MIB IXP

A specialized SNMP MIB for IXPs implemented in the software quagga

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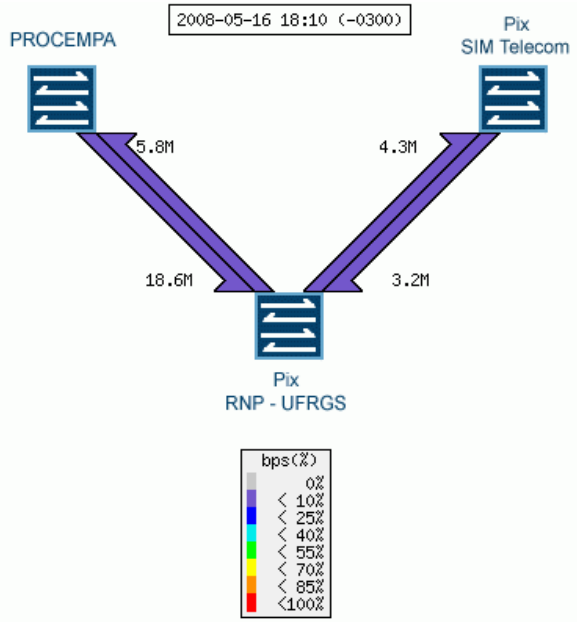
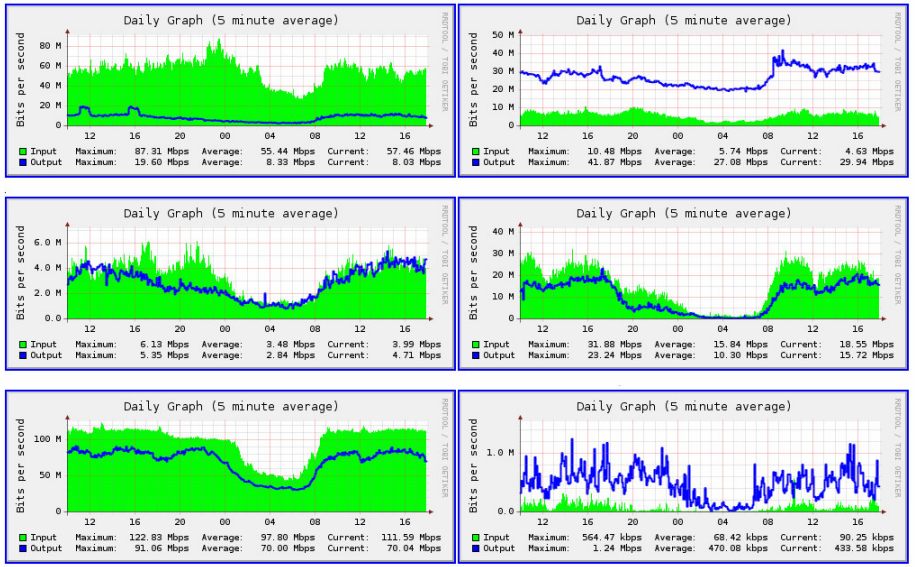
Agenda

- 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

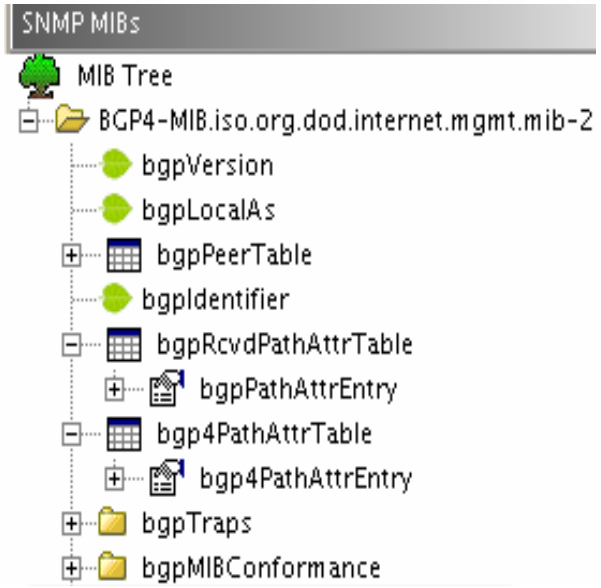
- IXP Context
  - Gaps
    - Per Peer Information
    - Summarized Information
      - Total announced routes
    - **IPv6**
    - Other information (in sequence)

- Existing solutions are limited

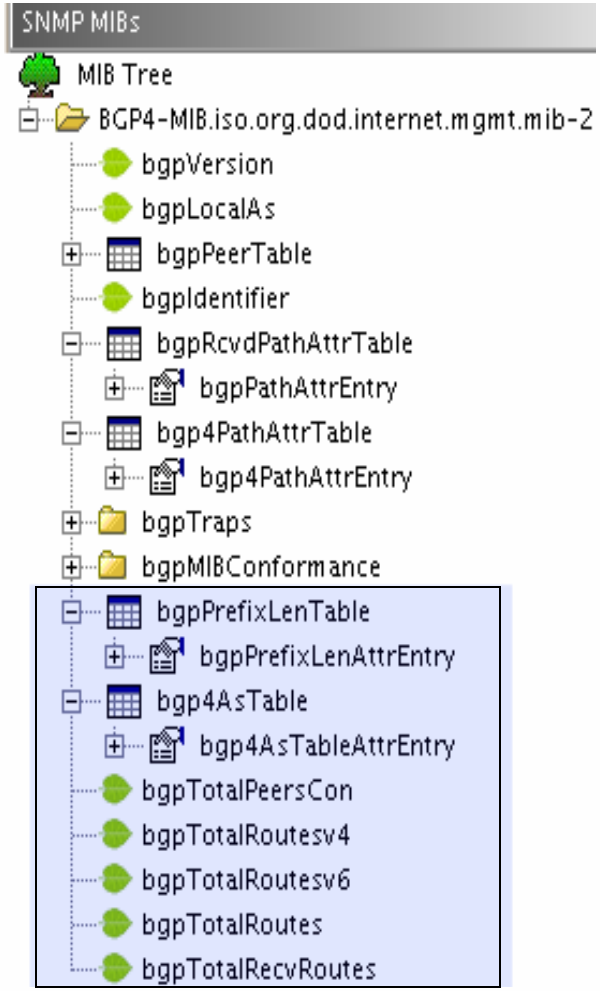
Purpose

- 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


SNMP MIBs
MIB Tree
BGP4-MIB.iso.org.dod.internet.mgmt.mib-2
bgpVersion
bgpLocalAs
bgpPeerTable
bgpIdentifier
bgpRcvdPathAttrTable
bgpPathAttrEntry
bgp4PathAttrTable
bgp4PathAttrEntry
bgpTraps
bgpMIBConformance

MIB IXP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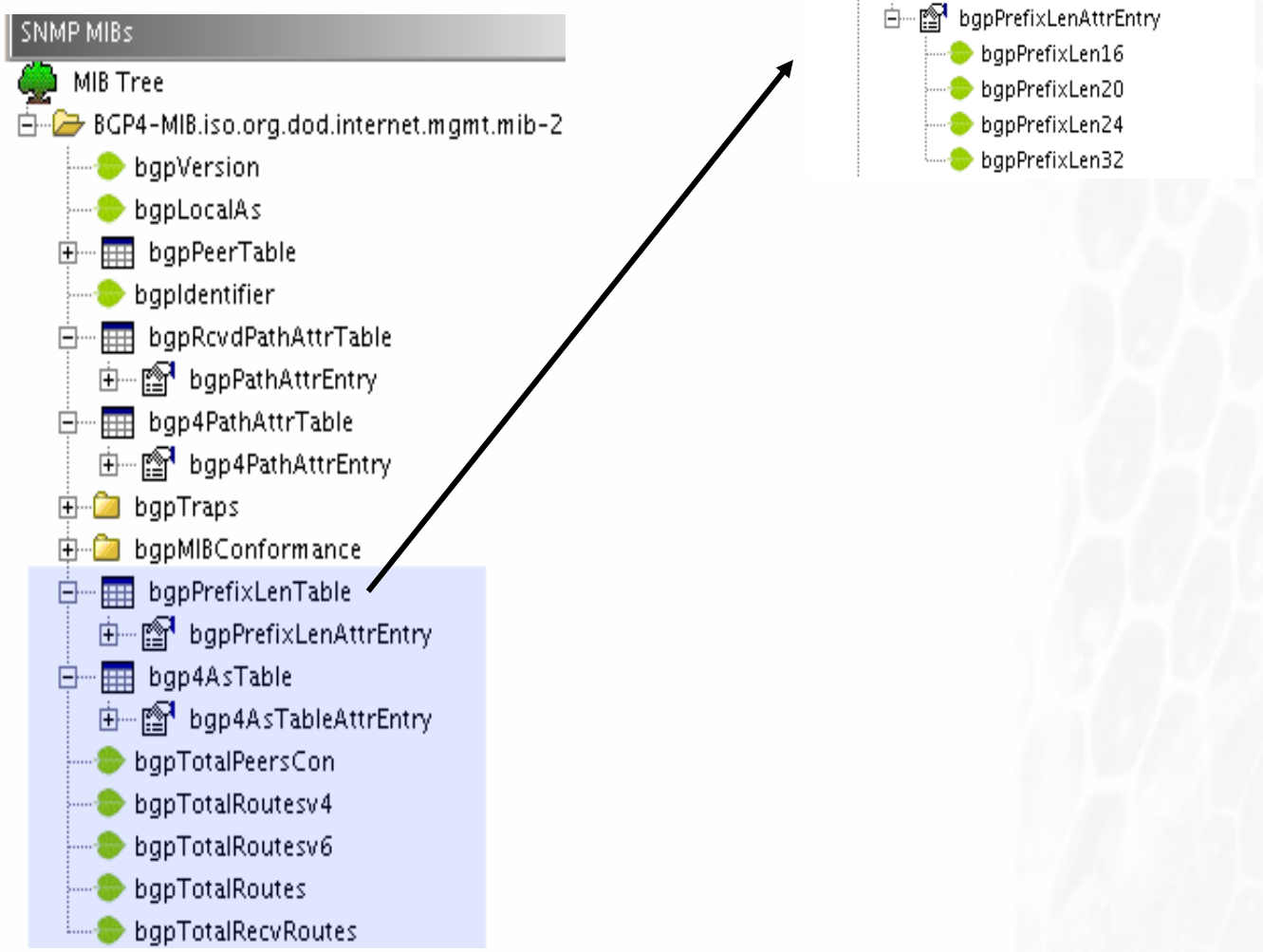
bgpMIBConformance
bgpPrefixLenTable
bgpPrefixLenAttrEntry
bgp4AsTable
bgp4AsTableAttrEntry
bgpTotalPeersCon
bgpTotalRoutesv4
bgpTotalRoutesv6
bgpTotalRoutes
bgpTotalRecvRoutes

MIB IXP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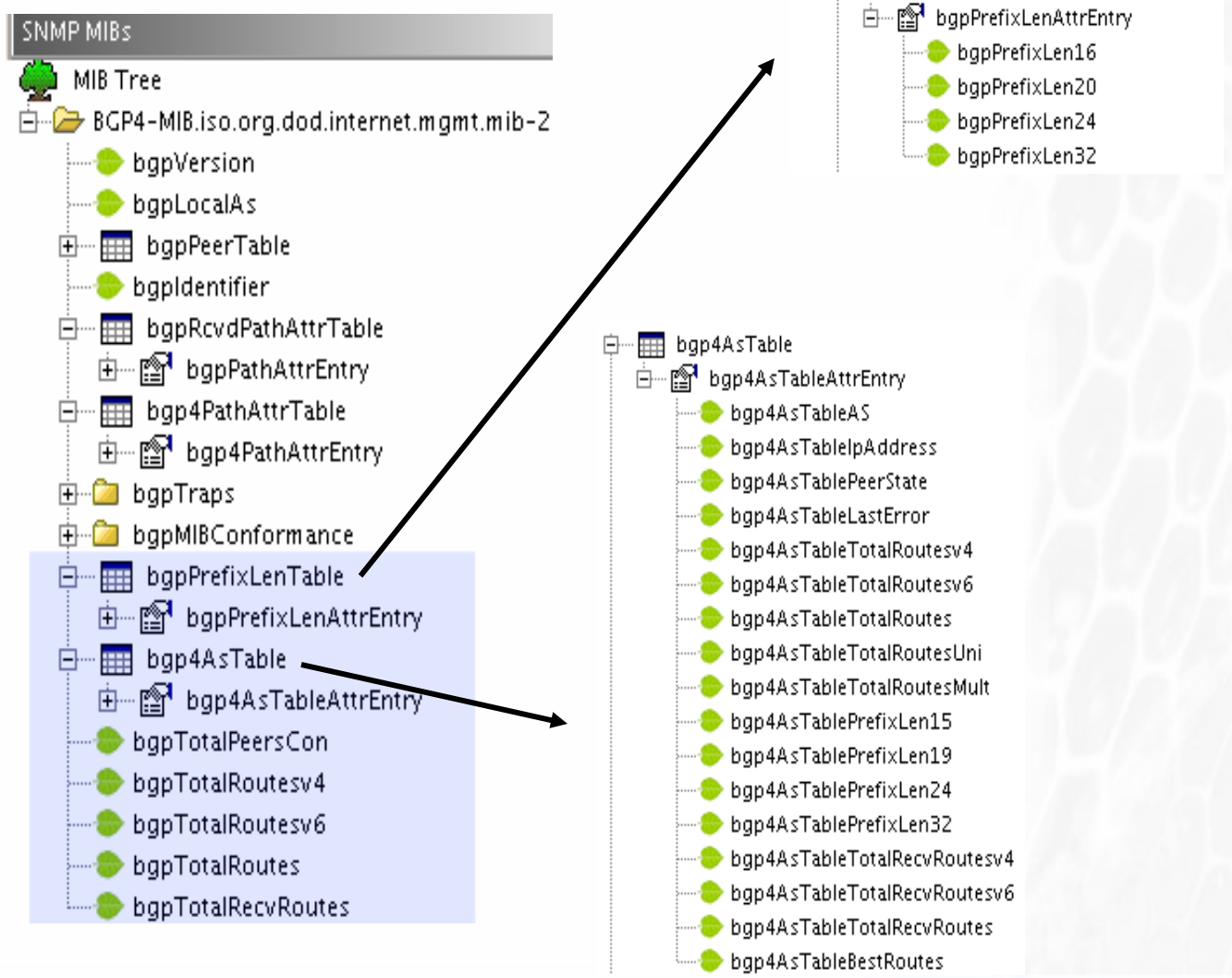
bgpTotalPeersCon
bgpTotalRoutesv4
bgpTotalRoutesv6
bgpTotalRoutes
bgpTotalRecvRoutes
bgpPrefixLenTable
bgpPrefixLenAttrEntry
bgpPrefixLen16
bgpPrefixLen20
bgpPrefixLen24
bgpPrefixLen32

MIB IXP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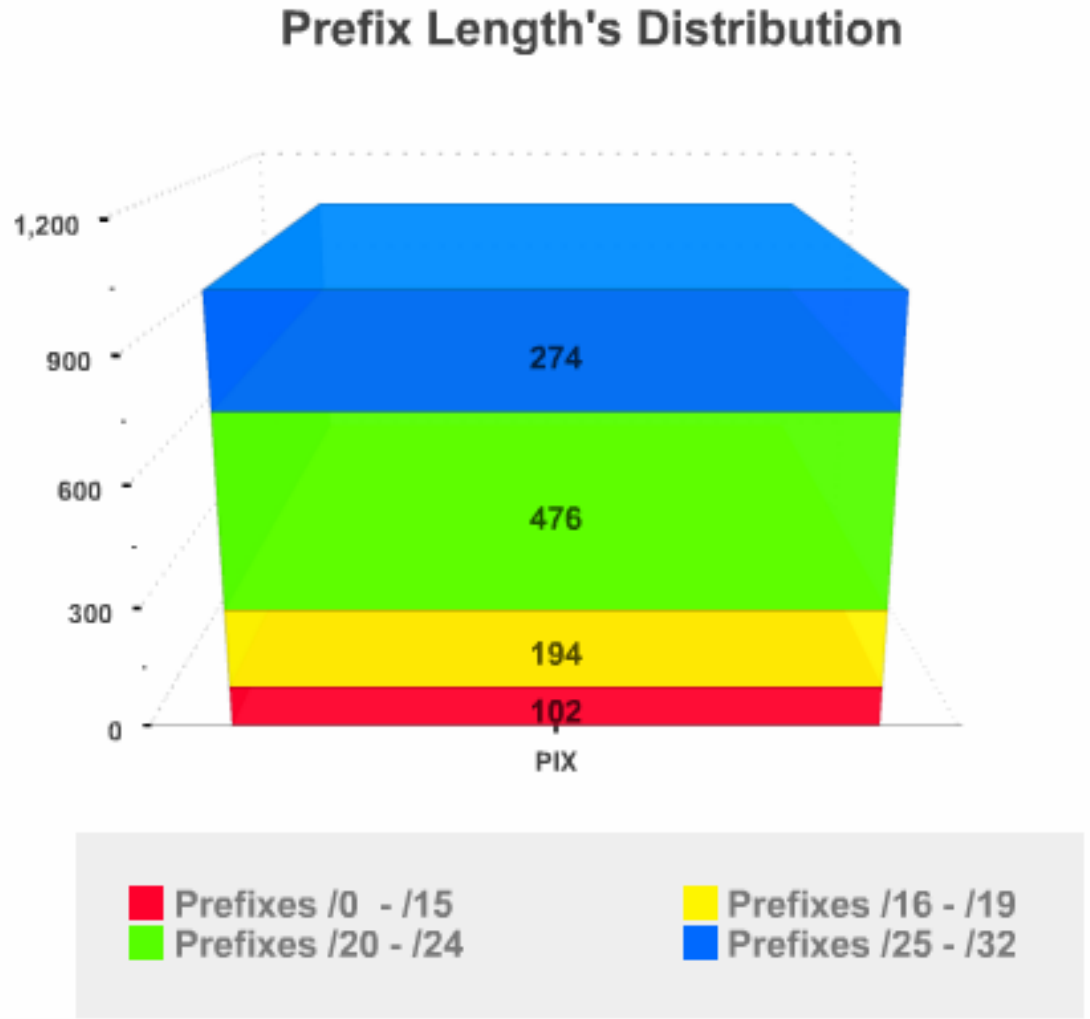
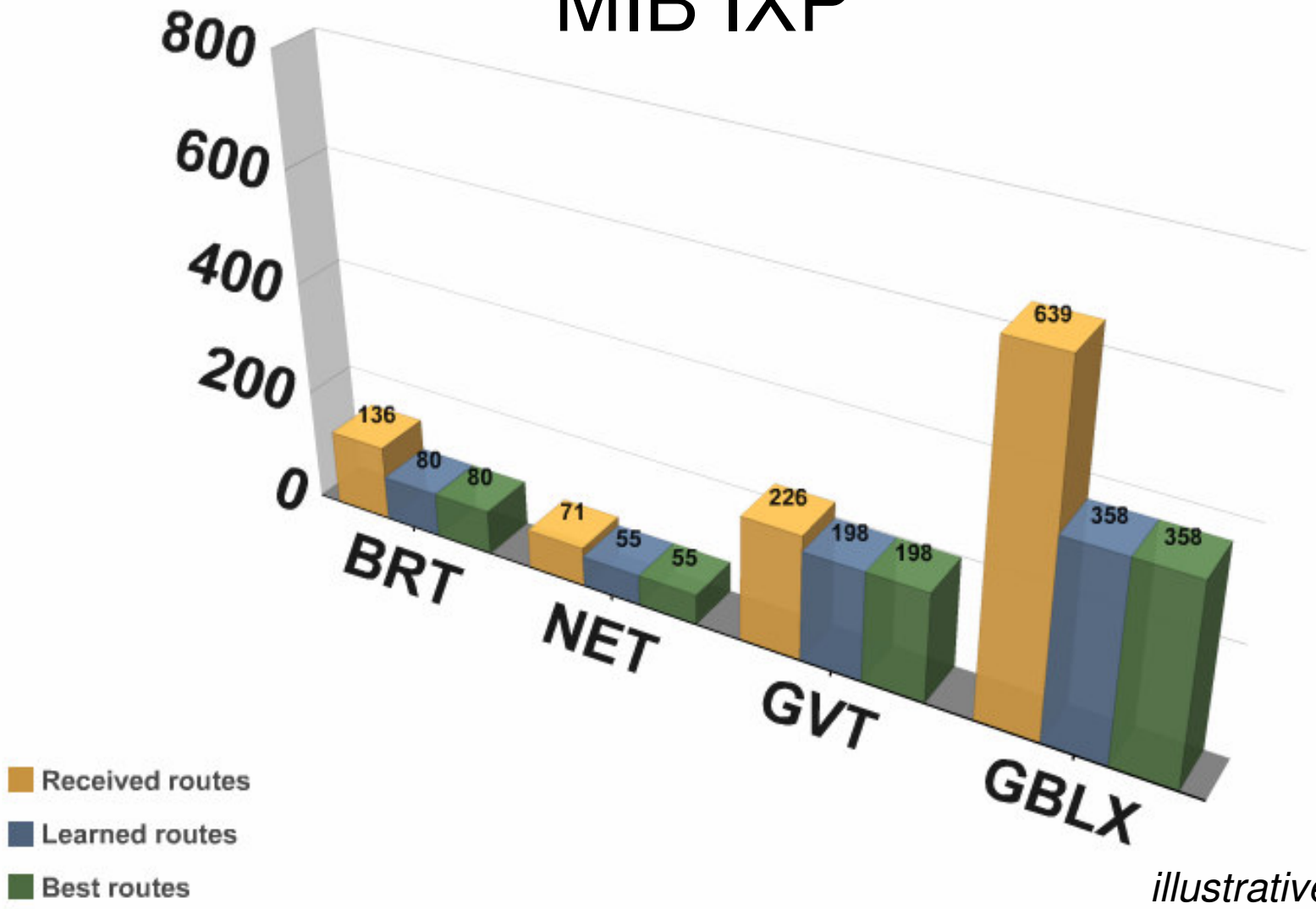
bgp4AsTable
bgp4AsTableAttrEntry
bgpTotalPeersCon
bgpTotalRoutesv4
bgpTotalRoutesv6
bgpTotalRoutes
bgpTotalRecvRoutes
bgpPrefixLenTable
bgpPrefixLenAttrEntry
bgpPrefixLen16
bgpPrefixLen20
bgpPrefixLen24
bgpPrefixLen32
bgp4AsTable
bgp4AsTableAttrEntry
bgp4AsTableAS
bgp4AsTableIpAddress
bgp4AsTablePeerState
bgp4AsTableLastError
bgp4AsTableTotalRoutesv4
bgp4AsTableTotalRoutesv6
bgp4AsTableTotalRoutes
bgp4AsTableTotalRoutesUni
bgp4AsTableTotalRoutesMult
bgp4AsTablePrefixLen15
bgp4AsTablePrefixLen19
bgp4AsTablePrefixLen24
bgp4AsTablePrefixLen32
bgp4AsTableTotalRecvRoutesv4
bgp4AsTableTotalRecvRoutesv6
bgp4AsTableTotalRecvRoutes
bgp4AsTableBestRoutes

MIB IXP


Prefix Length's Distribution
1,200
900
600
300
0
274
476
194
102
PIX
Prefixes /0 - /15
Prefixes /16 - /19
Prefixes /20 - /24
Prefixes /25 - /32

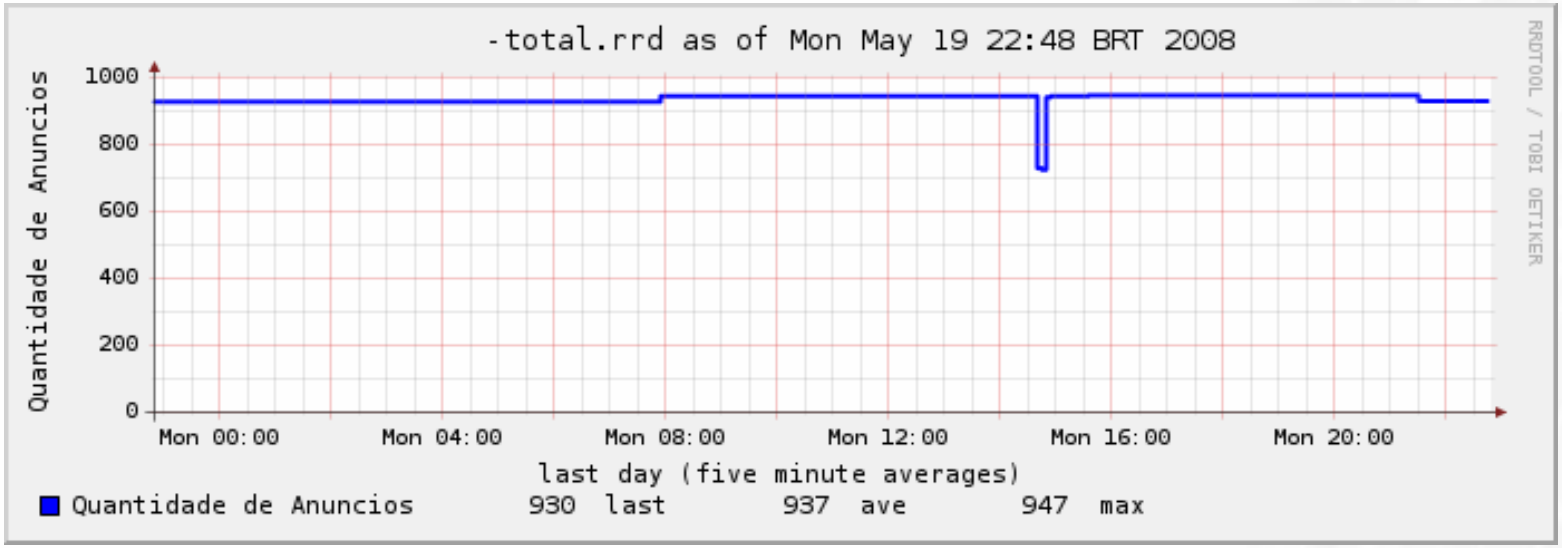
MIB IXP



illustrative data

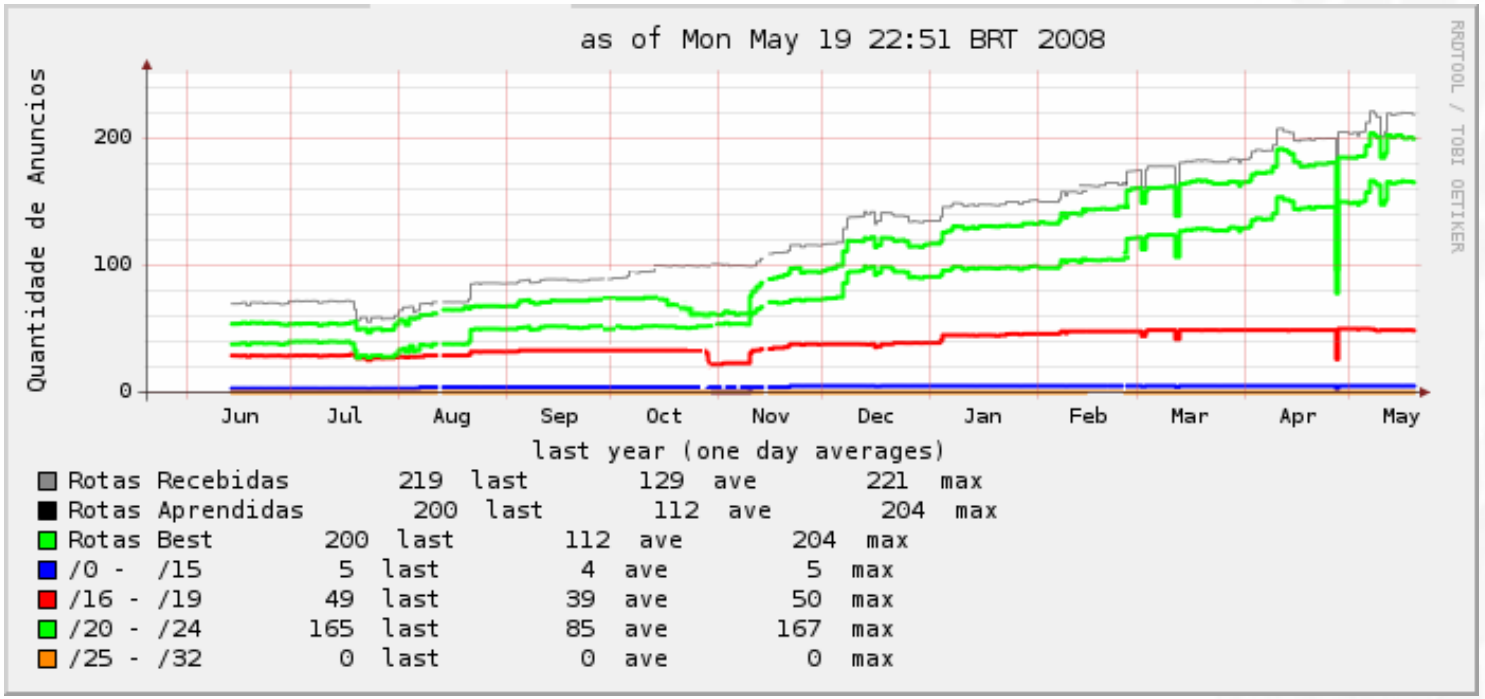
MIB BGP4

- Total of routes announced in all IXP.



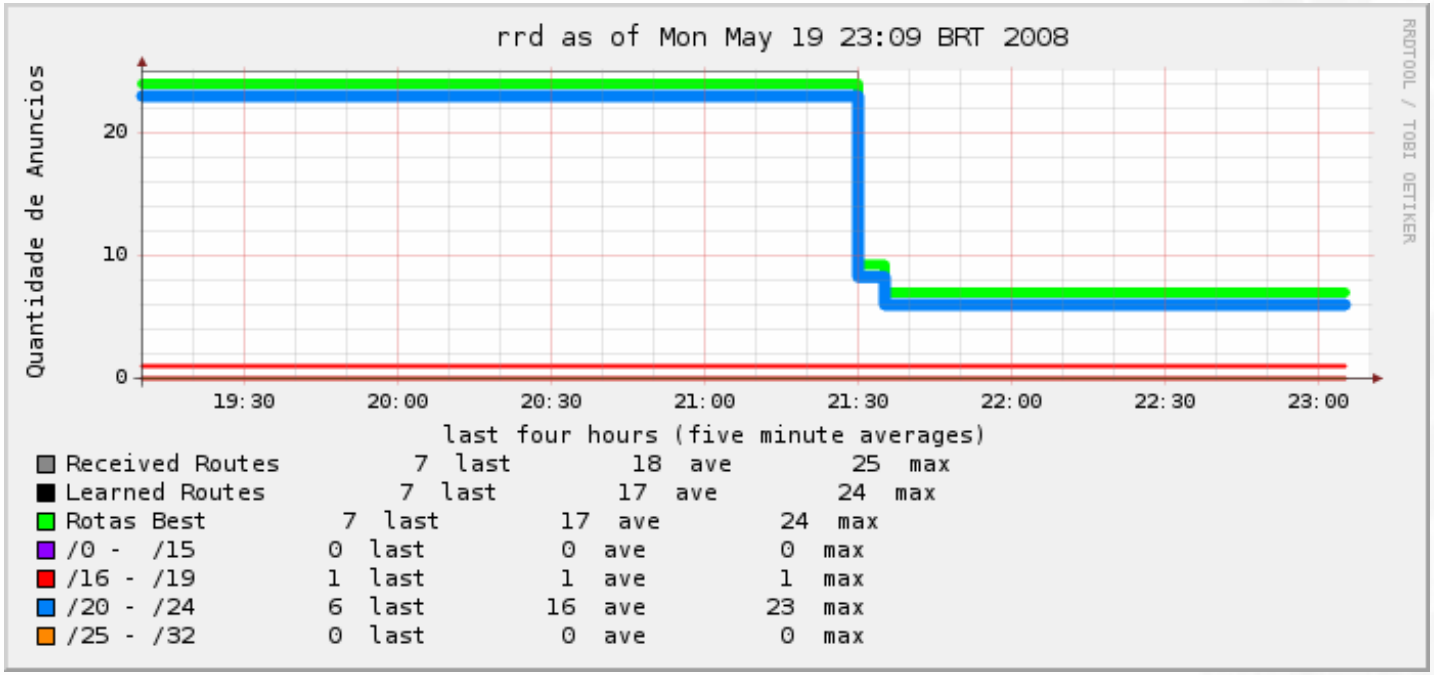
MIB IXP

- Growth of announces for a specific peer (ASN)



MIB IXP

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



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

Support

cgi.br
Comitê Gestor da Internet no Brasil

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

UFRGS - CPD

ptt.br

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

Thank you.

Questions ?

ceron@tche.br

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