



MIB IXP

A specialized SNMP MIB for IXPs implemented
in the software quagga



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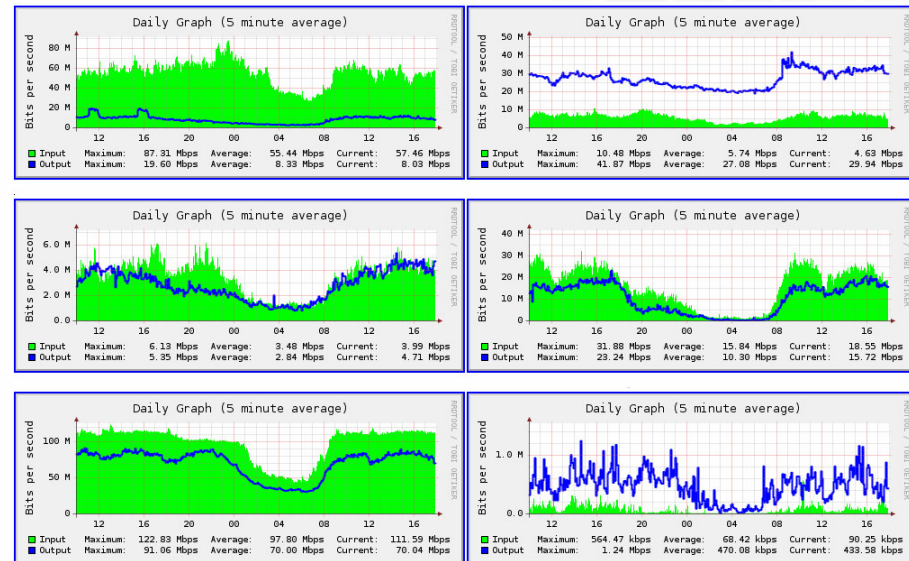
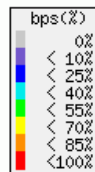
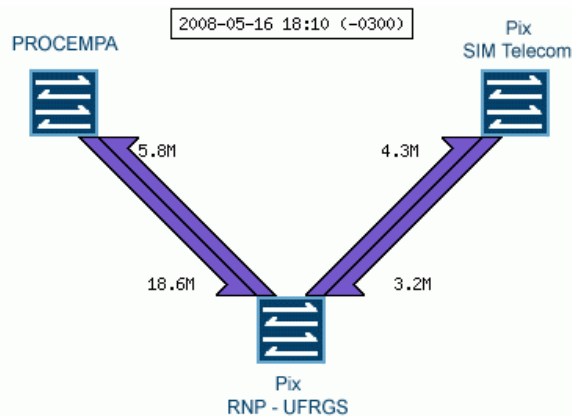


Agenda

- Introduction
- Monitoring BGP Protocol
- MIB BGP4
- MIB IXP
- Results
- Conclusions

Introduction

- Network Management
 - SNMP (Simple Network Management Protocol)
 - MIB (Management Information Base)



Monitoring BGP Protocol

- BGP Protocol
 - MIB BGP4 (RFC 4273)
- Routers (Cisco, Foundry, Extreme ...)
- Softwares
 - Zebra
 - Quagga
 - OpenBGPD





MIB BGP4

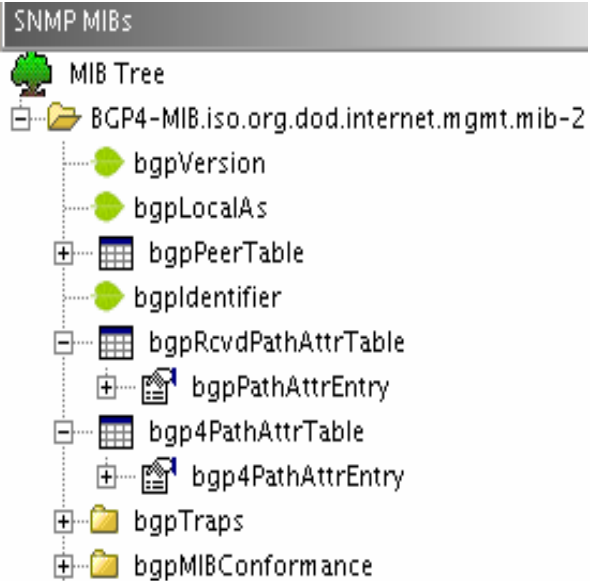
- IXP Context
 - Gaps
 - Per Peer Information
 - Summarized Information
 - Total announced routes
 - **IPv6**
 - Other information (in sequence)
- Existing solutions are limited



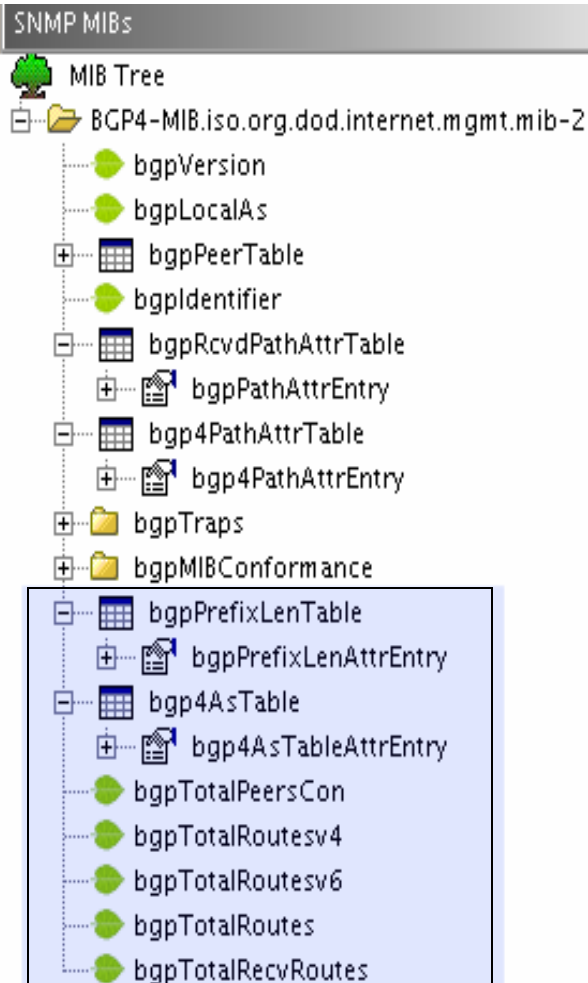
Purpose

- Develop a new MIB specialized for monitoring BGP in IXP context
- MIB for Internet Exchange Points – MIB IXP
- Based in quagga snmp agent

MIB BGP4



MIB IXP



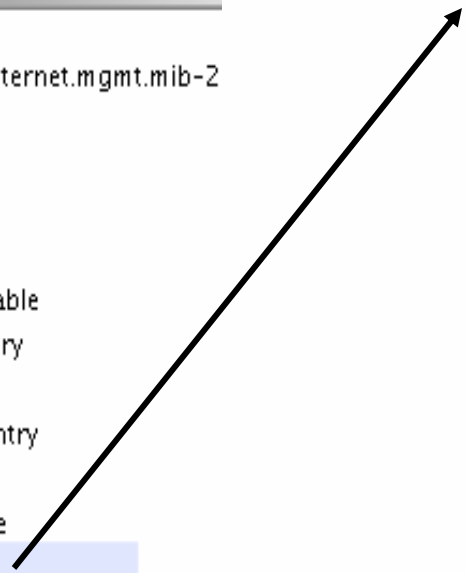
MIB IXP

SNMP MIBs

MIB Tree

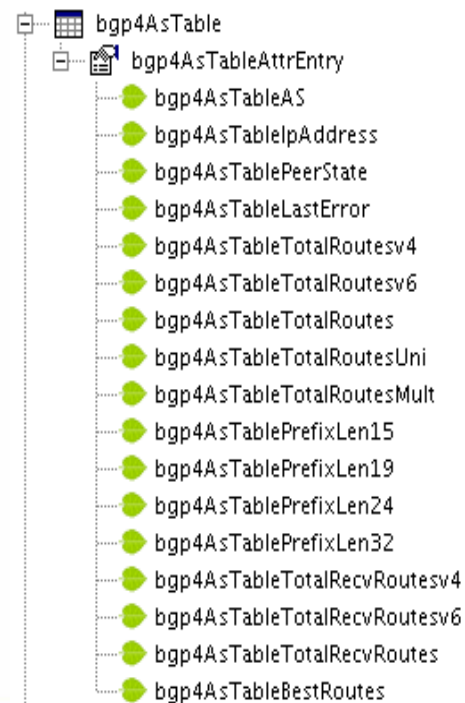
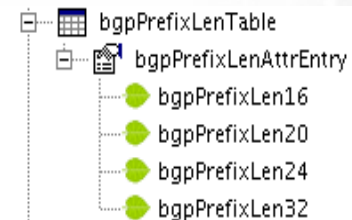
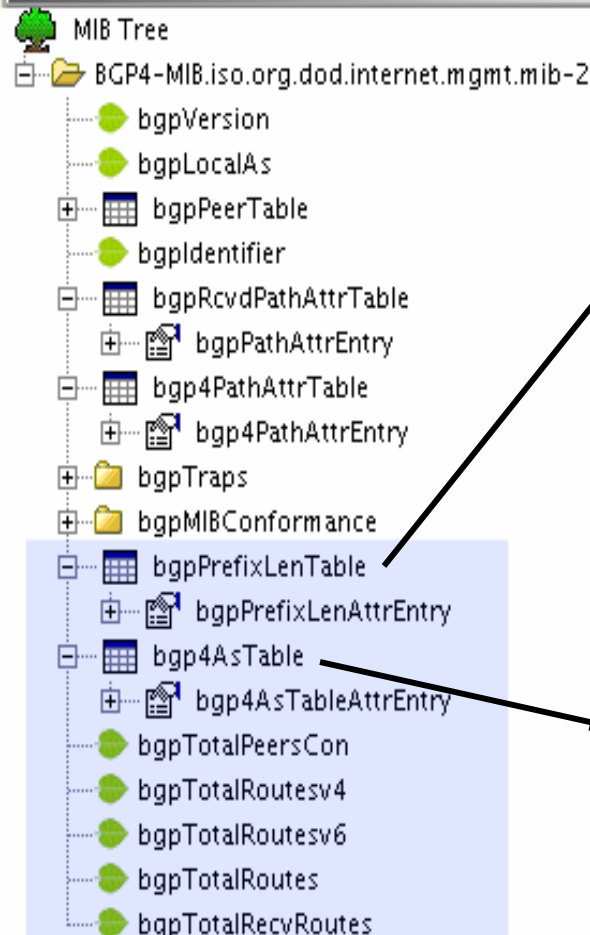
- BGP4-MIB.iso.org.dod.internet.mgmt.mib-2
 - bgpVersion
 - bgpLocalAs
 - bgpPeerTable
 - bgpIdentifier
 - bgpRcvdPathAttrTable
 - bgpPathAttrEntry
 - bgp4PathAttrTable
 - bgp4PathAttrEntry
 - bgpTraps
 - bgpMIBConformance
 - bgpPrefixLenTable
 - bgpPrefixLenAttrEntry
 - bgp4AsTable
 - bgp4AsTableAttrEntry
 - bgpTotalPeersCon
 - bgpTotalRoutesv4
 - bgpTotalRoutesv6
 - bgpTotalRoutes
 - bgpTotalRecvRoutes

- bgpPrefixLenTable
 - bgpPrefixLenAttrEntry
 - bgpPrefixLen16
 - bgpPrefixLen20
 - bgpPrefixLen24
 - bgpPrefixLen32



MIB IXP

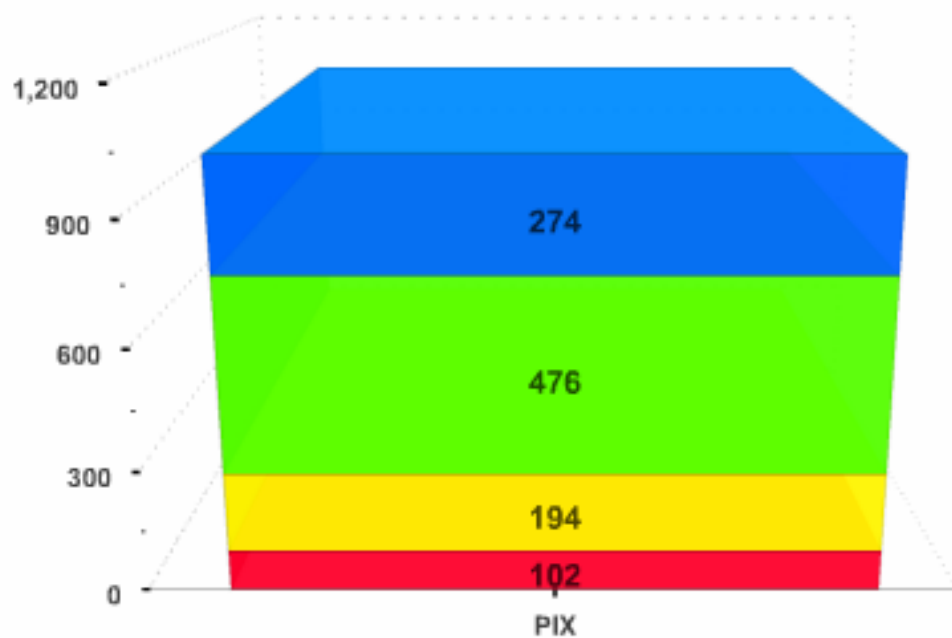
SNMP MIBs





MIB IXP

Prefix Length's Distribution

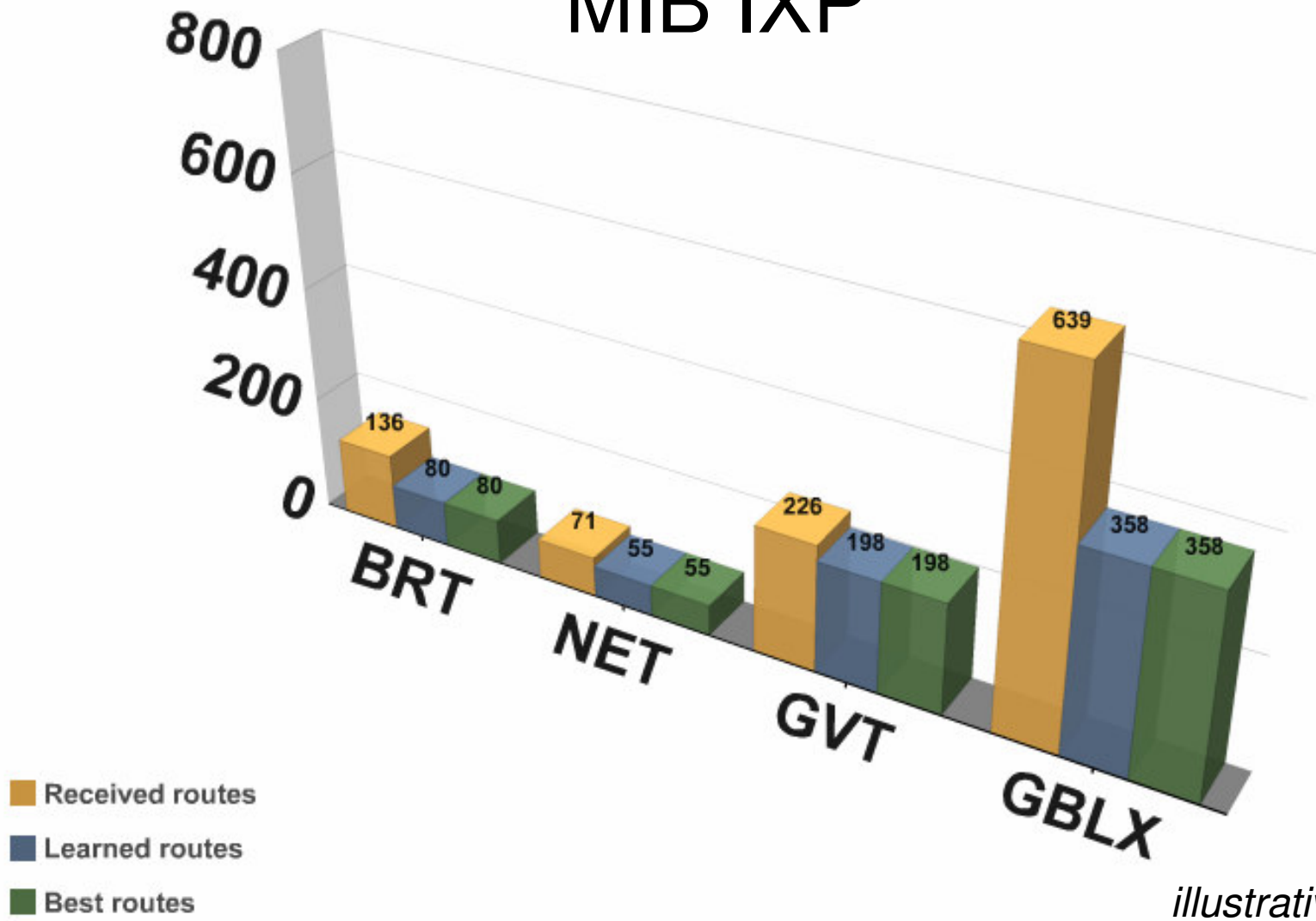


Prefixes /0 - /15
Prefixes /20 - /24

Prefixes /16 - /19
Prefixes /25 - /32



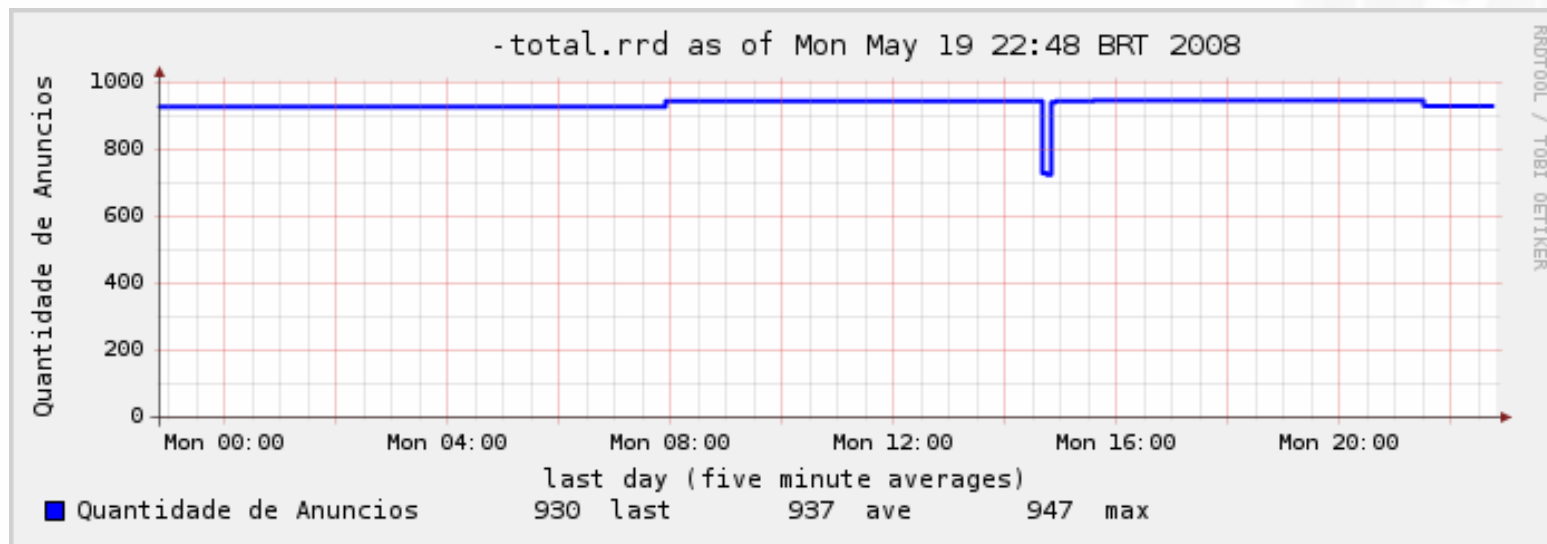
MIB IXP



illustrative data

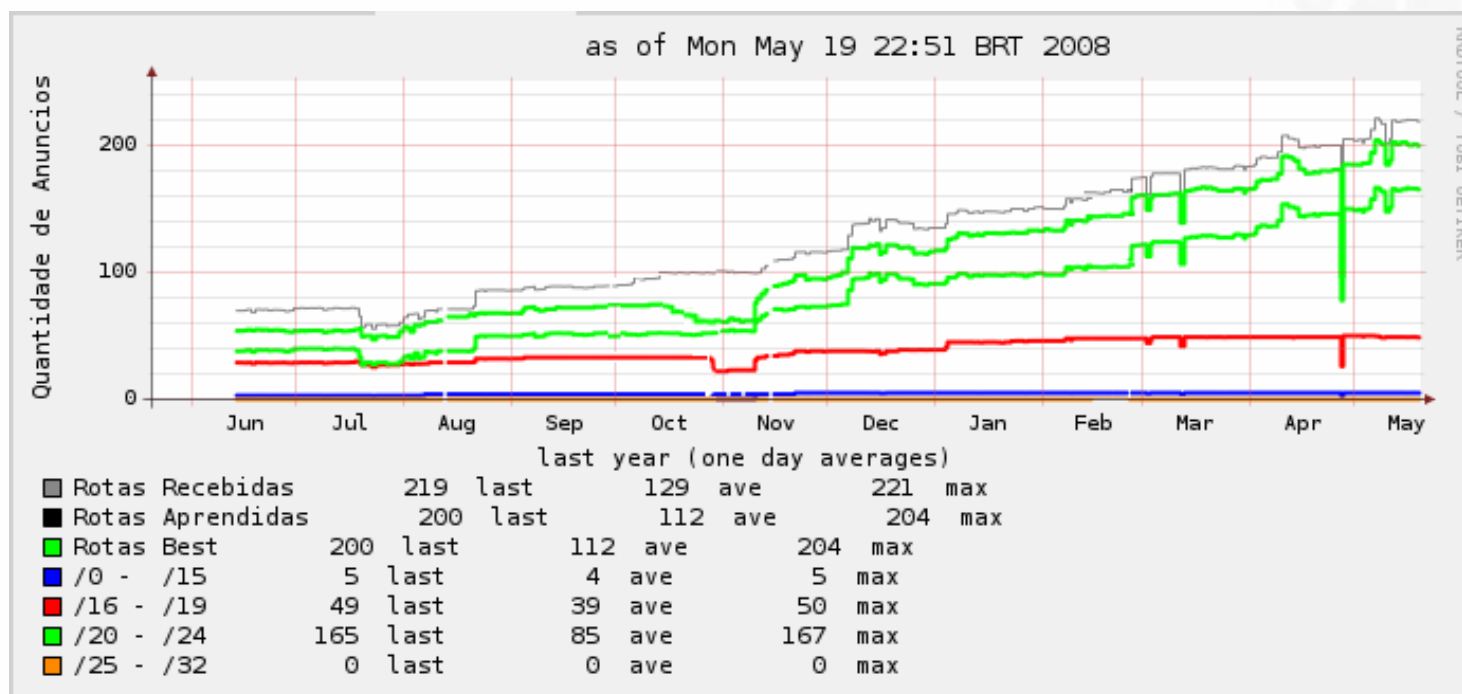
MIB BGP4

- Total of routes announced in all IXP.



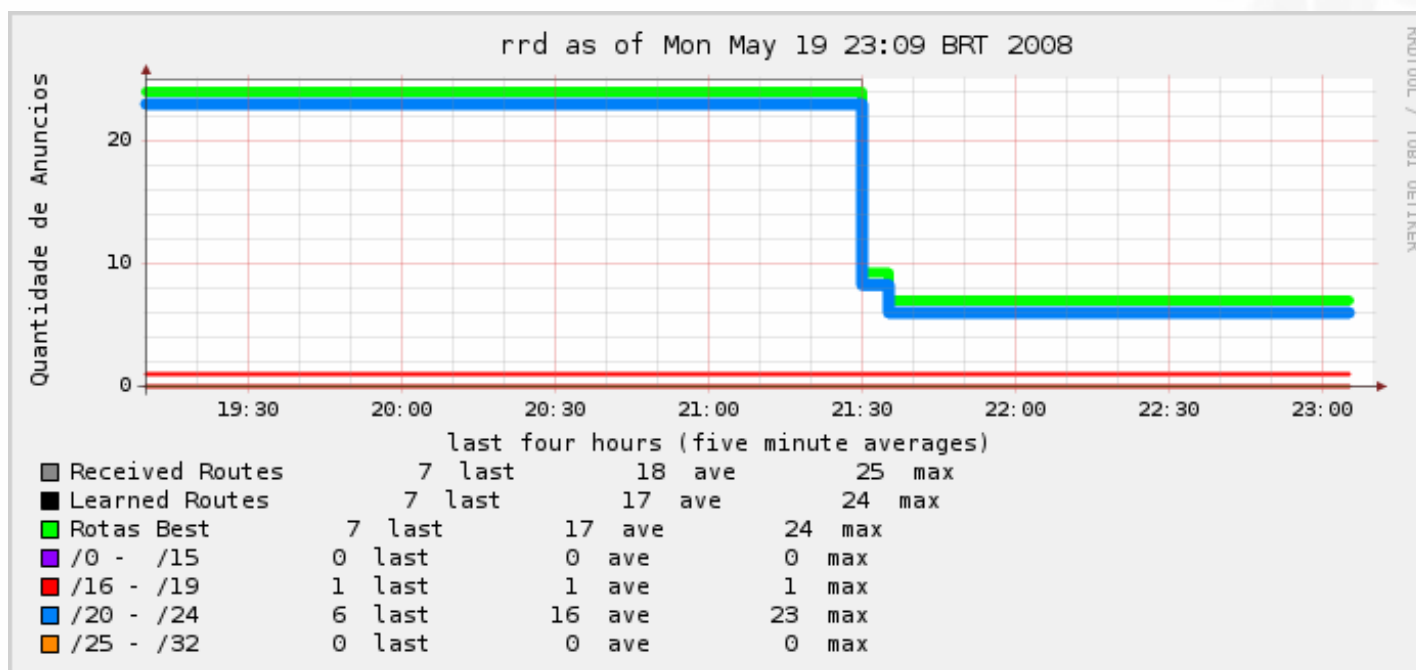
MIB IXP

- Growth of announces for a specific peer (ASN)



MIB IXP

- Blue: /20 - /24 announces
- Green: Best Routes



pop-rs/rnp



cert-rs

MIB IXP

SOURCEFORGE.NET*

<http://mib-ixp.sourceforge.net/>



```
patch -p0 < quagga_mibixp.patch.c
```



Conclusions

- News information added
 - PIX overview
 - Help to identifier policies changes or problems
 - IPv6 Information
- Stable solution
 - One year in use in PTT-RS



References

- BGP MIB Support Enhancements -
http://www.cisco.com/en/US/docs/ios/12_0s/feature/guide/s_bmibe.html
- Quagga — <http://www.quagga.net>
- Quagga-snmp - <http://www.net-track.ch/opensource/quagga-snmp/>
- Openbgpd – <http://www.openbgpd.org>
- MIB IXP - <http://mib-ixp.sourceforge.net/>
- PTT.br – <http://www.ptt.br>

pop-rs/rnp

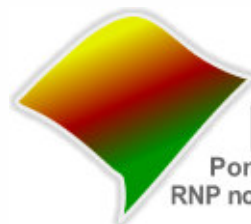


cert-rs

Support

egi.br

Comitê Gestor da Internet no Brasil



PoP-RS
Ponto de Presença da
RNP no Rio Grande do Sul



UFRGS - CPD

ptt.br



Rede Nacional de Ensino e Pesquisa
Promovendo o uso inovador
de redes avançadas no Brasil

pop-rs/rnp



cert-rs

Thank you.

Questions ?

ceron@tche.br

LACNIC XI

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