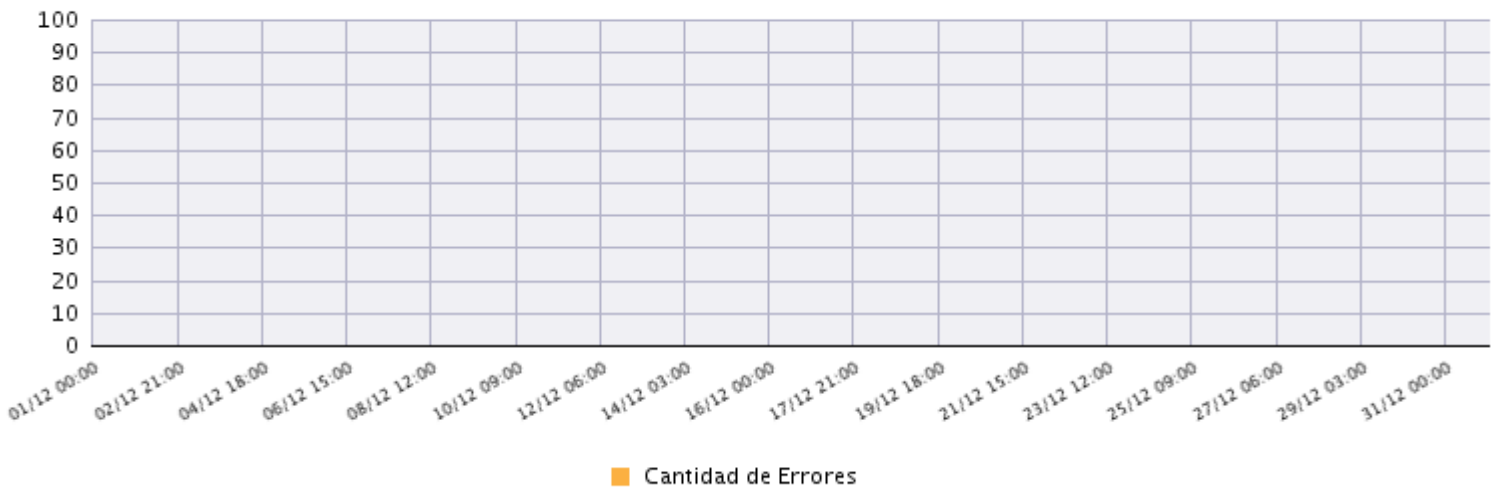


Interface: GigabitEthernet0/1 - LAN - Bandwidth: 1,000,000 Kbps

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



Sede OACI - GUYANA FRANCESA

Equipo ICAO_FR_GUYANA.eq.ignetworks.com

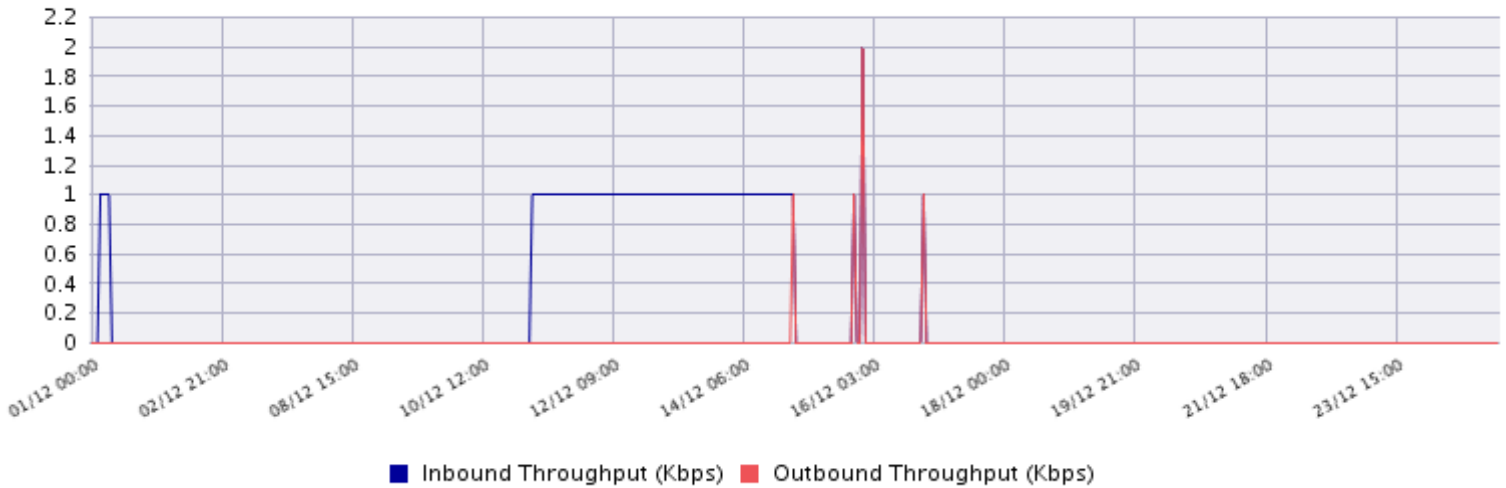
Modelo Cisco1921k9

IP de Gestión (172.21.6.201)

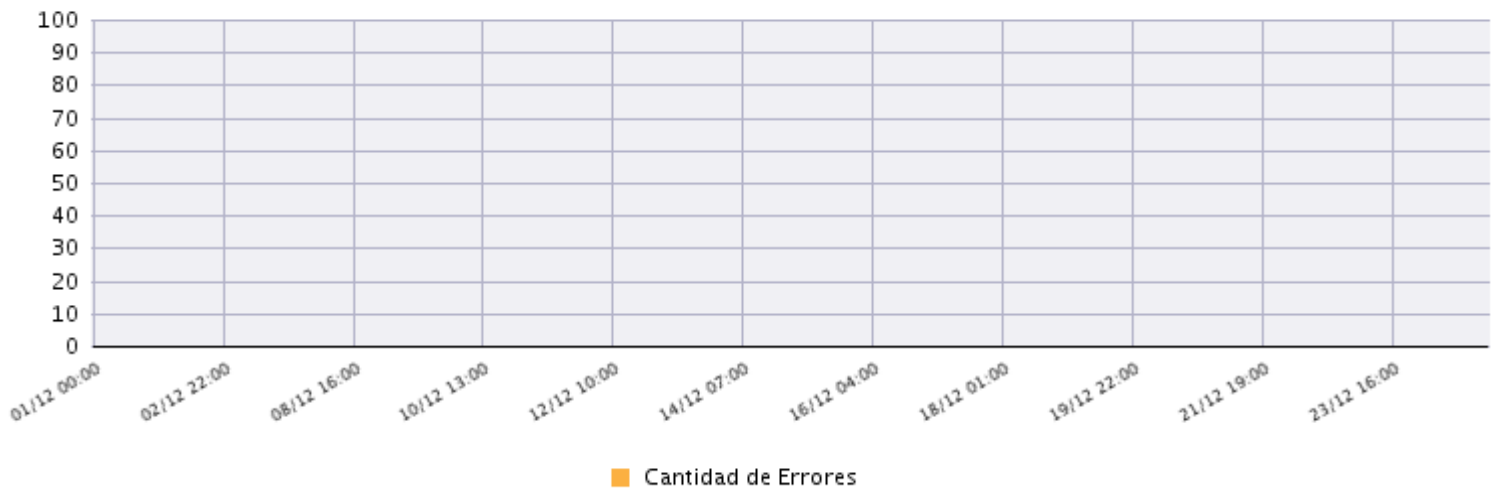
Ciudad Cayena

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



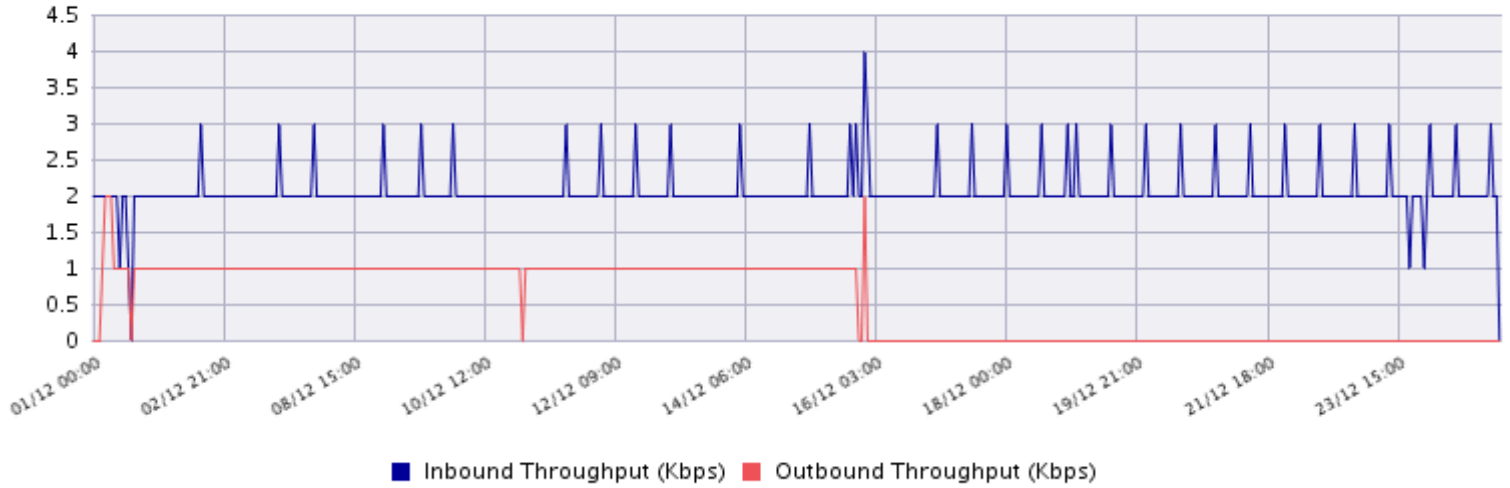
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INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873

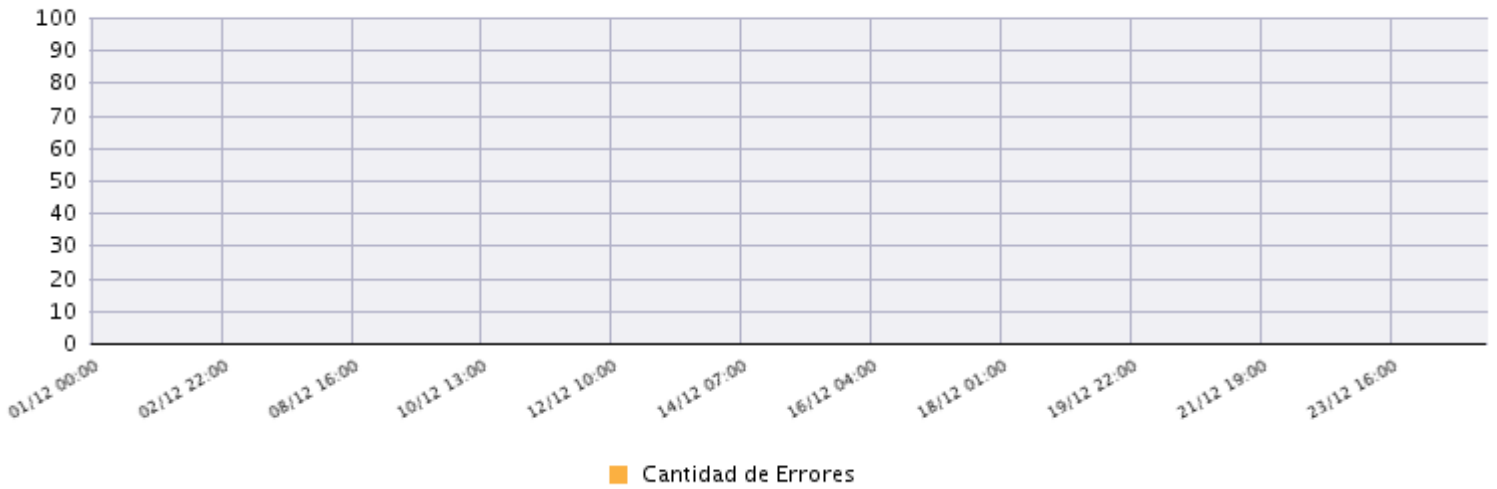


Interface: GigabitEthernet0/1 - --- LAN INTERNA --- - Bandwidth: 256 Kbps

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



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Sede OACI - LIMA

Equipo ICAO_PERU

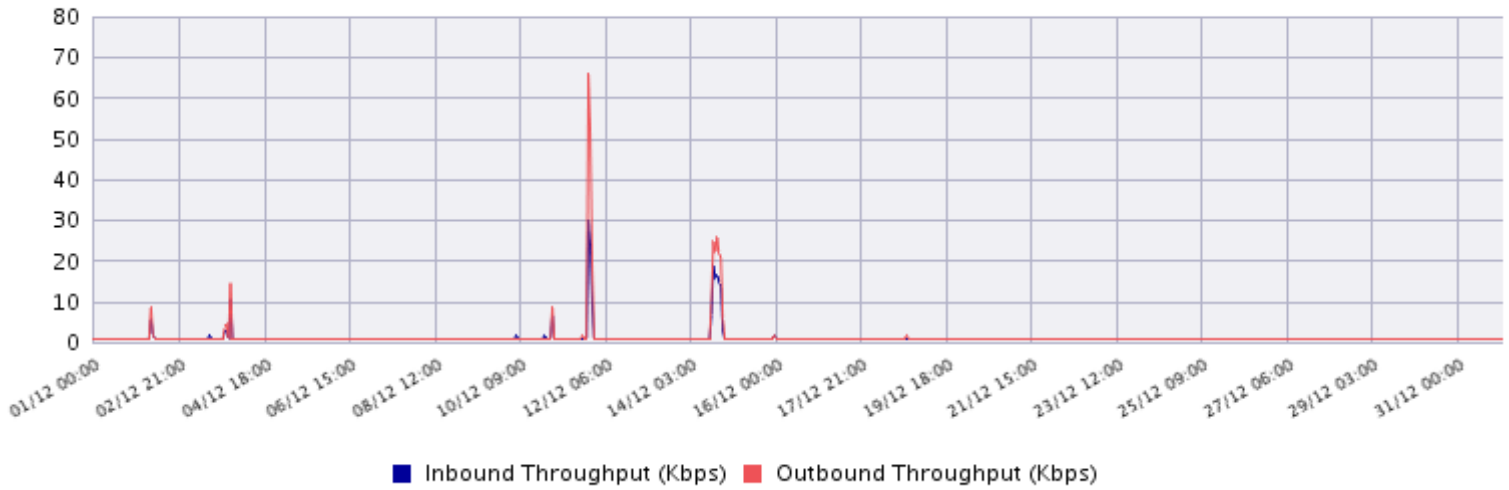
IP de Gestión (172.20.26.50)

Modelo Cisco1921k9

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)



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Sede OACI - PARAGUAY

Equipo ICAO_PARAGUAY.ineo.com.py

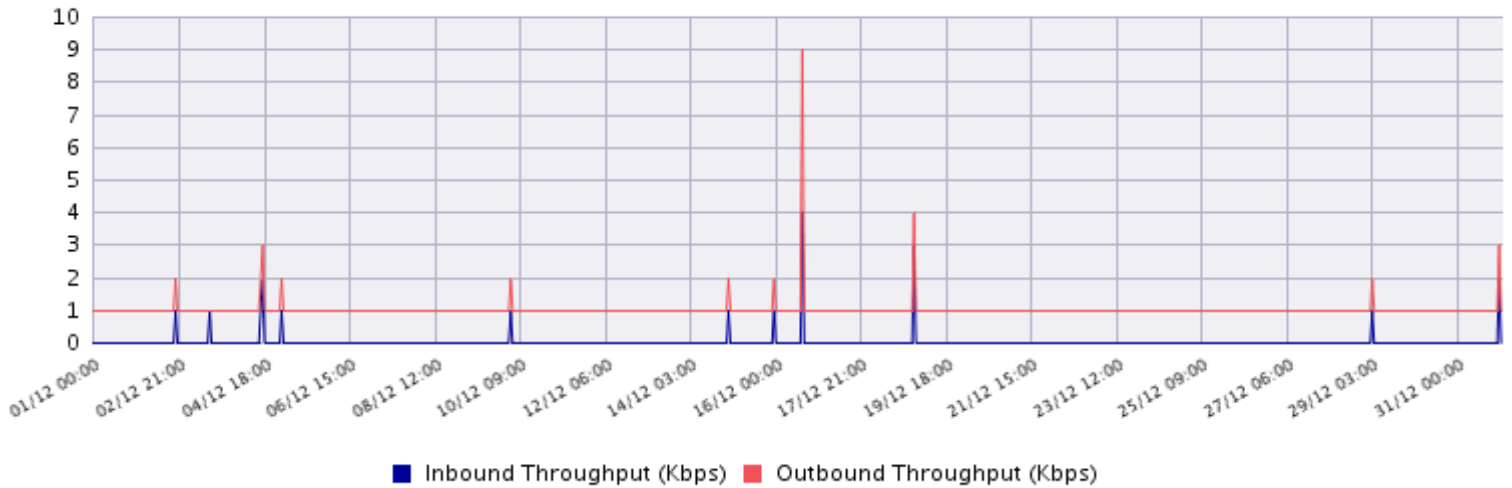
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Modelo Cisco1941

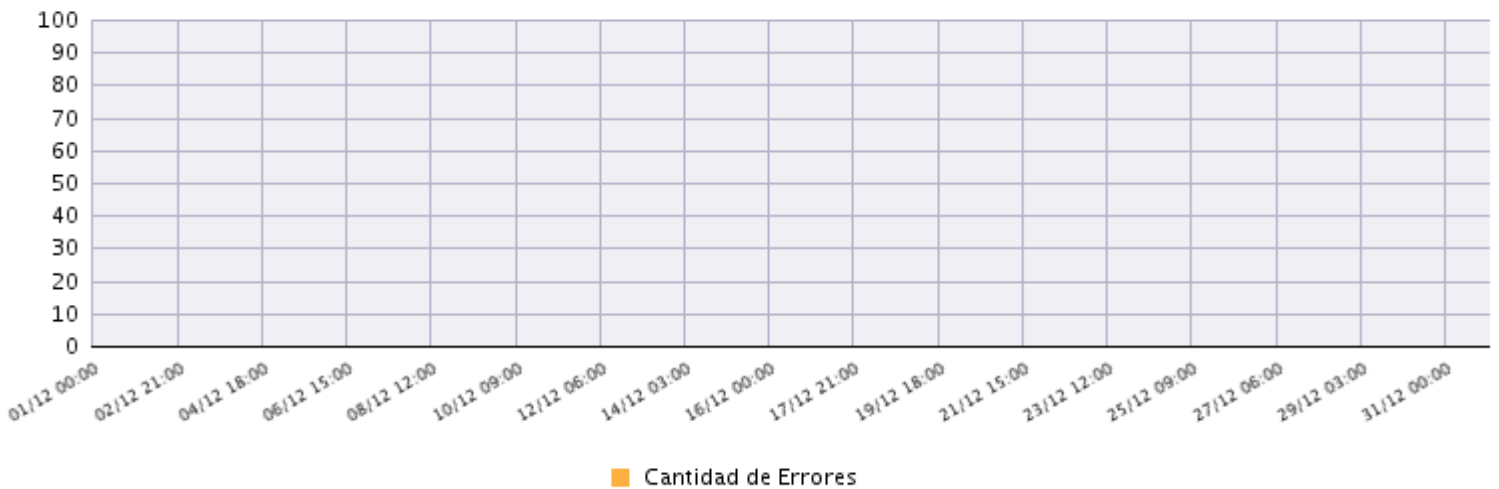
Ciudad Asunción

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



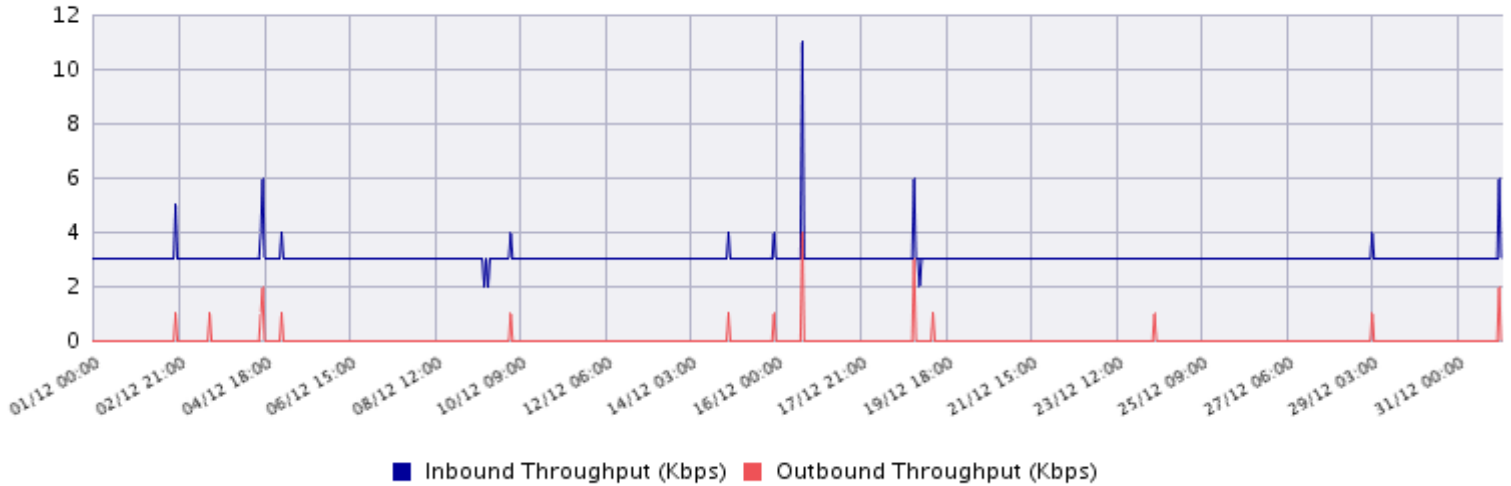
Reporte de Tráfico Entrada/Salida y Errores, Diciembre 2015

INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873

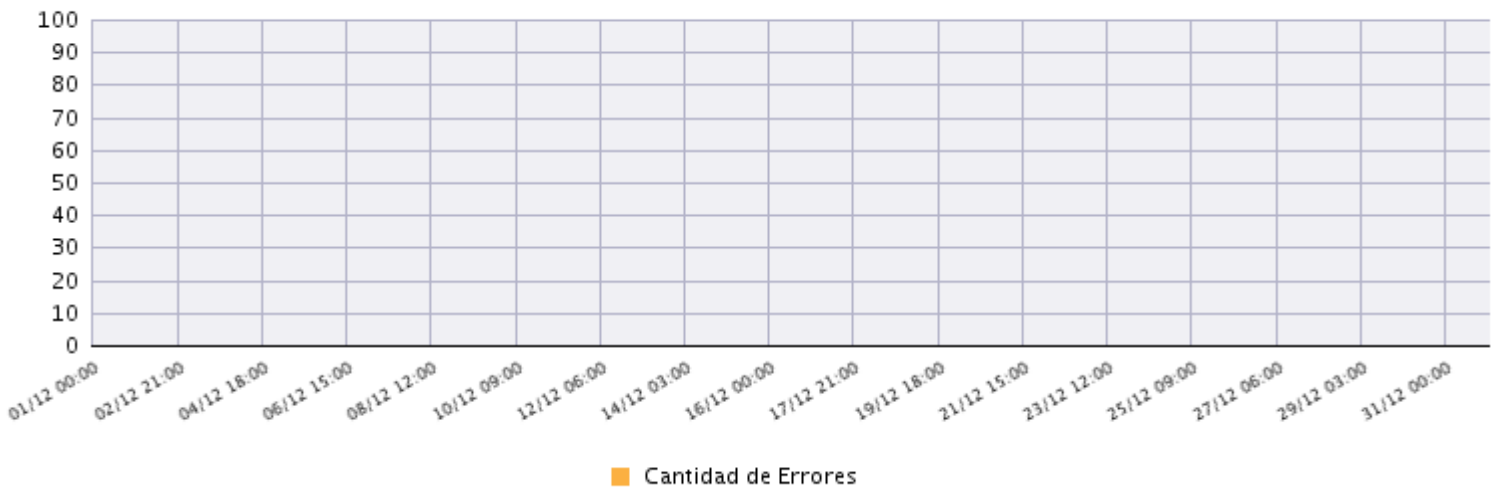


Interface: GigabitEthernet0/1 - Customer_LAN - Bandwidth: 1,000,000 Kbps

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



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Sede OACI - SURINAME

Equipo ICAO_SURINAME.yourdomain.com

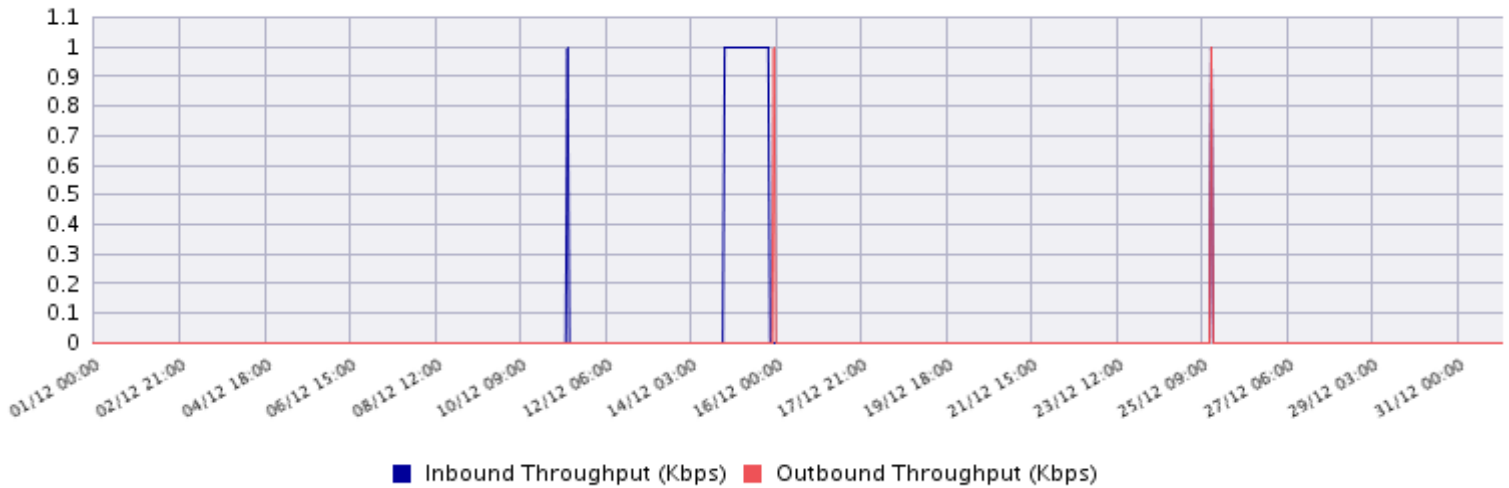
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Modelo Cisco1921k9

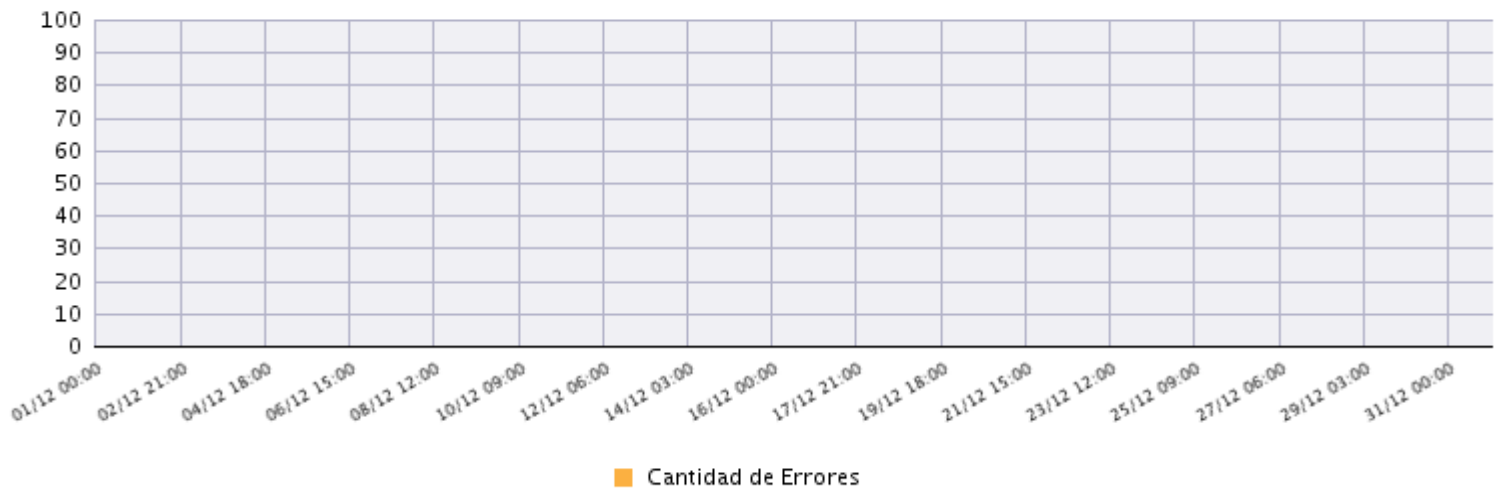
Ciudad Paramaribo

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



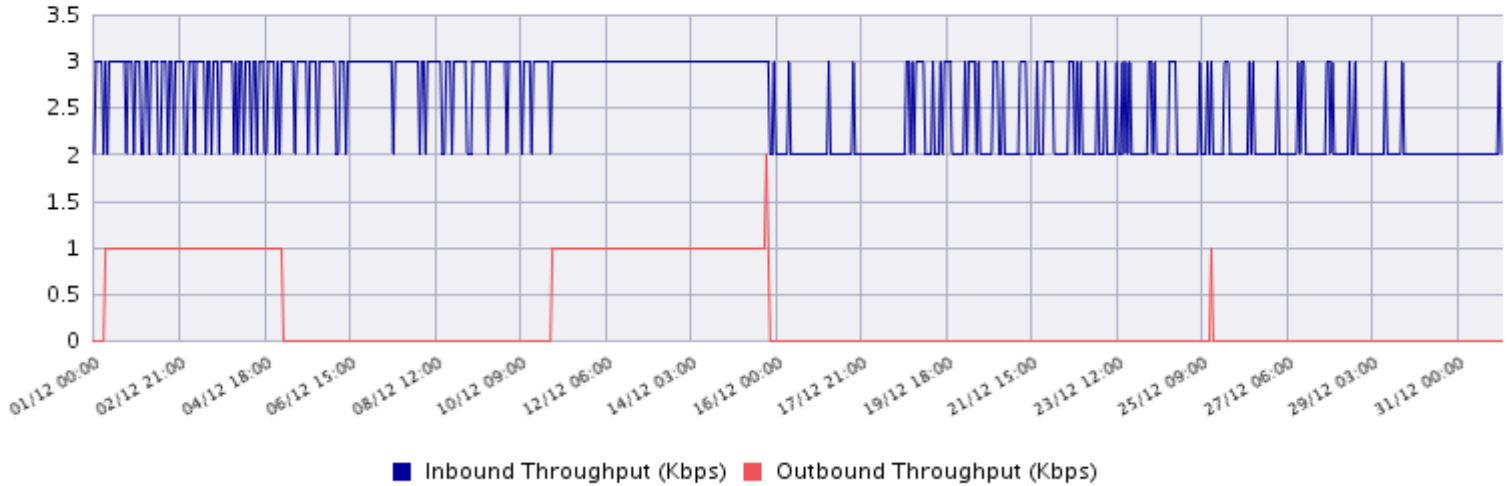
Reporte de Tráfico Entrada/Salida y Errores, Diciembre 2015

INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873

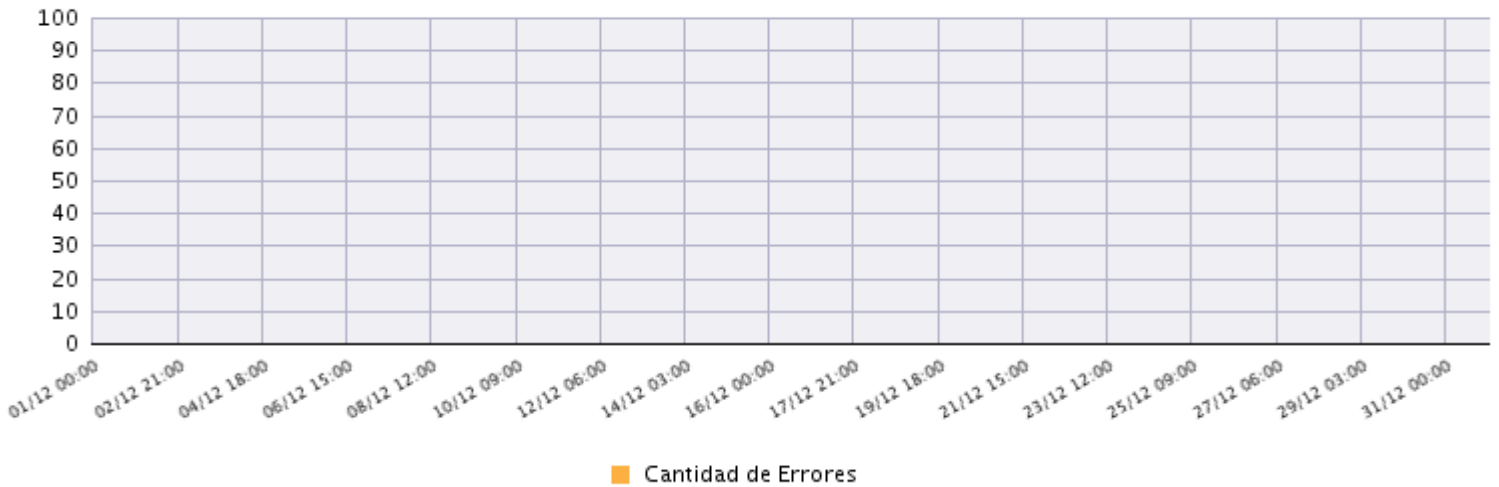


Interface: GigabitEthernet0/1 - LAN - Bandwidth: 1,000,000 Kbps

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



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Sede OACI - TRINIDAD & TOBAGO

Equipo ICAO_TRINIDAD.yourdomain.com

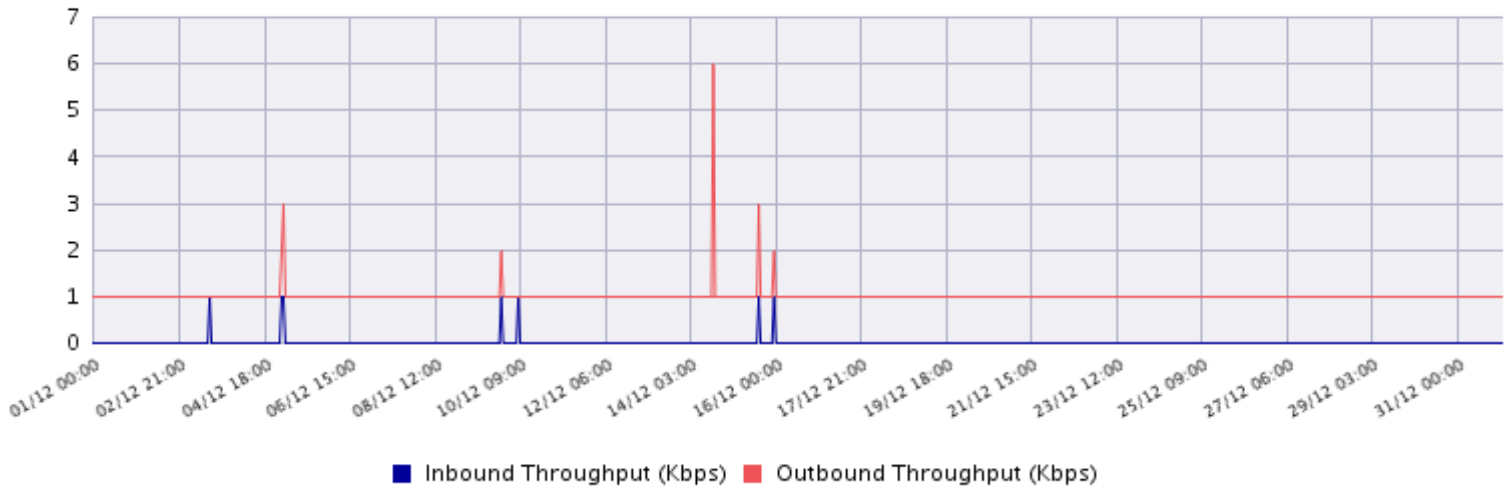
IP de Gestión (172.21.6.194)

Modelo Cisco1921k9

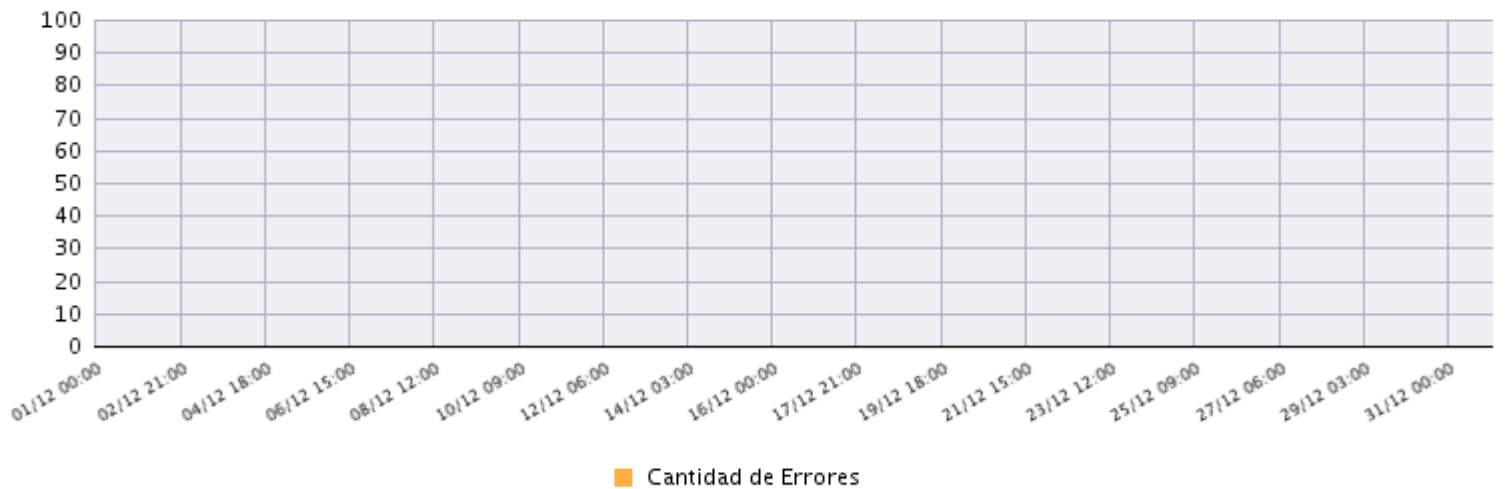
Ciudad Port of Spain

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



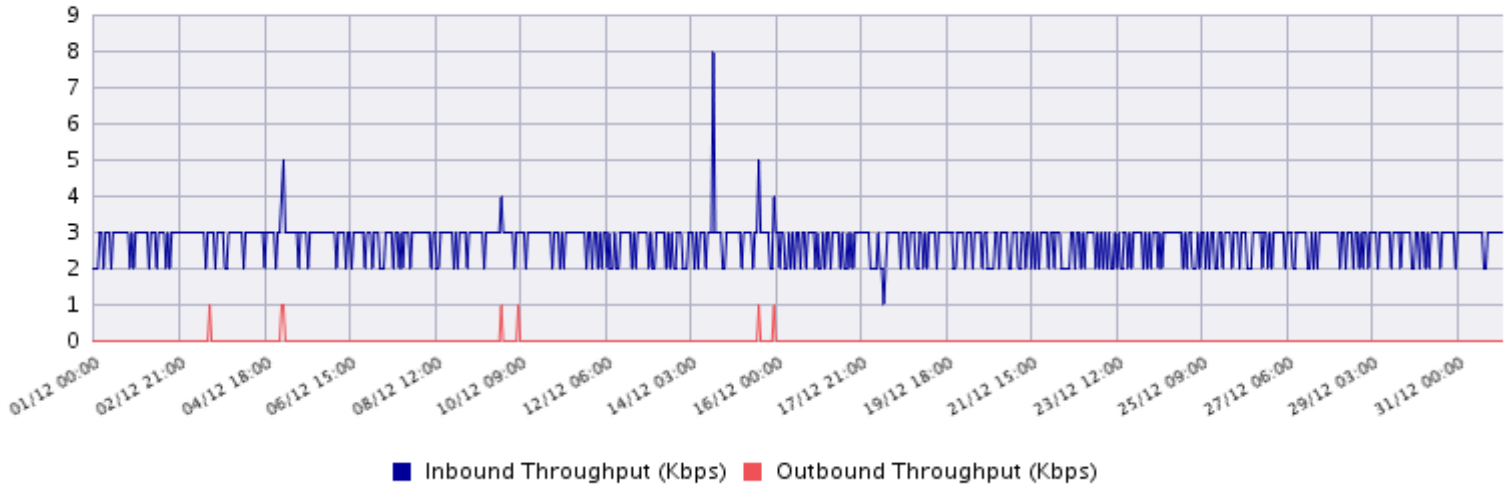
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INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873

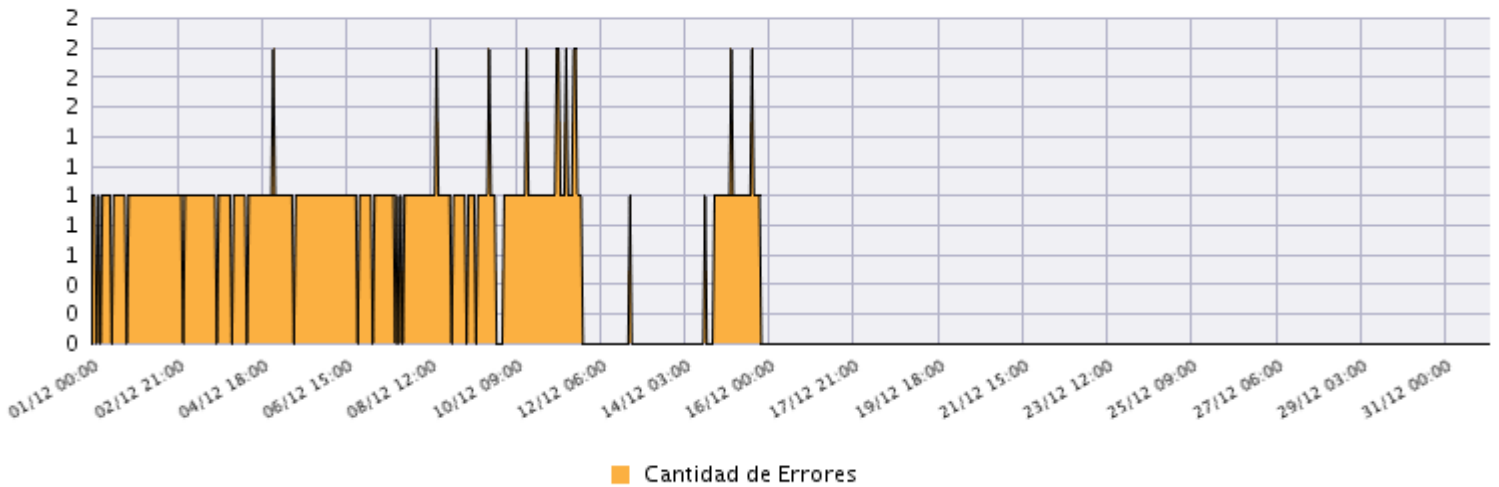


Interface: GigabitEthernet0/1 - Customer_LAN - Bandwidth: 100,000 Kbps

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



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INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873



Sede OACI - URUGUAY

Equipo ICAO_URUGUAY

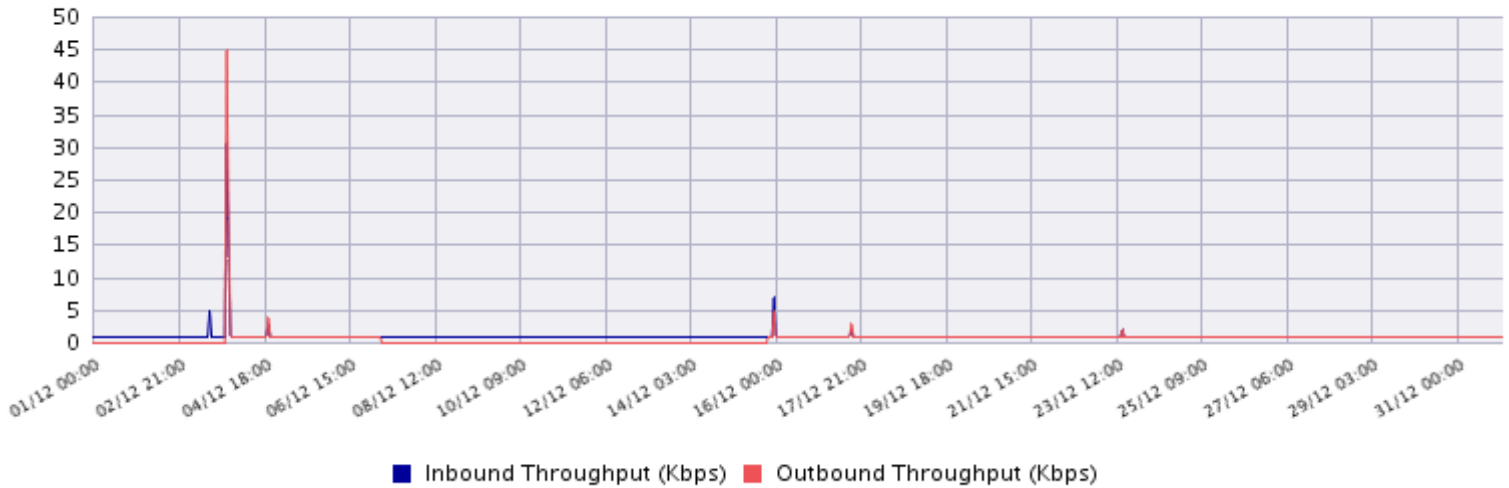
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Modelo Cisco1921k9

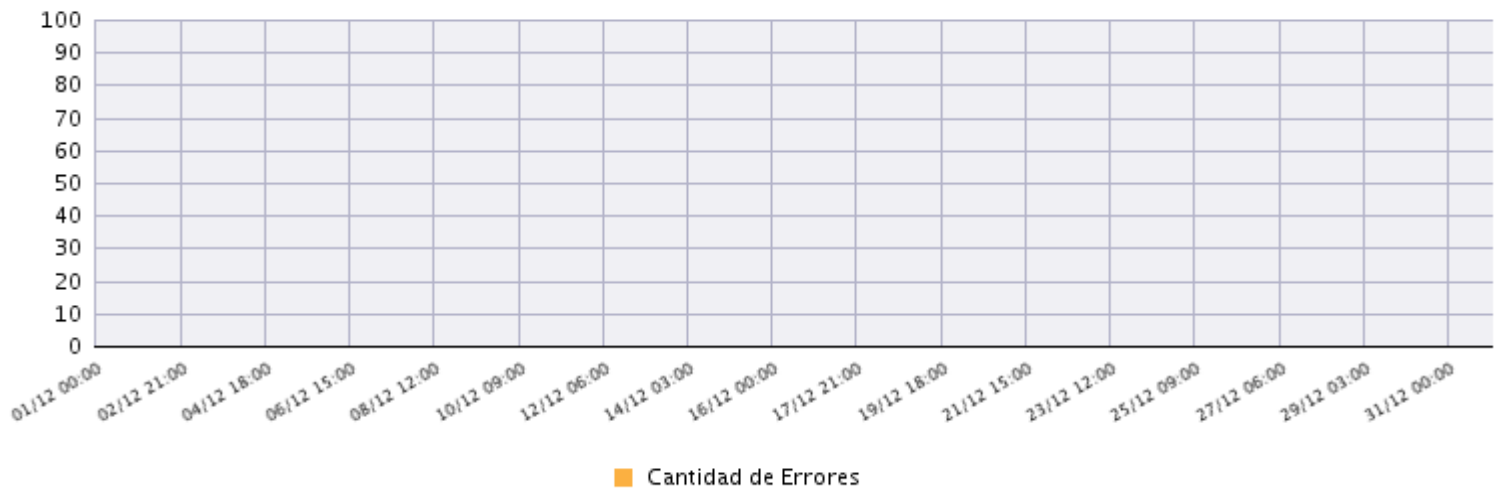
Ciudad Montevideo

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



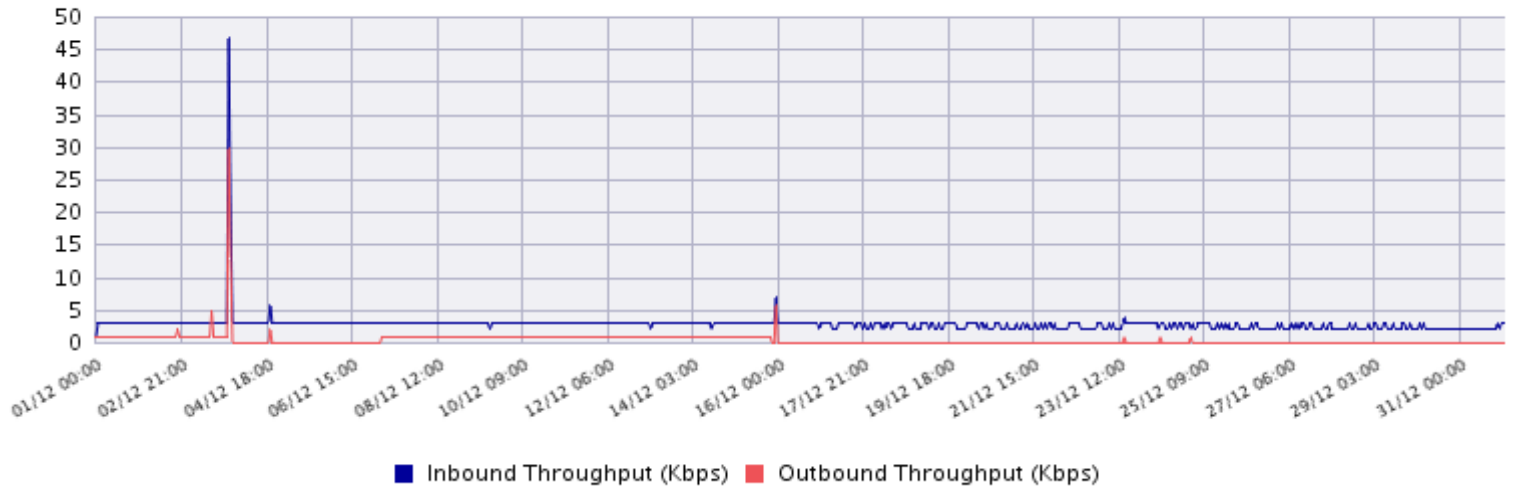
Reporte de Tráfico Entrada/Salida y Errores, Diciembre 2015

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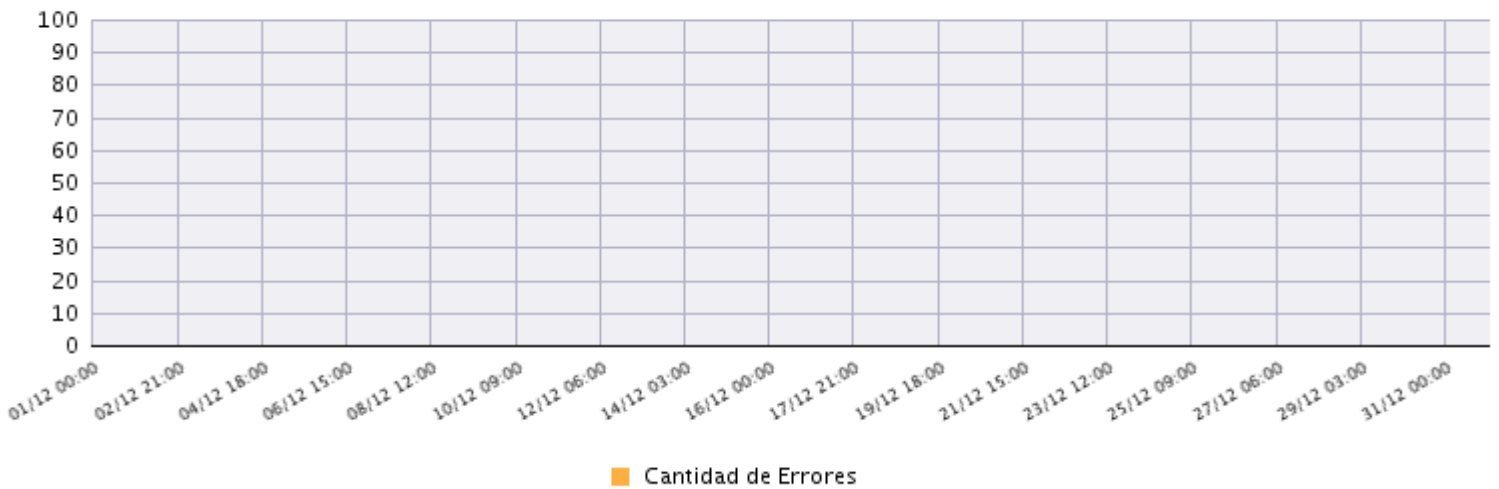


Interface: GigabitEthernet0/1 - LAN de DATOS - Bandwidth: 1,000,000 Kbps

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



Sede OACI - VENEZUELA

Equipo ICAO_VENEZUELA

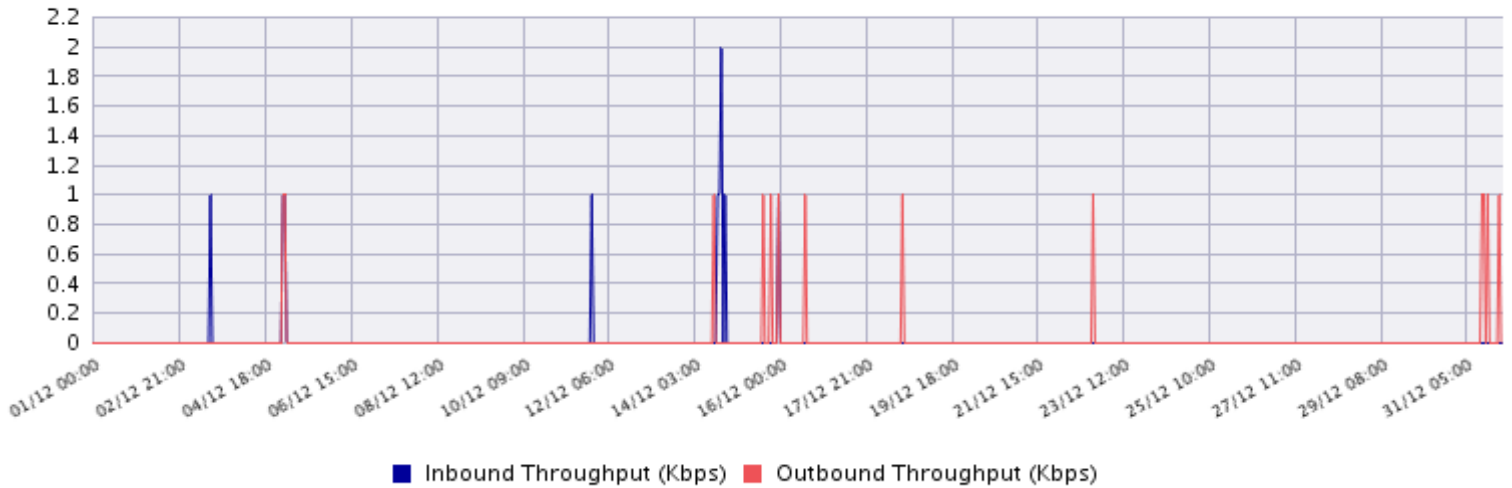
IP de Gestión (172.21.6.202)

Modelo Cisco1921k9

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)



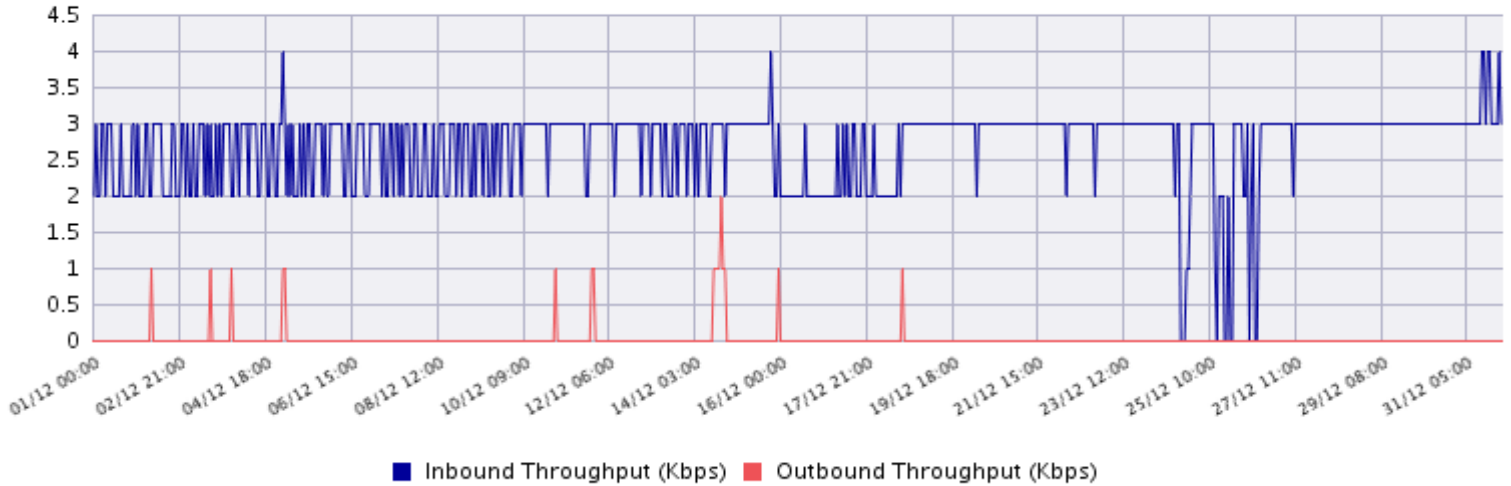
Reporte de Tráfico Entrada/Salida y Errores, Diciembre 2015

INTERNATIONAL CIVIL AVIATION ORGANIZATION 1-7GO-1873

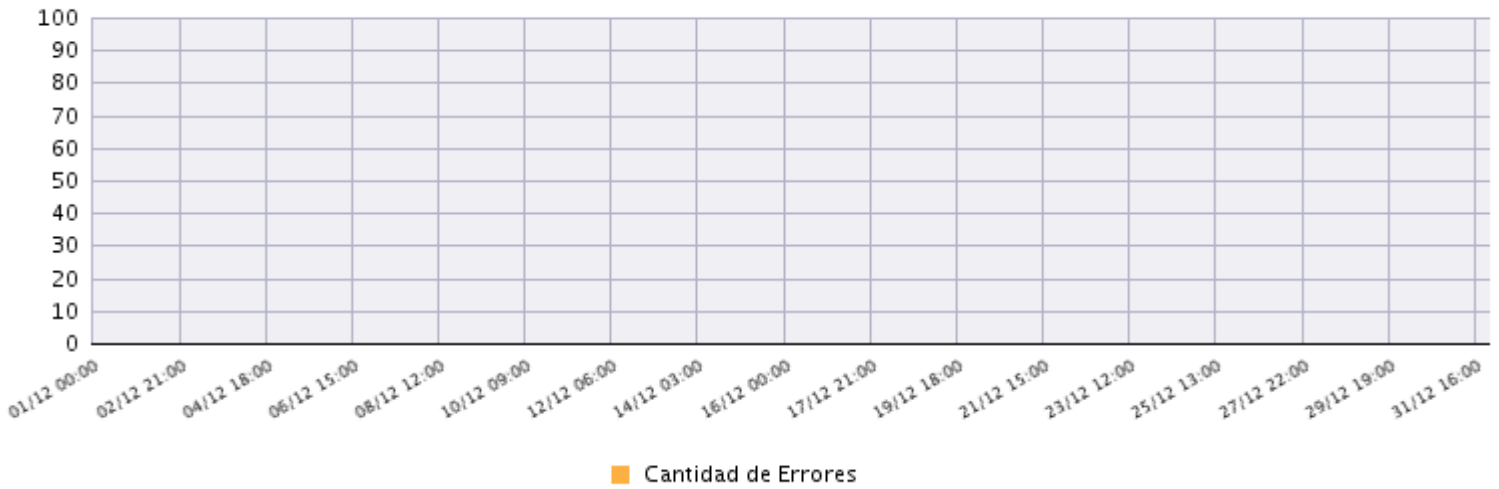


Interface: GigabitEthernet0/1 - "CONEXION LAN" - Bandwidth: 1,000,000 Kbps

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



APÉNDICE F

Resultado de las pruebas y el certificado de aceptación del nodo de Brasilia



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, Mut 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

1
Contractor Representative

06/02/2016
Date

**Provisional Site Acceptance Test
Network Acceptance Test**

Reference : **ICAO REQUEST FOR TENDER : ST-22501200**
 File : **PSAT - NAT- NT 2022-2141167C – rev F - SBBR.doc**
 Project : **NEW TRANSPORTATION NETWORK OF THE REGIONAL
AERONAUTICAL TELECOMMUNICATION NETWORK
(REDDIG II)**
 Portion: **Provisional Site Acceptance Test**

DISTRIBUTION

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Index	E	Signature	
Date	01/02/2016		
Drafted by	C.CHEVALLIER		
Checked by			
Approved by	JO. KLOTZ		

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PROVISIONAL SITE ACCEPTANCE TEST NETWORK ACCEPTANCE TEST	1
FILE : PSAT - NAT-NT 2022-2141167C – REV F - SBRR.DOC	1
1 INTRODUCTION.....	6
2 CABLING OF THE RACKS.....	7
2.1 CABLE CHECKING.....	7
2.2 POWER CHECKING.....	7
3 LEVEL 3 TESTS.....	8
4 OUTDOOR UNITS.....	9
4.1 ANTENNA MODIFICATION.....	9
4.1.1 Antenna installation.....	9
4.1.2 Outdoor units.....	9
4.2 LINE-UP.....	9
4.2.1 SSPA (IBUC).....	9
4.2.2 Skywan line-up.....	11
5 MIGRATION ON VSAT NETWORK.....	12
5.1 ADMINISTRATIVE VOICE.....	12
5.2 ATS SWITCHED CIRCUITS.....	14
5.3 AFTN CIRCUITS.....	15
5.4 AMHS.....	15
5.5 TELECONFERENCE.....	16
6 REDUNDANCY TESTS.....	17
6.1 OUTDOOR UNITS.....	17
6.1.1 Tx Switch.....	17
6.1.2 Rx Switch.....	18
6.2 EQUIPMENT FAILURE.....	19
6.2.1 Cisco failure.....	19
6.2.2 SkyWAN failure.....	21
6.2.3 IP switch failures.....	22
6.2.4 RSS switch failures.....	24
7 GROUND BACKBONE TEST.....	25
7.1 BACKUP TEST.....	25
7.2 DEDICATED LINKS.....	26
7.2.1 AFTN.....	26
7.2.2 Voice.....	27
8 NETWORK MANAGEMENT STATIONS (NMS) TESTS.....	28
8.1 SUBMAP CONTENT CONFIGURATION.....	29
8.1.1 Tests description.....	29
Active monitoring.....	30
8.1.2 Local NMS.....	31
8.2 PERFORMANCE MONITOR.....	33

8.2.1	Tests description	33
8.2.2	Local NMS	33
8.3	TEST OF CONNECTION THROUGH SERIAL PORT	35
9	PSAT - LIST OF PARTICIPANTS	36

Figure 1 - Plan list.....	7
Figure 17 - Administrative cross matrix – chain A	13
Figure 18 - Administrative cross matrix – chain B	13
Figure 19 – ATS/DS cross matrix – chain A.....	14
Figure 20 – ATS/DS cross matrix – chain B.....	14
Figure 25 - AFTN interfaces	15
Figure 28 – AMHS test cross matrix – chain A	15
Figure 32 - Teleconference - chain A	16
Figure 33 - Teleconference - chain B.....	16
Figure 34 - TX switch test.....	17
Figure 35 - RX switch test	18
Figure 37 - Cisco redundancy test table.....	19
Figure 38 - Cisco redundancy test table – going to normal	20
Figure 39 - Skywan redundancy test table	21
Figure 40 - Skywan redundancy test table – going to normal	21
Figure 41 - IP switch A failure test	22
Figure 42 - RSS failure test table.....	24
Figure 43 - Backup test	25
Figure 46 - Dedicated emergency numbers	27
Figure 47 – NMS submap.....	29
Figure 48 – Local NMS active monitoring	32
Figure 49 – Local NMS performance monitor.....	34

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 214 22412
Rack layout	PL 2022 2147 242L
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 <i>Cross-polarisation isolation: 30 dB.</i>	

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	12.5 dB
Skywan B	2 dB	12.3 dB	12.5 dB
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	Teguicgalpa
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	Teguicgalpa
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	Teguicgalpa
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	Teguicgalpa
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

Ad min	Argen tina	Boli via	Brazil (Curit iba)	Brazil (Man aus)	Braz il (Rec lfe)	Ch ile	Colo mbia	Ecu ador	Fren ch Gui ana	Guy ana	Parag uay	Pe ru	Surin ame	Trini dad and Toba go	Urug uay	Venez uela	Tegucl galpa
Bras ilia	OK																

Figure 7 – AMHS test cross matrix – chain A

Ad min	Argen tina	Boli via	Brazil (Curit iba)	Brazil (Man aus)	Braz il (Rec lfe)	Ch ile	Colo mbia	Ecu ador	Fren ch Gui ana	Guy ana	Parag uay	Pe ru	Surin ame	Trini dad and Toba go	Urug uay	Venez uela	Tegucl galpa
Bras ilia																	

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:	
Redundant 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/Intk 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

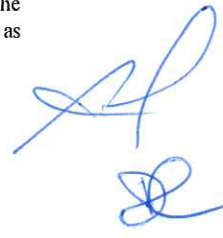
The IP switch B carries the NMS and the equipments of chain B, so the chain B is still working. Normalize the situation on chain A. Check that the services are fine.

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	<i>see p.19</i>		

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.

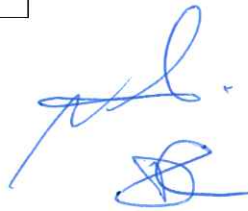


6.2.4 RSS switch failures

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, to 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 <input type="checkbox"/> Cayenne	
Cayenne <input type="checkbox"/> Brasilia	

- pending Level 3 installation.



7.2.2 Voice

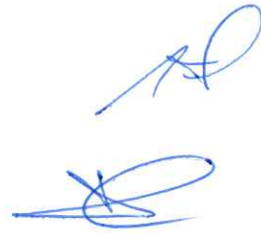
The dialed switched voice of the GBB router are dedicated to the GBB. They are used as emergency interfaces.

ATSswitched	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.



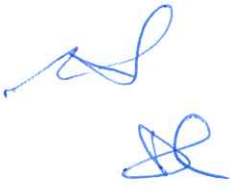
8 NETWORK MANAGEMENT STATIONS (NMS) TESTS

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:

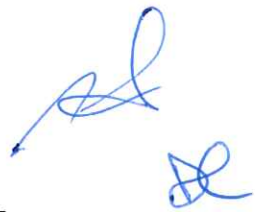
From the thin client, connect to VSATWUG, and open WUG console, and within each submap check device color is green.

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		
<input type="checkbox"/> Wan state in red		
<input type="checkbox"/> TDMA Frame synchronization in red		
Skywan B		
<input type="checkbox"/> Wan state in red		
CISCO A		
<input type="checkbox"/> FAN State same state as displayed		
<input type="checkbox"/> Temperature State same state as displayed		
<input type="checkbox"/> Serial port operational status in red		
<input type="checkbox"/> Digital port operational status in red		
CISCO B		
<input type="checkbox"/> FAN State same state as displayed		
<input type="checkbox"/> Temperature State same state as displayed		
<input type="checkbox"/> Serial port operational status in red		
<input type="checkbox"/> Digital port operational status in red		
RSS Switch		
<input type="checkbox"/> Power supply state same state as displayed		
IBUC A		
<input type="checkbox"/> Switch fault same state as displayed		
<input type="checkbox"/> Alarm temperature same state as displayed		
<input type="checkbox"/> Input level high same state as displayed		
<input type="checkbox"/> Output level high same state as displayed		
<input type="checkbox"/> Input level low in red		
<input type="checkbox"/> Output level low in red		
IBUC B		
<input type="checkbox"/> Switch fault same state as displayed		
<input type="checkbox"/> Alarm temperature same state as displayed		
<input type="checkbox"/> Input level high same state as displayed		
<input type="checkbox"/> Output level high same state as displayed		
<input type="checkbox"/> Position of the IBUC on waveguide switch same state as displayed		
<input type="checkbox"/> Input level low in red		
<input type="checkbox"/> Output level low in red		
LNB		
<input type="checkbox"/> Current Level High (A) same state as displayed		
<input type="checkbox"/> Current Level Low (A) same state as displayed		
<input type="checkbox"/> Voltage level high (A) same state as displayed		
<input type="checkbox"/> Voltage level low (A) same state as displayed		
<input type="checkbox"/> Input level low (A) in red		





Interface tested	Results	
	OK	NOK
<input type="checkbox"/> Current Level High (B) same state as displayed		
<input type="checkbox"/> Current Level Low (B) same state as displayed		
<input type="checkbox"/> Voltage level high (B) same state as displayed		
<input type="checkbox"/> Voltage level low (B) same state as displayed		
<input type="checkbox"/> 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
<input type="checkbox"/> TDMA Frame Utilization Chanel 1 (only master)		NA
<input type="checkbox"/> TDMA Frame Utilization Chanel 2 (only master)		NA
<input type="checkbox"/> TDMA Frame Utilization Chanel 3 (only master)		NA
<input type="checkbox"/> TDMA Es/No own	OK	
Skywan B		
<input type="checkbox"/> TDMA Es/No own	OK	
IBUC A		
<input type="checkbox"/> Input Level	OK	
<input type="checkbox"/> Output Level	OK	



Interface tested	Results	
	OK	NOK
<input type="checkbox"/> Position of the Ibuc on the waveguide switch		
<input type="checkbox"/> Position of the waveguide switch		
IBUC B		
<input type="checkbox"/> Input Level		
<input type="checkbox"/> Output Level		
<input type="checkbox"/> Position of the Ibuc on the waveguide switch		
<input type="checkbox"/> Position of the waveguide switch		
LNB		
<input type="checkbox"/> Current Level High (A) same state as displayed		
<input type="checkbox"/> Current Level Low (A) same state as displayed		
<input type="checkbox"/> Voltage level high (A) same state as displayed		
<input type="checkbox"/> Voltage level low (A) same state as displayed		
<input type="checkbox"/> Input level low (A) in red		
<input type="checkbox"/> Current Level High (B) same state as displayed		
<input type="checkbox"/> Current Level Low (B) same state as displayed		
<input type="checkbox"/> Voltage level high (B) same state as displayed		
<input type="checkbox"/> Voltage level low (B) same state as displayed		
<input type="checkbox"/> Input level low (B) in red		
<input type="checkbox"/> Position of the waveguide switch		
Switch A/B		
<input type="checkbox"/> 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
<input type="checkbox"/> Cisco A1		
<input type="checkbox"/> Cisco A2		
<input type="checkbox"/> Cisco A3		
<input type="checkbox"/> Cisco B1		
<input type="checkbox"/> Cisco B2		
<input type="checkbox"/> Cisco B3		
<input type="checkbox"/> Switch A		
<input type="checkbox"/> Switch B		
<input type="checkbox"/> Skywan A		
<input type="checkbox"/> Skywan B		
<input type="checkbox"/> Ground Backbone		
<input type="checkbox"/> Switch AB		
Comments:		



APENDICE G**SOLICITUD DE COTIZACION PARA EL TRASLADO DEL NODO REDDIG II DE BOGOTÁ**

4202-2015

Bogotá, Octubre 13 de 2015

Asunto: Traslado Nodo REDDIG/MEVA de Bogotá**Objeto del Contrato**

Traslado, Instalación y Puesta en funcionamiento de los Equipos correspondientes del Nodo ELD REDDIG/MEVA, de las actuales instalaciones del Cetro Nacional de Aeronavegación (CNA), al Centro de Gestión Aeronáutico de Colombia (CGAC).

Situación Actual VS Nuevo sitio

Tal como se puede apreciar en la imagen adjunta No. 1, encontramos la ubicación general de Aeropuerto El Dorado de la ciudad de Bogotá, especificando en él, los puntos de ubicación actual del Nodo en el CNA en las coordenadas Lat. 4°41'44.83" N – Long. 74°8'21.89" W y el nuevo sitio donde serán instalados los equipos CGAC, el cual se encuentra dentro de Áreas internas del actual Aeropuerto en las coordenadas Lat. 4°42'21" N – Long. 74°09'11" W (referenciadas a WGS84).

Mientras que en la imagen No. 2, se puede apreciar la perspectiva general del nuevo complejo Aeronáutico del CGAC y TWR de Control, la cual tiene una altura total de 89 Mts.

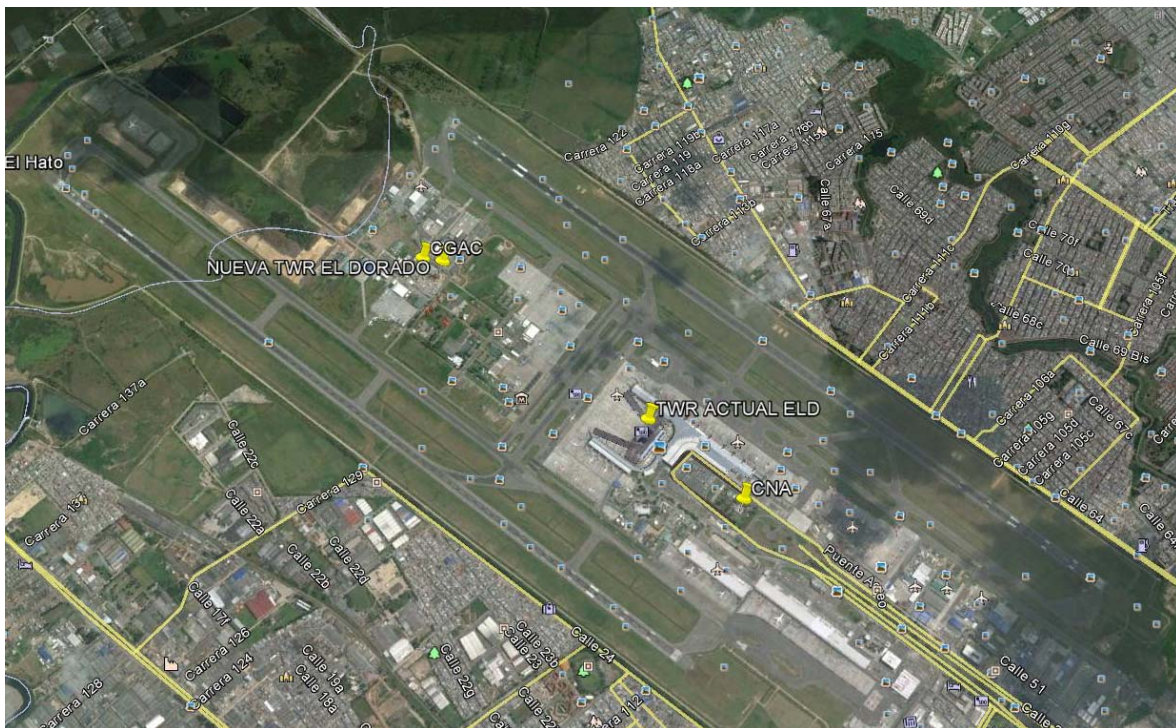


IMAGEN No. 1 AEROPUERTO INTERNACIONAL EL DORADO – BOGOTA (COL)



IMAGEN No. 2 COMPLEJO AERONAUTICO CGAC- NUEVA TWR EL DORADO

Alcance de los Trabajos

1. Retiro de los Equipos Indoor de sala técnica del CNA y traslado a CGAC
 2. Retiro de Equipos Outdoor de CNA y traslado áreas perimetrales del CGAC
 3. Retiro y reubicación de Antena actual (Ver Notas 1 y 2)
 4. Instalación y Puesta en funcionamiento de Equipos Indoor en sala técnica CGAC, incluye: ubicación de gabinetes, acometida eléctrica y de protección desde tableros de distribución, cableados patch panel voz y datos
 5. Instalación y puesta en funcionamiento de Equipos Outdoor en CGAC, incluye: HPA's, LNB's, switch de conmutación, sistema de protección y otros.
 6. Instalación de cables IFL, protecciones y conectividades requeridas entre equipos Indoor-Outdoor
 7. Comisionamiento y Ajustes del nodo dentro de la Red
 8. Suministro de Accesorios, Cableados y la respectiva configuración del sistema
 9. Realizar la Interconectividad y garantizar la operatividad de los servicios de Voz y Datos correspondientes
- Nota 1: Es de observar que en la reunión RCC17 previa del proceso, realizada en Lima en Abril de 2014, se había indicado por parte de nuestro país la situación de la nueva construcción y del proyecto en general, de igual manera se indica que para efectos de disminuir el impacto operacional en el traslado del sistema, la Aerocivil podría suministrar la Antena que se instalaría en las nuevas instalaciones, para lo cual estamos anexando fotografías de la antena y el brochure de especificaciones técnicas de la misma para que sea avalada por la fábrica, esto con la intención de nuestra parte de disminuir los costos operacionales y garantizar la menor afectación operacional en el respectivo traslado.

- Nota 2: De igual manera, si la antena es avalada por INEO se debe indicar si la Aerocivil tendría la responsabilidad de su montaje o esto lo realizaría la fábrica para efectos de garantía del trabajo

La Aerocivil suministra y garantiza en el nuevo sitio de instalación los espacios o áreas requeridas para instalación de los equipos OUTDOOR e INDOOR para el Nodo, de igual manera el suministro de energía eléctrica regulada y de protección para los equipos, escalerillas, ductos, cajas de paso e inspección, gabinetes, aire acondicionado y demás accesorios que se requieren para la puesta en funcionamiento de los equipamientos de REDDIG/MEVA

En las imagines No. 3 y 4, se puede observar la distribución general de la nueva Sala Técnica (NOC) construida en el CGAC, la cual cuenta con todas las facilidades para instalaciones de los equipos (gabinetes o racks estándar que pueden ser acondicionados para los equipos, se cuenta con suministro de energía, aire acondicionado, protecciones, distribución de cableados, sistema de gestión para equipos, control de acceso a sala, etc)

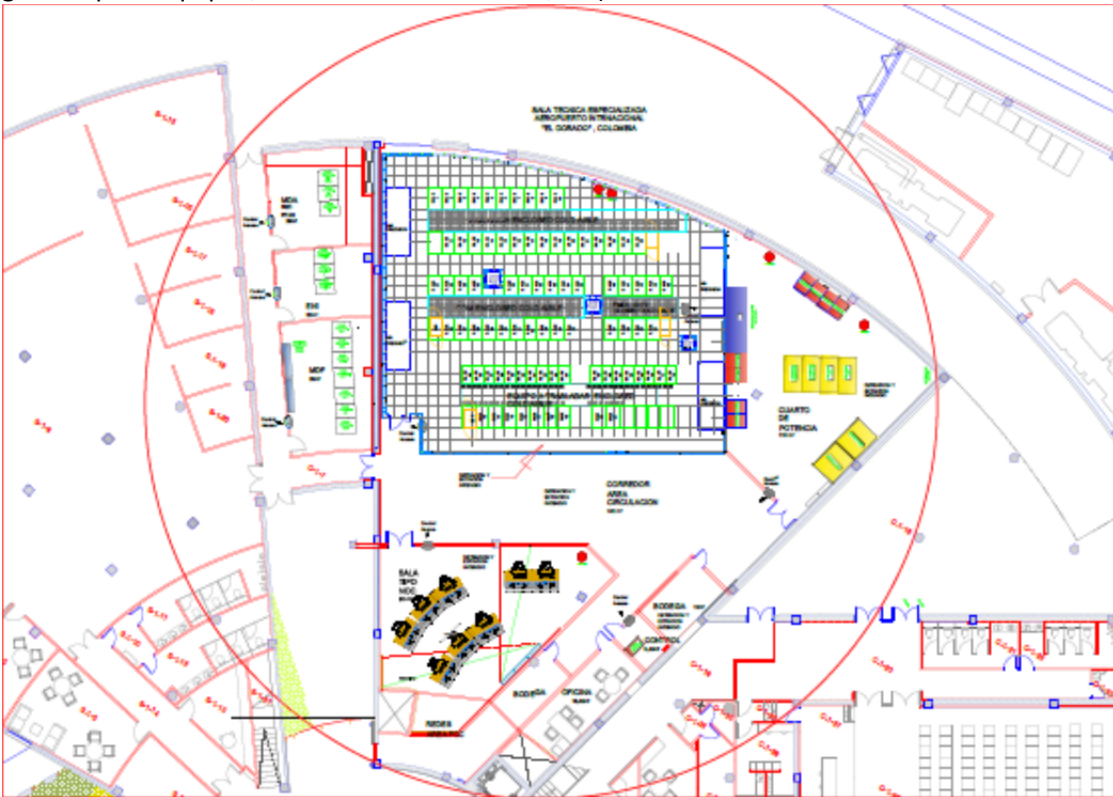


IMAGEN No. 3 DISTRIBUCION GENERAL DE SALA TECNICA NOC UBICADA EN CGAC

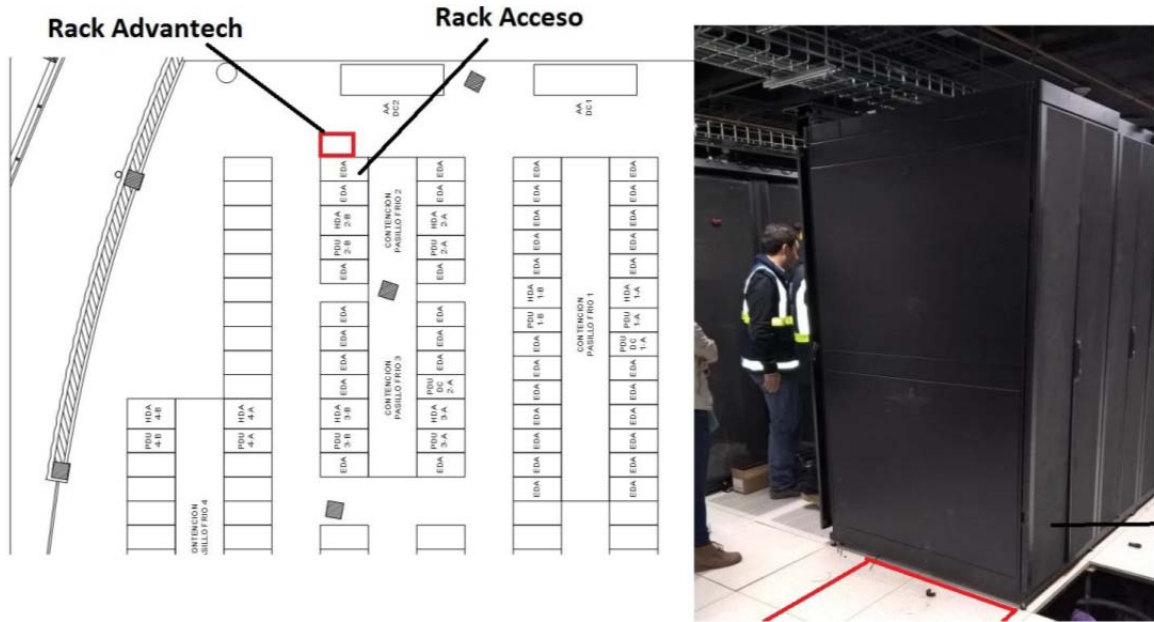
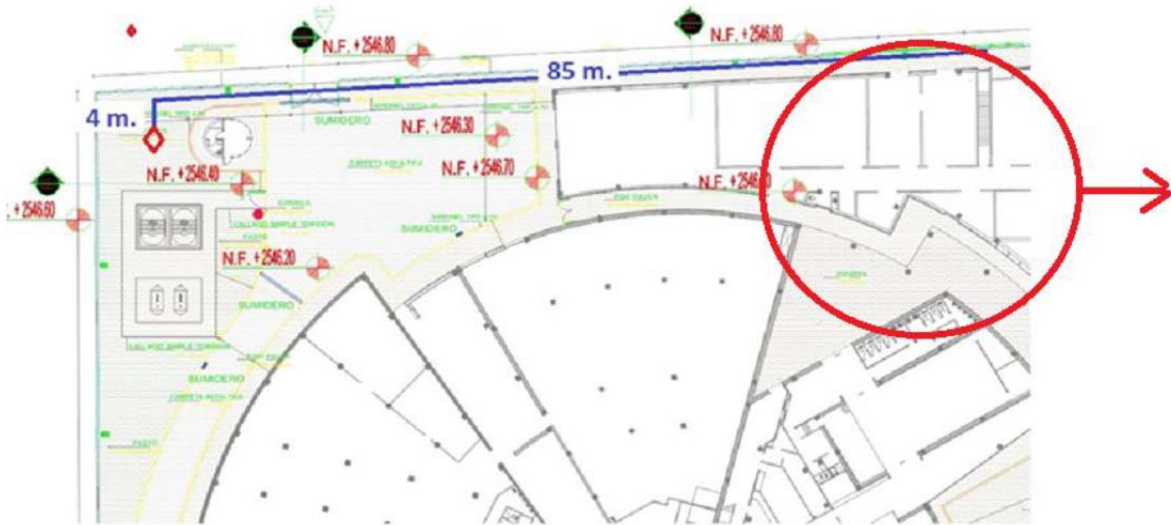


IMAGEN No. 4 DISTRIBUCION Y TIPO DE RACKCS UBICADOS EN EL NOC DEL CGA

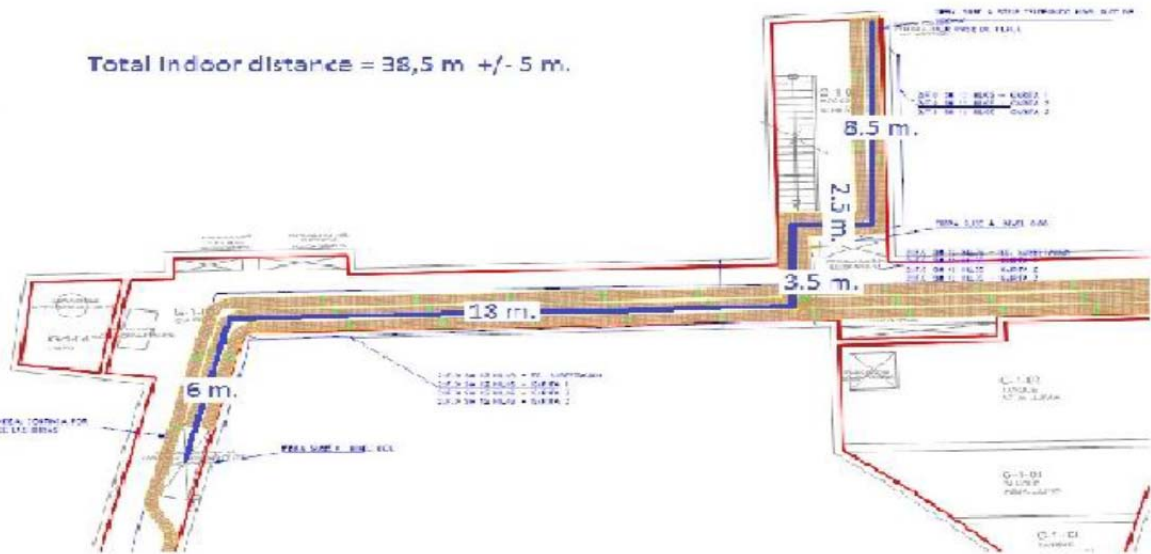
EN LAS IMÁGENES QUE SE OBSERVAN A CONTINUACION, SE PUEDE APRECIAR EL AREA DESIGNADA PARA INSTALACION DE ANTENA, PUNTO DESDE EL CUAL SE CUENTA CON DUCTERIAS Y CAJAS DE INSPECCION PARA TENDIDO CABLE IFL, SISTEMA DE TIERRA Y ALIMENTACION



EN LAS IMAGENES SIGUIENTES SE APRECIA LA DISTANCIA APROXIMADA DESDE LA ANTENA A LA SALA TECNICA NOC RECORRIDOS DE CABLEADO DESDE EL PUNTO DE UBICACIÓN DE ANTENA



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



De acuerdo a lo anteriormente informado, muy respetuosamente Ing. Smarelli, solicitamos por favor de sus buenos oficios para que por parte del contratista INEO/LEVEL3, se realice a la mayor brevedad posible la cotización correspondiente, al igual que todos los requerimientos que consideren necesarios para efectuar dichos trabajos de traslado.

La urgencia a nuestra solicitud, es debida a que requerimos al interior de la Entidad realizar los trámites administrativos y financieros correspondientes para garantizar el pago del servicio que se contrate e incorpore al contrato actual de OACI, lo anterior con su valiosa intermediación como Coordinador General del proyecto.

Cualquier otro requerimiento o ampliación a este documento, estaré en total disponibilidad de aclarar o complementar. De igual manera Ing. Onofrio consideró pertinente una visita a sitio por parte del contratista para evaluar pormenores del caso y evaluar de manera más directa nuestro requerimiento Finalmente anexo las características y fotos de nuestra Antena disponible para la Red con el fin de que sea evaluada y verificada. Agradeciendo altamente su gestión a la solicitud, quedamos atentos a sus comentarios y requerimientos adicionales necesarios.

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	2-Port Feed	1.30	1.09		
(Circular-Polarized)	4-Port Feed	1.06	1.06		
VSWR		1.25	1.25	1.25	1.25
Antenna Noise Temperature 2-port feed					
10° Elevation		35K		49K	
30° Elevation		29K		39K	
50° Elevation		25K		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	-14	-14
90% Peaks under Following Envelop	$29-25\log\theta(1^\circ\leq\theta<20^\circ)$	$29-25\log\theta(1^\circ\leq\theta<20^\circ)$
Mechanical Specification		
Antenna Diameter	3.7m	
Antenna Type	Ring Focus	
Surface Accuracy(RMS)	$\leq 0.35\text{mm}$	
Antenna Pointing Range	Azimuth	$\pm 85^\circ$
	Elevation	$0^\circ\sim 90^\circ$ (Continuous)
	Polarization	$\pm 90^\circ$ (Continuous)
Drive Mode	Manual or Motorized	
Motor Drive System	Azimuth Travel Rate	$0.30^\circ/\text{S}(0.06^\circ/\text{S})$
	Elevation Travel Rate	$0.20^\circ/\text{S}(0.04^\circ/\text{S})$
Environmental Specification		
Operational Wind	72km/h gusting to 97km/h	
Survival Wind	200km/h	
Temperature	$-40^\circ\sim +60^\circ$	
Relative Humidity	100%	
Solar Radiation	1135Kcal/h/m ²	
Seismic(Survival)	0.3g(H), 0.15g(V)	













APÉNDICE I

REQUERIMIENTOS DE INTERCONEXIÓN AMHS Y FECHAS DE IMPLEMENTACIÓN

ESTADO	REQUERIMIENTO DE INTERCONEXIÓN AMHS	FECHA IMPLEMENTACIÓN	OBSERVACIONES
Argentina	Bolivia	Mar 2016	
	Brasil	Dic 2015	Falta implantación operacional
	Chile	Dic 2016	
	Paraguay	Mar 2012	Implantado
	Perú	Feb 2016	
	Uruguay	Jun 2016	
	Venezuela	Marzo 2016	
Bolivia	Argentina	Mar 2016	
	Brasil	Abr 2016	
	Perú	May 2016	
Brasil	Argentina	Dic 2015	Falta implantación operacional
	Bolivia	Abr 2016	
	Colombia	Mar 2016	
	Guyana	Mar 2016	
	Guyana Francesa	TBD	Falta Implantación AMHS
	Paraguay	Dic 2015	
	Perú	Dic 2016	Implementado 14 diciembre 2015
	Surinam	Dic 2016	
	Uruguay	Dic 2015	
Chile	Argentina	Dic 2016	
	Perú	Jun 2016	
Colombia	Brasil	Mar 2016	
	Ecuador	Dic 2015	
	Panamá	Dic 2016	
	Perú	Sep 2010	Implantado
	Venezuela	Jun 2016	
Ecuador	Colombia	Dic 2015	
	Perú	Julio 2012	Implantado
	Venezuela	Dic 2016	
Guyana Francesa (Francia)	Brasil	TBD	Falta Implantación AMHS
	Venezuela	TBD	Falta Implantación AMHS
Guyana	Brasil	Mar 2016	

ESTADO	REQUERIMIENTO DE INTERCONEXIÓN AMHS	FECHA IMPLEMENTACIÓN	OBSERVACIONES
	Surinam	Jun 2011	Implantado
	Venezuela	Dic 2016	
Panamá	Colombia	Dic 2016	
Paraguay	Argentina	Mar 2012	Implantado
	Brasil	Dic 2015	
Perú	Argentina	Feb 2016	
	Bolivia	May 2016	
	Brasil	Dic 2015	Implantado 14 diciembre 2015
	Chile	Jun 2016	
	Colombia	Sep 2010	Implantado
	Ecuador	Jul 2012	Implantado
	Venezuela	Jun 2016	
Suriname	Brasil	Dic 2016	
	Guyana	Jun 2011	Implantado
	Venezuela	Jun 2016	
Uruguay	Argentina	Jun 2016	
	Brasil	Dic 2015	
Venezuela	Argentina	Marzo 2016	
	Brasil	Dic 2016	
	Colombia	Jun 2016	
	Ecuador	Dic 2016	
	Guyana	Dic 2016	
	Guyana Francesa	TBD	Falta Implantación AMHS
	Perú	Jun 2016	
Surinam	Jun 2016		