IXP database and tools

LONAP Meeting October 2017
London, UK

About Euro-IX

- Formed in May 2001
- To improve, develop and strengthen the IXP community
- Representing neutrally the member IXPs at industry events around the world
- Promote an open interchange of ideas and experiences

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

84 affiliated IXPs:

- 56 IXPs in the Euro-IX Region in 49 Countries, operating over 100 Peering LANs
- 28 IXPs from the rest of the world
- Newest Members:

  Peering.cz

  Beirut-IX

  CASIX

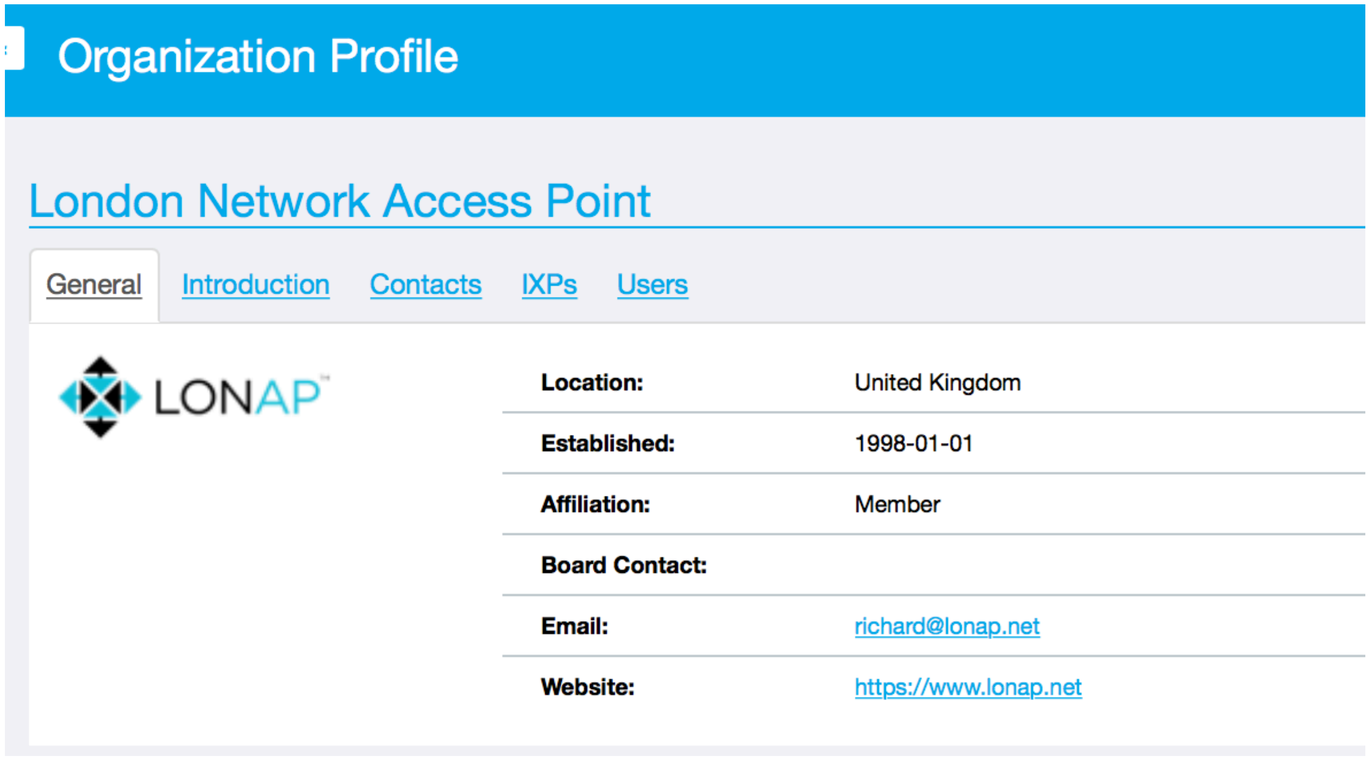
Patrons

13 Patrons

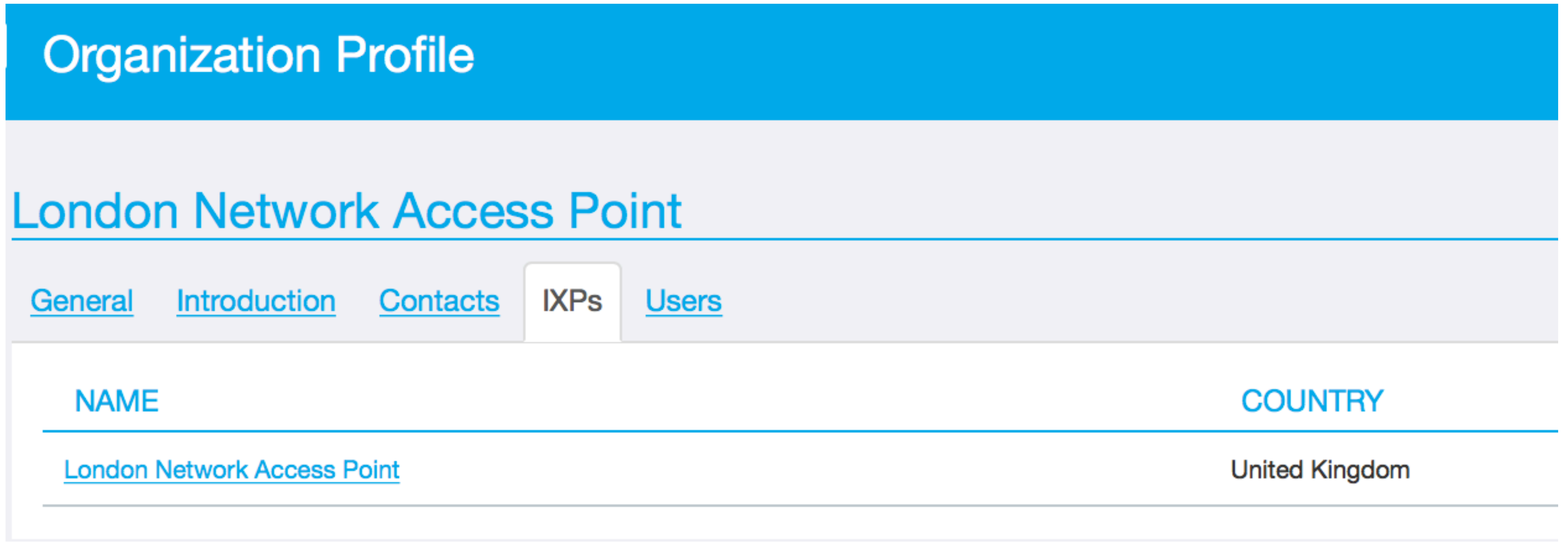
- Arista
- Brocade
- Ciena
- Coriant
- ECI Telecom
- Equinix I Telecity
- Extreme Networks
- Huawei
- Interxion
- Juniper Networks
- MRV
- Nokia
- Telehouse

IXP Database

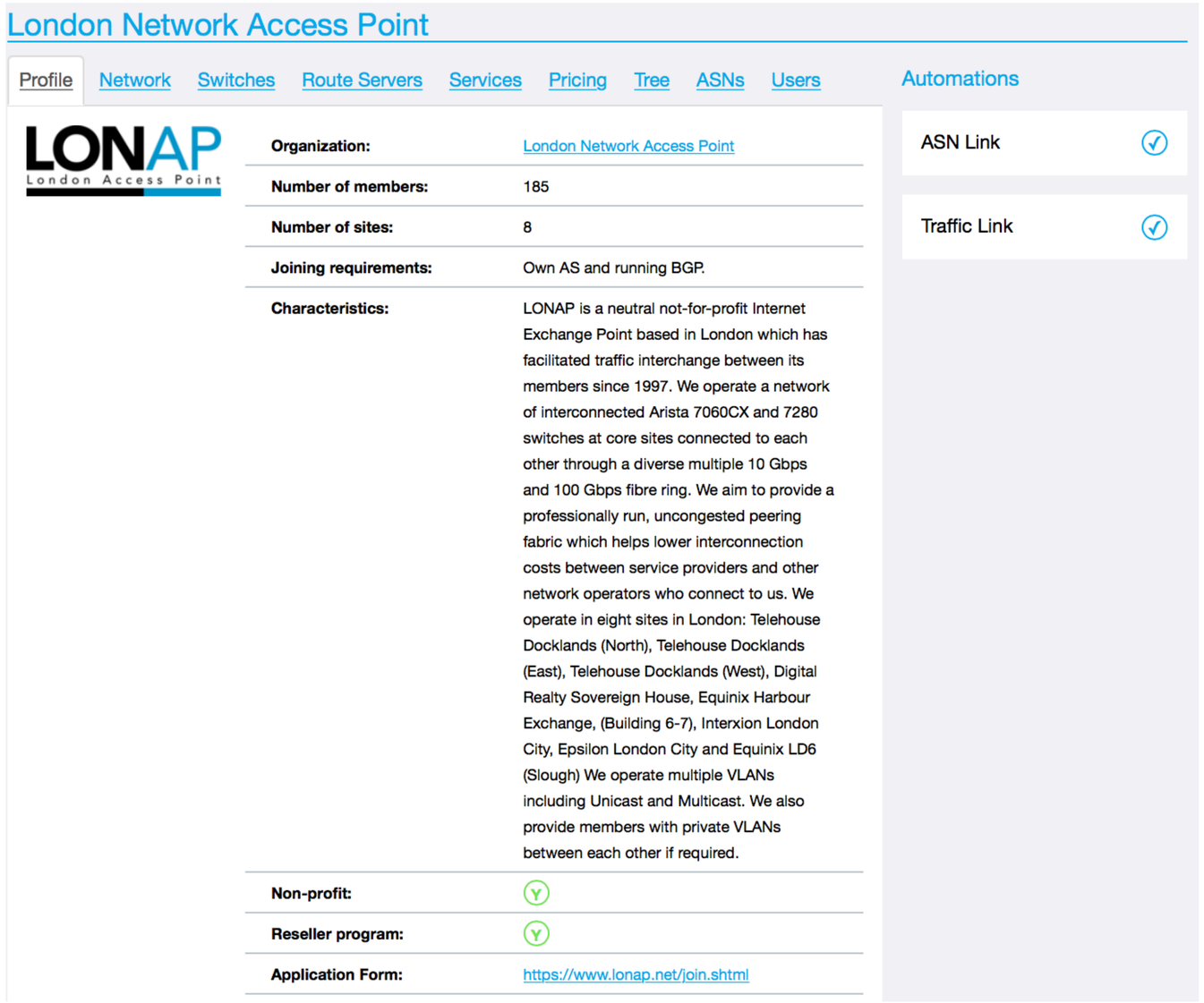
IXP Database



IXP Databse


Organization Profile
London Network Access Point
General
Introduction
Contacts
IXPs
Users
NAME
COUNTRY
London Network Access Point
United Kingdom

IXP Database



euro-IX

IXP Database

ASN Database

Stats | Search | Recent | Common

AS#	COMPANY	PRESENT AT	IPV6
6939	HE	86	Y
20940	Akamai		
15169	Google		
3856	Packet Clearing House (PCH)		
42	Woodynet		
8075	Microsoft		
22822	Limelight Networks		
13335	Cloudflare Inc.		
10310	Yahoo		
16509	Amazon		
26415	VeriSign Netherlands BV		
15133	EdgeCast Networks		

IXPs

KCIX Kansas City
KleyReX
LAIIX
LINX LON1
LINX NoVA
LONAP
LU-CIX
MICE
MIX-IT
NASA-AIX
NIX.CZ
NL-ix
NWAX
NYIIX
NaMeX
NetIX
Netnod - COMIX
Netnod - Stockholm
PIX Vancouver
QiX

IXP Database

IXP Service Matrix

CSV Download

IXP	Location	ASN	RS ASN	# of customers	# IPv6 ready	% IPv6 ready	# of Sites	La tra
AMS-IX	Amsterdam	1200	6777	796	625	78.52	12	0
AMS-IX Bay Area	San Francisco			28	21	75.00	0	0
AMS-IX Caribbean	Willemstad, Curacao	28017		14	6	42.86	1	0
AMS-IX Chicago	Chicago			24	18	75.00	0	0
AMS-IX Hong Kong	Hong Kong	58516		37	29	78.38	1	0
AMS-IX India	Mumbai					0.0	0	0
AMS-IX New York	New York	62981		21	20	95.24	4	0
ARMIX	Yerevan	51225		10	8	80.00	1	0
Angonix	Luanda	327788		15	2	13.33	1	0
Aracaju (SE)	Aracaju					0.0	0	0
BBIX - Hong Kong	Hong Kong					0.0	0	0
BBIX - Tokyo	Tokyo	23640		8	1	12.50	7	0
BCIX	Berlin	16374		86	75	87.21	7	0
BIX Bergen	Bergen	0		4	2	50.00	0	0
BIX.BG	Sofia	15669		79	38	48.10	8	0
BNIX	Brussels	5406		45	14	31.11	3	0
Beirut-IX	Beirut	0		25	0	0.00	0	0
Belo Horizonte (MG)	Belo Horizonte			29	13	44.83	0	0
Belém (BEL)	Belém			15	6	40.00	1	0
BiX	Budapest	5507		49	37	75.51	3	0
Brasília (DF)	Brasilia			32	21	65.62	0	0
	Casablanca					0.0	1	0

IXP Database

Switch Database

Browse | Recent | For Sale | My IXP Switches | Add Switch

NAME	VENDOR	MODEL	IXP	SOFTWARE VERSION	CREATED
/members/switches/switch/?id=828	Juniper	QFX10002-72Q	GigaPix		Sept. 15, 2017
/members/switches/switch/?id=827	Cisco	WS-C4500X-32	GigaPix		Sept. 15, 2017
gigapix-itc-2	Cisco	WS-C4506-E	GigaPix	cat4500e-universalk9.SPA.03.06.05.E.152-2.E5.bin	Sept. 14, 2017
gigapix-itc-1	Cisco	4506-E	GigaPix	cat4500e-universalk9.SPA.03.06.05.E.152-2.E5.bin	Sept. 14, 2017
10Gbps port switch	Force10	ExaScale E1200i	NAP CABASE - Buenos Aires	NA	May 28, 2017

NAME	VENDOR	MODEL	IXP	SOFTWARE VERSION	UPDATED
	Juniper	QFX10002-72Q	GigaPix		Sept. 15, 2017
	Cisco	WS-C4500X-32	GigaPix		Sept. 15, 2017
gigapix-itc-1	Cisco	4506-E	GigaPix	cat4500e-universalk9.SPA.03.06.05.E.152-2.E5.bin	Sept. 15, 2017
gigapix-lx6-2	Cisco	Catalyst 4900M	GigaPix	cat4500e-ipbasek9-mz.151-2.SG7.bin	Sept. 15, 2017
gigapix-lx6-1	Cisco	Catalyst 4900M	GigaPix	cat4500e-ipbasek9-mz.151-2.SG7.bin	Sept. 15, 2017

Route Servers

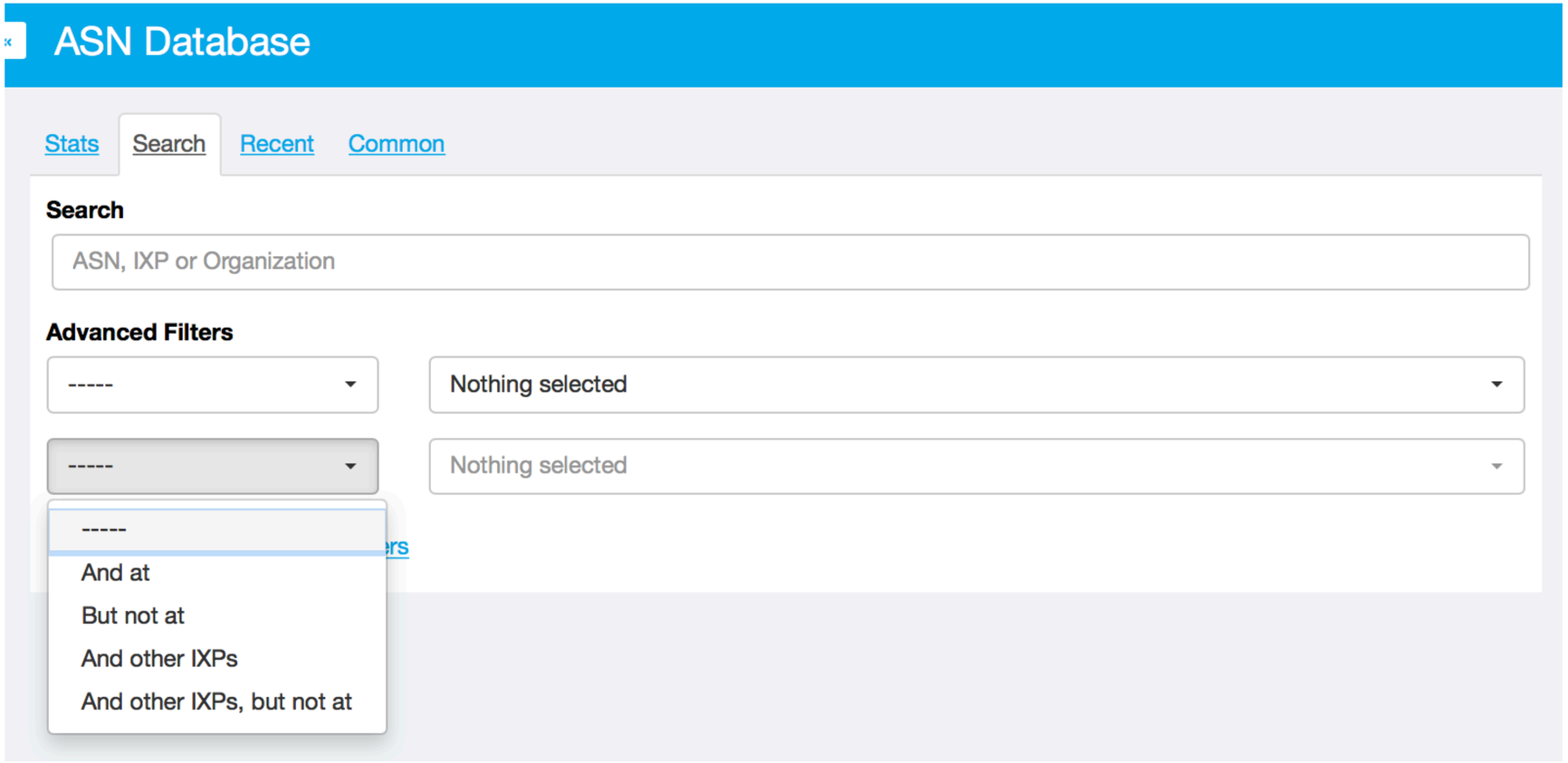
Browse | Recent | My Route Servers | Add Route Server

IXP	AT IXP	NAME	IN USE	DAEMON	VERSION	OS	CREATED
Peering.cz	Y	PeeringCZ IX	Y	BIRD	1.6.3	Linux Debian	Oct. 06, 2017
IX.LODZ.PL	Y	RS1.ix.lodz.pl	Y	Bird	1.6.3	Debian	Oct. 02, 2017
Mumbai IX	Y	Mumbai IX route Server	Y	BIRD		Centos	Aug. 14, 2017
MIXP	Y	MIXP route server	Y	BIRD			June 13, 2017
MIX-IT	Y	rs1b-mix-it.net	Y	BIRD	1.3.8	Linux	April 14, 2017

IXP	AT IXP	NAME	IN USE	DAEMON	VERSION	OS	UPDATED
Peering.cz	Y	PeeringCZ IX	Y	BIRD	1.6.3	Linux Debian	Oct. 06, 2017
IX.LODZ.PL	Y	RS1.ix.lodz.pl	Y	Bird	1.6.3	Debian	Oct. 02, 2017
Mumbai IX	Y	Mumbai IX route Server	Y	BIRD		Centos	Aug. 14, 2017
UAE-IX	Y	rs2.uae-ix.net	Y	BIRD	1.6.3	Debian	Aug. 11, 2017
UAE-IX	Y	rs1.uae-ix.net	Y	BIRD	1.6.3	Debian	Aug. 11, 2017

euro-IX

IXP Database



IXP Database – where are we?

Database schema is in place for IXPs to record their information about themselves and the operators they serve, we urge all IXPs to start using working with the IX-F to build the IXP database.

- IXP API is live - https://db.ix-f.net/api/ixp
- IXF Member List Directory - http://ml.ix-f.net

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

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"
    },
    {
```


euro-IX

IXP Database – use case

```python
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 – IXF Member List

- Contains both IXP data & IXP participant data
  - ASN (member list), locations, switch, RS, etc etc
- Open, consistent & a standard design
- Currently 24 IXP independent implementations

(API includes data from euro-ix portal entered manually or via .csv, more options available at ml.ix-f.net)

- Open source implementation in IXP Manager
- Source available on GitHub;

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

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!

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

IXP Database

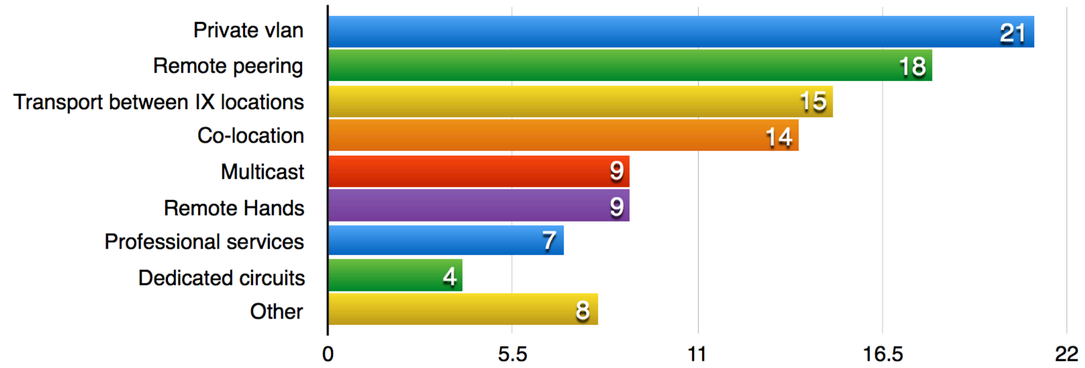
In search of accurate information

- Peering networks can go to multiple sources of data to guarantee accuracy
- Tools and portal available on the Euro-IX website, development for APIX, LAC-IX and AF-IX in 2018.
- IXPAs have regional reach to local IXPs
- The data is complementary to database services that the RIR/NIRs & PeeringDB provide

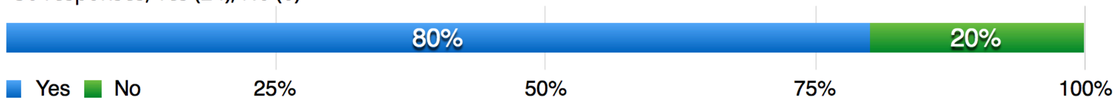
Euro-IX Reports

Euro-IX Reports

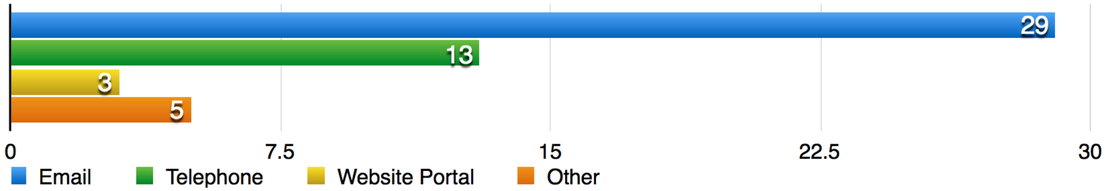
15/ What extended services do you offer?
28 responses with many offering more than one service:



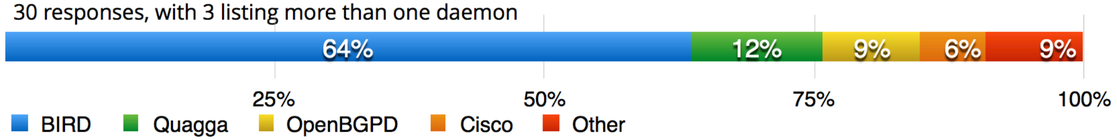
37/ Do you currently use Route Servers?
30 responses, Yes (24), No (6)



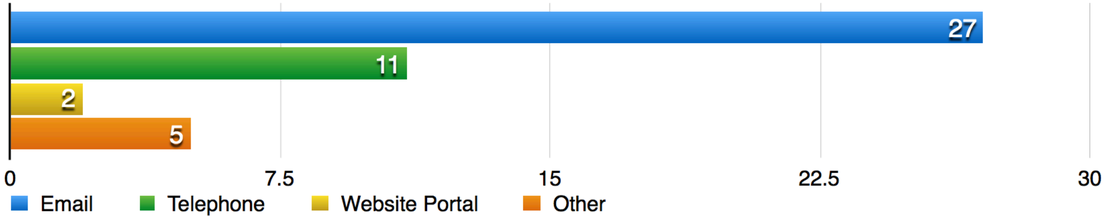
52/ By what method do you receive the most service requests?
Multiple responses, Email 29, Telephone 13, Website 3, Others 5 (IRC (2), Facebook, Twitter, Skype)



41/ If you use Route Servers, which one do you use?
30 responses, with 3 listing more than one daemon

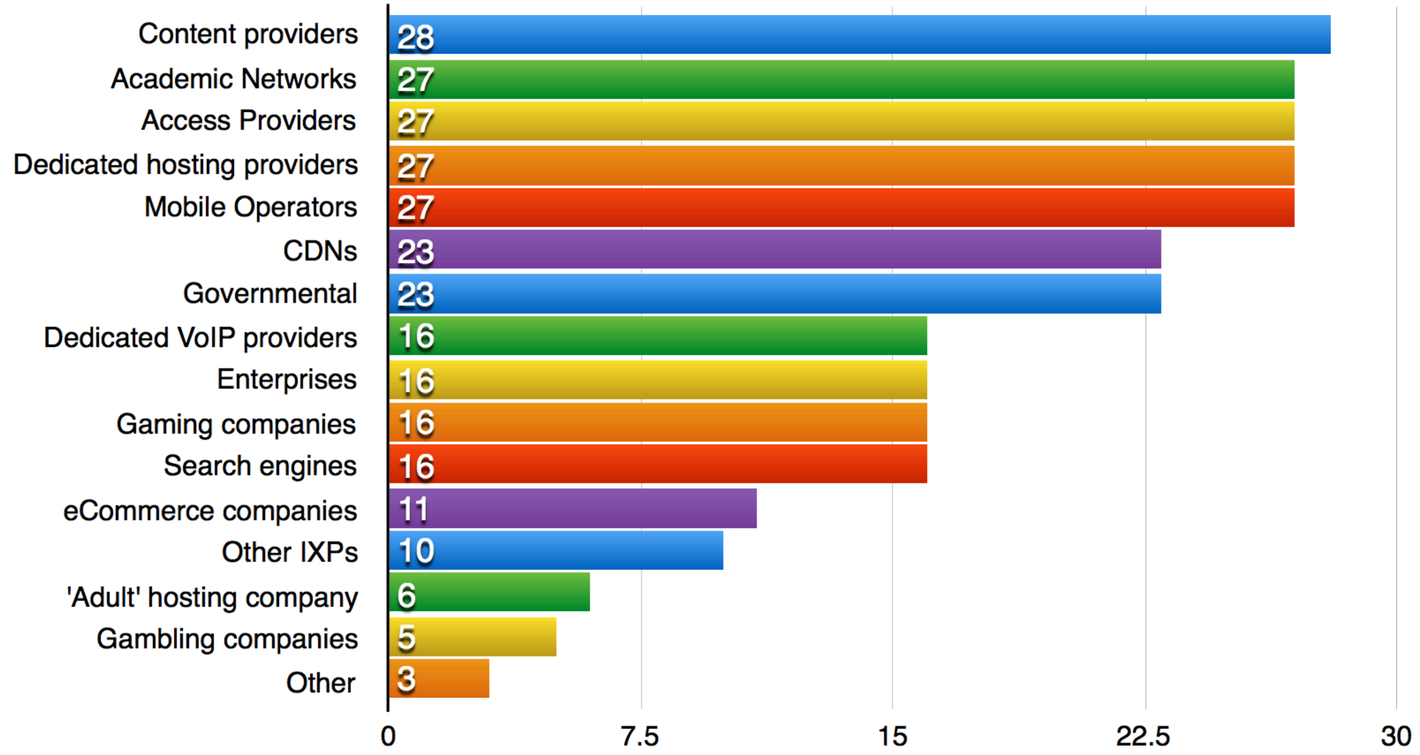


53/ By what method do you receive the most incident reports?
Multiple responses, Email 27, Telephone 11, Website 2, Others 5 (Twitter (2), Signal, Skype, IRC)

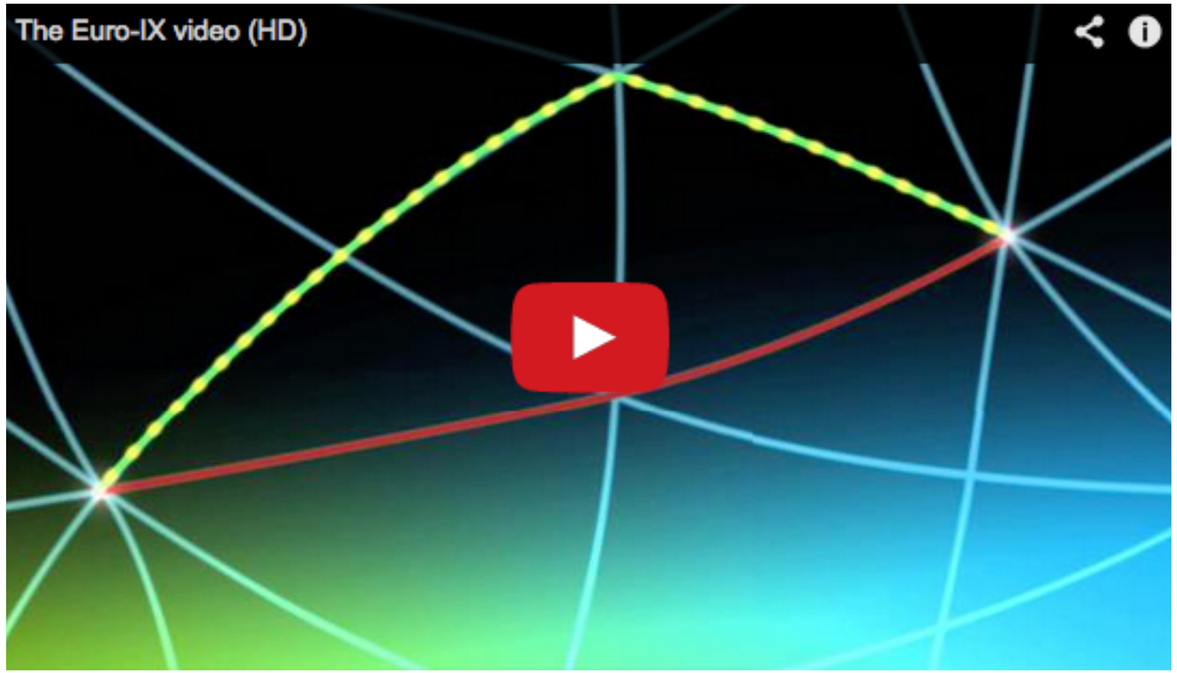


Euro-IX Reports

56/ Do you have any of the following types of members/customers at your exchange?
281 responses, multiple answers per IXP



Internet Revealed, a film about IXPs



https://www.youtube.com/channel/UCFyucVRAAMzxyJIsxnGwsjw
Available in French, German, Portuguese, Italian, Spanish, Romanian, Arabic, Russian, Czech, Greek and Mandarin!
Interested in translating the video in your Language? Contact us!

Questions?

Thank You!

Rebecca Class-Peter
rebecca at euro-ix dot net
Twitter: @euroix