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Euro-IX and IX-F Update

March 2015

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What do we do?

- 2 Forums per year

- Maintaining IXP Database and tools

- Newsletter – Subscribe here: www.euro-ix.net/newsletters

- Working Groups

- IXP Reports

- Twinning Program

Why do we do it? For the good of the community!

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Association of IXPs

77 affiliated IXPs:

- 53 IXPs in the Euro-IX Region
  => in 32 Countries, operating over 100 IXPs

- 24 IXPs from the rest of the world

- Newest Members:
  Angonix (Angola), SOX (Serbia),
  ARMIX (Armenia), KOSIX (Kosovo), TPIX (Poland)

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11 Patrons

- ADVA Optical Networking
- Alcatel-Lucent
- Brocade
- BTI Systems
- Extreme Networks
- Huawei

- Interxion
- Juniper Networks
- MRV
- Telecity
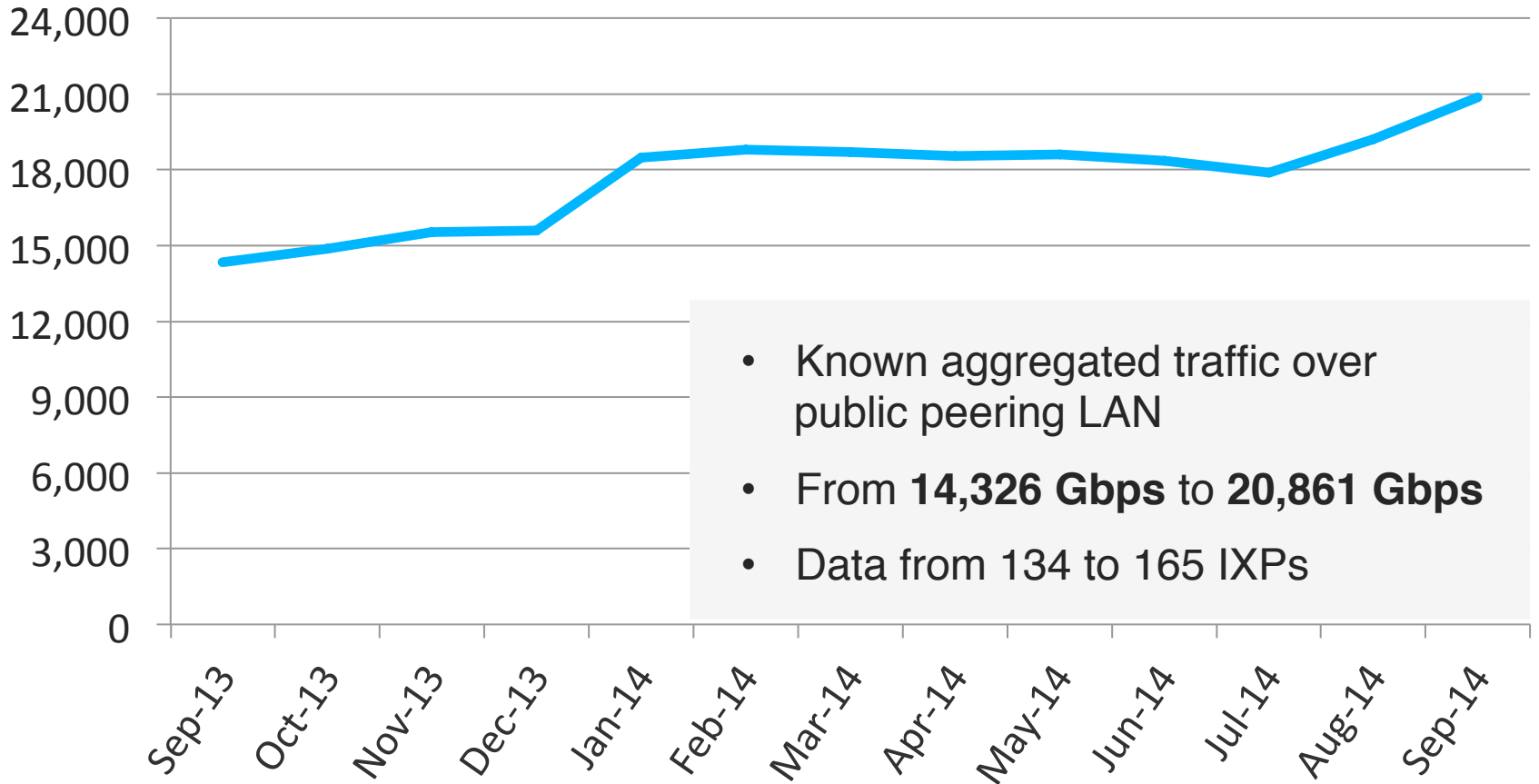- Telehouse

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Internet Exchange Federation

Internet Exchange Federation (IX-F)

- MOU signed by APIX, Euro-IX and LAC-IX to form the IX-F in November 2012 – www.ix-f.net

- Af-IX signed the MoU to join the IX-F in 2014

- Idea to have a Global IXP DB

- Global BCPs for IXPs - https://www.euro-ix.net/euro-ix-bcp

- Automate Data Collection from IXPs

- Plans to collaborate with other external Databases

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IX-F Board

- **Af-IX**
  Nishal Goburdhan – JINX (South Africa)
  Kyle Spencer – UIXP (Uganda)

- **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)

Global Traffic Growth – 12 months

- Known aggregated traffic over public peering LAN
- From **14,326 Gbps** to **20,861 Gbps**
- Data from 134 to 165 IXPs

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IXP Database

IXP Database Project

- There are many IXP Databases…

IXP Database

- A single canonical place for IXP data

- Development of IXP Database has started

- IXP data maintained by IXPs this ensures greater accuracy

- Useful for the IXP members to see IX data in context

- We want it to be open and pluggable

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The plan

- Others will be able to mirror IXP Data

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Work in progress..

IXP Database

IXP DB API server written using Python / Django, which can:

- Get / create / update / delete IXP and Organisation objects

- All interaction is JSON

- IXPAs will be able to create, update and delete IXPs from the databases.

- All code is available on the Euro-IX GitHub repository **https://github.com/Euro-IX**

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Euro-IX Database

Range of ASNs connected to Members

Range	%
03 - 25	30%
26 - 50	18%
51 - 100	23%
101 - 200	15%
201 - 400	8%
401 - 670	6%

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

- 26 - 50 ASNs
  SOX (Serbia), DIX (Denmark)

- 51 - 100 ASNs
  NaMeX (Italy), BIX.BG (Bulgaria)

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

- 201 - 400 ASNs
  France-IX (France), MSK-IX (Russia)

- 401 - 670 ASNS
  PTT.br (Brazil), AMS-IX (NL)
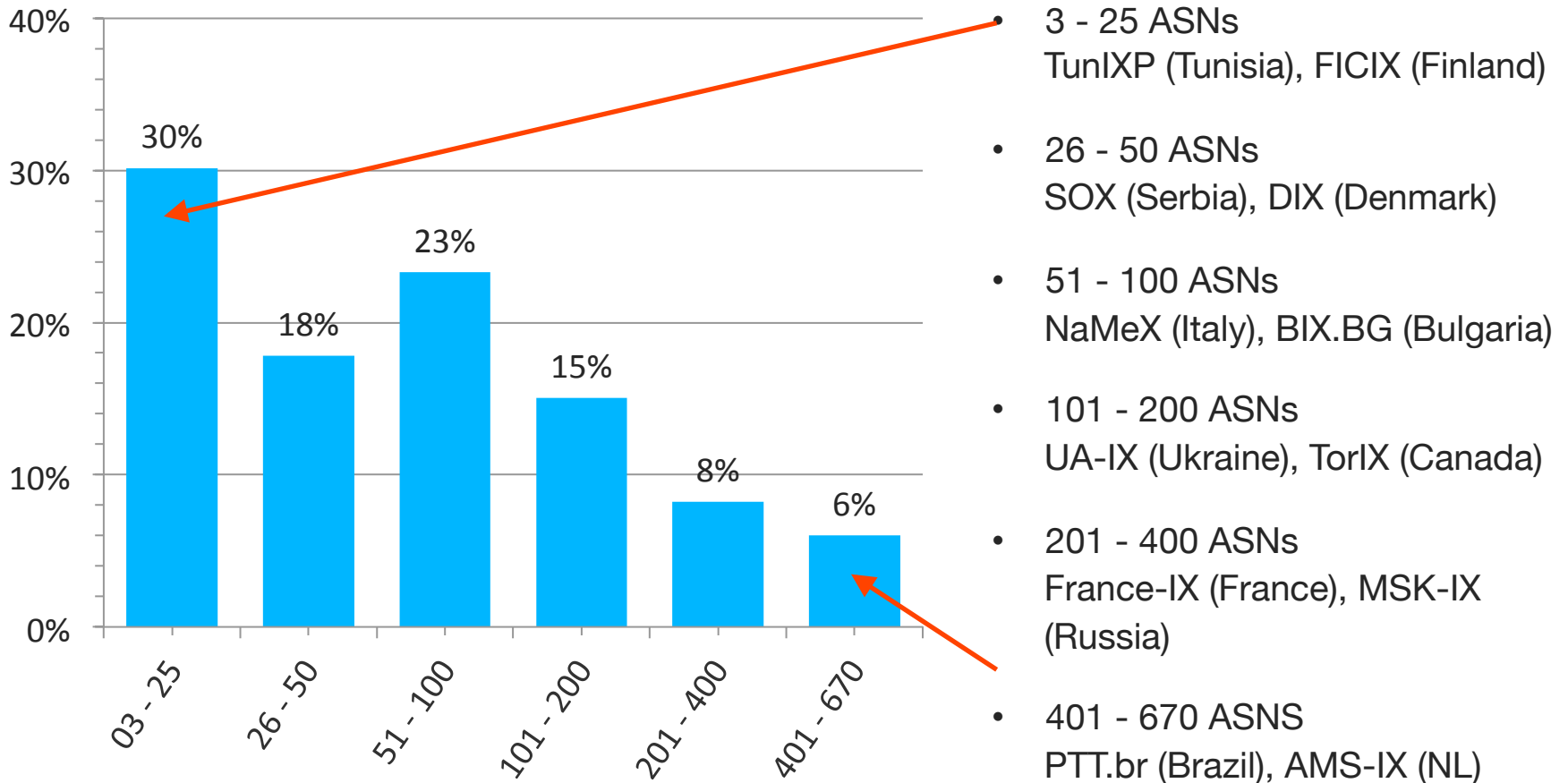
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Switch/Router DB – Vendors used
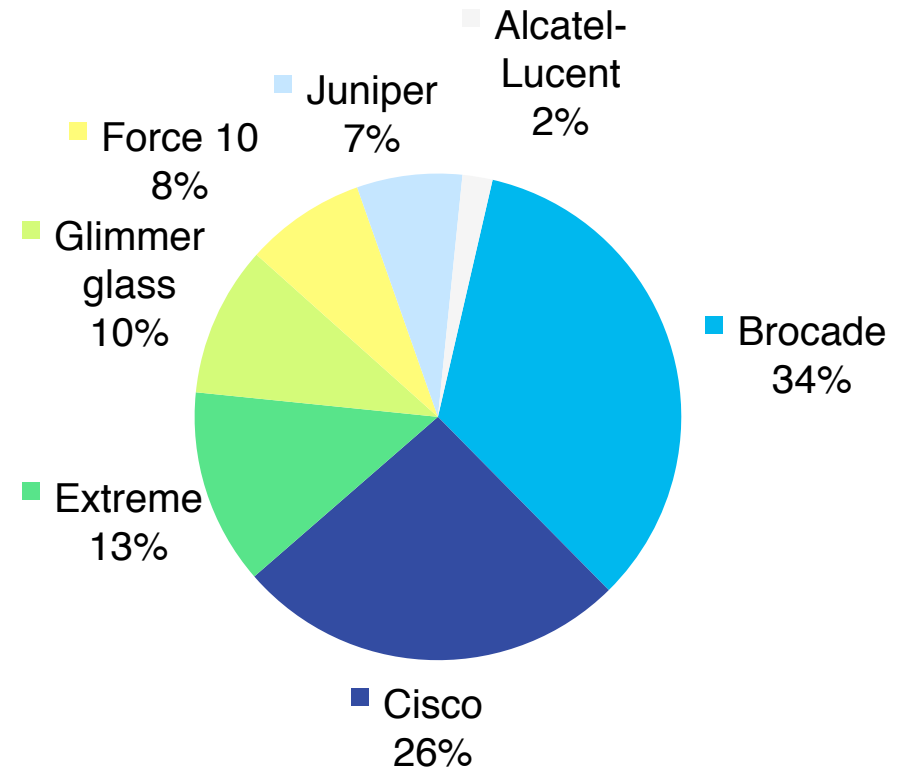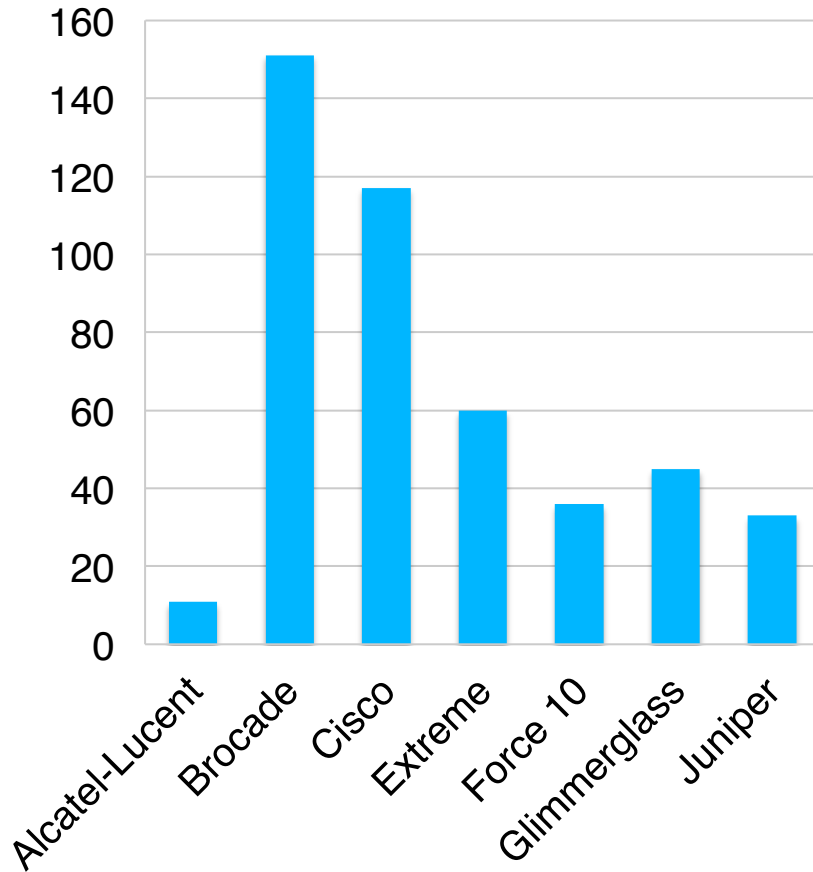
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Route Server DB – Deamons used
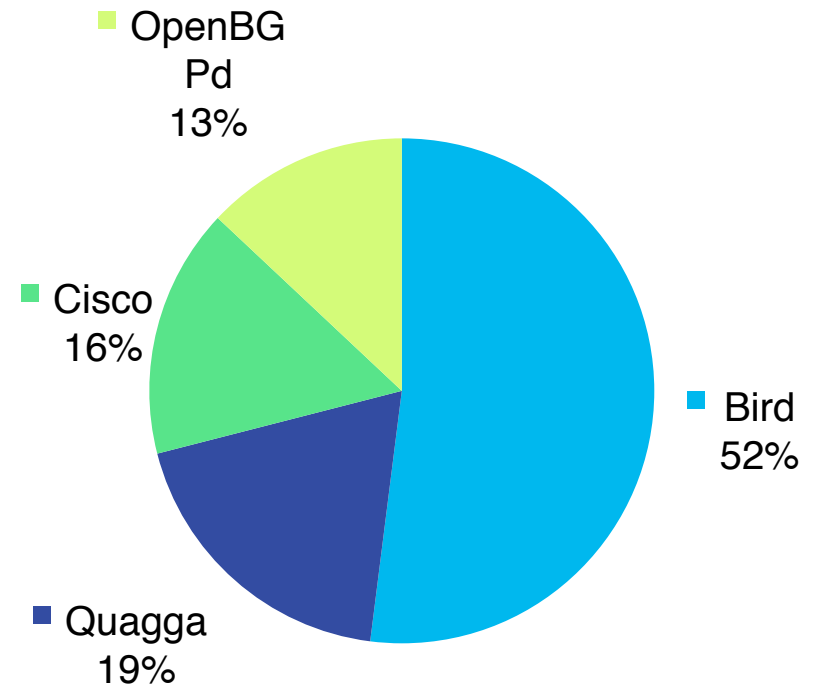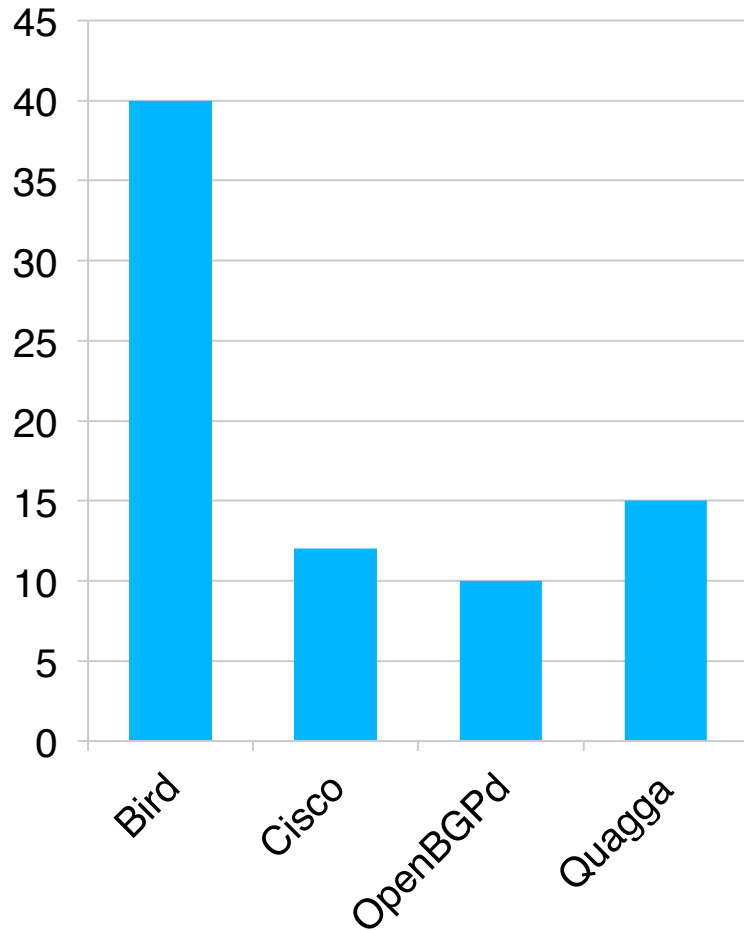
Euro-IX Tools

Euro-IX Tools

- IXP Service Matrix - **euro-ix.net/tools/ixp_matrix**

- Peering Matrix - **euro-ix.net/tools/peering_matrix**

- ASN Search **euro-ix.net/tools/asn_search**

- ASN Filter - **euro-ix.net/tools/asn_filter**

- Newest ASN entries - **euro-ix.net/tools/asn_newest**

- Most common ASNs - **euro-ix.net/tools/asn_common**

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ASN Search Tool

Enter an ASN, IXP or organisation name:

Query [   ]

Search

Note: The ASN information contained within this database is a combination of both affiliated and non-affiliated IXP content. While the affiliated IXP content is highly accurate, the non-affiliated IXP content is updated on a best effort basis and is nonetheless considered to be quite accurate.

AF-IX		
IXP Participants	**IPv6 active**	**Unique ASNs**
275	43	223
North America		
IXP Participants	**IPv6 active**	**Unique ASNs**
2161	390	1005
LAC-IX		
IXP Participants	**IPv6 active**	**Unique ASNs**
1105	490	763
APIX		
IXP Participants	**IPv6 active**	**Unique ASNs**
1469	350	872
Euro-IX		
IXP Participants	**IPv6 active**	**Unique ASNs**
7881	4183	4188
Global		
IXP Participants	**IPv6 active**	**Unique ASNs**
12891	5456	7394

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ASN Filter

ASNs that peer at:

NAP INCA (Peru)	⚪ List all	NAP INCA (Peru)
6NGIX (Korea, Republic of)	⚪ Only	6NGIX (Korea, Republic of)
AAIX (Austria)	⚪ And other IXPs	AAIX (Austria)
ACT−IX − Canberra (Australia)	⚪ And at ⇒	ACT−IX − Canberra (Australia)
ADN−IX (France)	⚪ But not at ⇒	ADN−IX (France)
AIXP (Tanzania, United Republic of)	⚪ And other IXPs, but not at ⇒	AIXP (Tanzania, United Republic of)
ALB−IX (Albania)		ALB−IX (Albania)
AlbertaIX (Canada)		AlbertaIX (Canada)
AMPATH (United States of America)		AMPATH (United States of America)
AMS−IX (Netherlands)		AMS−IX (Netherlands)
AMS−IX Caribbean (Netherlands Antilles)		AMS−IX Caribbean (Netherlands Antilles)
AMS−IX East Africa (Kenya)		AMS−IX East Africa (Kenya)
AMS−IX Hong Kong (China)		AMS−IX Hong Kong (China)
AMS−IX New York (United States of America)		AMS−IX New York (United States of America)
ANG−IXP (Angola)		ANG−IXP (Angola)

Filter

Peering Matrix

| IXP	Total listed ASNs at IXP	ASNs that don't peer at other IXPs	% of ASNs that don't peer at other IXPs	ASNs that peer at other IXPs	% of ASNs that peer at other IXP	ADN-IX	ALB-IX	AMS-IX	AMS-IX Caribbean	AMS-IX East Africa	AMS-IX Hong Kong	AMS-IX New York	ANGONIX	ARMIX	BBIX - Fukuoka	BBIX - Nagoya	BBIX - Okinawa	BBIX - Osaka	BBIX - Tokyo	BBIX - Tokyo	BCIX	BIX	BIX	BIX.BG	BNIX	CATNIX	CIX	CIXP	CoreSite - Any Los	CyrusOne	DE-CIX Frankfurt	DE-CIX Hamburg	DE-CIX Munich	DE-CIX New York	DIX - Ballerup	DIX - Skanderborg
AMS-IX	679	114	17	565	83	0	0	679	1	0	0	0	0	0	0	0	0	0	2	0	26	15	0	13	20	7	0	19	31	0	305	12	7	1	0	0
AMS-IX Caribbean	7	2	29	5	71	0	0	1	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0
ARMIX	8	6	75	2	25	0	0	0	0	0	0	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
BBIX - Tokyo	8	1	13	7	87	0	0	2	0	0	0	0	0	0	0	0	0	0	8	0	2	1	0	2	0	0	0	0	3	0	2	1	2	1	0	0
BCIX	62	22	35	40	65	0	0	26	0	0	0	0	0	0	0	0	0	0	2	0	62	3	0	5	3	1	0	1	8	0	31	8	7	1	0	0
BIX	51	33	65	18	35	0	0	15	0	0	0	0	0	0	0	0	0	0	1	0	3	51	0	2	4	0	0	3	4	0	16	1	2	1	0	0
BIX.BG	54	25	46	29	54	0	0	13	0	0	0	0	0	0	0	0	0	0	2	0	5	2	0	54	0	0	0	5	5	0	16	2	3	1	0	0
BNIX	45	17	38	28	62	0	0	20	0	0	0	0	0	0	0	0	0	0	0	0	3	4	0	0	45	2	0	3	3	0	17	0	0	0	0	0
CATNIX	29	15	52	14	48	0	0	7	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2	29	1	0	1	0	4	0	0	0	0	0
CIX	29	20	69	9	31	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	29	0	0	0	3	0	0	0	0	0
CIXP	37	8	22	29	78	0	0	19	0	0	0	0	0	0	0	0	0	0	0	0	1	3	0	0	3	0	0	37	1	0	13	1	0	0	0	0
CoreSite - Any2 Los Angeles	147	59	40	88	60	0	0	31	0	0	0	0	0	0	0	0	0	0	3	0	8	4	0	5	3	1	0	1	147	0	28	2	3	1	0	0
DE-CIX Frankfurt	585	111	19	474	81	0	0	305	0	0	0	0	0	1	0	0	0	0	2	0	31	16	0	16	17	4	3	13	28	0	585	19	16	1	0	0

IXP Service Matrix

| IXP	Location	Asn	Rs Asn	# Of Customers	# I Pv6 Ready	% I Pv6 Ready	# Of Sites	Last Month Traffic (Gb/S)	Public Stats	Non Profit	Priv. Peering	Ipv6 Lan Type	Ipv6 Registry	Multicast	Vlan Services	Out Of Band Access	24x7 Service	24x7 Access
ADN-IX	Valence		N/A	0	0	0		0	-	-	-				-	-	-	-
ALB-IX	Tirana		N/A	0	0	0		0	-	-	-				-	-	Y	-
AMS-IX Traffic	Amsterdam	1200	6777	679	539	79.4	12	2927	Y	Y	Y	ISP Peering LAN	RIPE	No	Y	-	Y	Y
AMS-IX Caribbean Traffic	Willemstad, Curacao	28017	N/A	7	0	0.0	1	0	Y	Y	Y				Y	-	Y	Y
AMS-IX East Africa Traffic	Mombasa	327740	N/A	0	0	0	1	0	Y	Y	Y				Y	-	Y	Y
AMS-IX Hong Kong Traffic	Hong Kong	58516	N/A	0	0	0	1	0	Y	Y	Y				Y	-	Y	Y
AMS-IX New York Traffic	New York	62981	N/A	0	0	0	4	0	Y	Y	Y				Y	-	Y	Y
ANGONIX	Luanda		N/A	0	0	0		0	-	-	-				-	-	-	-
ARMIX	Yerevan	51225	N/A	8	8	100.0	1	0	-	Y	-				-	-	Y	Y
BBIX - Fukuoka	Fukuoka		N/A	0	0	0		0	-	-	-				-	-	-	-

Euro-IX projects

Traffic during FIFA World Cup

- Collaboration with RIPE NCC
  Full Report - **https://labs.ripe.net/Members/emileaben/
  internet-traffic-during-the-world-cup-2014**
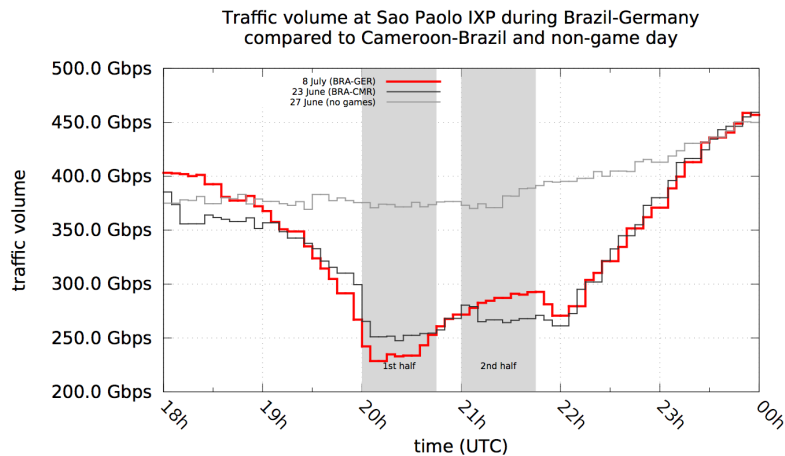
Traffic at PTT Sao Paulo
(Brazil vs. Germany)
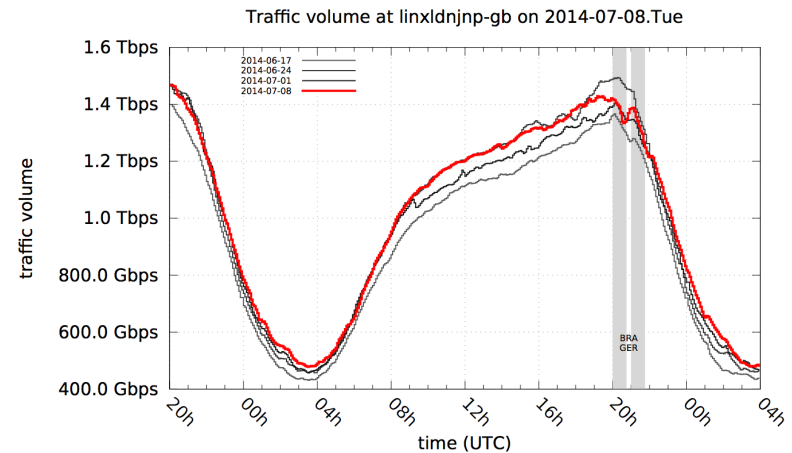
Traffic at LINX London - Juniper LAN
(Brazil vs. Germany)

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Euro- IX Project

- IXP BCOPs updated -
  https://www.euro-ix.net/euro-ix-bcp

- IXP Bogon list - Team Cymru
  http://www.team-cymru.org/ixp

Euro- IX Project

- Work done by the Euro-IX Data Task Force is being implemented, thanks to Elisa and Nick - https://www.euro-ix.net/euro-ix-bcp IXP Member list JSON Scheme

  - 8 IXPs already implemented!

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Internet Revealed, a film about IXPs

The Euro-IX video (HD)
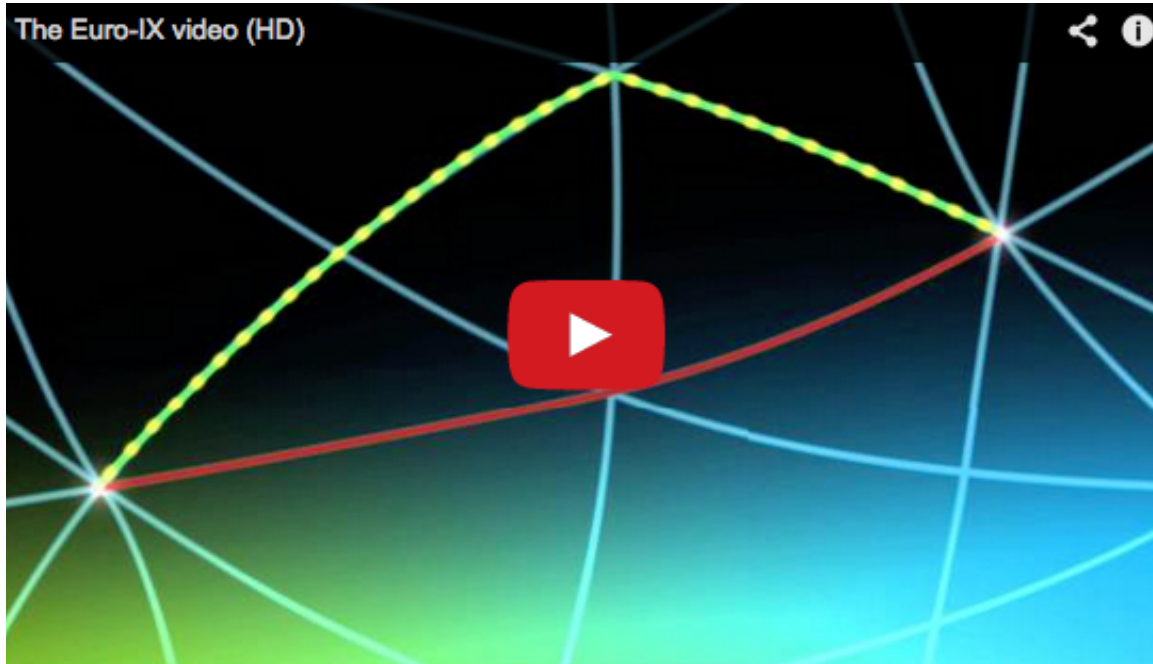
Available in French, German, Portuguese, Spanish, Romanian, Arabic, Russian, Czech and Italian!

Interested in translating the video in your Language? Contact us!

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Thank you!

Bijal Sanghani

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