IX-F database and tool

APRICOT 2017

Ho Chi Minh City, Vietnam

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)

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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

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Association of IXPs

82 affiliated IXPs:

- 56 IXPs in the Euro-IX Region 49 Countries, operating over 100 Peering LANs

- 26 IXPs from the rest of the world

- Newest Members:

  Global-IX

  DataIX

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Patrons

- **Arista**
- Brocade
- **Ciena**
- **Coriant**
- ECI Telecom
- Equinix | Telecity
- Extreme Networks

- Huawei
- Interxion
- Juniper Networks
- MRV
- Nokia
- Telehouse

Website – Top Improvements!

1. ASN Automation

2. Switch Database

3. Route Server Database

4. Edit your own profile

5. Edit your organisation and team members

6. Peering matrix, service matrix and ASN database all working

7. Database quality improvements

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Website

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

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IXP Database

IXP Database

ASN Database

Stats   Search   Recent   Common

IXP PARTICIPANTS	IPV6	UNIQUE ASNS
EURO-IX		
8644	5420	4457
APIX		
1511	444	928
AF-IX		
302	60	271
LAC-IX		
1703	1092	1243
NORTH AMERICA		
2192	524	1081
GLOBAL		
14352	7540	7564

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IXP Database

ASN Database

Stats   Search   Recent   **Common**

AS#	COMPANY	PRESENT AT	IPV6
6939	Hurricane Electric	80	Ⓨ
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

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IXP Database

CSV Download

	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	ALB-IX	AMS-IX	AMS-IX Caribbean	ARMIX	Angonix	BBIX - Hong Kong	BBIX - Tokyo	BCIX	BIX.BG	BNIX	BiX	CATNIX	CHN-IX	CIX	CIX
AMS-IX	79.77	0				796	2	0	0	0	2	37	22	19	17	11	0	4	19	
AMS-IX Caribbean	30.77	0				2	13	0	0	0	1	1	1	0	0	1	0	1	0	
ARMIX	0.00	0				0	0	10	0	0	0	0	0	0	0	0	0	0	0	
Angonix	50.00	0				0	0	0	2	0	0	0	0	0	0	0	0	0	0	
BBIX - Tokyo	62.50	0				2	1	0	0	0	8	2	2	0	1	1	0	0	0	
BCIX	70.89	0				37	1	0	0	0	2	79	8	3	4	4	0	2	2	
BIX.BG	58.33	0				22	1	0	0	0	2	8	72	1	4	3	0	3	0	
BNIX	53.33	0				19	0	0	0	0	0	3	1	45	4	2	0	0	3	
BiX	42.86	0				17	0	0	0	0	1	4	4	4	49	2	0	1	1	
CATNIX	37.50	0				11	1	0	0	0	1	4	3	2	2	32	0	3	1	
CIX	37.50	0				4	1	0	0	0	0	2	3	0	1	3	0	32	0	
CIXP	75.00	0				19	0	0	0	0	0	2	0	3	1	1	0	0	36	
DE-CIX Frankfurt	72.48	0				385	1	0	1	0	2	46	26	17	17	8	0	5	15	
DIX - Lyngby	59.09	0				22	1	0	0	0	2	5	2	4	2	2	0	0	3	
ECIX Berlin	83.67	0				24	1	0	0	0	2	22	5	1	3	1	0	1	0	
Equinix Paris	83.38	0				131	1	0	0	0	2	19	10	8	5	6	0	2	7	
Equinix Zurich	98.95	0				69	1	0	0	0	2	10	7	4	2	3	0	1	2	
FICIX - Helsinki	56.67	0				9	0	0	0	0	0	2	1	2	2	1	0	1	1	
FVG-IX	75.00	0				3	0	0	0	0	0	1	1	1	0	0	0	0	0	
France-IX Paris	89.80	0				113	1	0	0	0	2	17	8	12	7	6	0	2	5	

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IXP Database

IXP Database

Switch Database

Browse   Recent   For Sale   My IXP Switches   Add Switch

NAME	VENDOR	MODEL	IXP	SOFTWARE VERSION	CREATED
Cremat	Arista	7280SE-72	CATNIX	4.15.3F	Sept. 28, 2016
Sucre	Arista	7280SE-72	CATNIX	4.15.3F	Sept. 28, 2016
CIX2	Force10	S4810	CIX	9.10(0.0)	Sept. 23, 2016
mlx-zh4	Brocade	MLXe-16	SwissIX	5.7.0dT163	Aug. 02, 2016
mlx-rue	Brocade	MLXe-16	SwissIX	5.7.0dT163	Aug. 02, 2016

NAME	VENDOR	MODEL	IXP	SOFTWARE VERSION	UPDATED
switch26	Extreme	X480-24x(10G4X)	LINX LON2	15.4.1.3	Oct. 23, 2016

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IXP Database – where are we?

- Database schema is in place for IXPs to record their information about themselves and the operators they serve

- IXP API is live - https://db.ix-f.net/api/ixp

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IXP Database – What's next?

- Extend and internationalise the admin interface for all IXPAs (APIX, LAC-IX and AF-IX)

- Create bespoke maintained APIs

- Future revisions to the database schema to capture more data

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IXP Database – use case

Thanks to Andy Davidson for the example

"who am I not peering with at LONAP?"

- You have a script which load direct adjacencies into an array

- You need a complete and canonical list of peers to compare differences

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IXP Database – use case

Using the IXP API

https://db.ix-f.net/api/ixp

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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"
    },
```

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IXP Database – use case

```
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$
```

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IXP Database – use case

Why not just use the IXPs own data?

- This gives you a single API for many IXPs

- Get the same format for all IXPs, its standard – wohoo!

- Data is fed from the IXP – IXPs have accurate data, they own it.

- Portable, supportable and scaleable!

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IXP Database – IXP JSON Schema

- Contains both IXP data & IXP participant data

  - ASN (member list), locations, switch, RS, etc etc

- Open, consistent & an atomic design

- Currently 24 IXP independent implementations

- Open source implementation in IXP Manager

- Source available on GitHub;

  https://github.com/euro-ix/json-schemas

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IXP Database

- Give network operators the choice of getting accurate information from either IXP Database or PeeringDB

- The data can be obtained using APIs

- Increase use of automation

  - Saves time, money & increases accuracy

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Questions?

Thank You!

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