Euro-IX Update

AfPIF 4 – Casablanca, September 2013

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Euro-IX - An Association of Internet Exchanges

Euro-IX is an association of Internet Exchanges Points, promoting an open interchange of ideas and experiences, gained to mutual advantage of the membership, by offering fora, meetings, mailing lists and on-line resources. Euro-IX also gathers information on regulatory issues affecting member exchanges within the region and where appropriate from other jurisdictions that could potentially impact on the membership.

Euro-IX - An Association of Internet Exchanges

Why does Euro-IX do this?

For the good of the IXP community:

- 2 Forums a year
- Maintaining the Website, database and tools
- Mailing Lists
- Working Groups and Task Forces
- Close relationship with IEEE Ethernet Study Group
- Annual European IXP Report
- Twinning Program ***
- Other project, e.g., Euro 2012 CL with RIPE NCC
- Benchmarking
- Staff Exchange Programs

Euro-IX - An Association of Internet Exchanges

- 72 affiliated IXPs :
  - 48 IXPs in Europe (30 Countries)
    Operating over 100 Internet exchanges
  - 24 IXPs from the rest of the world
  - Newest Members, KOSIX (Kosovo), TunIXP (Tunisia), KINIX (Congo), UAE-IX (United Arabic Emirates), ZIXP (Zambia), OttIX (Canada), JINX (South Africa), TorIX (Canada), WAIX (Australia) and NAP Africa (South Africa)
- 11 affiliated patrons:
  - ADVA Optical Networking
  - Brocade
  - Cisco
  - Extreme Networks
  - Interxion
  - Juniper Networks
  - MRV
  - Telecity
  - Telehouse
  - Alcatel-Lucent
  - Huawei

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Euro-IX - An Association of Internet Exchanges

- Euro-IX Twinning Program - Africa
  - TIX (Tanzania) – DE-CIX (Germany)
  - ZIXP (Zambia) – LINX (UK)
  - KIXP (Kenya) – Netnod (Sweden)
  - MOZ-IX (Mozambique) – Netnod (Sweden)
  - KINIX (Congo) – Netnod (Sweden)
- In progress
  - Gambia – INEX (Ireland)
  - Gabon - TBC

Euro-IX - An Association of Internet Exchanges

- Euro-IX Twinning Program can offer:
  - Remote Membership with Euro-IX
  - Information
  - Experience
  - Support
  - Training
  - Equipment

IXPs and the Peering Community

- African Peering and Interconnect Forum (AfPIF4) – September 2013, Casablanca
- European Peering Forum (EPF8) – September 2013, Reykevich
- Equinix Asia Peering Forum
- Asia Peering Forum (JPF5) – August 2013
- Hawaii Peering Forum – September 2013
- Global Peering Forum (GPF9) – April 2014

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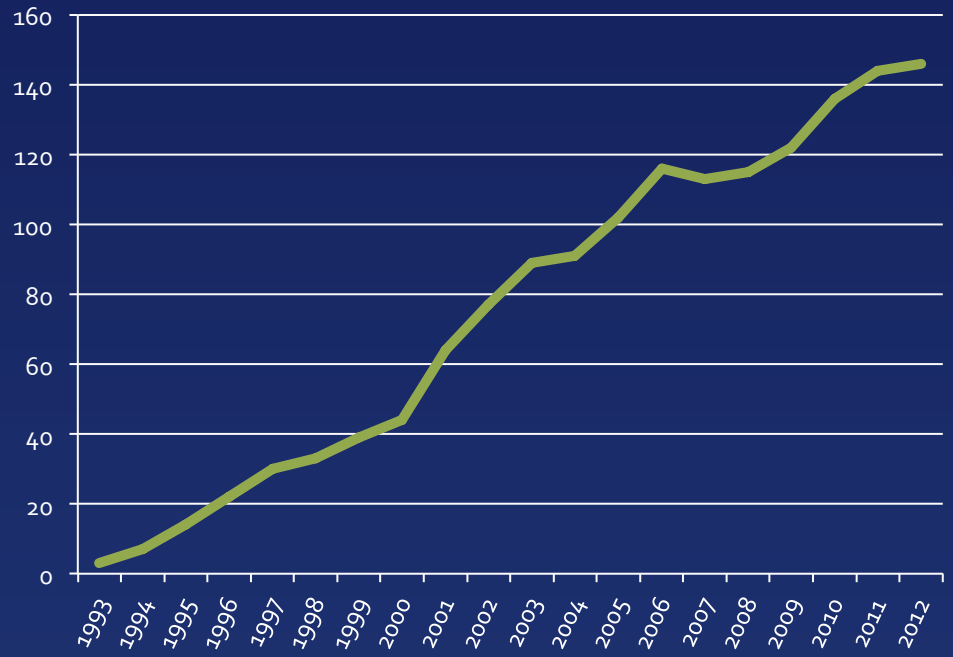
Growth of IXPs in the Euro-IX Region since 1993



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Meet the other Internet Exchange Point Associations (IXPAs)

- Africa – Af-IX – www.af-ix.net
- Asia Pacific – APIX – www.apix.asia
- Latin America – LAC-IX – www.lac-ix.org

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Meet the other Internet Exchange Point Associations (IXPAs)

Euro-IX

Meet the other Internet Exchange Point Associations (IXPAs)

- MOU signed to form the Internet Exchange Point Federation (IX-F) in November 2012
- Idea to have a Global IXP DB
- Set standards
- Automate Data Collection from all IXPs
- Plans to collaborate with PeeringDB

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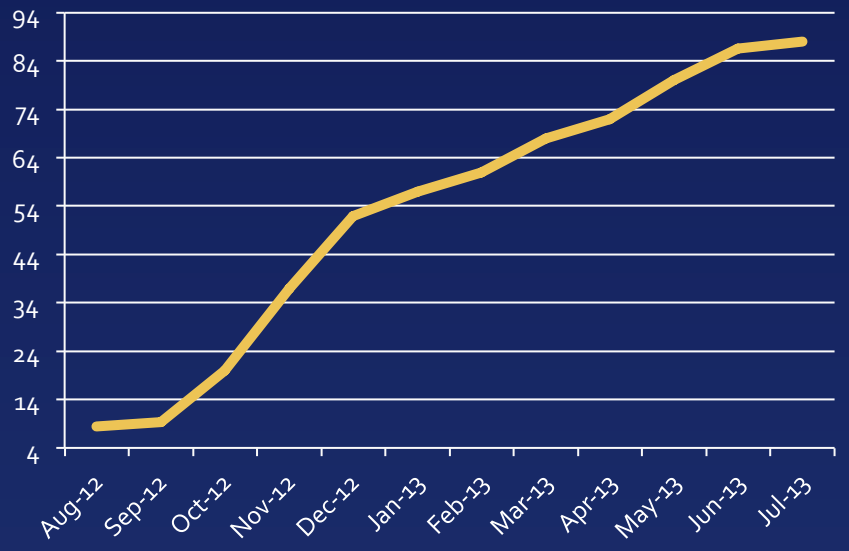
IXPs in Af-IX Region - Africa

29 KNOWN IXPs IN THE AF-IX REGION
22 of 54 COUNTRIES (AU) have an IXP
26 CITIES in Africa have IXPs



Known Af-IX region Traffic Growth from a 12 period in Gbps (over public peering LAN)

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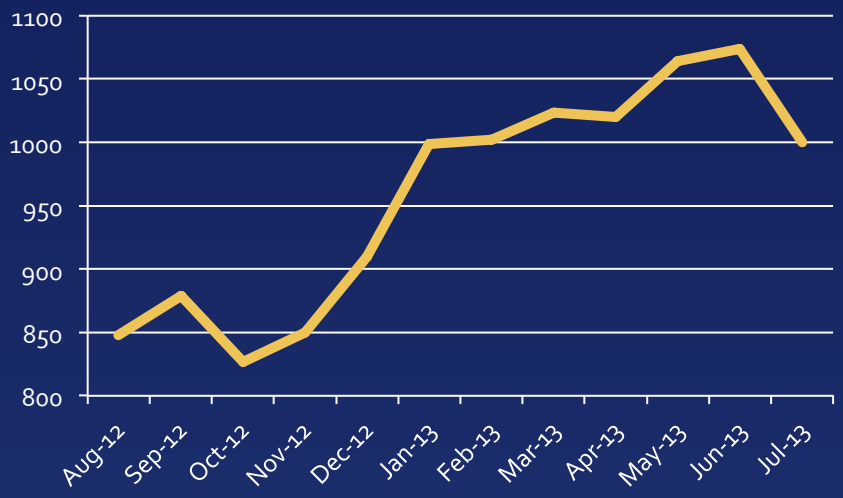
IXPs in APIX Region - Asia

79 KNOWN IXPs IN THE APIX REGION
20 of 48 COUNTRIES have IXP
46 CITIES in Asia have IXPs



Known APIX Region Traffic Growth from a 12 period in Gbps (over public peering LAN)

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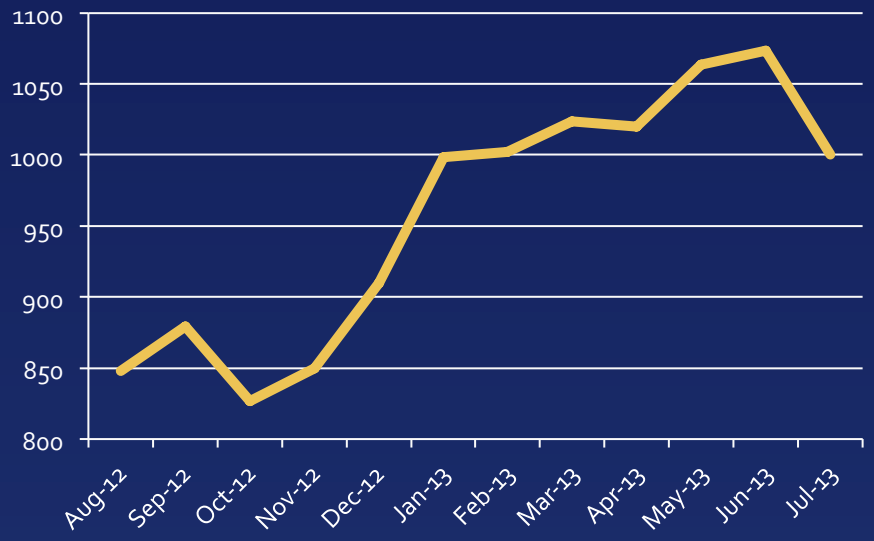
IXPs in LAC-IX Region – Latin America

53 KNOWN IXPs IN THE LAC-IX REGION
14 of 20 COUNTRIES have IXPs
43 CITIES in Latin America have IXPs



Known LAC-IX Region Traffic Growth from a 12 period in Gbps (over public peering LAN)

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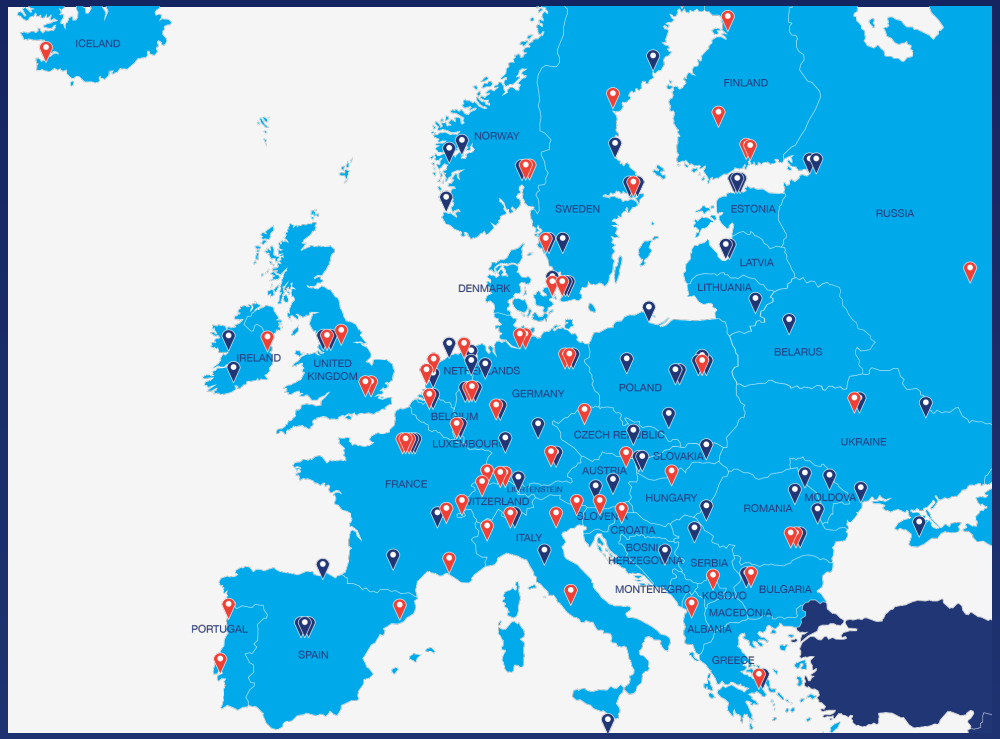
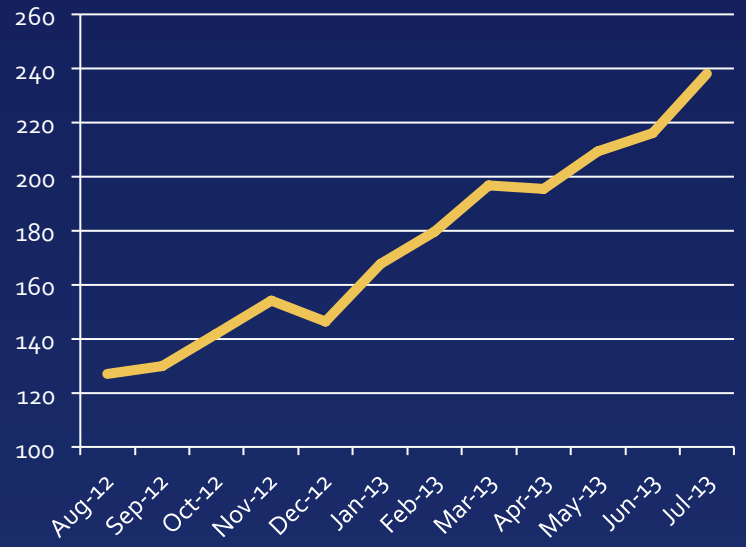
IXPs in Euro-IX Region – Europe

161 KNOWN IXPs IN THE EURO-IX REGION
48 of 50 COUNTRIES have IXPs
123 CITIES in Europe have IXPs





Known Euro-IX Region Traffic Growth from a 12 period in Gbps (over public peering LAN)

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IXPs in Euro-IX Region – Cont.

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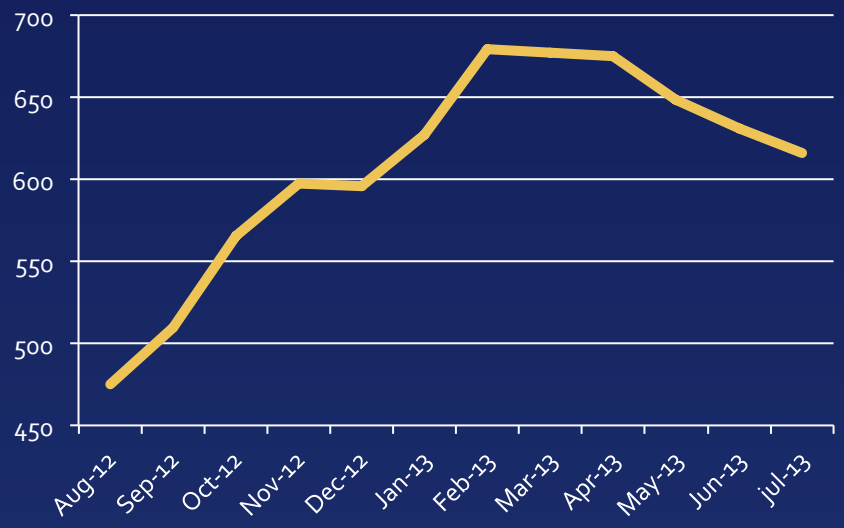
IXPs in North America

70 KNOWN IXPs IN NORTH AMERICA
2 of 2 COUNTRIES have IXPs
41 CITIES in North America have IXPs



Known IXP Traffic Growth in North America from a 12 period in Gbps (over public peering LAN)

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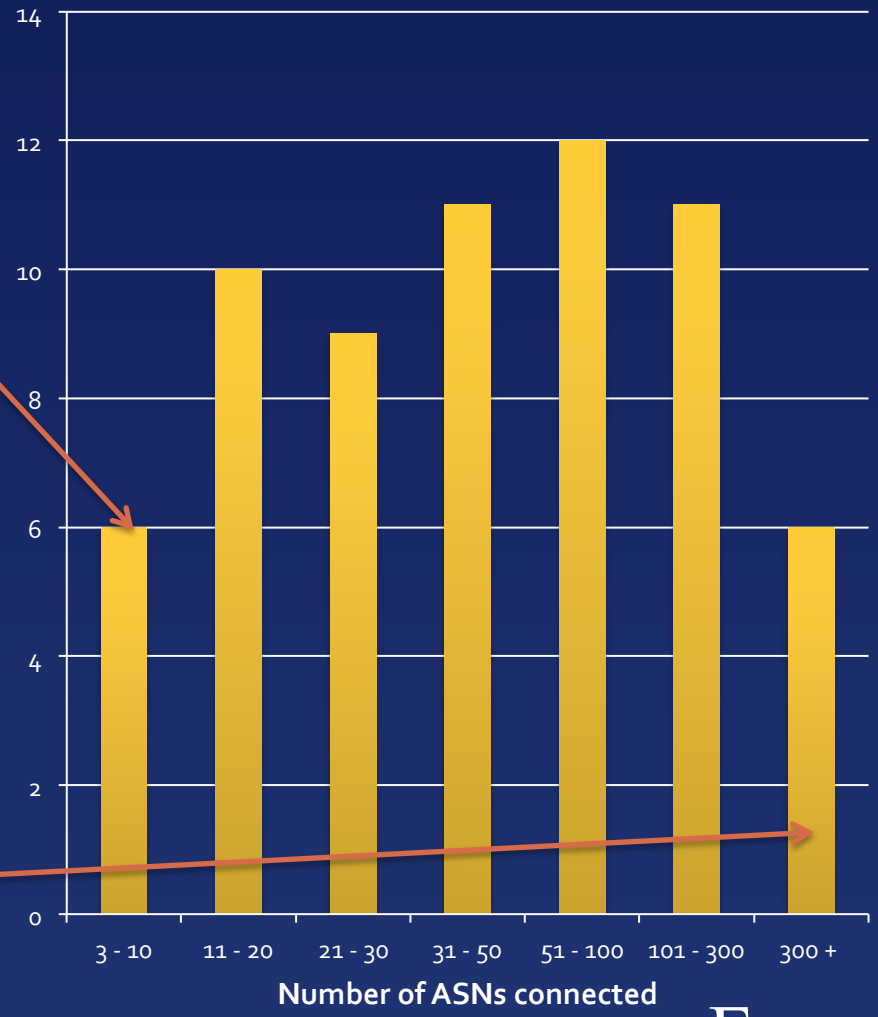
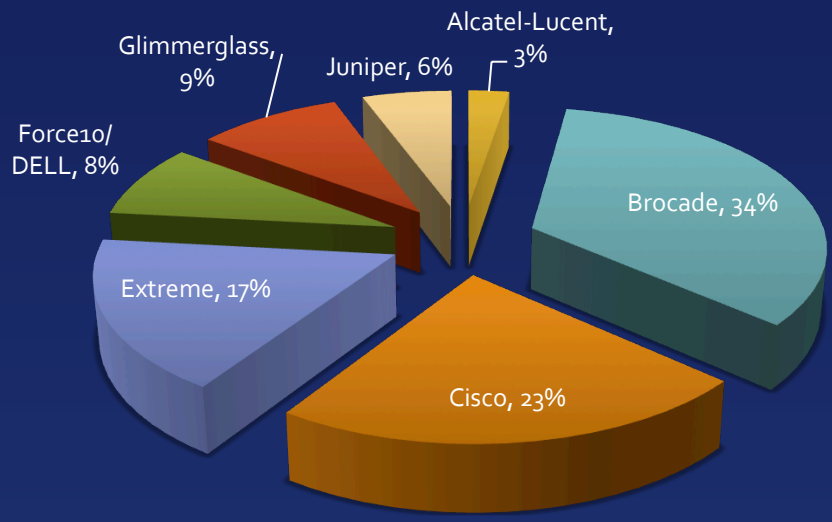
Range of Euro-IX IXPs with a given range of ASNs connected

- 3-10 ASNs connected - KINIX (Congo), TunIXP (Tunisia)
- 11-20 ASNs connected - TREX (Finland), NPIX (Nepal), OTTIX (Canada), GNIX (Netherlands)
- 20-100 ASNs connected – NAMEX (Italy), INEX (Ireland), Netnod (Sweden), JPNAP (Japan), NIX.CZ (Czech Republic), LyonIX (France)
- 101-300 ASNs connected - UA-IX (Ukraine), SWISS-IX (Switzerland), VIX (Vienna), Terremark (USA)
- 300+ ASNs connected – AMS-IX (Netherlands), DE-CIX (Germany) , LINX (UK), MSK-IX (Moscow) & PTT.br (Brazil)



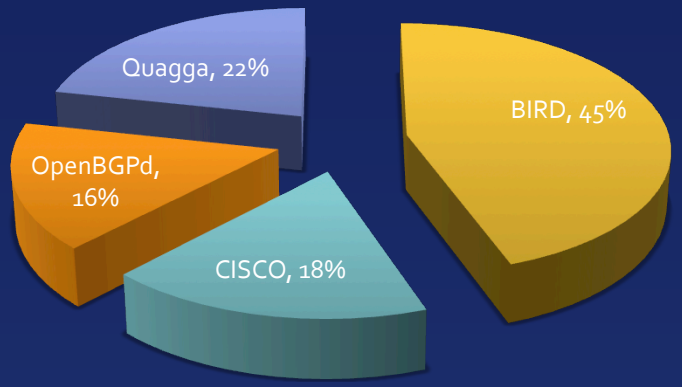
Market share of vendors among EU IXPs within the Euro-IX Membership (%)

- Alcatel-Lucent – DE-CIX
- Brocade – AMS-IX, VIX, JPIX
- CISCO – LONAP, NIX.CZ, MSK-IX
- Extreme – PLIX, MSK-IX, LINX
- DELL (Force10) – BCIX
- Juniper – LINX, VSIX



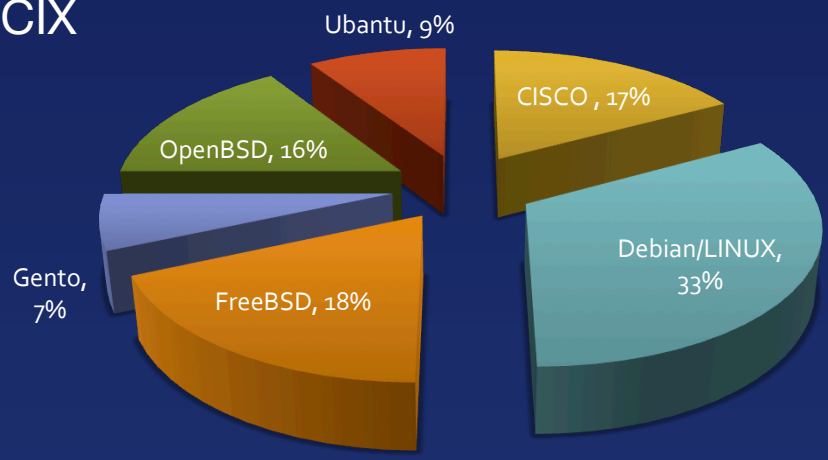
Route server daemons in use within the Euro-IX Membership (%)

- BIRD – LINX, France-IX, NIX.CZ, VIX
- CISCO - AMS-IX, MSK-IX, UA-IX
- OpenBGPD - BCIX, SWISS-IX, NL-ix
- Quagga – PTT.br, JPNAP, ECIX



Route server operating systems in use within the Euro-IX Membership (%)

- Debian/LINUX – AMS-IX, TelX, DE-CIX
- CISCO IOS – BIX, UA-IX
- FreeBSD – NIZ.CZ, PLIX, LyonIX
- Ubuntu – PTT.br, ECIX



The Internet revealed a Film about IXPs

Now available in English, French , Turkish, Spanish, Romanian , Portuguese and German, check out the Euro-IX Youtube channel:

http://www.youtube.com/user/TheEuroIX

… and more languages to come!

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Links and References

- https://www.euro-ix.net/news-and-events
- https://www.euro-ix.net/tools
- https://www.euro-ix.net/home

Conclusions

- Euro-IX and the other IXPAs are Associations for Internet Exchanges
- Knowledge Base, sharing ideas and experience via the website, mailing list and Euro-IX Forums
- IXP Database – to contain information about IXPs from around the world
- Helping new/existing IXPs via the Twinning and Staff Exchange Programs
- Attendance to the bi-annual forums
- IXP Trusted Community

Thank You!

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