



euro-IX

IXP Database & Tools

Connect Working Group/ RIPE74

➤ What do we do?

- Two fora per year
- Maintain and develop the website, database and tools
- Annual European IXP Report
- Mentor-IX programme
- Fellowship programme
- Benchmarking Club (BMC)

➤ Talk to us and each other

- Mailing lists
- Newsletter – Subscribe here:
 - euro-ix.net/news-and-events/newsletter/
- Working Groups
- Social Media
 - Twitter @euroix
 - Facebook fb.me/maineuroix
 - YouTube youtube.com/channel/UCFyucVRAAMzxyJIsxnGwsjw

➤ Association of IXPs

81 affiliated IXPs:

- 54 IXPs in the Euro-IX Region 49 Countries, operating over 100 Peering LANs
- 27 IXPs from the rest of the world
- Newest Members:
 - CASIX, Casablanca, Morocco
 - Beirut-IX, Beirut, Lebanon

Patrons

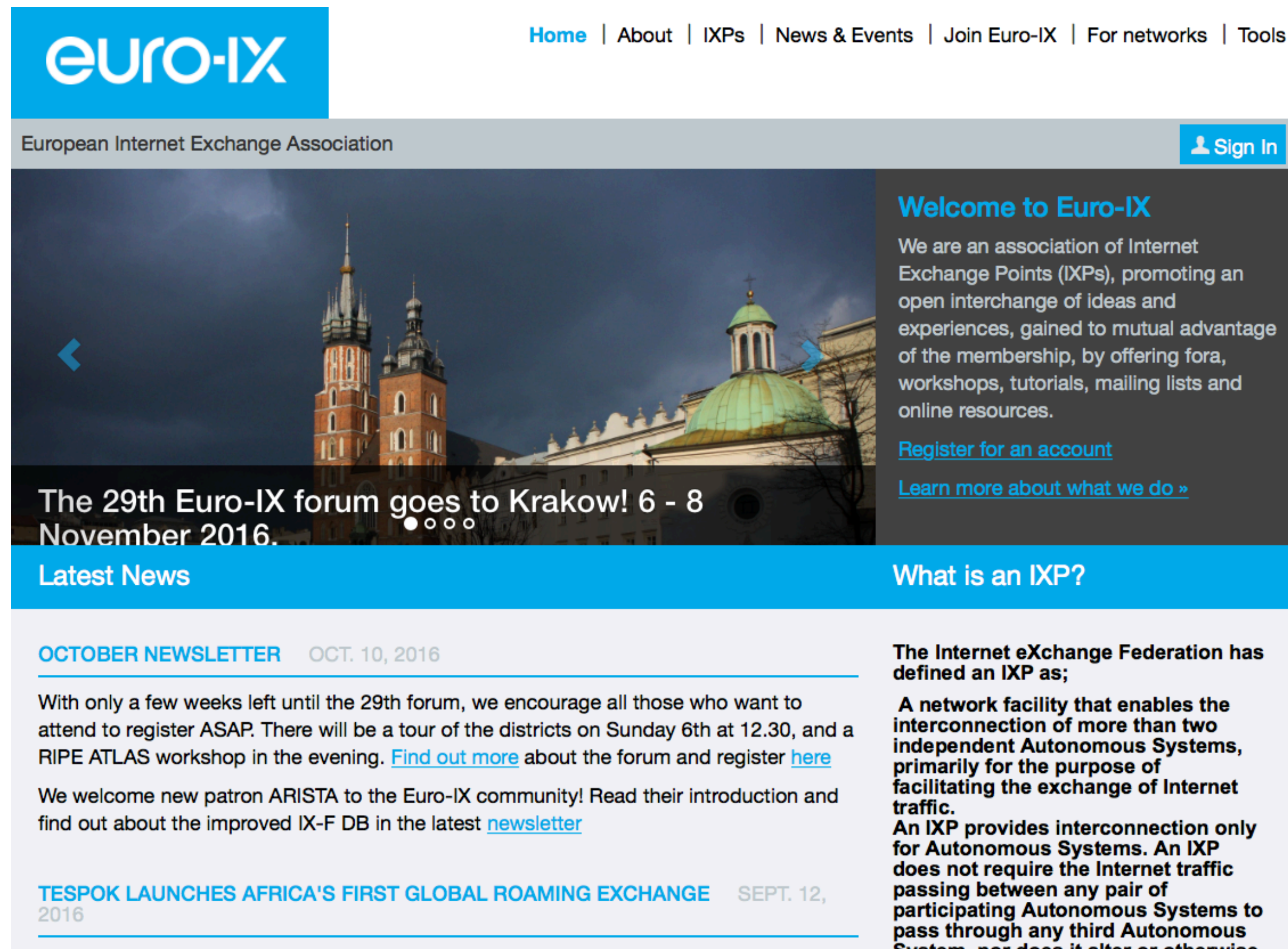
13 Patrons

- Arista
- Brocade
- Ciena
- Coriant
- ECI Telecom
- Equinix
- Extreme Networks
- Huawei
- Interxion
- Juniper Networks
- MRV
- Nokia
- Telehouse



IXP Database

Website



The screenshot shows the Euro-IX website homepage. At the top left is the Euro-IX logo. To its right is a navigation menu with links for Home, About, IXPs, News & Events, Join Euro-IX, For networks, and Tools. Below the navigation is a grey bar with the text "European Internet Exchange Association" and a "Sign In" button. The main content area features a large banner image of a church in Krakow. Below the image is a headline: "The 29th Euro-IX forum goes to Krakow! 6 - 8 November 2016." To the right of the image is a "Welcome to Euro-IX" section with a paragraph of text and two links: "Register for an account" and "Learn more about what we do >". Below the banner are two columns of content. The left column is titled "Latest News" and contains two news items: "OCTOBER NEWSLETTER OCT. 10, 2016" and "TESPOK LAUNCHES AFRICA'S FIRST GLOBAL ROAMING EXCHANGE SEPT. 12, 2016". The right column is titled "What is an IXP?" and contains a definition of an IXP: "The Internet eXchange Federation has defined an IXP as; A network facility that enables the interconnection of more than two independent Autonomous Systems, primarily for the purpose of facilitating the exchange of Internet traffic. An IXP provides interconnection only for Autonomous Systems. An IXP does not require the Internet traffic passing between any pair of participating Autonomous Systems to pass through any third Autonomous System, nor does it alter or otherwise..."

euro-ix

Home | About | IXPs | News & Events | Join Euro-IX | For networks | Tools

European Internet Exchange Association [Sign In](#)

Welcome to Euro-IX

We are an association of Internet Exchange Points (IXPs), promoting an open interchange of ideas and experiences, gained to mutual advantage of the membership, by offering fora, workshops, tutorials, mailing lists and online resources.

[Register for an account](#)

[Learn more about what we do >](#)

The 29th Euro-IX forum goes to Krakow! 6 - 8 November 2016.

Latest News

OCTOBER NEWSLETTER OCT. 10, 2016

With only a few weeks left until the 29th forum, we encourage all those who want to attend to register ASAP. There will be a tour of the districts on Sunday 6th at 12.30, and a RIPE ATLAS workshop in the evening. [Find out more](#) about the forum and register [here](#)

We welcome new patron ARISTA to the Euro-IX community! Read their introduction and find out about the improved IX-F DB in the latest [newsletter](#)

TESPOK LAUNCHES AFRICA'S FIRST GLOBAL ROAMING EXCHANGE SEPT. 12, 2016

What is an IXP?

The Internet eXchange Federation has defined an IXP as;

A network facility that enables the interconnection of more than two independent Autonomous Systems, primarily for the purpose of facilitating the exchange of Internet traffic.

An IXP provides interconnection only for Autonomous Systems. An IXP does not require the Internet traffic passing between any pair of participating Autonomous Systems to pass through any third Autonomous System, nor does it alter or otherwise

➤ Website – Top 5 Improvements!

1. ASN Automation
2. Switch Database
3. Route Server Database
4. Edit your organisation and team members
5. Peering matrix, service matrix and ASN database all working

IXP Database

Organization Profile

Internet Neutral Exchange Association

General [Introduction](#) [Contacts](#) [IXPs](#) [Users](#)



Location:	Ireland
Established:	1996-09-01
Affiliation:	Member
Board Contact:	
Email:	barry.rhodes@inex.ie
Website:	https://www.inex.ie/

[Edit](#)

IXP Database

« Organization Profile

Amsterdam Internet Exchange B.V.

[General](#) [Introduction](#) [Contacts](#) [IXPs](#) [Users](#)


NAME	COUNTRY
AMS-IX Bay Area	United States of America
AMS-IX Caribbean	Netherlands Antilles
AMS-IX Chicago	United States of America
AMS-IX Hong Kong	China
AMS-IX India	India
AMS-IX New York	United States of America
Amsterdam Internet Exchange	Netherlands

IXP Database

IXP Profile

Amsterdam Internet Exchange

Profile Network Switches Route Servers Services Pricing Tree ASNs Users



Organization: [Amsterdam Internet Exchange B.V.](#)

Number of members: 796

Number of sites: 12

Joining requirements: Legal entity AS number BGP-4

Characteristics: Independent Non-profit Neutral Number of members Central European Resilient multi-site setup

Non-profit: Y

Reseller program: Y

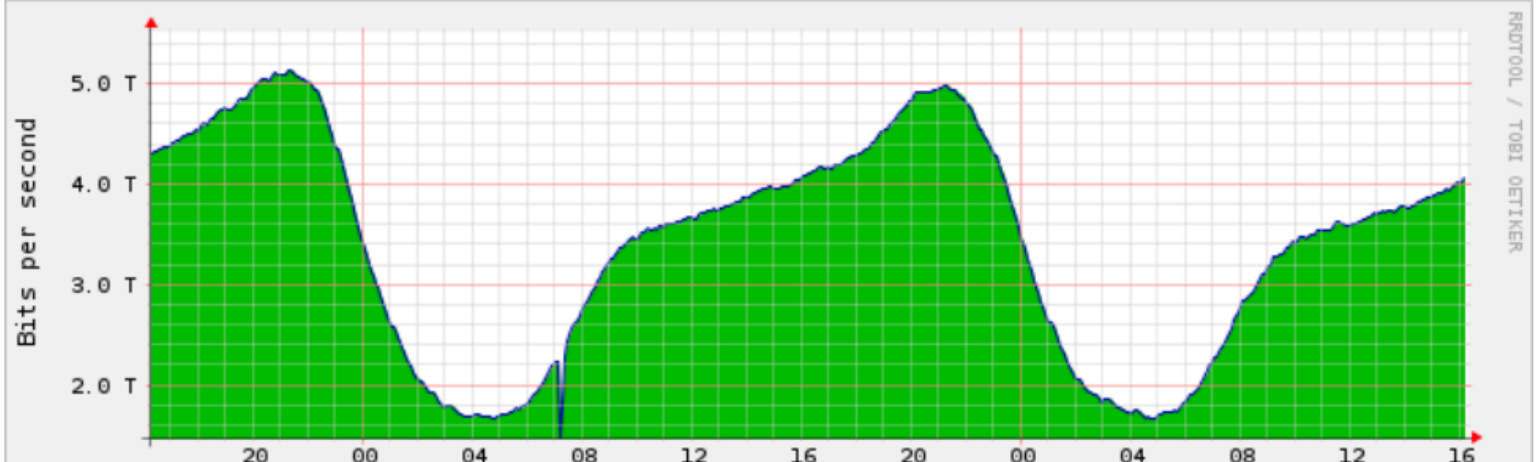
Application Form: <https://www.ams-ix.net/connect-to-ams-ix/application-form>

Official Voter: [Job Witteman](#)

Contact: [Job Witteman](#)

Technical Contact: [Aleksandar Mitrov](#)

Traffic



Legend: ■ Input ■ Output

Peak In	: 5.136 Tb/s	Peak Out	: 5.131 Tb/s
Average In	: 3.421 Tb/s	Average Out	: 3.420 Tb/s
Current In	: 4.061 Tb/s	Current Out	: 4.060 Tb/s

IXP Database

ASN Database

[Stats](#) [Search](#) [Recent](#) [Common](#)

Showing the 50 most recently added ASNs, you may use the date filter above to show all ASNs added since a specific date

IXP	AS#	COMPANY	DATE ADDED	IPV6
DE-CIX Frankfurt	33894	JSC RICT	April 04, 2017	Y
Beirut-IX	25471	B-Smart	April 04, 2017	N
Beirut-IX	203615	Data Consult	April 04, 2017	N
Beirut-IX	13044	Aoun Net	April 04, 2017	N
Beirut-IX	42183	Net360	April 04, 2017	N
Beirut-IX	43019	Farahnet	April 04, 2017	N
Beirut-IX	62100	Kasir Networks	April 04, 2017	N
Beirut-IX	24892	Libalink	April 04, 2017	N
Beirut-IX	59955	Advanced Broadband Services	April 04, 2017	N
Beirut-IX	31390	Brave Net	April 04, 2017	N

IXP Database

ASN Database			
Stats	Search	Recent	Common
IXP PARTICIPANTS	IPV6	UNIQUE ASNS	
	EURO-IX		
8828	5546	4541	
	APIX		
1529	463	941	
	AF-IX		
348	64	305	
	LAC-IX		
1924	1301	1425	
	NORTH AMERICA		
2196	541	1083	
	GLOBAL		
14825	7915	7873	

IXP Database

ASN Database

[Stats](#) [Search](#) [Recent](#) [Common](#)

AS#	COMPANY	PRESENT AT	IPV6
6939	Hurricane Electric	80	Y
20940	Akamai International B.V.	78	
15169	Google Inc	69	
3856	PCH	62	
42	WoodyNet	56	
8075	Microsoft RUS LLC	52	
22822	Limelight	49	
10310	Yahoo Inc. (B)	35	
13335	CloudFlare Inc.	29	

IXPs

- AMS-IX
- AMS-IX Bay Area
- AMS-IX Chicago
- AMS-IX Hong Kong
- AMS-IX New York
- BBIX - Tokyo
- BCIX
- BIX.BG
- BiX
- Big APE
- CATNIX
- CoreSite - Any2 Denver / RMIX Denver
- CoreSite - Any2 Los Angeles
- DE-CIX Frankfurt

IXP Database

Switch Database					
Browse	Recent	For Sale	My IXP Switches	Add Switch	
NAME	VENDOR	MODEL	IXP	SOFTWARE VERSION	CREATED
nx0.bknix.co.th	Cisco	Nexus 7009	BKNIX	6.2(8a)	Feb. 28, 2017
ix0.bknix.co.th	Nokia	7750 SR12e	BKNIX	TIMOS-C-12.0.R6	Feb. 28, 2017
sw002.uae-ix.net	Cisco	Nexus 7010	UAE-IX	6.2(14)	Jan. 27, 2017
backhaul01.ist3.ist.de-cix.net	Dell	S4810	DE-CIX Istanbul	9.10.0.1P3	Dec. 02, 2016
backhaul01.dfw2.dfw.de-cix.net	Dell	S4810	DE-CIX Dallas	9.10(0.1P15)	Dec. 02, 2016
NAME	VENDOR	MODEL	IXP	SOFTWARE VERSION	UPDATED
NIX1-acc3	Cisco	Nexus 7710	NIX.CZ	6.2(16)	March 30, 2017
NIX5-acc2	Cisco	Nexus 7710	NIX.CZ	6.2(16)	March 30, 2017
nx0.bknix.co.th	Cisco	Nexus 7009	BKNIX	6.2(8a)	Feb. 28, 2017
ix0.bknix.co.th	Nokia	7750 SR12e	BKNIX	TIMOS-C-12.0.R6	Feb. 28, 2017
edge01.dx9.de-cix.net	Nokia	7950	DE-CIX Frankfurt	13.0R11	Jan. 27, 2017

IXP Database

Route Servers							
Browse	Recent	My Route Servers	Add Route Server				
IXP	AT IXP	NAME	IN USE	DAEMON	VERSION	OS	CREATED
ESPANIX	Y	mad1rsv2.espanix.net	Y	Bird	1.4.5	Debian	March 11, 2017
ESPANIX	Y	mad1rsv1.espanix.net	Y	Bird	1.4.5	Debian	March 11, 2017
DE-CIX Palermo	Y	rs2.pmo.de-cix.net	Y	BIRD	1.6.3	Debian	March 03, 2017
DE-CIX Palermo	Y	rs1.pmo.de-cix.net	Y	BIRD	1.6.3	Debian	March 03, 2017
DE-CIX New York	Y	rs2.nyc.de-cix.net	Y	BIRD	1.6.3	Debian	March 03, 2017
IXP	AT IXP	NAME	IN USE	DAEMON	VERSION	OS	UPDATED
NIX.CZ	Y	rs1.nix.cz	Y	BIRD	1.6.3	FreeBSD	March 30, 2017
NIX.CZ	Y	rs2.nix.cz	Y	BIRD	1.6.3	Debian GNU/Linux	March 30, 2017
DE-CIX Frankfurt	Y	rs1.fra.de-cix.net	Y	BIRD	1.6.3	Debian	March 18, 2017
ESPANIX	Y	mad1rsv2.espanix.net	Y	Bird	1.4.5	Debian	March 11, 2017
ESPANIX	Y	mad1rsv1.espanix.net	Y	Bird	1.4.5	Debian	March 11, 2017

IXP Database

IXP Service Matrix

[CSV Download](#)

	Location	ASN	RS ASN	# of customers	# IPv6 ready	% IPv6 ready	# of Sites	Last month traffic (Gb/s)	Public stats
	AMS-IX Bay Area			26	20	76.92	0	0	
	AMS-IX Caribbean	28017		14	6	42.86	1	0	Y
	AMS-IX Chicago			22	18	81.82	0	0	
	AMS-IX Hong Kong	58516		34	27	79.41	1	0	
	AMS-IX India					0.0	0	0	
	AMS-IX New York	62981		19	17	89.47	4	0	
	ARMIX	51225		10	8	80.00	1	0	
	Angonix	327788		15	2	13.33	1	0	
	Aracaju (SE)					0.0	0	0	
	BBIX - Hong Kong					0.0	0	0	
	BBIX - Tokyo	23640		8	1	12.50	7	0	
	BCIX	16374		83	71	85.54	7	0	Y
	BIX Bergen	0		4	2	50.00	0	0	Y
	BIX.BG	15669		78	37	47.44	8	0	Y
	BNIX	5406		45	14	31.11	3	0	Y
	Belo Horizonte (MG)			29	13	44.83	0	0	Y
	Belm (BEL)			15	6	40.00	1	0	
	BiX	5507		49	37	75.51	3	0	Y
	Braslia (DF)			32	21	65.62	0	0	Y
	CATNIX	49638		36	23	63.89	3	0	Y

IXP Database

Peering Matrix																		
CSV Download																		
IXP	Total listed ASNs	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 IXPs	AMS-IX	AMS-IX Bay Area	AMS-IX Caribbean	AMS-IX Chicago	AMS-IX Hong Kong	AMS-IX India	AMS-IX New York	ARMIX	Angonix	Aracaju (SE)	BBIX - Hong Kong	BBIX -	
So Paulo (SP)	1192	871	73.07	321	26.93	31	7	2	10	7	0	10	0	2	0	0	2	10
AMS-IX	796	151	18.97	645	81.03	796	9	3	9	18	0	13	0	1	0	0	2	39
DE-CIX Frankfurt	727	169	23.25	558	76.75	383	9	2	10	14	0	14	0	4	0	0	2	49
LINX LON1	646	142	21.98	504	78.02	282	9	2	10	14	0	14	0	5	0	0	2	28
MSK-IX	409	258	63.08	151	36.92	66	3	3	3	3	0	3	0	1	0	0	1	8
Equinix Paris	339	64	18.88	275	81.12	131	8	2	10	12	0	11	0	2	0	0	2	19
NL-ix	331	165	49.85	166	50.15	145	4	1	5	7	0	7	0	2	0	0	2	11
France-IX Paris	255	25	9.80	230	90.20	113	6	2	8	10	0	9	0	2	0	0	2	17
TorIX	216	173	80.09	43	19.91	31	7	2	11	6	0	8	0	2	0	0	2	13
TPIX	203	106	52.22	97	47.78	12	0	0	0	0	0	0	0	0	0	0	0	1
Equinix Zurich	190	2	1.05	188	98.95	69	6	2	7	9	0	9	0	2	0	0	2	10
SwissIX	184	101	54.89	83	45.11	59	6	3	9	9	0	8	0	3	0	0	2	20
LONAP	184	40	21.74	144	78.26	59	7	2	10	9	0	11	0	2	0	0	2	15
MIX-IT	176	66	37.50	110	62.50	74	4	3	7	8	0	6	0	1	0	0	2	14
Thinx	160	60	37.50	100	62.50	13	3	1	3	2	0	3	0	0	0	0	2	4

IXP Database

ASN Database

[Stats](#) [Search](#) [Recent](#) [Common](#)

Search

Advanced Filters

-----	Nothing selected
-----	Nothing selected

-
- And at
- But not at
- And other IXPs
- And other IXPs, but not at



IXP Member Lists

➤ IXP Member List JSON Schema

- Contains both IXP data and IX{ participant data
 - ASN (member list), locations, switch, RS and more to come..
 - Open, consistent and an atomic design
 - Currently 24 IXP independent implementations
- (API includes data from euro-ix portal entered manually or via .csv)
- Open source implementation in IXP Manager
 - Further information about the Member Lists can be found here:
<http://ml.ix-f.net/>
 - Source available on GitHub:
<https://github.com/euro-ix/json-schemas>

➤ IXP Database – use case

Why not use the IXPs own data?

- This gives you a single API for many IXPs
- Get the same format for all IXPs
- Data is fed from the IXP – IXPs have the accurate data, they own it.
- Portable, supportable and scale-able!

➤ IXP Database – use case

Use case from Andy Davidson

“Who am I not peering with at LONAP?”

- you have a script which loads direct adjacencies into an array
- You need a complete and canonical list of peers to compare differences

➤ IXP Database – use case

- Using the IXP API:
<https://db.ix-f.net/api/ixp>

➤ IXP Database – use case

```
{
  "ixp_info": {
    "status": "active",
    "updated": "2014-02-17T10:07:51Z",
    "name": "London Network Access Point",
    "created": "2011-08-16T13:26:26Z",
    "shortname": "LONAP",
    "ixp_id": "IX-F#18"
  },
  "timestamp": "2015-09-16T08:17:31.116Z",
  "version": "2014110401",
  "member_list": [
    {
      "asnum": 20915,
      "name": "100 Percent"
    },
    {
      "url": "http://www.2connectbahrain.com/",
      "asnum": 51406,
      "name": "2Connect"
    },
    {
      "url": "http://www.34sp.com",
      "asnum": 41357,
      "name": "34SP.com Ltd"
    },
    {
      "url": "http://4d-dc.com/",
      "asnum": 31463,
      "name": "4D Data Centres"
    },
    {
      "url": "http://www.afilias.info",
      "asnum": 12041,
      "name": "Afilias"
    },
    {
      "url": "http://www.akamai.com",
      "asnum": 20940,
      "name": "Akamai Technologies"
    },
    {
      "url": "http://www.alentus.com",
      "asnum": 21321,
      "name": "Alentus UK Ltd"
    }
  ],
  ,
}
```

➤ IXP Database – use case

```
ewP Switc Ports ports impo ports admi Circu circuli VXCn instar db_sc apiwe switc test_
import urllib, json

url = "http://db.ix-f.net/api/ixp/18/member-list"
response = urllib.urlopen(url)

ixpdata = json.loads(response.read())

my_peers = [8916,20940,20915, 51406, 41357, 31463, 12041, 21321, 12536, 16509, 20712, 33920, 4

for member in ixpdata["member_list"]:
    if member["asnum"] not in my_peers:
        print "Get some peering with " + str(member["asnum"]) + " (" + member["name"] + ")"
```

➤ IXP Database – use case

```
enigma:Desktop andy$  
enigma:Desktop andy$ python ixp.py  
Get some peering with 6871 (PlusNet)  
Get some peering with 8689 (PowerGroup (Power Internet Ltd))  
Get some peering with 8676 (PRT Systems)  
Get some peering with 28792 (Public Internet Limited)  
Get some peering with 31402 (Rank Interactive (Blue Square Limited))  
Get some peering with 35662 (Redstation)  
Get some peering with 5552 (Redstone Communications Ltd)  
Get some peering with 5503 (RM Education Plc)  
Get some peering with 51409 (SectorSix)  
Get some peering with 50056 (Advantage Interactive Ltd)  
Get some peering with 29550 (Simply Transit Ltd.)  
Get some peering with 48961 (Warwicknet Ltd)  
Get some peering with 20738 (Webfusion)  
Get some peering with 44444 (Websense Hosted R&D Ltd. (UK))  
Get some peering with 49158 (Wifinity)  
Get some peering with 13037 (Zen Internet)  
enigma:Desktop andy$
```

IXP Database

In search of accurate information

- Peering networks can go to two sources of data to guarantee accuracy
- Tools and portal available on the Euro-IX website future development for APIX, LAC-IX and AFIX
- IXPA's have regional reach to local IXPs
- The complimentary to database services that the RIR/NIRs and PeeringDB provide

➤ IXP Database Funding

- Funding so far has been from Euro-IX
- We need funds to continue development
- Next stage includes:
 - Interface to Database for all IXPs
 - Fetch data center data from external databases
 - Enhance the data set
 - Outreach and training for IXPs

Please contact bijal@euro-ix.net if you are interested in supporting our projects.

➤ Global IXP discussion mailing list

- Subscribe - <https://lists.ix-f.net/mailman/listinfo/tech-discuss>



Celebrating 15 years of Euro-IX

➤ F-OSCARS – Forum Oscars



- AMS-IX for the secretariat services for 12 years
- INEX for their work on IXP Manager
- NIX.cz on their continued work on BIRD
- LINX –Malcolm for their regulatory affair contributions

➤ Celebrating 15 years of Euro-IX



2001

EURO-IX



2016



➤ The Internet Revealed – IXP Movie



- In English, Italian, German, French, Turkish, Spanish, Romanian, Portuguese, Arabic, Chinese, Russian and with Greek subtitles, check out our YouTube channel:
[youtube.com/channel/UCFyucVRAAMzxyJIsxnGwsjw](https://www.youtube.com/channel/UCFyucVRAAMzxyJIsxnGwsjw)



Thank You!

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