



Euro-IX Activities

DENOG14, Hamburg

Bijal Sanghani

EURO-O-IX MEMBERS

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ARISTA

cira.

 **EQUINIX**
WHERE OPPORTUNITY CONNECTS

 **Extreme**[®]
networks

 **FLEXOPTIX**

interxion[™]
A DIGITAL REALTY COMPANY

 **Internet
Society**

JUNIPER
NETWORKS[®]

NOKIA

smartoptics

 **SOLID OPTICS**
Optical Transceiver Technology

 **ribbon**[®]

Membership Association of IXPs



Events

- Two Membership events per year hosted by our Members
- Workshops & hackathons
- Online/ virtual workshops



Services

- Reports
- Newsletters
- Mailing list
- Keeping the community connected – Virtual events



Tools & Community Projects

- Internet eXchange Point Database – IXPDB
- Peering Toolbox
- Fellowship & Mentor-IX
- Route Server Large BGP Communities list
- A new IXP Film

IXP{DB}

A trusted source of information about
IXPS!



IXP{DB}

The IX-F JSON Schema

- A community driven schema that allows IXPs to report their data in a standard automated fashion
- It includes data sets on:
 - The IXP participants
 - IXP locations
 - Hardware used at IXPs and it's participants
 - Route Servers
- You can find the schema and documentation here -
<https://github.com/euro-ix/json-schemas>
- IXPs can also add their IX-F export APIs to PeeringDB -
<https://docs.peeringdb.com/ix-f-json-import-rules/>

Home Page Stats - Live Data

Home Page Stats - Live Data

IXPs by Connected ASNs

Name	City	Country	Last updated	API	Traffic	MANRS	# of ASNs
IX.br Sao Paulo, SP (SP))	São Paulo	BR	2021-09-23 8:11:49 UTC	✓	✗	✗	2384
DE-CIX FRA (DE-CIX Frankfurt)	Frankfurt am Main	DE	2022-08-15 8:10:10 UTC	✓	✗	✓	1068
AMS-IX	Amsterdam	NL	2022-08-15 8:10:10 UTC	✓	✗	✓	857
LINX LON1 (LINX LON1)	London	GB	2022-08-15 8:10:10 UTC	✓	✗	✓	814
EPIX (e-Polandie Internet Exchange)	Warsaw	PL	2022-08-08 13:02:03 UTC	✓	✗	✗	558
NAPAfrica IX Johannesburg (NAPAfrica)		ZA	2022-08-15 9:02:07 UTC	✓	✓	✓	508
DataIX Internet Exchange (DataIX Internet Exchange)	Amsterdam	NL	2022-07-11 8:04:01 UTC	✓	✗	✗	483
EPIX Warsaw (e-Polandie Internet Exchange)	Warsaw	PL	2022-08-11 9:02:07 UTC	✓	✗	✗	480
KleyReX (KleyReX Internet Exchange)	Frankfurt am Main	DE	2022-07-28 14:04:02 UTC	✓	✗	✗	479
IX.br Fortaleza, CE (CE))	Fortaleza	BR	2021-12-01 6:02:38 UTC	✓	✗	✗	468

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NAPAfrica IX Johannesburg (NAPAfrica)		ZA	2022-08-15 9:02:07 UTC	✓	✓	✓	508

Latest IXP Connections

ASN	Network name	IXP	Connected on	Other IXP connections
140167	ANL Network	EIX Delhi (Extreme Internet Exchange India)	2022-08-13 0:00:00 UTC	0
47158	HUIZE LTD	LLHOST INC. SRL	2022-08-12 0:00:00 UTC	0
60068	CDN77	NAPAfrica IX Johannesburg (NAPAfrica)	2022-08-11 0:00:00 UTC	11
135726	VSJ INTERNET SERVICES PRIVATE LIMITED	EIX Delhi (Extreme Internet Exchange India)	2022-08-11 0:00:00 UTC	1
142476	Giganet Digital Net Services	EIX Mumbai (Extreme Internet Exchange India)	2022-08-11 0:00:00 UTC	0

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DE-CIX FRA (DE-CIX Frankfurt)	Frankfurt am Main	DE	2022-08-15 8:10:10 UTC	✓	✗	✓	10
AMS-IX	Amsterdam	NL	2022-08-15 8:10:10 UTC	✓	✗	✓	8
LINX LON1 (LINX LON1)	London	GB	2022-08-15 8:10:10 UTC	✓	✗	✓	8
EPIX (e-Polandie Internet Exchange)	Warsaw	PL	2022-08-08 13:02:03 UTC	✓	✗	✗	5
NAPAfrica IX Johannesburg (NAPAfrica)		ZA	2022-08-15 9:02:07 UTC	✓	✓	✓	5

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IXP Switch Hardware

Brand	% of IXPs	# of Devices
unknown	6.8	2405
Arista	5.2	476
Extreme	0.2	136
Juniper Networks	2.7	111
Huawei	1.3	101
Cisco Systems	4.0	96
Extreme Networks	1.1	82
Cisco	1.0	74
Linux	2.0	25
Cumulus Networks	0.4	24

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NAPAfrica IX Johannesburg (NAPAfrica)	Johannesburg	ZA	2022-08-15 9:02:07 UTC	✓	✓	✓	50

Latest IXP Connections

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47158	HUIZE LTD	LLHOST INC. SRL	2022-08-12 0:00:00 UTC	0
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142476	Giganet Digital Net Services	EIX Mumbai (Extreme Internet Exchange India)	2022-08-11 0:00:00 UTC	0

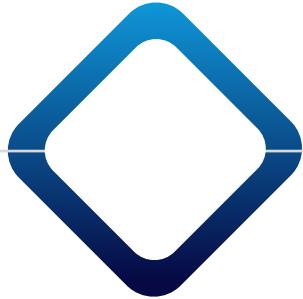
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Networks

Africa	Asia Pacific	Europe & Middle East	Latin America & Caribbean	North America
ASNs in the Region	1574	5049	14894	5612
Regionally Unique	489	1824	3774	2774

The Future



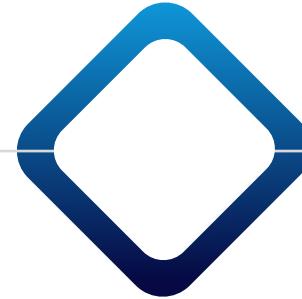
Available now

- Collect, organise & structure data
- Encourage IXPs to adopt to the schema – 281 today!



Coming soon

- Visualise the data via Maps and Charts
- Downloadable data sets in structured formats



Next Steps

- Finalise traffic API and build traffic trend datasets
- Data validation
- Identify useful 3rd party data

Other Information

- Mailing list for users - <https://lists.euro-ix.net/mailman/listinfo/ixpdb>
- GitHub JSON Member List Schema – <https://github.com/euro-ix/json-schemas>
- API – <https://api.ixpdb.net>
- Website - <https://ixpdb.euro-ix.net/en/>
- IXPDB admin team - ixpdb-admin@euro-ix.net

IXPDB Sponsors

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Contact secretariat@ix-f.net if you'd like to find out more or sponsor us!
EURO-IX

Peering Toolbox

Community Focused Learning Tool



peering
toolbox
peeringtoolbox.euro-ix.net

Traditional Transit



20+ years ago

- ISPs provide Internet transit to organisations (content providers and end-users)
- Enterprise networks bought their Internet access from access and transit providers



What has happened?

- Internet has become an essential part of every organisation's services, so they are taking more control over it
- Businesses needed to optimise their services

What's the Problem?

- Growth in the importance of Internet to business operations is driving more enterprise networks to manage their own connection to the internet
- Managing this comes with risk
- Now there's more than one vendor relationship:
 - IXPs
 - Direct Peers

What's the Problem?

- Enterprises now take on roles previously the responsibility of their ISP:
 - Having the right resources: IP Addresses, ASNs
 - Managing their peers and related costs
 - How to peer and with whom?
 - Understanding the peering community
- There's A LOT to learn:
 - Where to start
 - Who to speak to
 - What are the best practices?
 - How to deal with network problems & outages?
- Solution?

What is the Peering Toolbox?



By the Community

- Community focused Euro-IX project
- Organisations involved include LINX, NAPAfrica, Microsoft, Amazon, INEX



Aims

- Provide a learning structure and best practice information for new entrants into the interconnection community



Aims

- The toolbox will act as a reference/guide that IXPs and networks can point others to for best practice information and learn how meet the IXP and peers' requirements

Peering Toolbox

- There's already a lot of good work done by the community explaining how peering works and how to go about peering
 - We are working to pull it together and make it available in one place
 - The toolbox is intended to be the reference point for best practice information.
- Target audience:
 - Everyone involved with peering!
 - Which means: service providers, enterprises, content providers, research & education networks, IXPs,...

Peering Toolbox

- Website focused on learning:
 - Short sections with clear explanations of each topic
 - Easy for new entrants to discover what they need to make the best decisions for their network
 - Easy for organisations already peering to learn about current best practices, keep up to date with technology, and help with troubleshooting connectivity and reachability issues
 - Advice from experienced peers sharing tips and tricks
 - Use of the IXPDB and the PeeringDB

Euro-IX Peering Toolbox



What is the Peering Toolbox?

What is the Peering Toolbox?

The Peering Toolbox is designed to be a quick access reference guide to network operators who want to understand the steps need to go through to find and set up peering for their network with other infrastructure operators.

Our Services



Beginner

If you are new to peering, this is the section of the Toolbox for you.

[Learn more](#)

Intermediate

If you know what needs to be done to set up peering with another entity, but would like a ready reference for verification of the steps you need to take, this is the section for you.

[Learn more](#)

Advanced

For peering experts, a repository of tips, tricks, advice, troubleshooting, good practice, etc.

[Learn more](#)

Peering Toolbox – Helping out!

- Looking for community members to help with contributions to improve the Toolbox:
 - Peering advice
 - Blog posts
 - Peering coordinator interviews
 - Technical How-To's
 - Ongoing improvements to the content
- Contact us: peeringtoolbox@lists.euro-ix.net

Other Activities

Other Euro-IX Activities

- Reports – IXP Benchmarking, traffic, hardware, route servers.
- Newsletters - <https://www.euro-ix.net/en/communications/newsletters/>
- Route Server Large BGP communities list: <https://www.euro-ix.net/en/forixps/large-bgp-communities/>
- New IXP Film - https://www.youtube.com/watch?v=2ayPFUE_RIM
- Social media
 - Twitter @euroix
 - Facebook fb.me/maineuroix
 - Youtube youtube.com/channel/UCFyucVRAAMzxyJlsxnGwsjw

Thank You!
Bijal Sanghani

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