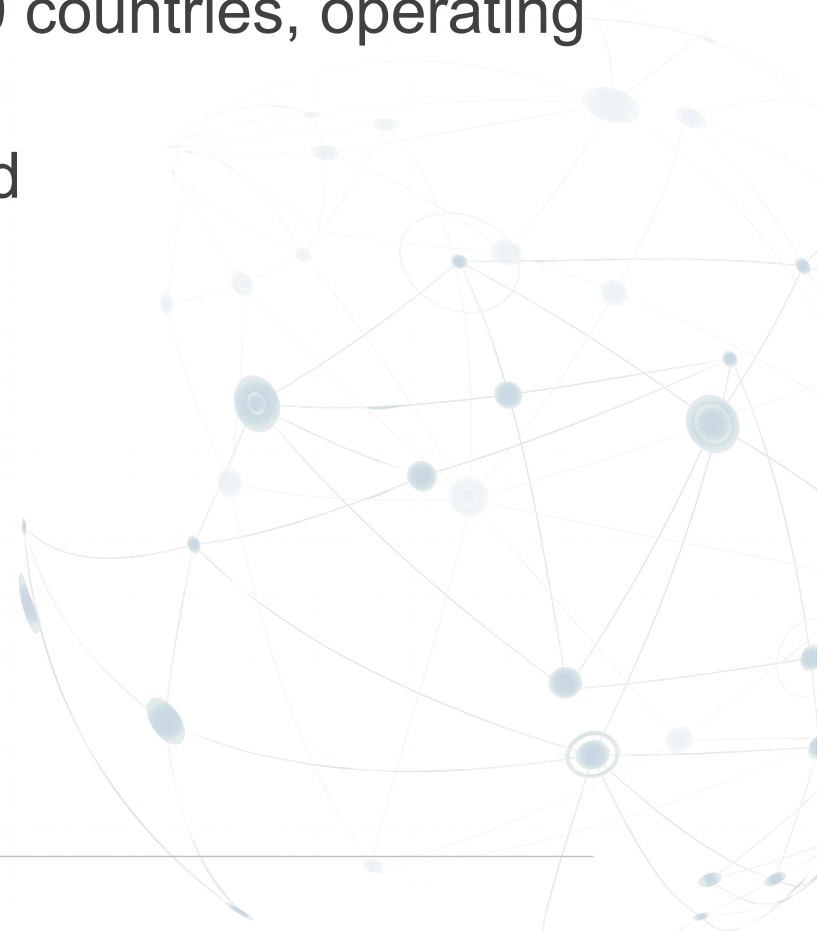# IXPDB & Euro-IX Tools

UKNOF 42 - London

January 15th 2019

Association of IXPs

73 affiliated members

➢ 54 IXPs in the Euro-IX region, 49 countries, operating over 100 peering LANs

➢ 19 IXPs from the rest of the world

➢ Newest Member:
  ➢ DOrtmund Internet Exchange
  ➢ Asteroid International

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ECI
THE ELASTIC NETWORK

NOKIA

ciena

interxion™

JUNIPER NETWORKS

ARISTA

EQUINIX

Extreme®
Connect Beyond the Network

Coriant

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Euro-IX Activites

- 2 Fora a year
  - 33rd in Venice hosted by NAMEX, TOP-IX and VSIX (November 2018)
  - 34th in Toulouse hosted by TOUIX and France-IX

- Website & Database

- Fellowship & Mentor-IX Programs

- Reports – 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/

- Social media
  - Twitter @euroix
  - Facebook fb.me/maineuroix
  - Youtube youtube.com/channel/UCFyucVRAAMzxyJIsxnGwsjw
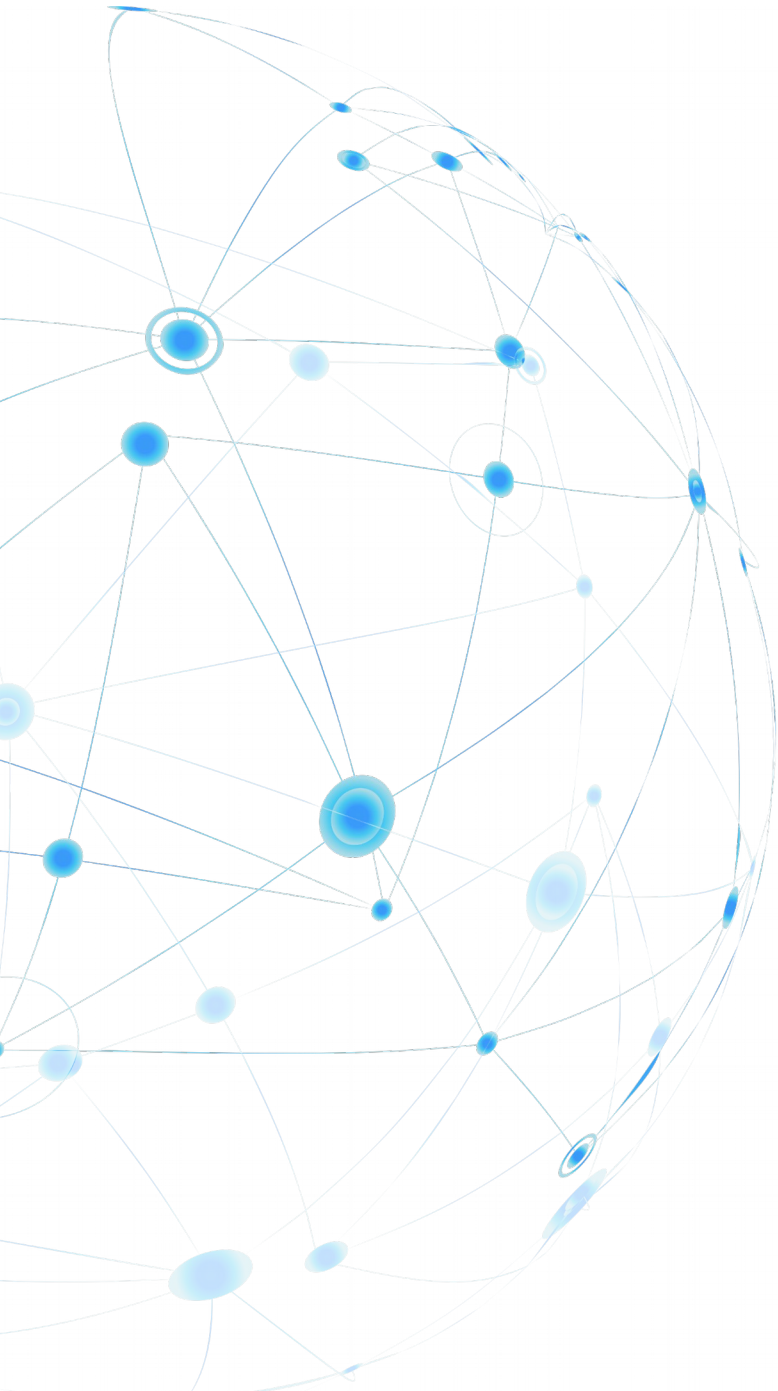
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IXPDB & Euro-IX Tools

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Some History

- The original code was written around 15 years ago…

- Membership feedback from consultations and the Membership Survey clearly showed IXPs wanted a place to publish an accurate and complete data set.

- In 2016 we considered the limitations of the underlying database and structure.

- We wanted to move forward with automation and work started on the IXP Member List JSON Schema.

- It became very clear we needed to start from scratch if we wanted an extendable schema.

- In 2017 we contracted the website and IXP Database work to CZ.NIC.

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What we've been working on..

You can access the IXPDB via https://ixpdb.euro-ix.net/

What we've been working on..

https://ixpdb.euro-ix.net/en/ixpdb/ixps/
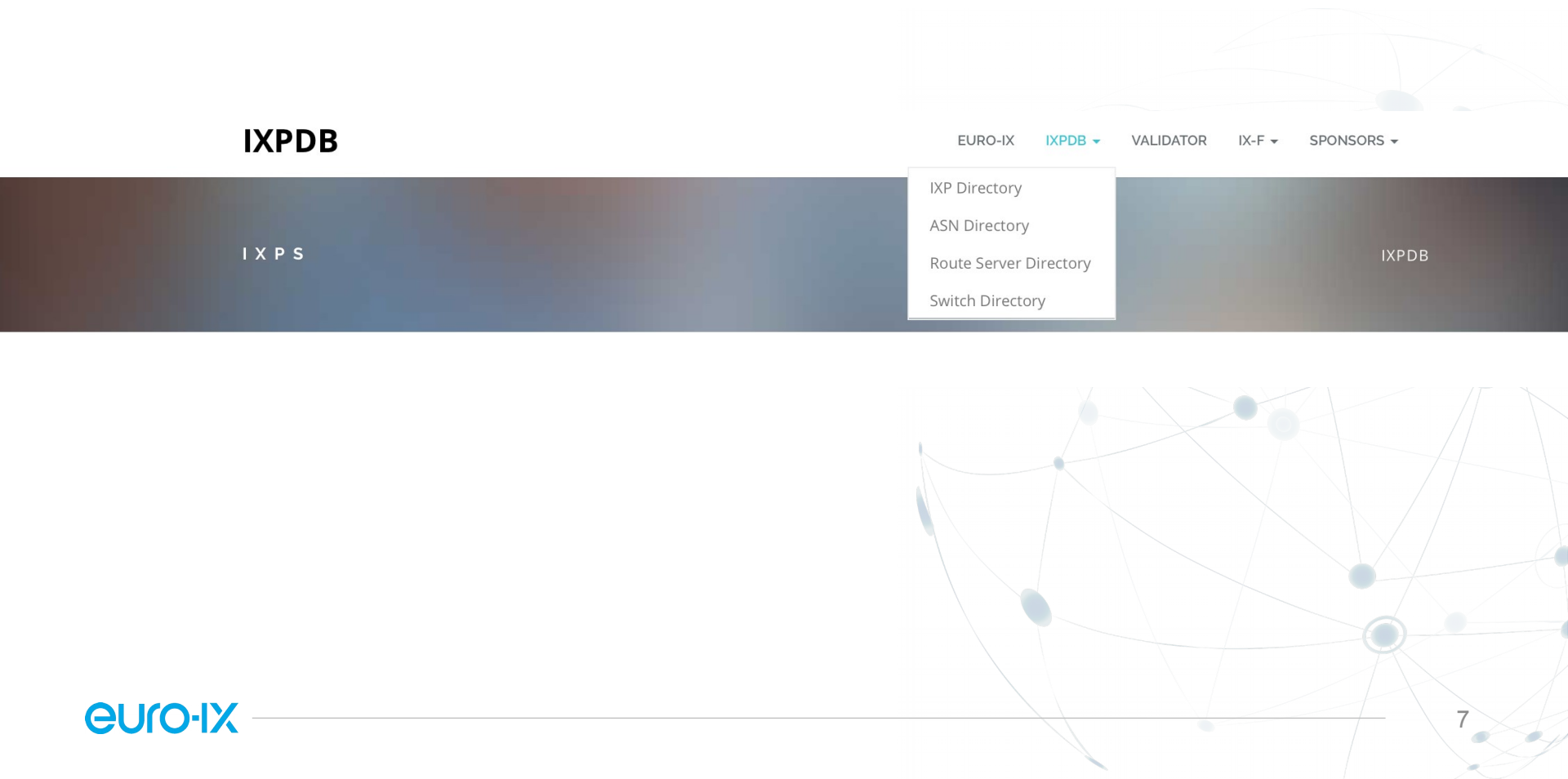
IXPDB

EURO-IX   IXPDB ▾   VALIDATOR   IX-F ▾   SPONSORS ▾

I X P S   IXPDB

	IX-F ID	Name	City	Country	Last updated	API	MANRS	# of ASNs ↓
+	9	DE-CIX FRA (DE-CIX Frankfurt)	Frankfurt am Main	DE	Jan. 14, 2019, 2:02 p.m.	✔	✔	854
+	2	AMS-IX	Amsterdam	NL	Jan. 14, 2019, 2:02 p.m.	✔	✔	825
+	1	LINX LON1	London	GB	Jan. 14, 2019, 2:02 p.m.	✔	✔	769
+	548	EPIX (e-Poludnie Internet Exchange)		PL	Dec. 17, 2018, 3:01 p.m.	✔	✖	473
+	13	msk-ix (MSK-IX public peering VLAN)	Moscow	RU	Jan. 14, 2019, 2:02 p.m.	✔	✔	451
+	39	Equinix Paris (Equinix Internet Exchange - Paris)	Paris	FR	Jan. 14, 2019, 2:02 p.m.	✖	✔	366

Search box: IX-F ID, name, city or count

☐ Only with API

☐ AFIX
☐ APIX
☐ Euro-IX
☐ LAC-IX
☐ North America

SEARCH

COMPARE

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What we've been working on..

https://ixpdb.euro-ix.net/en/ixpdb/asns/

A S N S   IXPDB

COMPARE	ASN	Organisation	Type	IP addresses	MAC addresses	MANRS	# of IXP connection ↓₁⁰
+	6939	Hurricane Electric	NSP	103.247.139.6 185.1.114.20 185.1.58.17	00:0c:db:ff:13:00 00:0c:db:de:68:33	✖	103
+	15169	Google	Content	103.247.139.57 185.1.114.26 185.1.46.2	2c:21:31:2d:db:c7 4c:16:fc:2c:70:86	✖	92
+	20940	Akamai	Content	103.247.139.17 103.247.139.73 185.1.114.41	20:4e:71:1d:29:94 ec:13:db:f0:37:0b	✖	90
+	3856	PCH AS3856	Educational/Research	185.1.58.30 185.1.68.15 185.6.26.61	00:0c:29:5e:87:79 00:0c:29:83:8b:72	✖	80
+	42	PCH	Educational/Research	185.1.58.29 185.1.68.87 185.6.26.60	6c:9c:ed:2f:5d:1b 24:e9:b3:66:25:50	✖	74
+	8075	Microsoft	Content	103.247.139.28 176.126.38.18 176.126.38.28	56:e0:32:78:0a:8f 00:22:83:fd:3f:c8	✖	69

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What we've been working on..

The Network tab:

IXPDB

L O N A P   N E T W O R K   (L O N A P   L T D .)   IXPDB / IXPDB / IXP Networks

| IXP | Networks | Points of presence | ASNs | Traffic ▾ |

LONAP Peering LAN #1

Addresses   5.57.80.0/22
2001:7f8:17::/64

Route servers:

ASN: 8550
IPv4 Adress   5.57.80.1
IPv6 Adress   2001:7f8:17::1

ASN: 8550
IPv4 Adress   5.57.80.2
IPv6 Adress   2001:7f8:17::2

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What we've been working on..

The Points of Presence tab:

IXPDB

EURO-IX   IXPDB ▾   VALIDATOR   IX-F ▾   SPONSORS ▾

L O N A P   N E T W O R K   (L O N A P   L T D .)   IXPDB

| IXP | Networks | Points of presence | ASNs | Traffic ▾ |

Digital Realty Sovereign House

Location

Digital Realty Sovereign House, London, United Kingdom

Switches

Name	sov-sr1
Model	DCS-7280SR-48C6
Connections	LONAP (2000 Mb/s)

Name	sov-sr2
Model	DCS-7280SR-48C6
Connections	Gigastream Plc (1000 Mb/s)
	Cablecom Networking Ltd (100000 Mb/s)
	BBC (10000 Mb/s)
	LONAP Route Servers (1000 Mb/s)
	Netuity Networks Sp z.o.o (10000 Mb/s)
	LONAP (1000 Mb/s)

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What we've been working on..

The ASN tab:

IXPDB

EURO-IX   IXPDB ▾   VALIDATOR   IX-F ▾   SPONSORS ▾

INEX LAN1 (INTERNET NEUTRAL EXCHANGE ASSOCIATION LIMITED BY GUARANTEE)

IXPDB / IXPDB / IXP Participants

| IXP | Networks | Points of presence | **ASNs** | Traffic ▾ |

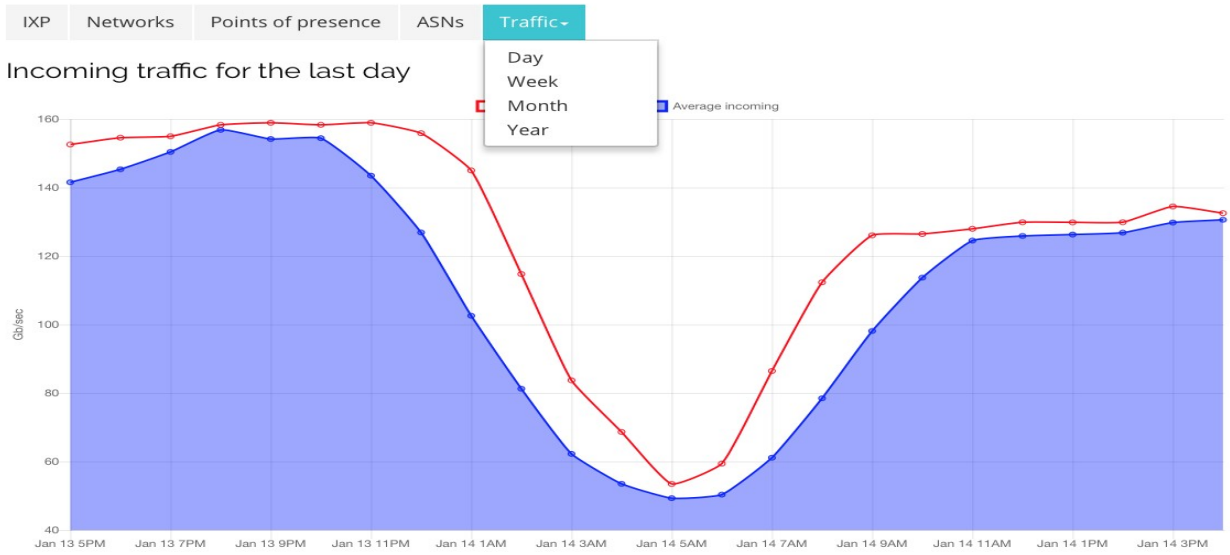| ASN ↓¹₉	Organisation	Type	IP addresses	MAC addresses	MANRS	# of IXP connection
42	PCH-Anycast	Educational/Research	185.6.36.60 2001:7f8:18::60	00:76:86:02:c0:2e	✖	74
112	RIPE NCC	Non-Profit	185.6.36.6 2001:7f8:18::6	0a:9a:1a:ce:42:9f 32:ce:81:e0:3b:c5 66:c7:1c:55:f2:9f	✖	21
702	Verizon Business	NSP	185.6.36.37 2001:7f8:18::37	7c:e2:ca:b4:78:7b	✖	19
714	Apple Europe Limited	Not Disclosed	185.6.36.122 185.6.36.123 2001:7f8:18::122	46:aa:50:60:f0:5f 46:aa:50:65:e0:9f	✖	16
1213	HEAnet	Educational/Research	185.6.36.16 2001:7f8:18::1:0:1	30:b6:4f:e4:f8:f6	✖	3
1273	Vodafone Limited	NSP	185.6.36.81	00:1f:12:b1:bf:c8	✖	24

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What we've been working on..

The Traffic tab:

What we've been working on..

The new compare function for IXPs:

IXPDB   EURO-IX   IXPDB ▾   VALIDATOR   IX-F ▾   SPONSORS ▾

IXPS

IXPDB / IXPDB / IXP Directory

IX-F ID, name, city or count	☑ Only with API	☐ AFIX ☐ APIX ☐ Euro-IX ☐ LAC-IX ☐ North America	SEARCH

COMPARE	IX-F ID	Name ↓ᴬᶻ	City	Country	Last updated	API	MANRS	# of ASNs
+	737	ams (Asteroid Amsterdam Internet Exchange)	Amsterdam	NL	Jan. 14, 2019, 3:02 p.m.	✔	✔	27
+	2	AMS-IX	Amsterdam	NL	Jan. 14, 2019, 3:02 p.m.	✔	✔	825
+	61	AMS-IX Caribbean	Willemstad, Curacao	AN	Jan. 12, 2019, 7 p.m.	✔	✘	13
+	356	AMS-IX Hong Kong	Hong Kong	CN	Jan. 12, 2019, 7 p.m.	✔	✘	49
+	619	AMS-IX India	Mumbai	IN	Jan. 12, 2019, 7 p.m.	✔	✘	24

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What we've been working on..

The new compare function for IXPs:

IXPDB

EURO-IX   IXPDB ▾   VALIDATOR   IX-F ▾   SPONSORS ▾

IXP COMPARISON

IXPDB / IXPDB / IXP Directory / Providers Comparison

	LINX LON1	LONAP Network (LONAP Ltd.)
Number of locations	0	8
MANRS	✔	✖
Type	Non-profit	Non-profit
Joining requirements	https://www.linx.net/join	Own AS and running BGP.
Application form	https://www.linx.net/join/application.html	https://www.lonap.net/join.shtml
Monitoring tools	Overall system is CentraLINX (demonstrated at 3rd forum), which binds together a series of other tools: syslog-ng, SNIPS polling/monitoring system, RRD, SMStools SMS messaging system and our own 'Alarm Processor' tool. We also use IXP-Watch.	Nagios/Icinga Cricket
Topology	https://www.linx.net/pubtools/topology.html	http://www.lonap.net/network.shtml
Reseller program	✔	✔
Private peering	✔	✔
24x7 services	✔	✔

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What we've been working on..

The new compare function for IXPs:

Number of ASNs	769	202

Common ASNs

#176
Salesforce.com, Inc.
Wifinity
Prolexic Technologies Inc.
Exa Networks Ltd.
York Data Services Limited
Freethought Internet Limited
Packet Clearing House DNS
AliCloud (Germany) GmbH
The Voice Factory Limited
Jaguar Network SAS
Clearstream Group
Stream Networks Ltd
Open Peering B.V.
Cisco
FidoNet Registration Services Ltd
Kingston Communications (HULL) PLC
Simwood eSMS Limited
ICUK Computing Services Ltd
Public Internet Ltd
Amazon.com
Datapipe
IT Professional Services Ltd
Ziron (UK) Ltd
Infonas Ltd
IDNet LTD
SectorSix
Trunk Networks Ltd
FastNet International Ltd
Andrews & Arnold Ltd
Claranet GmbH
Ask4 Limited

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What we've been working on..

The new compare function for IXPs:

uq Limited
SysGroup Trading Limited
Symantec (EMEA)

Unique ASNs	#593	#26
	[netzquadrat] GmbH	Ashgoal Ltd
	013 Netvision Ltd / Cellcom	Fibre Options
	1&1 Internet AG	Gigastream Plc
	1&1 Versatel	iBrowse
	23media	Idaq Ltd
	24Shells Inc	Interoute
	Academia Ltd	ISC - f.root-servers.net
	Access UK Ltd	JPC Infonet
	Acme Internet Ltd	Krypton Global Networks
	ACORUS NETWORKS SAS	LONAP
	Acronis Germany GmbH	LONAP Route Servers
	ADISTA SAS	London Web Ltd
	Adobe Systems	LYONIX
	Advania hf.	MLL Telecom
	AFNIC	Netuity Networks Sp z.o.o
	AFR-IX Telecom	Ocean Intelligent Communications
	Airangel Ltd	Portfast
	Airband Community Internet Ltd	PRT Systems
	AireNetworks	Rank Interactive (Blue Square
	Airtel Tchad	Limited)

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What we've been working on..

Compare ASNs

IXPDB

EURO-IX   IXPDB ▾   VALIDATOR   IX-F ▾   SPONSORS ▾

ASNS

IXPDB / IXPDB / ASN Directory

| | ASN, participant name, city | SEARCH |

COMPARE		ASN	Organisation	Type	IP addresses	MAC addresses	MANRS	# of IXP connection ↓⁹₁
+		6939	Hurricane Electric	NSP	103.247.139.6 185.1.114.20 185.1.58.17	00:0c:db:ff:13:00 00:0c:db:de:68:33 cc:4e:24:04:8a:05	✖	103
+		15169	Google	Content	103.247.139.57 185.1.114.26 185.1.46.2	2c:21:31:2d:db:c7 4c:16:fc:2c:70:86 08:b2:58:45:c8:7a	✖	92
+		20940	Akamai Technologies	Content	103.247.139.17 103.247.139.73 185.1.114.41	20:4e:71:1d:29:94 ec:13:db:f0:37:0b ec:13:db:f0:37:0c	✖	90
+		3856	PCH Route Collector	Educational/Research	185.1.58.30 185.1.68.15 185.6.36.61	00:0c:29:5e:87:79 00:0c:29:83:8b:72 00:0c:29:83:8b:7c	✖	80
+		42	Packet Clearing House DNS	Educational/Research	185.1.58.29 185.1.68.87 185.6.36.60	6c:9c:ed:2f:5d:1b 24:e9:b3:66:25:50 7c:69:f6:42:0f:b2	✖	74
+		8075	Microsoft	Content	103.247.139.28 176.126.38.18 176.126.38.28	56:e0:32:78:0a:8f 00:22:83:fd:3f:c8 f0:1c:2d:86:a5:cf	✖	69
+		13335	Cloudflare	Content	103.247.139.50 176.126.38.5	cc:e1:7f:91:fa:cf 58:00:bb:fa:9a:31	✖	63

What we've been working on..

Compare ASNs

IXPDB

EURO-IX   IXPDB ▾   VALIDATOR   IX-F ▾   SPONSORS ▾

ASNS COMPARISON   IXPDB

	Akamai	**Google**
	−	−
MANRS	✖	✖
ASN	20940	15169
Type	Content	Content
Number of IXPs	90	92
Common IXPs		#63

LINX LON1
AMS-IX
Netnod - Stockholm (Netnod - Stockholm)
MIX (Milan Internet Exchange)
DE-CIX FRA (DE-CIX Frankfurt)
GIGAPIX (Gigabit Portuguese Internet Exchange)
CATNIX (Catalunya Neutral Internet eXchange)
msk-ix (MSK-IX public peering VLAN)
NIX.CZ (NIX.CZ, z.s.p.o.)
DE-CIX Dallas (DE-CIX Dallas)
ROM1-VDX (NAMEX Roma IXP)
LONAP Network (LONAP Ltd.)
AMS-IX USA Chicago
ECIX-BER
SwissIX (SwissIX - Swiss Internet Exchange)

What we've been working on..

Compare ASNs

	PAIX Atlanta (Palo Alto Internet Exchange Atlanta)	
	Equinix Palo Alto (Equinix Palo Alto)	

Unique IXPs	#27	#29
	AAIX (Alpes Adria Internet Exchange)	ams (Asteroid Amsterdam Internet Exchange)
	AMS-IX Caribbean	AMS-IX India
	Bangkok Neutral Internet Exchange (BKNIX)	BALT-IX (Baltic Internet Exchange)
	BBIX - Tokyo (BroadBand Internet eXchange - Tokyo)	BiX (Budapest Internet eXchange)
	BostonIX (Markley Boston Internet Exchange)	BIX (Budapest Internet Exchange)
	CRIX (NIC Costa Rica - Academia Nacional de Ciencias)	CINX - Cape Town (Cape Town Internet Exchange)
	DE-CIX Istanbul (DE-CIX Istanbul)	DE-CIX HAM (DE-CIX Hamburg)
	Digital Realty - Phoenix (Digital Realty Phoenix)	DE-CIX Marseille (DE-CIX Marseille)
	DIX - Lyngby (Danish Internet eXchange point)	DE-CIX PMO (DE-CIX Palermo)
	Equinix Dallas (Equinix Dallas)	Digital Realty - New York (Digital Realty New York)
	Equinix Los Angeles (Equinix Los Angeles)	EPIX (e-Poludnie Internet Exchange)
	Equinix New York (Equinix New York)	EPIX Warsaw (e-Poludnie Internet Exchange)
	Equinix Zurich (Equinix Internet Exchange - Zurich)	GN-IX (Groningen Internet Exchange)
	INEX Cork (Internet Neutral Exchange Association Limited by Guarantee)	iAIX (iAdvantage Internet Exchange)
	IXLeeds (Leeds Internet Exchange)	INEX LAN2 (Internet Neutral Exchange Association Limited by Guarantee)
	Kampala 1 (Uganda Internet eXchange Point)	IX-Denver (Interconnection Exchange Denver)
	KleyReX (Kleyer Rebstocker eXchange)	IXPN (Internet Exchange Point of Nigeria)
	LINX Manchester	JPNAP - Tokyo I (Japan Network Access Point - Tokyo I)
	LINX Scotland	LAIIX (Los Angeles International IX)
	MICE (Midwest Internet Cooperative Exchange)	LINX LON2
	NAPAfrica IX Cape Town (NAPAfrica)	NWAX (Northwest Access Exchange)
	Netnod - COMIX (Netnod - COMIX)	Pacific Wave (Pacific Wave)
	NL-ix (Neutral Internet Exchange)	PIPE Networks Sydney (PIPE Networks Sydney)
	PAIX Dallas (Palo Alto Internet Exchange Dallas)	Rio de Janeiro (RJ) (IX.br - Rio de Janeiro (RJ))
	PAIX Seattle (Palo Alto Internet Exchange Seattle)	SFMIX (San Francisco Metropolitan Internet Exchange)
	QiX (Quebec Internet eXchange)	SOLIX - Stockholm (SOLIX)
	VIX (Vienna Internet Exchange)	SOX - Singapore (Singapore Open eXchange)
		TOP-IX (Torino Piemonte Exchange Point)
		TPIX - Taipei (Taipei Internet Exchange)

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What we've been working on..

ASN Details

IXPDB

EURO-IX   IXPDB ▾   VALIDATOR   IX-F ▾   SPONSORS ▾

VERISIGN

IXPDB / IXPDB / Participant

| ASN | IXPs |

Organisation	Verisign
ASN	26415
PeeringDB	http://as26415.peeringdb.com
MANRS	✔
Updated	Jan. 14, 2019, 4:03 p.m.

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What we've been working on..

ASN Details

IXPDB   EURO-IX   IXPDB ▾   VALIDATOR   IX-F ▾   SPONSORS ▾

VERISIGN   IXPDB / IXPDB / Participant Providers

ASN   **IXPs**

IX-F ID	Name	City	Country	Last updated	API	MANRS	# of ASNs
5	Netnod - Stockholm (Netnod - Stockholm)	Stockholm	SE	Jan. 14, 2019, 4:03 p.m.	✖	✔	159
10	GIGAPIX (Gigabit Portuguese Internet Exchange)		PT	Dec. 17, 2018, 3:05 p.m.	✔	✖	32
11	CATNIX (Catalunya Neutral Internet eXchange)		ES	Jan. 14, 2019, 4:03 p.m.	✔	✔	41
13	msk-ix (MSK-IX public peering VLAN)	Moscow	RU	Jan. 14, 2019, 4:03 p.m.	✔	✔	451
14	TOP-IX (Torino Piemonte Exchange Point)		IT	Jan. 14, 2019, 4:03 p.m.	✔	✔	122
15	NIX.CZ (NIX.CZ, z.s.p.o.)		CZ	Jan. 14, 2019, 3 a.m.	✔	✖	160
17	ROM1-VDX (NAMEX Roma IXP)		IT	Jan. 14, 2019, 4:03 p.m.	✔	✔	71
19	NIX (Norwegian Internet eXchange)	Oslo	NO	Nov. 27, 2018, 12:39 p.m.	✔	✖	68
20	INEX LAN1 (Internet Neutral Exchange Association Limited by Guarantee)		IE	Jan. 14, 2019, 4:03 p.m.	✔	✔	98
21	BCIX (BCIX Management GmbH)		DE	Jan. 14, 2019, 2 p.m.	✔	✖	98
28	CIX (Croatian Internet eXchange)	Zagreb	HR	Nov. 27, 2018, 12:39 p.m.	✖	✖	35

What we've been working on..

Route Server Directory

IXPDB

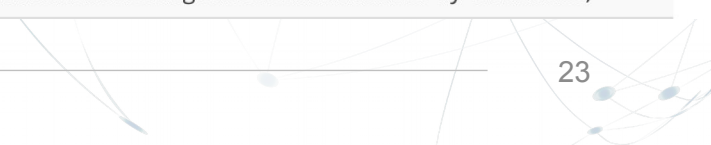EURO-IX   IXPDB ▾   VALIDATOR   IX-F ▾   SPONSORS ▾

R O U T E   S E R V E R S

IXPDB / IXPDB / Route Server Directory

| ASN, IPv4, IPv6, VLAN | | SEARCH |

ASN	IPv4	IPv6	VLAN	Provider ↓ᴬ/ᴢ
16374	193.178.185.6	2001:7f8:19:1::3ff6:6	BCIX Peering LAN	BCIX (BCIX Management GmbH)
16374	193.178.185.5	2001:7f8:19:1::3ff6:5	BCIX Peering LAN	BCIX (BCIX Management GmbH)
16374	193.178.185.7	2001:7f8:19:1::3ff6:7	BCIX Peering LAN	BCIX (BCIX Management GmbH)
43760	185.1.69.8	2001:7f8:18:210::8	INEX Cork	INEX Cork (Internet Neutral Exchange Association Limited by Guarantee)
43760	185.1.69.9	2001:7f8:18:210::9	INEX Cork	INEX Cork (Internet Neutral Exchange Association Limited by Guarantee)

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What we've been working on..

Switch Directory

IXPDB

EURO-IX   IXPDB ▾   VALIDATOR   IX-F ▾   SPONSORS ▾

SWITCHES

IXPDB / IXPDB / Switch Directory

| Name, brand, model, softw | SEARCH |

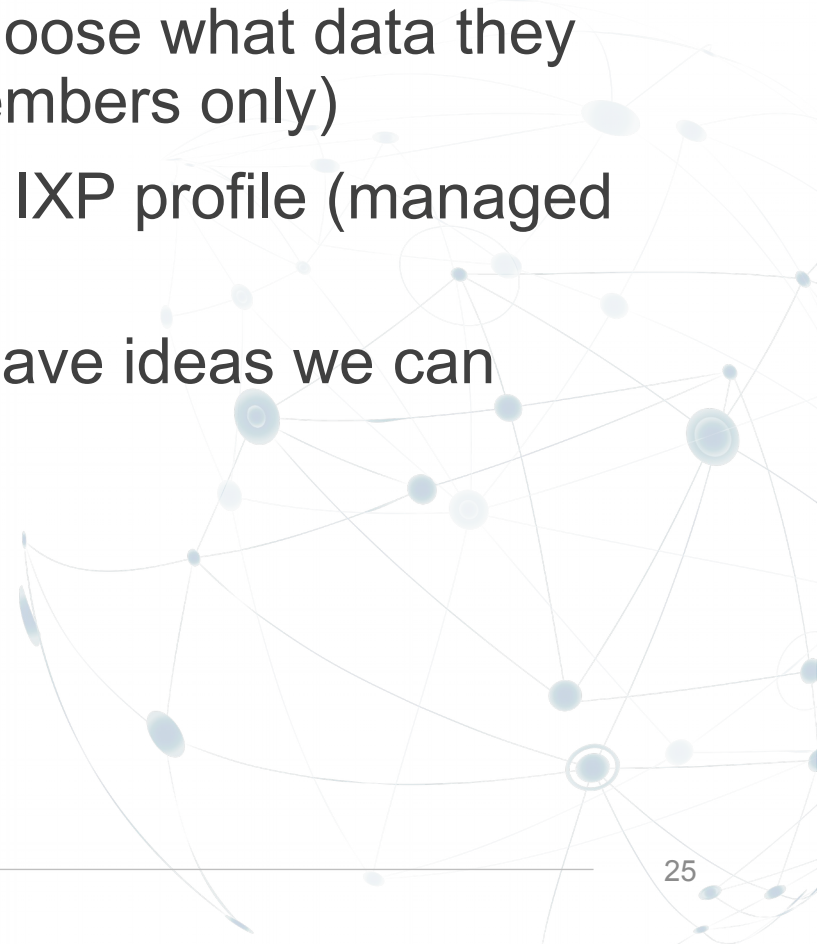| Name	Brand ↓ᶻₐ	Model	Software	POP	Provider
ix0.bknix.co.th	Nokia	7750 SR-12e	-	T.C.C Technology	Bangkok Neutral Internet Exchange (BKNIX)
ix0.bknix.co.th	Nokia	7750 SR-12e	-	T.C.C Technology	Bangkok Neutral Internet Exchange (BKNIX)
sw0.cpt0.napafrica.net	Juniper Networks	ex4200-24t	-	Teraco Data Environments Cape Town	NAPAfrica IX Cape Town (NAPAfrica)
eie-sw.gr-ix.gr	Juniper Networks	ex4500-40f	-	ATH01 (Ethniko Idryma Erevnon)	GR-IX::Athens (Greek Internet Exchange)
lh-sw.gr-ix.gr	Juniper Networks	ex4500-40f	-	ATH02 (Lamda Hellix)	GR-IX::Athens (Greek Internet Exchange)
sw0.db1.napafrica.net	Juniper Networks	ex4200-24t	-	Teraco Data Environments Durban	NAPAfrica IX Durban (NAPAfrica)
med-sw.gr-ix.gr	Juniper Networks	ex4500-40f	-	ATH03 (TI Sparkle)	GR-IX::Athens (Greek Internet Exchange)
snc-sw.thess.gr-ix.gr	Juniper Networks	ex4500-40f	-	THESS01 (Synapsecom)	GR-IX::Thessaloniki (Greek Internet Exchange)

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What's next..

- New JSON spec to be published

- API Authentication – IXPs can choose what data they want public and private (IXPs/Members only)

- Highlight ASNs not in PeeringDB IXP profile (managed by networks)

- Try it out and let us know if you have ideas we can explore..

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What's next..

- Mailing list for users:
  https://lists.euro-ix.net/mailman/listinfo/ixpdb

- API is available - https://api.ixpdb.net

If you think this is good work, like we do, support us :)

secretariat@euro-ix.net

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Thank You

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