



Euro-IX Update

RIPE 68 – Warsaw

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Twitter: @euroix

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
- Newsletter – Subscribe here: www.euro-ix.net/newsletters
- Working Groups and Task Forces
- Close relationship with IEEE Ethernet Study Group
- Signed MoU with ISOC to support IXPs
- Annual European IXP Report
- Twinning Program
- Benchmarking

➤ Euro-IX, An Association of Internet Exchanges

- 77 affiliated IXPs :
 - 53 IXPs in the Euro-IX Region (32 Countries), operating over 100 Internet exchanges
 - 24 IXPs from the rest of the world
 - Newest Members:
 - NetIX (Bulgaria)
 - SOX (Serbia)
 - Thinx IX (Poland)
 - ARMIX (Armenia),
 - KOSIX (Kosovo)
 - TPIX (Poland)

➤ Euro-IX, An Association of Internet Exchanges

- 11 patrons:
 - ADVA Optical Networking
 - Alcatel-Lucent
 - Brocade
 - Cisco
 - Extreme Networks
 - Huawei
 - Interxion
 - Juniper Networks
 - MRV
 - Telecity
 - Telehouse

➤ The Euro-IX Region



➤ IXPs in Euro-IX Region

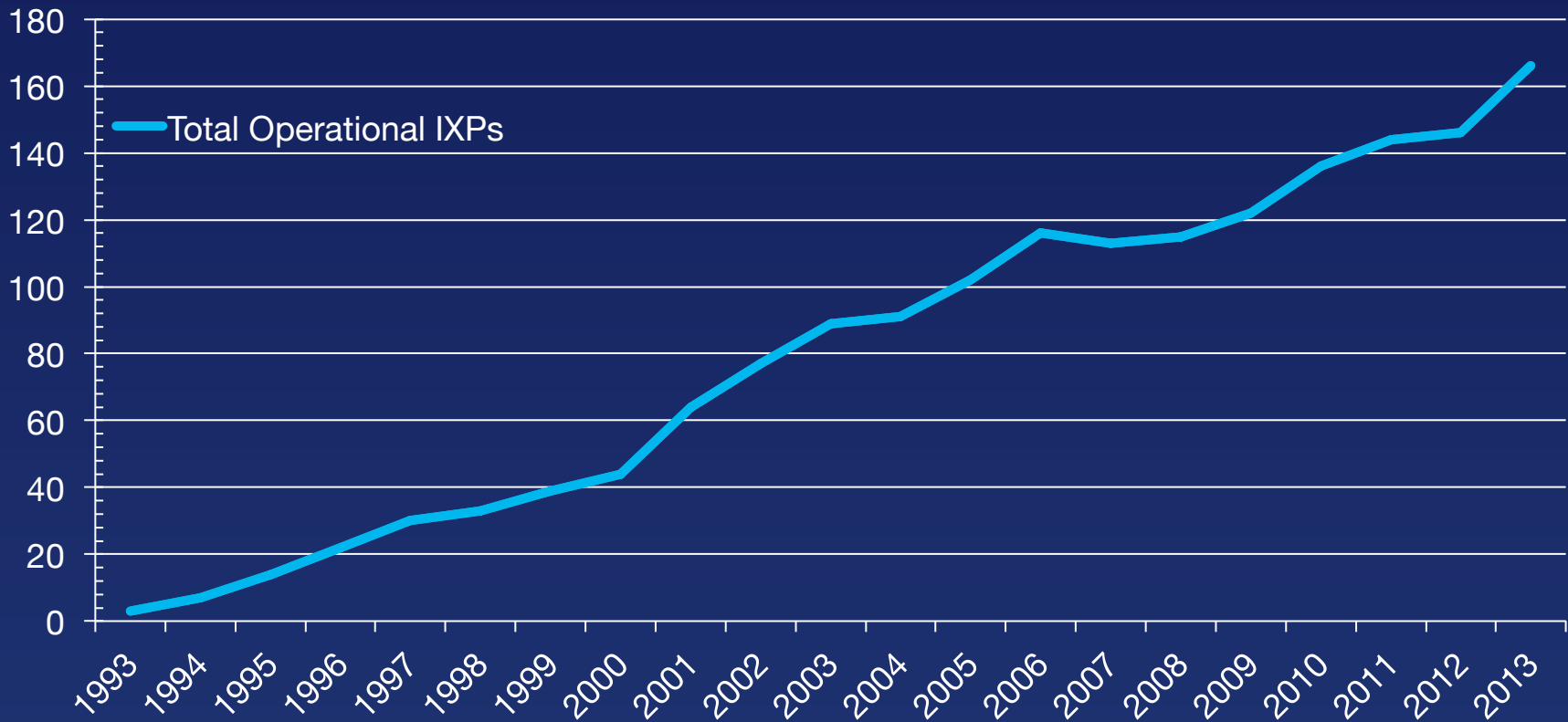


183 Known IXPs
48 Countries have IXPs
133 Cities have IXPs

Check our Interactive Map
[https://www.euro-ix.net/
location-of-ixps](https://www.euro-ix.net/location-of-ixps)

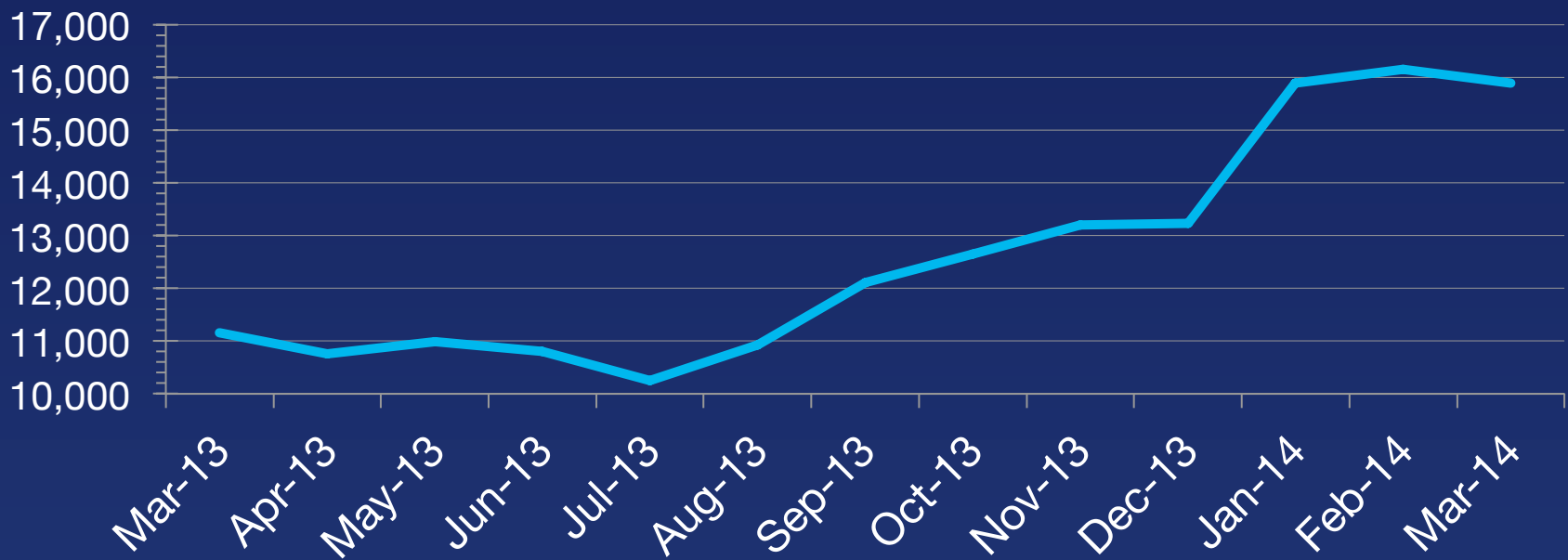


Growth of IXPs in the Euro-IX Region since 1993



➤ Traffic Growth in Euro-IX Region

- Known Aggregated Traffic Growth (over public peering LAN)
- From 11,151 Gbps to 15,894 Gbps
- Number of IXPs monitored: from 71 to 85



➤ IXPs in APIX Region

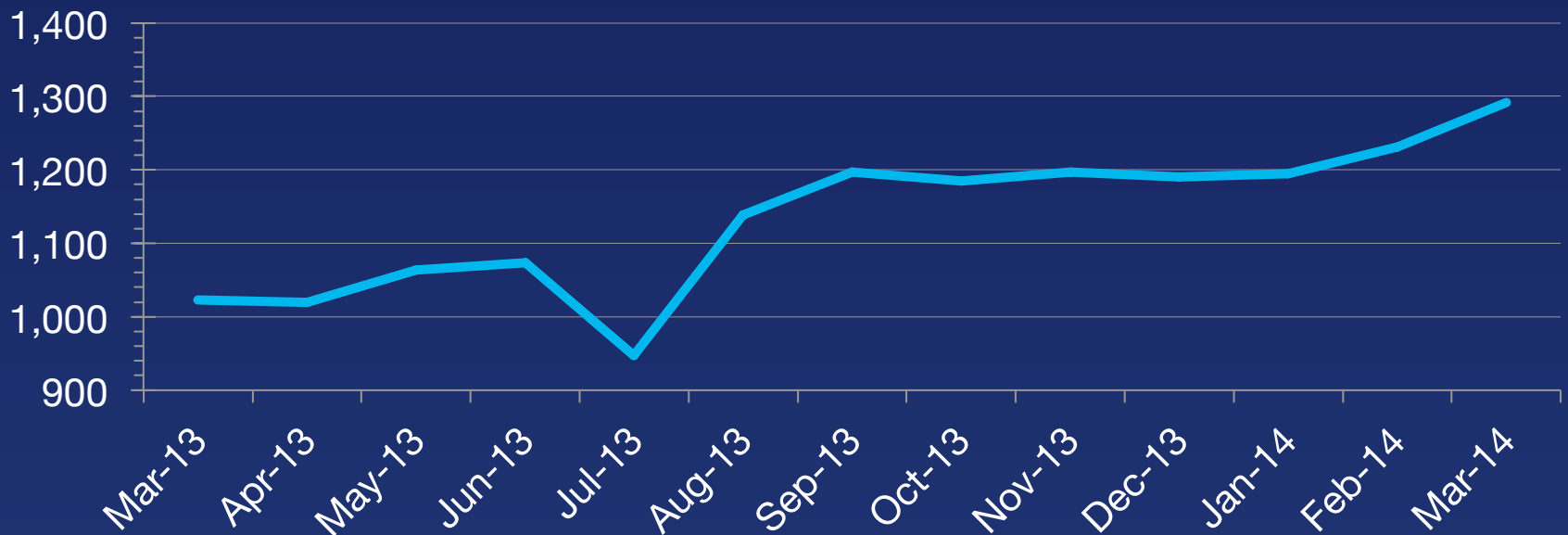


89 Known IXPs
18 Countries have IXPs
47 Cities have IXPs

Check our Interactive Map
[https://www.euro-ix.net/
location-of-ixps](https://www.euro-ix.net/location-of-ixps)

➤ Traffic Growth in APIX Region

- Known Aggregated Traffic Growth (over public peering LAN)
- From 1,023 Gbps to 1,291 Gbps
- Number of IXPs monitored: from 11 to 16



➤ IXPs in AF-IX Region

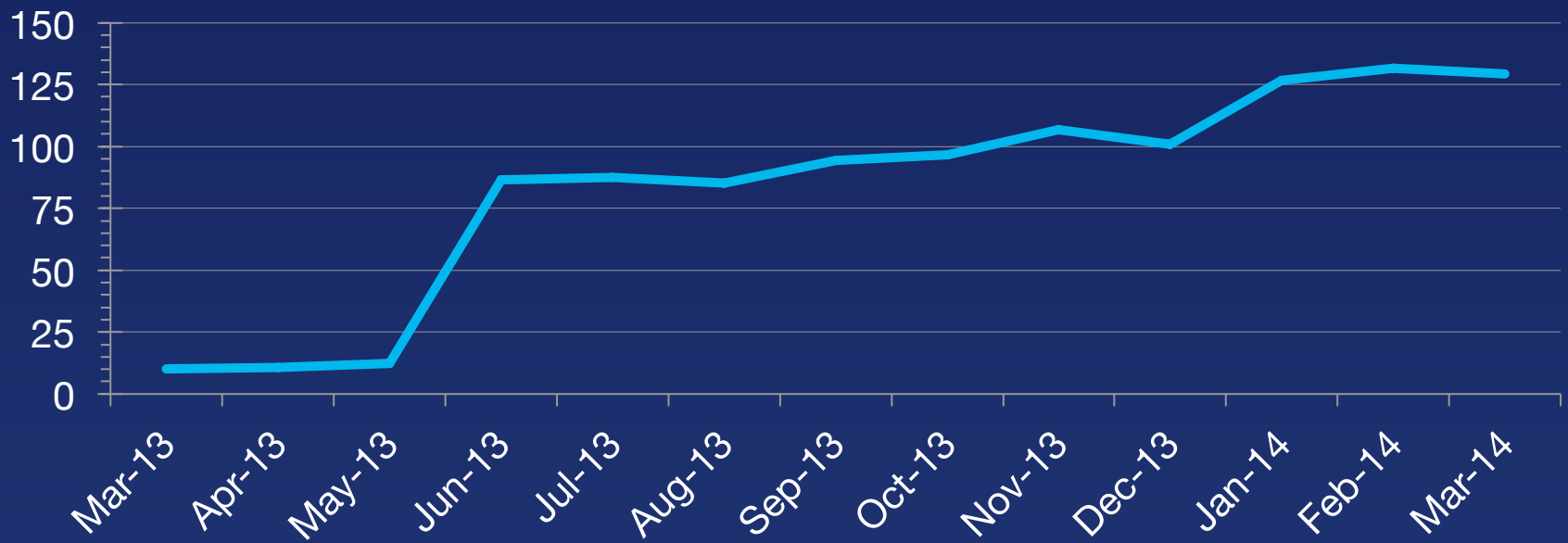


28 Known IXPs
22 Countries have IXPs
26 Cities have IXPs

Check our Interactive Map
<https://www.euro-ix.net/location-of-ixps>

➤ Traffic Growth in AF-IX Region

- Known Aggregated Traffic Growth (over public peering LAN)
- From 10 Gbps to 129 Gbps
- Number of IXPs monitored: from 5 to 11



IXPs in LAC-IX Region

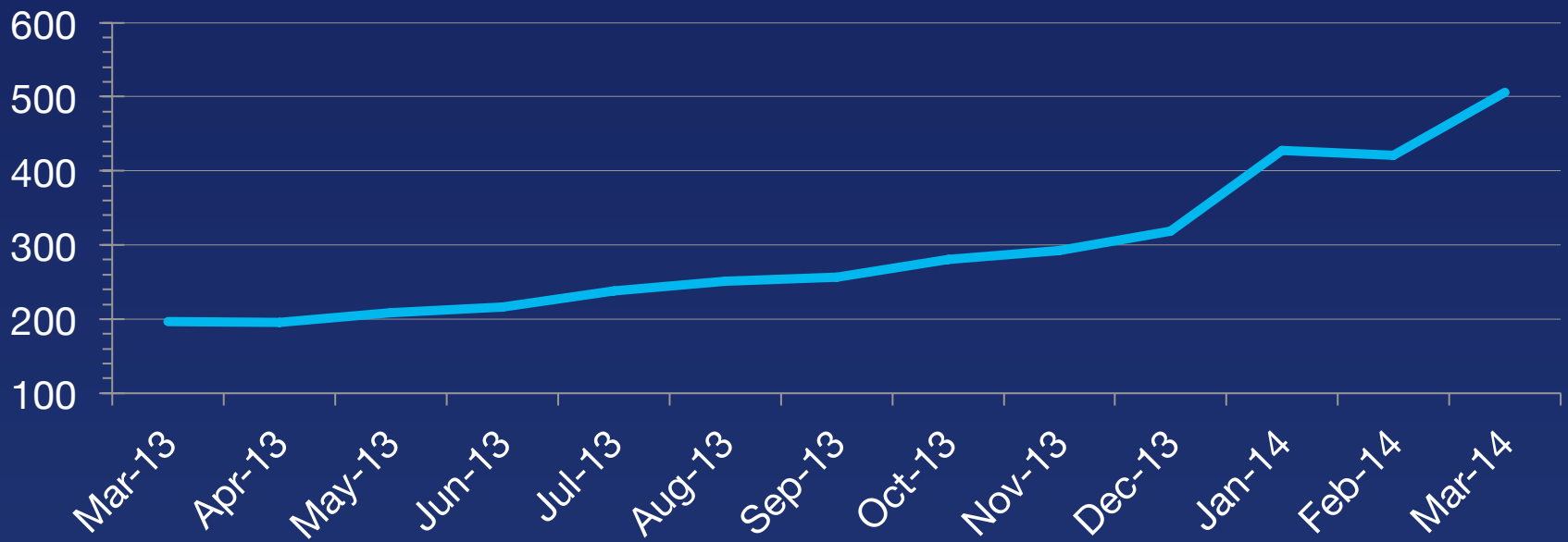


50 Known IXPs
11 Countries have IXPs
43 Cities have IXPs

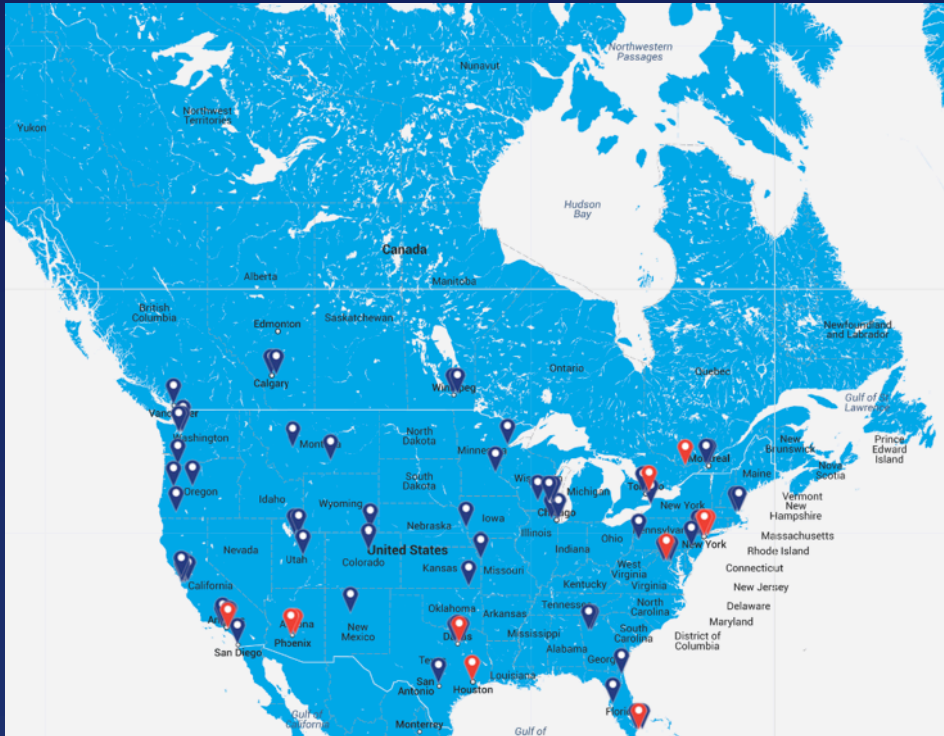
Check our Interactive Map
<https://www.euro-ix.net/location-of-ixps>

➤ Traffic Growth in LAC-IX Region

- Known Aggregated Traffic Growth (over public peering LAN)
- From 197 Gbps to 506 Gbps
- Number of IXPs monitored: from 26 to 29



➤ IXPs in North America



97 Known IXPs
2 Countries have IXPs
52 Cities have IXPs

Check our Interactive Map
[https://www.euro-ix.net/
location-of-ixps](https://www.euro-ix.net/location-of-ixps)

➤ Traffic Growth in North America

- Known Aggregated Traffic Growth (over public peering LAN)
- From 677 Gbps to 888 Gbps
- Number of IXPs monitored: from 6 to 18



➤ Range of ASNs connected to Euro-IX Members

3 - 25 ASNs connected -
TunIXP (Tunisia), FICIX (Finland)

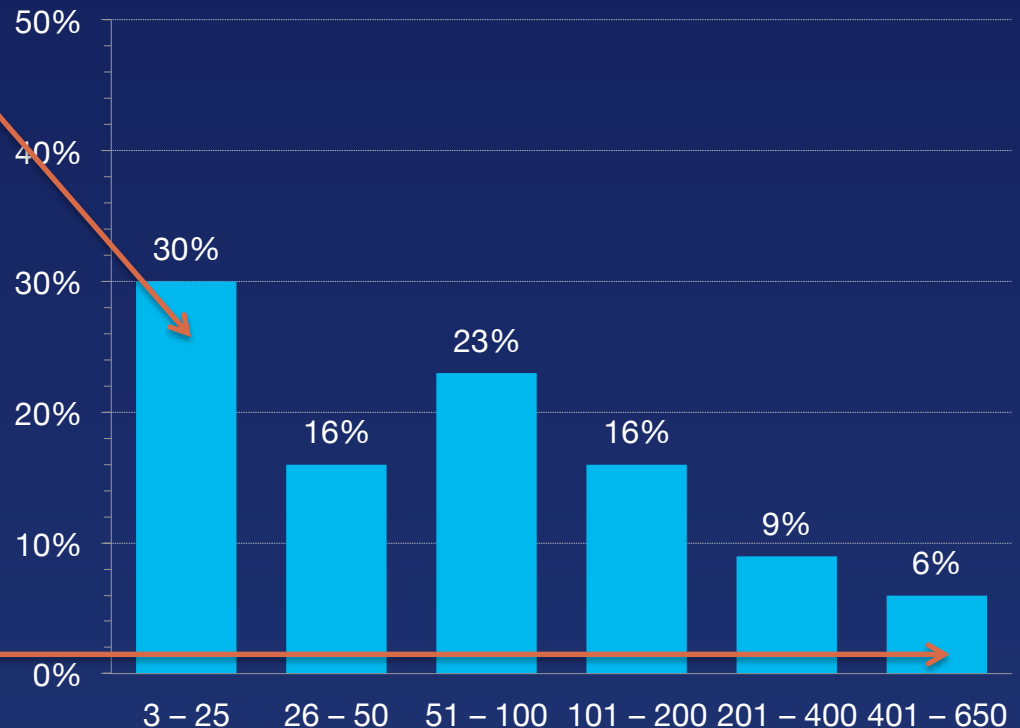
26 - 50 ASNs connected -
CIX (Croatia), DIX (Denmark)

51 - 100 ASNs connected -
NaMeX (Italy), SFINX (France)

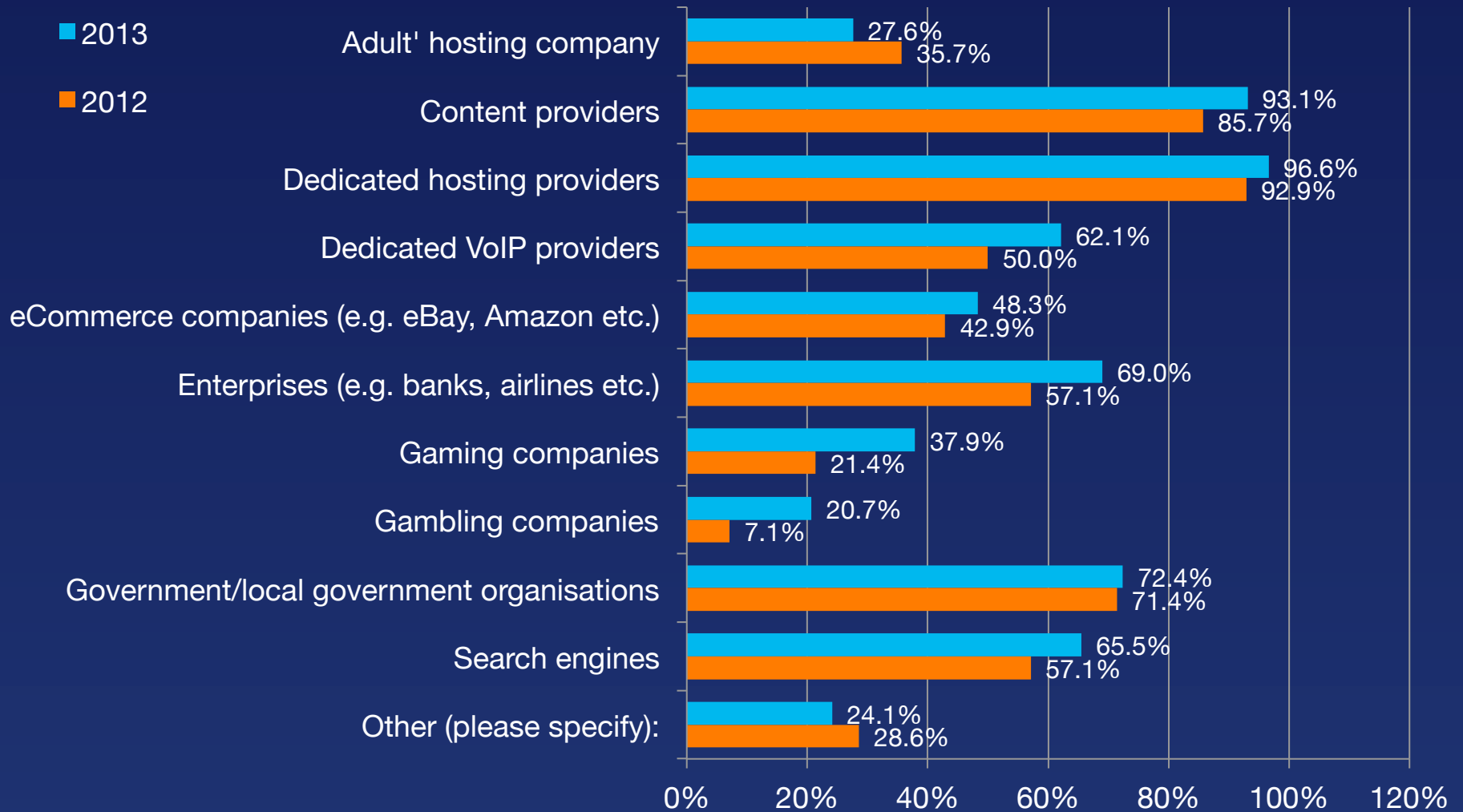
101 - 200 ASNs connected -
UA-IX (Ukraine), TorIX (Canada)

201 - 400 ASNs connected -
PLIX (Poland), MSK-IX (Russia)

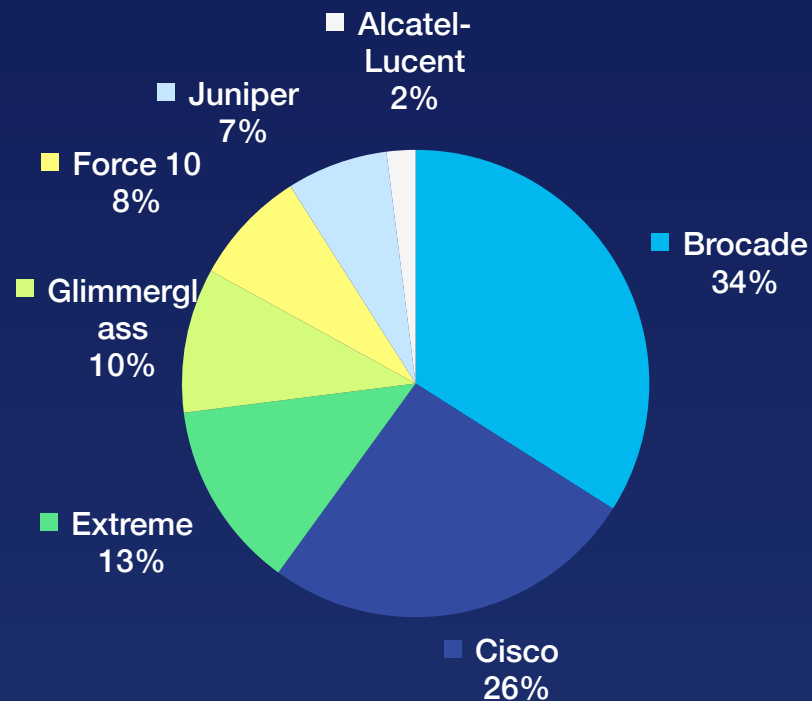
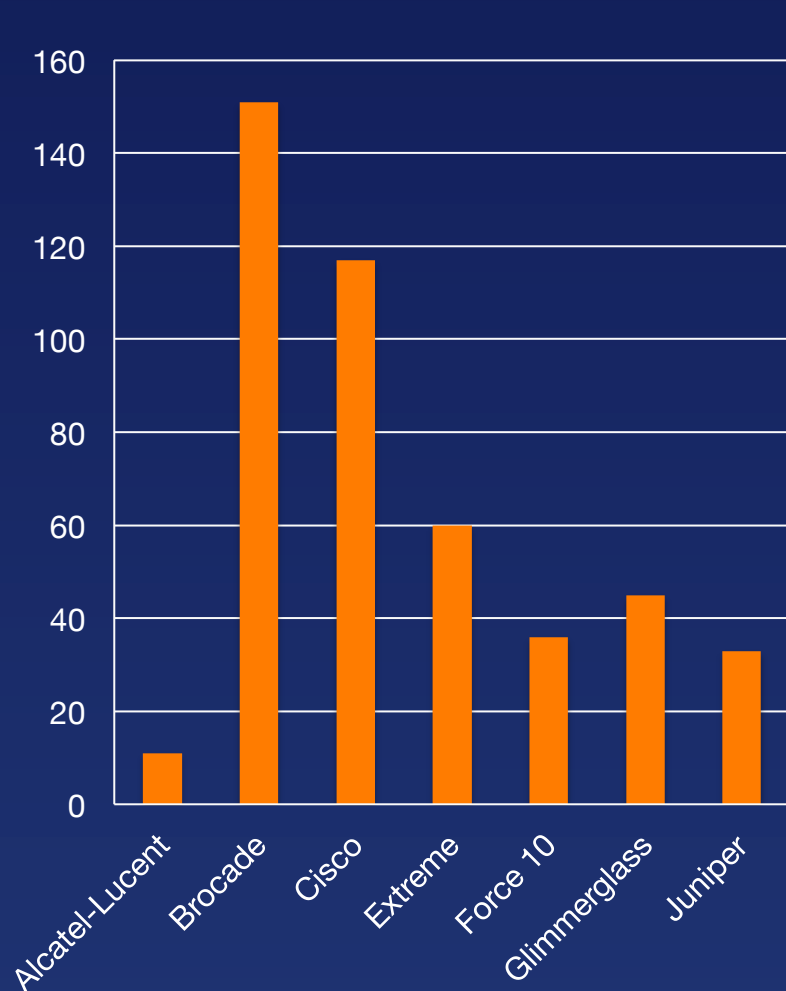
401 - 650 ASNs connected -
PTT.br (Brazil), AMS-IX (Netherlands)



Who connects to an IXP?



Switch/Routers DB: Vendors used



Alcatel-Lucent – DE-CIX

Brocade – AMS-IX, VIX, JPIX

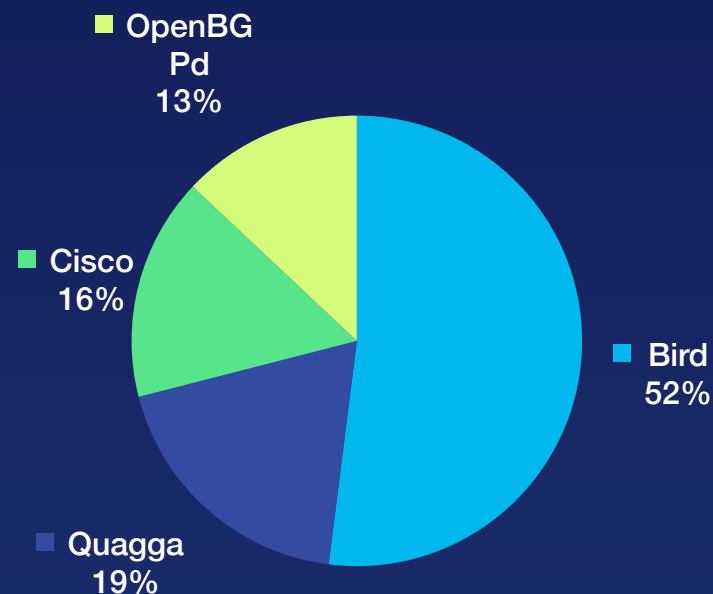
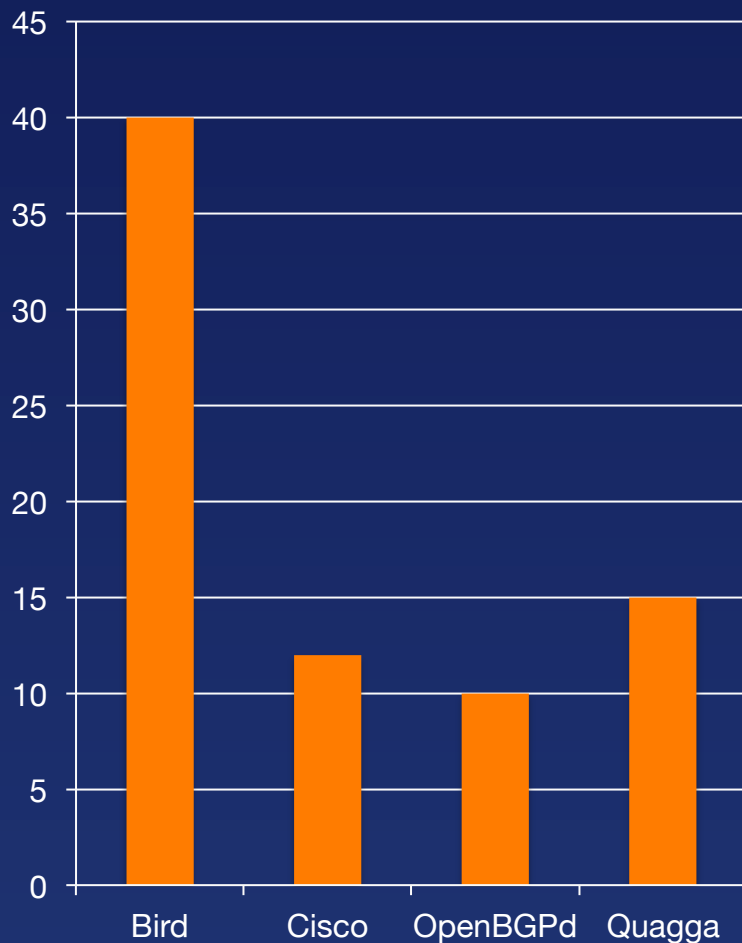
CISCO – LONAP, NIX.CZ, MSK-IX

Extreme – PLIX, MSK-IX, LINX

DELL (Force10) – BCIX

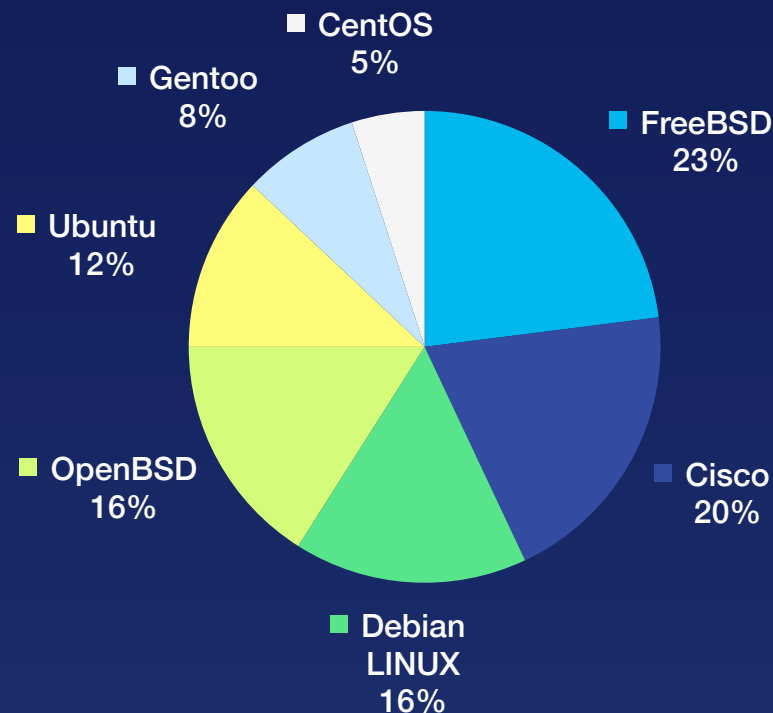
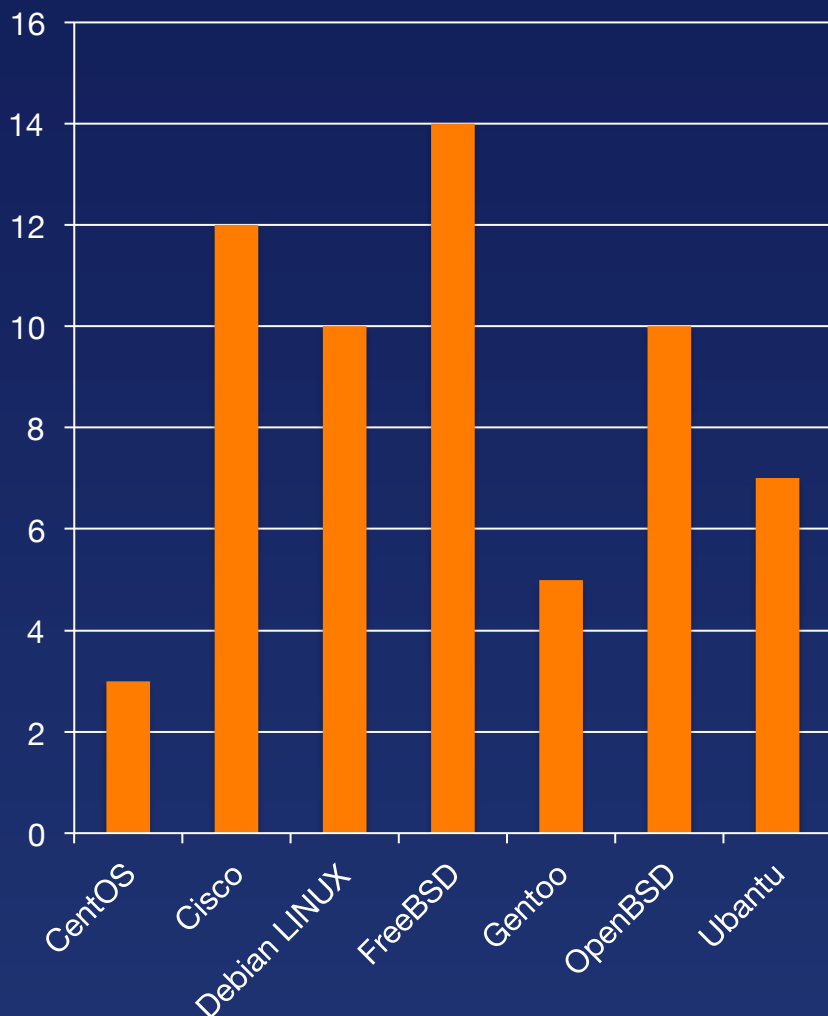
Juniper – LINX, VSIX

➤ Route Server DB: Daemon's used



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 DB: Operating Systems used



FreeBSD – TOP-IX, France-IX

CISCO - MSK-IX, JPIX, OTTIX

OpenBGPD - BCIX, SWISS-IX, NL-IX

Debian – BIX, DE-CIX, Netnod

➤ Other Internet Exchange Point Associations (IXPAs)





Internet Exchange Point Federation

- MOU signed by APIX, Euro-IX and LAC-IX to form the IX-F in November 2012 – www.ix-f.net
- Idea to have a Global IXP DB
- Set standards and BCPs
- Automate Data Collection from IXPs
- Plans to collaborate with other external Databases
- Met twice in 2013, planned 2 meetings in 2014 (1 was during APRICOT in Petaling Jaya, Malaysia)



APIX

Raphael Ho - Equinix (Hong Kong)
Katsuyasu Toyama - JPNAP (Japan)

Euro-IX

Arnold Nipper - DE-CIX (Germany)
John Souter - LINX (United Kingdom)

LAC-IX

Ariel Graizer - NAP CABASE (Argentina)
Milton Kashiwakura - PTT.br (Brazil)

> We have loads of IX Databases

https://www.peeringdb.com/private/exchange_list.php

Navigation: Home Page, Logout, Your Records, Peering Record, User Account

Search Public Exchange Points

Exchange Name: City:

IP Block: Country:

Media Type: Continental Region:

Search

Search Records

Networks

Exchange Points

Facilities

Common Points

Suggestions

Comments

New Exchange

New Facility

Help

FAQ

Statistics

Exchange Name	Long Name	City/Region	Country	Continental Region	Media Type	Participants
AAIX	Alpes Adria Internet exchange	Klagenfurt	AT	Europe	Ethernet	4
ACTIX	ACT Internet Exchange	Canberra, ACT	AU	Australia	Ethernet	11
ADN-IX		Valence	FR	Europe	Ethernet	0
AlbertaIX	AlbertaIX	Calgary	CA	North America	Ethernet	4
AMPATH	AMPATH - Florida International University/CIARA	Miami	US	North America	Multiple	0
AMS-IX	Amsterdam Internet Exchange	Amsterdam	NL	Europe	Ethernet	1229
AMS-IX Caribbean	Amsterdam Internet Exchange Caribbean	Curacao	CW	South America	Ethernet	11
AMS-IX Hong Kong	Amsterdam Internet Exchange Hong Kong	Hong Kong	HK	Asia Pacific	Ethernet	27
AMS-IX NY	AMS-IX New York	New York	US	North America	Ethernet	14
Angola-IXP / ANG-IXP	Angola Internet Exchange point	Luanda	AO	Africa	Ethernet	3
APX	Auckland Peering Exchange	Auckland	NZ	Asia Pacific	Ethernet	56
ArmIX	Armenian Internet Exchange	Yerevan	AM	Europe	Ethernet	0
ASIX6	Academia Sinica Internet Exchange 6	Taipei	TW	Asia Pacific	Multiple	1
ASSOCIO	mpls ASSOCIO	Tokyo, Nation wide	JP	Asia Pacific	Multiple	0
AZIX	Arizona Internet Exchange	Phoenix, Arizona	US	North America	Ethernet	10
B-IX	Balkan Internet Exchange	Sofia	BG	Europe	Ethernet	13

www.datacentermap.com/ixps.html

Map Database Search Request quote Research About Login / Signup

Internet Exchange Points
IXPs

On the map below you can see an overview of internet exchange points (IXPs) around the world, zoom in and click on a city marker to see the internet exchange points available in the city.

Map Satellite

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Peering Research, Related Reports & White Papers

- Multi-Tenant Datacenter: North American Providers - 2013
- To Build or Not To Build - Part I: Should Service Providers Build Or Lease Their Datacenters?

Related News

- Almalat first connected customer at DE-CIX New York
- Microsoft Adds Private Azure Links as its first customer
- DE-CIX New York signs on Almalat as its first customer
- Almalat Becomes First DE-CIX New York Customer
- TeletyGroup adds Microsoft Azure to Cloud-IX ecosystem

Latest Facilities

- Caronet XS, Charlotte

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Managed Hosting Hybrid Hosting

www.telegeography.com/research-services/internet-exchange-points-directory/

TELEGeography
AUTHORITATIVE TELECOM DATA

RESEARCH SERVICES CUSTOM RESEARCH TELECOM MAPS TELECOM RESOURCES

HOME > RESEARCH SERVICES > Internet Exchange Points Directory

Internet Exchange Points Directory

The data provided in our Internet Exchange Points Directory is now accessible via our free interactive [Internet Exchange Map](#). The map provides information for active Internet exchanges and buildings. Select an Internet exchange from the list provided to view the buildings in which that exchange is present. Or, select a building from the map projection to access data about the building, including its street address and a list of Internet exchanges present there.

The Internet Exchange Map is based on data compiled by TeleGeography, and is updated regularly to ensure that it is as accurate and as up-to-date as possible. Click [here](#) for more information about the map, or try it out at [www.internetexchangemap.com](#).

Related Service

Interactive Internet Exchange Map

An interactive, regularly updated map of the world showing the locations of Internet exchanges and buildings. Click on a building to view the Internet exchanges present there.

Colocation Database

Comprehensive colocation database with detailed information on data centers and colocation facilities worldwide.

https://prefix.pch.net/applications/ixpdir/

PCH
Packet Clearing House

Log in search.pch.net

Home About Purpose Technology Resources Calendar Sponsors Contact

EDUCATION RESEARCH POLICY

Help

- Show inactive IXPs
- Hide inactive IXPs
- Show summary views
- Submit a change
- Feature/bug report

World map showing Internet Exchange Points (IXPs) locations.

Region	Country	City	Internet Exchange Name	Participants	Traffic	Peering	Established	URL
Asia/Pacific	Algeria	Algiers	National Internet Exchange of Algeria	9	9	9	2013	
Asia/Pacific	Algeria	Algiers	Algeria Internet Exchange	10	13M	9	2008	
Asia/Pacific	Angola	Luanda	Angola Internet Exchange	10	13M	9	2008	
Asia/Pacific	Angola	Luanda	Ponto de Interconexão Internet Angola	10	13M	9	2008	
Latin America	Argentina (10)	Buenos Aires	NAP CABASE Buenos Aires	18	180M	9	2012	
Latin America	Argentina (10)	Buenos Aires	NAP CABASE Buenos Aires	79	7,043	100	Aug 2008	
Latin America	Argentina (10)	Cordoba	NAP CABASE Cordoba	9	100M	9	Aug 2012	

And more...

IX-F IXP database

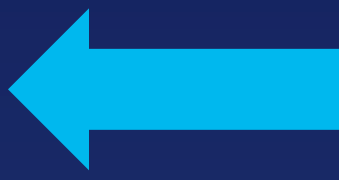
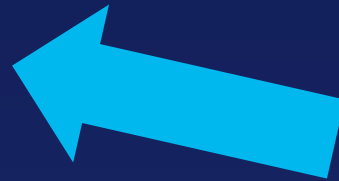
- Development of current Euro-IX database
- Only source that IXPs own and maintain data in
- IXP data maintained by IXPs ensures greater accuracy
- Useful for the IXP members to see IX data in context
- Great for research
- A single canonical place for IXP data

Others will be able to mirror IX-F data

Exchange Name	Long Name	City/Region	Country	Continental Region	Media Type	Participants
ASIX	Alpes Adria Internet Exchange	Klagenfurt	AT	Europe	Ethernet	4
ACTIX	ACT Internet Exchange	Canberra, ACT	AU	Australia	Ethernet	11
ADN-IX		Valence	FR	Europe	Ethernet	0
AlbertaIX	AlbertaIX	Calgary	CA	North America	Ethernet	4
AMPATH	AMPATH - Florida International University/CIARA	Miami	US	North America	Multiple	0
AMS-IX	Amsterdam Internet Exchange	Amsterdam	NL	Europe	Ethernet	1229
AMS-IX Caribbean	Amsterdam Internet Exchange Caribbean	Curacao	CW	South America	Ethernet	11
AMS-IX Hong Kong	Amsterdam Internet Exchange Hong Kong	Hong Kong	HK	Asia Pacific	Ethernet	27
AMS-IX NY	AMS-IX New York	New York	US	North America	Ethernet	14
AMS-IX Paris	Amsterdam Internet Exchange Paris	Paris	FR	Europe	Ethernet	1

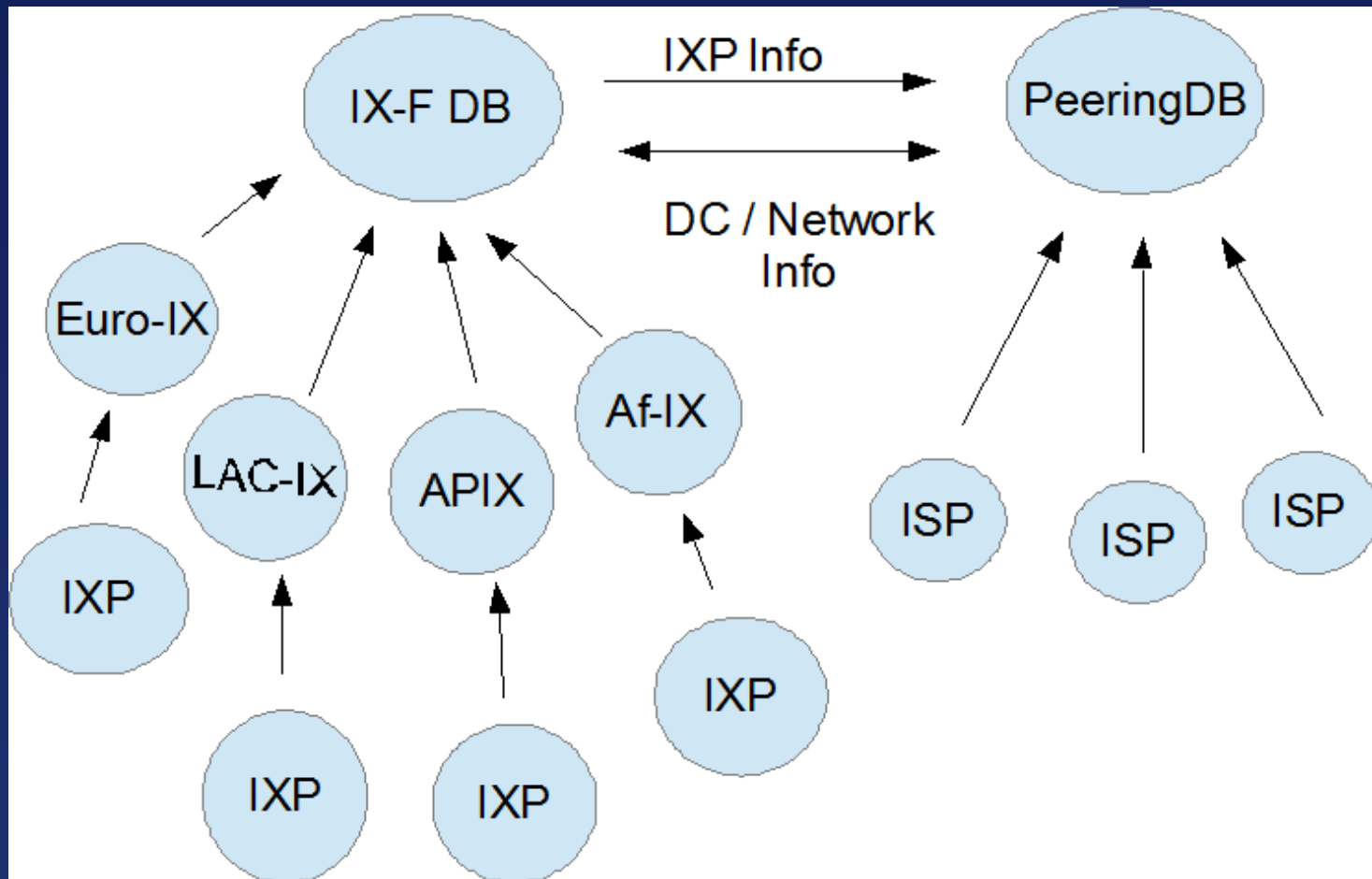
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Managed Hosting Hybrid Hosting



Region	City	Country	Traffic stats
Europe	San Juan de lima	Peru	
North America	Seoul	Korea, Republic of	
Asia / Pacific	Klagenfurt	Austria	
Africa	Canberra	Australia	
Latin America	Arusha	Tanzania, United Republic of	
North America	Tirana	Albania	
Europe	Amsterdam	Netherlands	
Europe	Willemstad, Curacao	Netherlands Antilles	
Asia / Pacific	Hong Kong	China	

> The plan...



IX-F DB

- Hackathon in Sheffield last week
- Plan to build a new DB for IXPs
- IXPs own their own data (update/add/delete)
- Already starting cleaning the IXP data
- Wanted something open and plugable

IX-F DB API server written using Python / Django, which can:

- get / create / update / delete IXP and Organisation objects
- all interaction is JSON
- all non-sensitive information will be publically available
- Members of IXPA's (and others as appropriate) will be able to create, update and delete IXPs from the databases.

IX-F DB

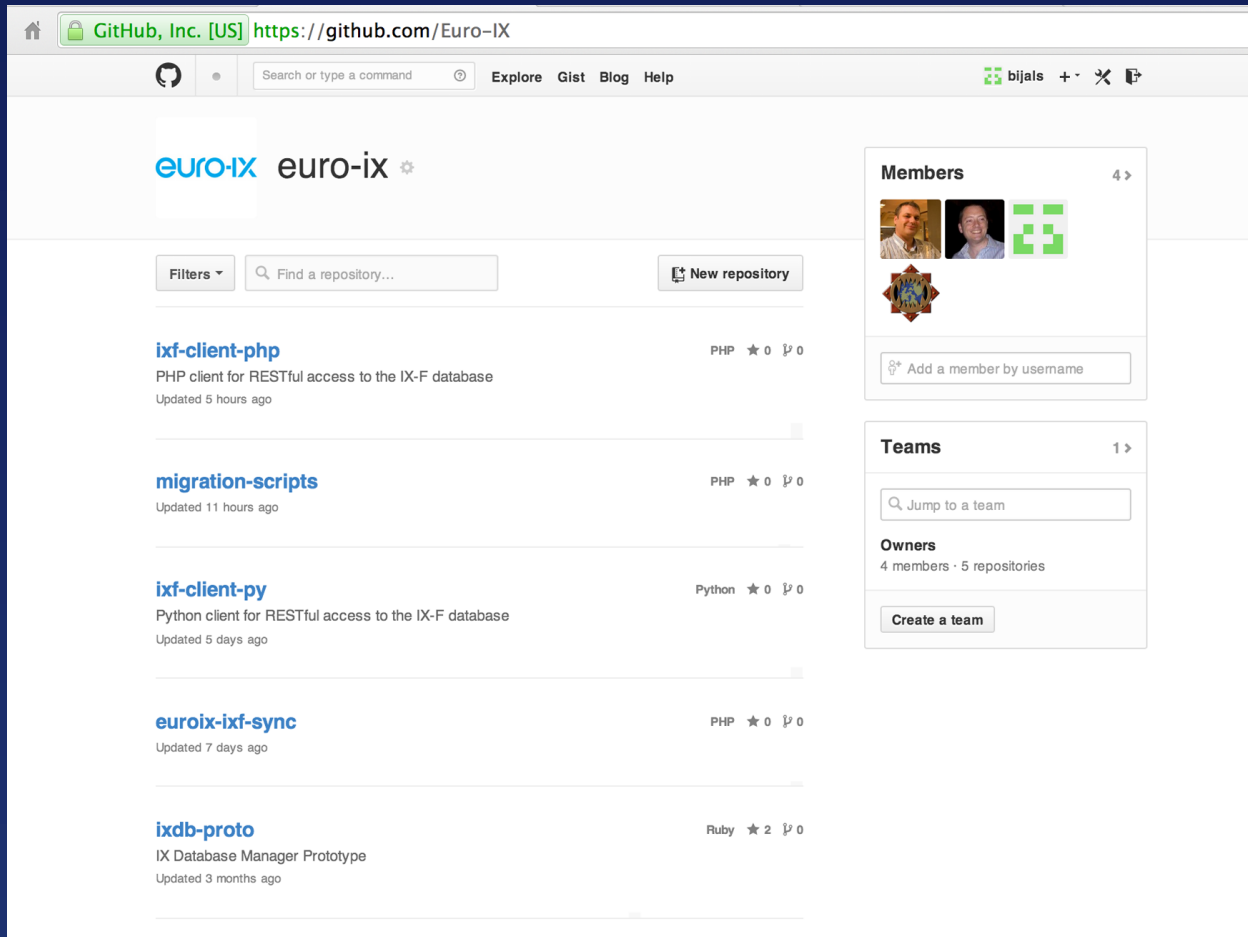
- We have a proof of concept client to interact with this database in Python including unit test code at:
<https://github.com/euro-ix/ixf-client-py>
- The PHP version of this with unit tests also available at:
<https://github.com/euro-ix/ixf-client-php>

IX-F DB

It is work in progress... therefore:

- We have migration scripts to migrate / keep IX-F in sync from euro-ix for the next few months while the euro-ix database remains as the primary database. These are at: <https://github.com/euro-ix/euroix-ixf-sync>
- All code is available on the Euro-IX GitHub repository <https://github.com/Euro-IX>

> Euro-IX GitHub: <https://github.com/Euro-IX>



The screenshot shows the GitHub profile page for Euro-IX. The header includes the GitHub logo, a search bar, and navigation links (Explore, Gist, Blog, Help). The main content area displays the Euro-IX organization name and a list of repositories. On the right, there are sections for Members (4) and Teams (1).

Repositories:

- ixf-client-php** (PHP): PHP client for RESTful access to the IX-F database. Updated 5 hours ago. 0 stars, 0 forks, 0 pulls.
- migration-scripts** (PHP): Updated 11 hours ago. 0 stars, 0 forks, 0 pulls.
- ixf-client-py** (Python): Python client for RESTful access to the IX-F database. Updated 5 days ago. 0 stars, 0 forks, 0 pulls.
- euroix-ixf-sync** (PHP): Updated 7 days ago. 0 stars, 0 forks, 0 pulls.
- ixdb-proto** (Ruby): IX Database Manager Prototype. Updated 3 months ago. 2 stars, 0 forks, 0 pulls.

Members: 4 members. Includes a search bar to add members by username.

Teams: 1 team. Includes a search bar to jump to a team.

Owners: 4 members · 5 repositories. Includes a "Create a team" button.

➤ The Internet revealed, a movie about IXPs

Available in:

- English
- French
- German
- Portuguese
- Turkish
- Spanish
- Romanian
- Arabic
- Russian
- Czech
- Italian



- Check out the Euro-IX Youtube channel:
<https://www.youtube.com/channel/UCFyucVRAAMzxyJlsxnGwsjw>
- More languages to come
- If your interested in translating the video contact us



Questions?



Thank you!