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/UCFyucVRAAMzxyJlsxnGwsjw
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

## London Network Access Point

<table>
<thead>
<tr>
<th>Location:</th>
<th>United Kingdom</th>
</tr>
</thead>
<tbody>
<tr>
<td>Established:</td>
<td>1998-01-01</td>
</tr>
<tr>
<td>Affiliation:</td>
<td>Member</td>
</tr>
<tr>
<td>Board Contact:</td>
<td></td>
</tr>
<tr>
<td>Email:</td>
<td><a href="mailto:richard@lonap.net">richard@lonap.net</a></td>
</tr>
<tr>
<td>Website:</td>
<td><a href="https://www.lonap.net">https://www.lonap.net</a></td>
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</table>
# Organization Profile

## London Network Access Point

<table>
<thead>
<tr>
<th>Name</th>
<th>Country</th>
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</thead>
<tbody>
<tr>
<td>London Network Access Point</td>
<td>United Kingdom</td>
</tr>
</tbody>
</table>
## London Network Access Point

### Organization:
London Network Access Point

### Number of members:
185

### Number of sites:
6

### Joining requirements:
Own AS and running BGP

### Characteristics:
LONAP is a neutral not-for-profit Internet Exchange Point based in London which has facilitated traffic interchange between its members since 1997. We operate a network of interconnected Arista 7260CX and 7280 switches at core sites connected to each other through a diverse multiple 10 Gbps and 100 Gbps fibre ring. We aim to provide a professionally run, uncongested peering fabric which helps lower interconnection costs between service providers and other network operators who connect to us. We operate in eight sites in London: Telehouse Docklands (North), Telehouse Docklands (East), Telehouse Docklands (West), Digital Realty Sovereign House, Equinix Harbour Exchange, (Building 6-7), Interxion London City, Epsilon London City and Equinix LD6 (Sough). We operate multiple VLANs including Unicast and Multicast. We also provide members with private VLANs between each other if required.

### Non-profit:
✓

### Reseller program:
✓

### Application Form:
[https://www.lonap.net/lon.shtml](https://www.lonap.net/lon.shtml)
### IXP Database

<table>
<thead>
<tr>
<th>AS#</th>
<th>COMPANY</th>
<th>PRESENT AT</th>
<th>IPV6</th>
</tr>
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<tbody>
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<td>6939</td>
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<td>86</td>
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<tr>
<td>20940</td>
<td>Akamai</td>
<td></td>
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<td>15199</td>
<td>Google</td>
<td></td>
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<td>3956</td>
<td>Packet Clearing House (PCH)</td>
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<td>42</td>
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<td>8075</td>
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<td>13335</td>
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<td>16509</td>
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<td>26415</td>
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<td>15133</td>
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**IXPs**
- KCIX Kansas City
- KleyReX
- LALIX
- LINX LON1
- LINX NoVA
- LONAP
- LU-CIX
- MICE
- MIX-IT
- NASA-AIX
- NIX.CZ
- NL-ix
- NWAX
- NYIX
- NlMeX
- NetIX
- Netnod - COMIX
- Netnod - Stockholm
- PIX Vancouver
- QIX
# IXP Service Matrix

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<thead>
<tr>
<th>IXP</th>
<th>Location</th>
<th>ASN</th>
<th>RS ASN</th>
<th># of customers</th>
<th>IPv6 ready</th>
<th>% IPv6 ready</th>
<th># of Sites</th>
<th>Latency</th>
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<td>6777</td>
<td>796</td>
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# IXP Database

## Switch Database

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<th>Name</th>
<th>Vendor</th>
<th>Model</th>
<th>DP</th>
<th>Software Version</th>
<th>Created</th>
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## Route Servers

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<th>Server</th>
<th>IP Type</th>
<th>Name</th>
<th>IN USE</th>
<th>Daemon</th>
<th>Version</th>
<th>OS</th>
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**Euro-IX**
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
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

```json
{
  "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": "180 Percent"
    },
    {
      "url": "http://www.2connectbahrain.com/",
      "asnum": 51406,
      "name": "2Connect"
    },
    {
      "url": "http://www.34sp.com",
      "asnum": 41337,
      "name": "34SP.com Ltd"
    },
    {
      "url": "http://4d-dc.com/",
      "asnum": 31463,
      "name": "4D Data Centres"
    },
    {
      "url": "http://www.afilias.info",
      "asnum": 12041,
      "name": "Afilias"
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      "url": "http://www.akamai.com",
      "asnum": 20940,
      "name": "Akamai Technologies"
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    {
      "url": "http://www.alentus.com",
      "asnum": 21321,
      "name": "Alentus UK Ltd"
    }
  ]
}
```
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, ...

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

Output from running a Python script:

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 (Winfinity)
Get some peering with 13037 (Zen Internet)
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](https://github.com/euro-ix/json-schemas)
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
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

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

- Content providers: 28
- Academic Networks: 27
- Access Providers: 27
- Dedicated hosting providers: 27
- Mobile Operators: 27
- CDNs: 23
- Governmental: 23
- Dedicated VoIP providers: 16
- Enterprises: 16
- Gaming companies: 16
- Search engines: 16
- eCommerce companies: 11
- Other IXPs: 10
- 'Adult' hosting company: 6
- Gambling companies: 5
- Other: 3
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