

A network diagram background consisting of a complex web of thin grey lines connecting various nodes. The nodes are represented by circles of different sizes and colors, including blue, grey, and white. Some nodes have a glowing effect, particularly the larger blue ones. The overall aesthetic is clean and technical, suggesting a digital or networked environment.

euro-IX

Euro-IX – What We Do & Why

IX Forum 12 – 12 December 2018

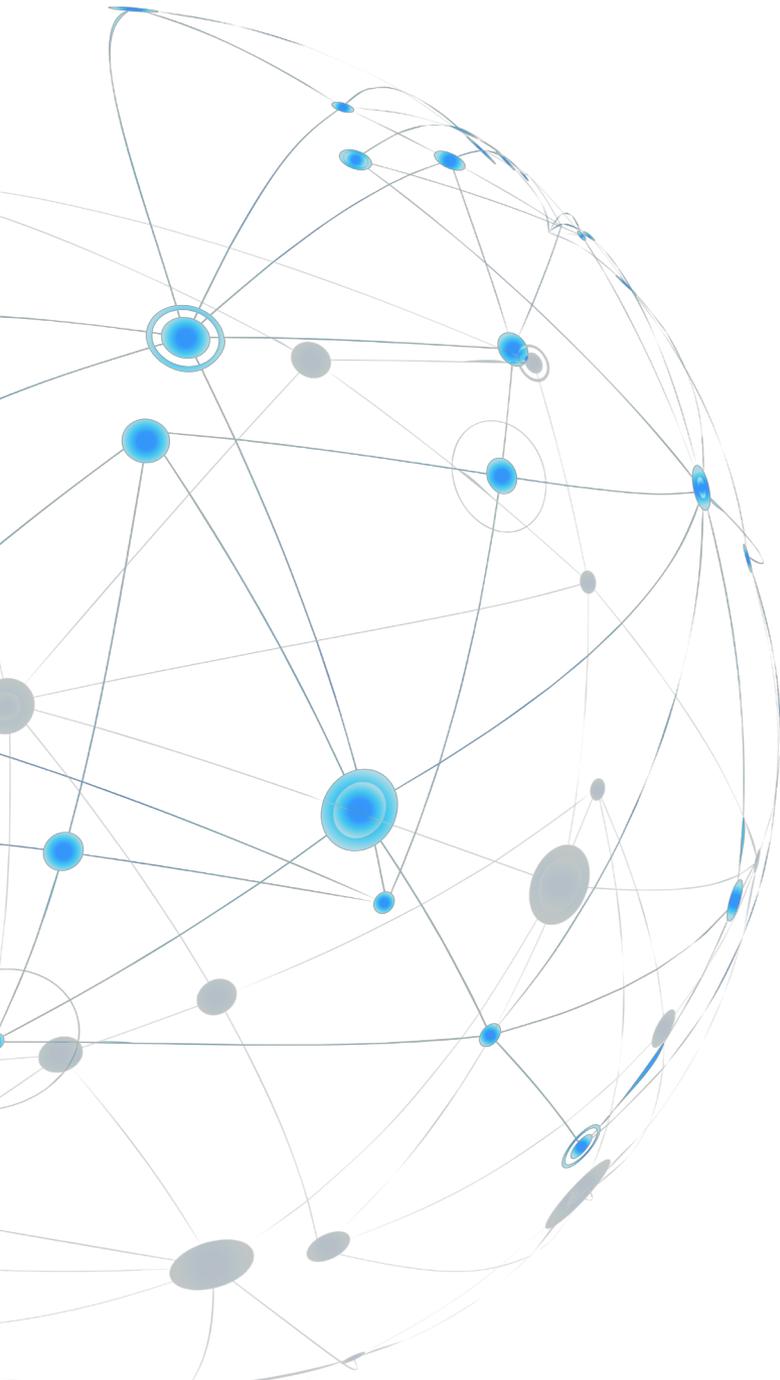
Rebecca Class-Peter



Agenda

- What is an IXP?
- Euro-IX - Who We Are
- IXPDB – Some History
- What We Have Been Working On
- Road Map For 2019





Internet eXchange Points

What are they?





What is an IXP

- Internet Exchange Points (IXPs) are network facilities that enable the interconnection of three or more independent networks, primarily for the purpose of facilitating the exchange of Internet traffic. IXPs are considered core Internet infrastructure and carry a growing percentage of the world's Internet traffic (IX-F definition of IXPs).
- An IXP provides interconnection only for Autonomous Systems.
- An IXP does not require the Internet traffic passing between any pair of participating Autonomous Systems to pass through any third Autonomous System, nor does it alter or otherwise interfere with such traffic.
- “Autonomous Systems” has the meaning given in BCP6/RFC4271, “A Border Gateway Protocol BGP4”.
- “Independent” means Autonomous Systems that are operated by organisational entities with separate legal personality.



What is an IXP?

- Explanation notes:

1. An Internet Exchange Point is a technical facility. This is distinct from the organisation that provides that facility, which might be termed an IXP operator.

2. An IXP is distinct from an Internet access network or a transit network/carrier.

3. The function of an IXP is to interconnect networks. An IXP does not provide network access or act as a transit provider/carrier. An IXP also does not provide other services unrelated to interconnection (although this does not preclude an IXP operator from also providing unrelated services).



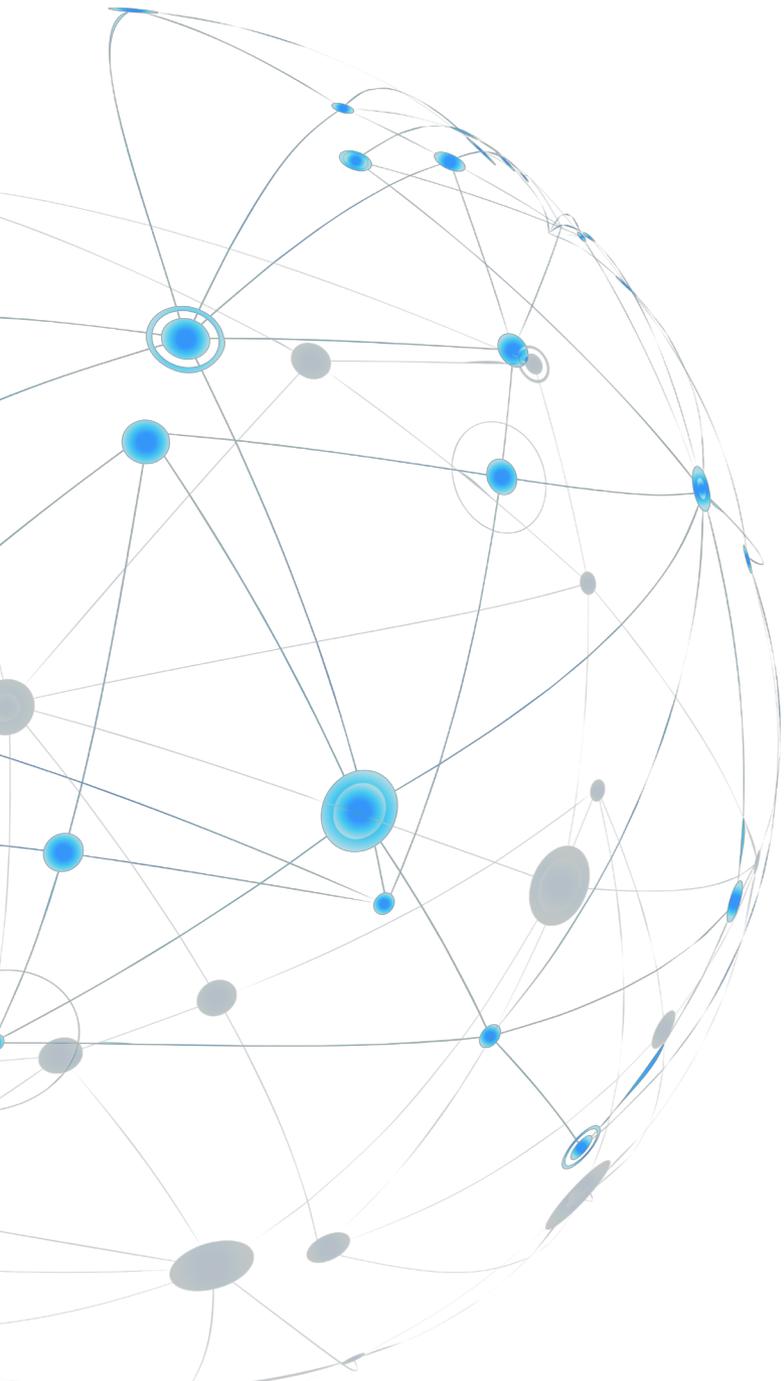
What is an IXP?

- Explanation notes contd.:

4. An IXP exists to interconnect networks that are technically and organisationally separate.

a. Without qualification the term “network” is too flexible and fails to identify the degree or kind of separation required. Once interconnected, separate networks are arguably part of the same network: the entire Internet is often considered a network, a network of networks.

b. To resolve this terminological problem we employ the term “Autonomous System”, which is the standard technical definition of a technically stand-alone network.



Euro-IX

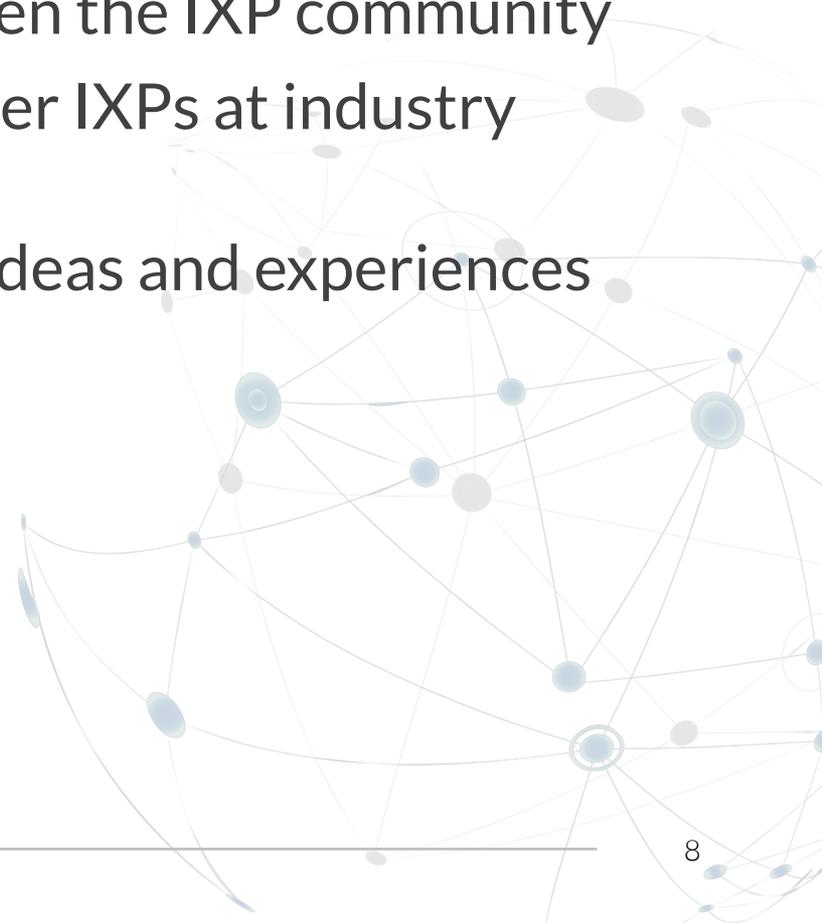
An Association for IXPs





Euro-IX – Who We Are

- Membership Association for IXPs
- 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

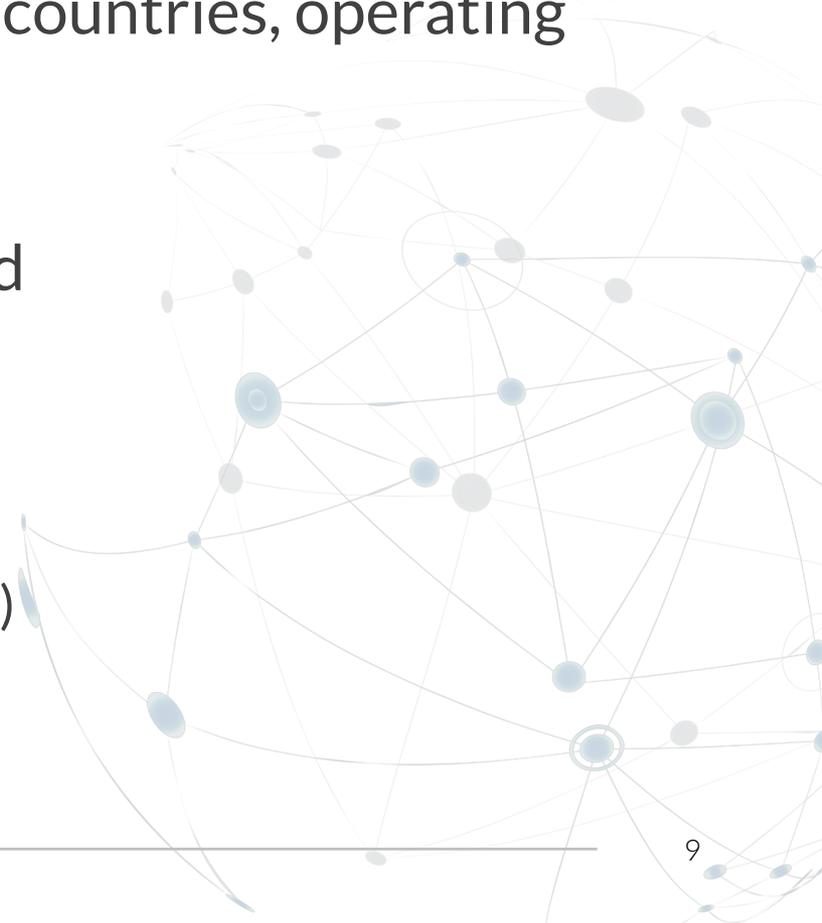




Association of IXPs

79 affiliated members

- 53 IXPs in the Euro-IX region, 47 countries, operating over 100 peering LANs
- 26 IXPs from the rest of the world
- Newest members:
 - DO-IX (Germany)
 - Asteroid International (Netherlands)





Euro-IX Patrons

NOKIA

Anritsu

envision : ensure



THE ELASTIC NETWORK

ciena

JUNIPER
NETWORKS

ARISTA

interxionTM



EQUINIX

Extreme[®]
Connect Beyond the Network

Coriant

smartoptics

euro-ix



IXPs in Europe

- 197 known IXPs
- 48 countries
- 146 cities
- Euro-IX – 79 members





Joining Euro-IX

- Who can join?
Any IXP meeting the industry accepted definition
- Organisation is up and running with at least 3 peers and a published customers list
- Benefits of joining include:
 - Access to Euro-IX Fora and workshops
 - Databases and tools
 - Subscription to Mailing Lists
 - Reports: Regulatory issues, IXPs, Traffic, Benchmarking
 - Access to European Peering Forum (EPF)
 - Network & partnerships benefits – France-IX interconnection with other IXPs





What is the IX-F?

The Internet eXchange Point Federation (IX-F)

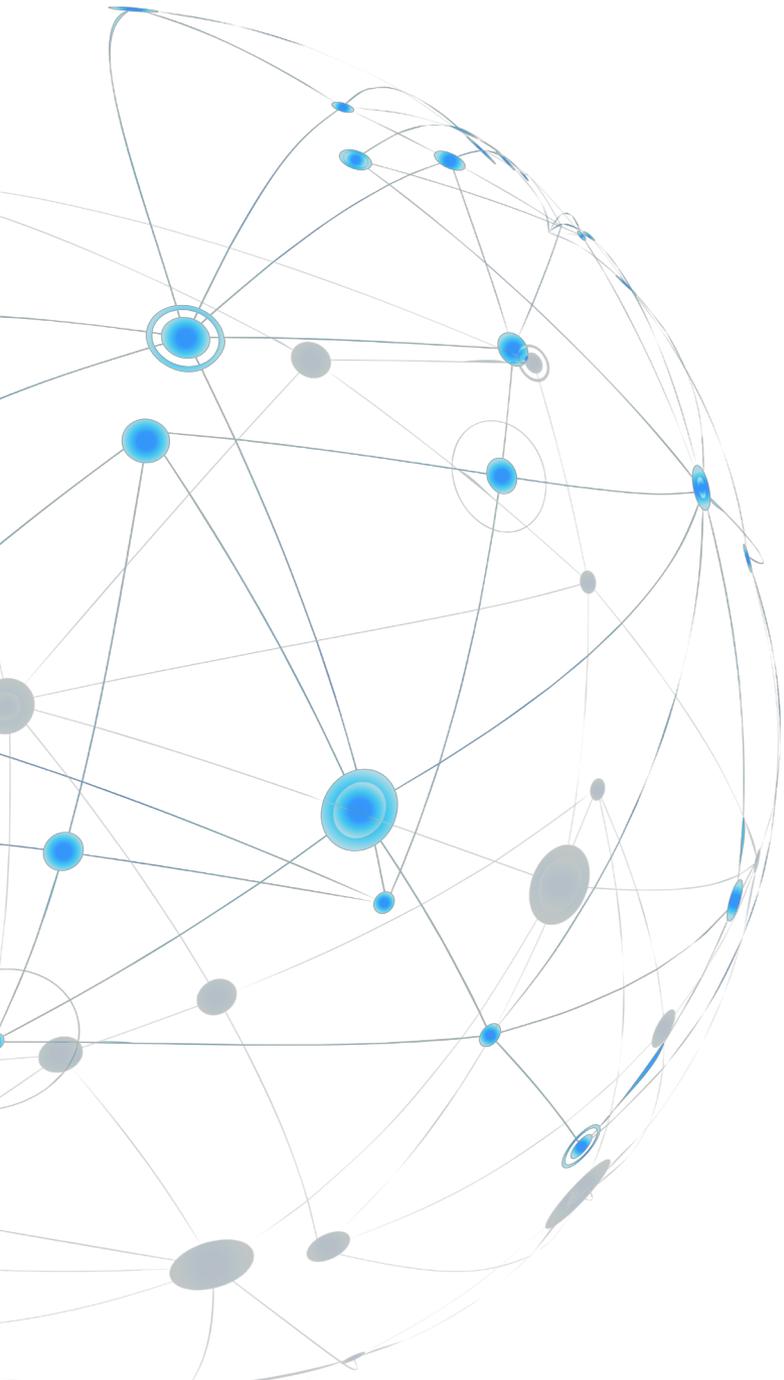
The Internet eXchange Federation (IX-F) is a platform for affiliated Internet eXchange Point Associations (IXPAs) to share best practice and establish parity in internet accessibility and functionality on a global scale.

AFIX – African Internet eXchange Point Association www.af-ix.net

APIX – Asia Pacific eXchange Point Associations www.apix.asia

Euro-IX – European Internet eXchange Point Association www.euro-ix.net

LAC-IX – Latin America & Caribbean Internet eXchange Point Association www.lac-ix.net



IXP Database & Tools





Some History

- The original code was written around 15 years ago...
- 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.
- We believe with their history of producing good software we would be in safe hands.



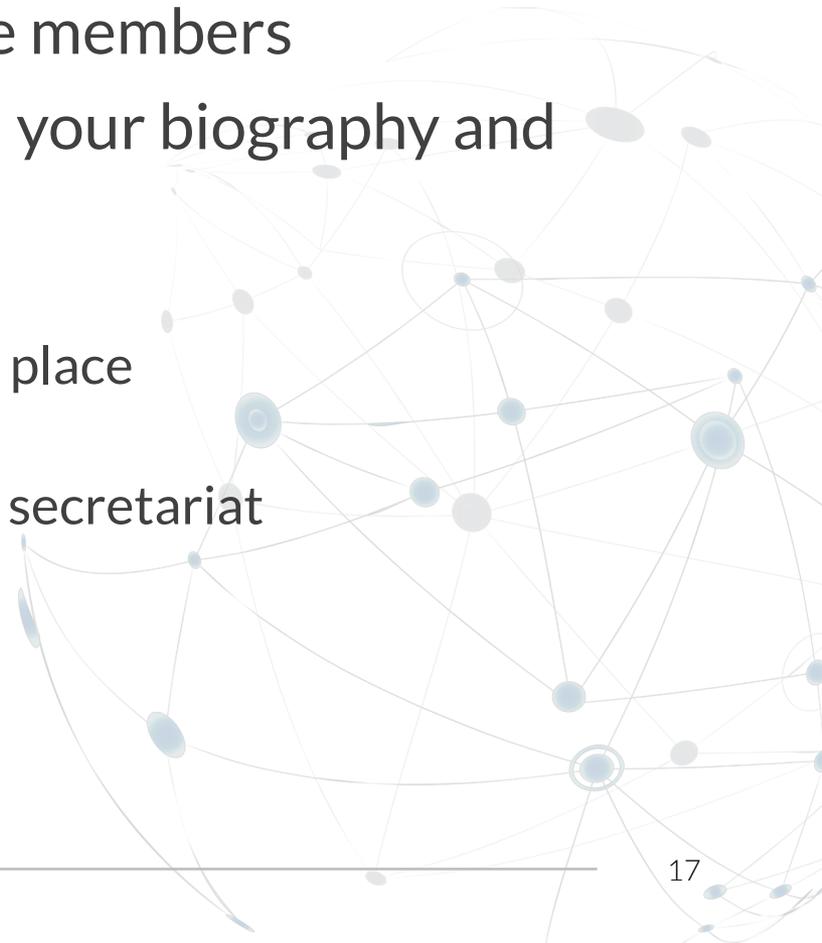
Some History

- Membership feedback from consultations and the 2017 Survey clearly showed IXPs wanted a place to publish an accurate and complete data set.
- There is no other database where IXPs have control of their data and can publish how they want to who they want.
- This is the one place where you the IXP can show the world who is connected to your IXP and be in control of what's public and private.
- Your data is used in the tools to help IXPs get support (switchDB) from each other and for networks to find you and see who they can connect to at your exchange.



What we've been working on..

- New Interface
- Updated content
- New backend database to manage members
- New profiles for users, please add your biography and photo
- New Forum pages:
 - Proposals and submissions all in one place
 - Details about the presenters
 - Backend improvements for FPC and secretariat
- New IXPDB pages
- New tools using IXPDB data

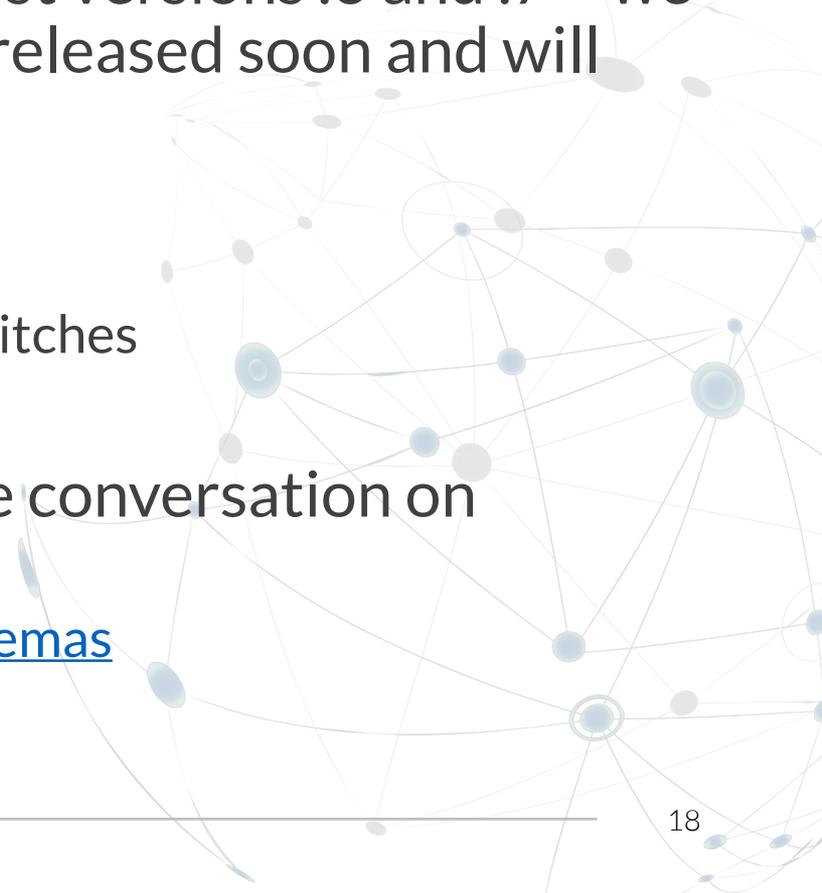




What we've been working on..

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

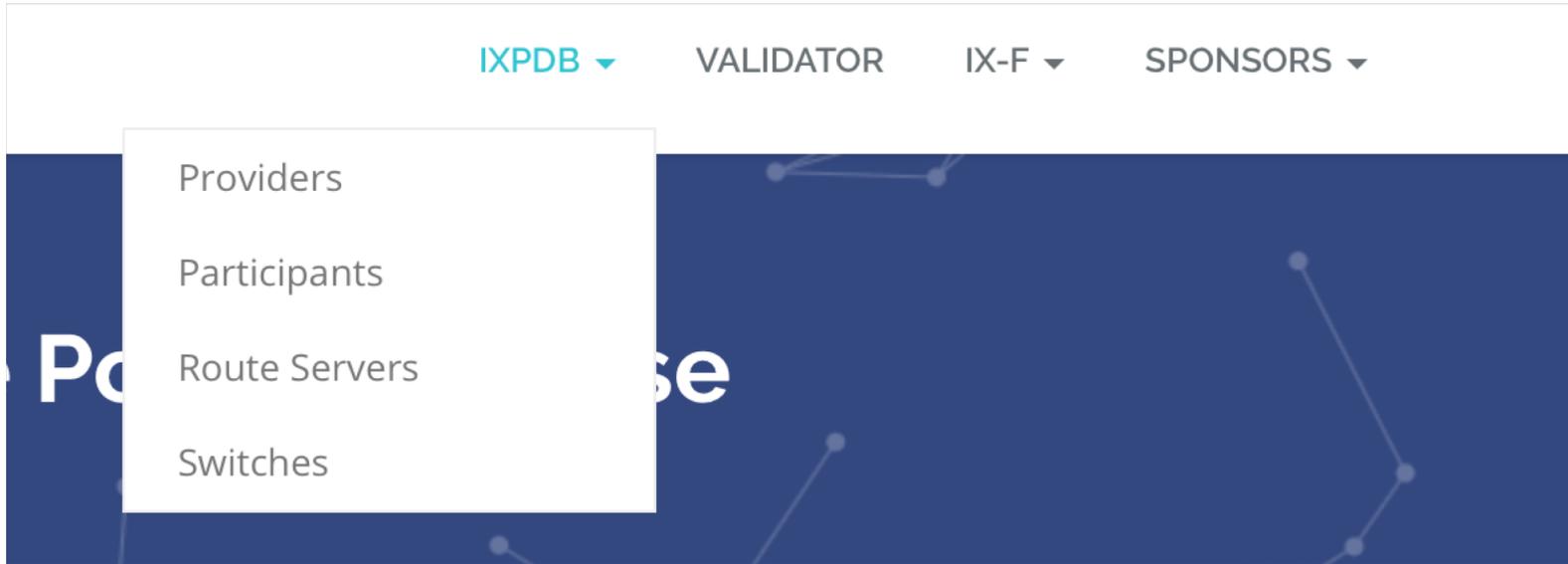
- Data is from IX-F JSON member list versions .6 and .7 – we are working on .8 and this will be released soon and will include:
 - Further details on Switches
 - Further detail on Route Servers
 - Details on location based around switches
- You can find details and follow the conversation on GitHub:
 - <https://github.com/euro-ix/json-schemas>





What we've been working on..

Finding the data...





What we've been working on..

How to find IXPs

PROVIDERS

<input type="text" value="IX-F ID, name, city or countr"/>	<input type="checkbox"/> Only with API	<input type="checkbox"/> AFIX <input type="checkbox"/> APIX <input type="checkbox"/> Euro-IX <input type="checkbox"/> LAC-IX <input type="checkbox"/> North America	<input type="button" value="SEARCH"/>
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What we've been working on..

The IX-F ID is a unique number used to identify IXPs:



IX-F ID: City or country: Only with API

AFIX
 APIX
 Euro-IX
 LAC-IX
 North America

COMPARE	IX-F ID	Name ↓ ^A ₂	City	Country	Last updated	API	# of participants
<input data-bbox="117 982 170 1035" type="button" value="+"/>	737	ams (Asteroid Amsterdam Internet Exchange)	Amsterdam	NL	Oct. 29, 2018, 5 p.m.	<input checked="" type="checkbox"/>	27
<input data-bbox="117 1063 170 1116" type="button" value="+"/>	2	AMS-IX	Amsterdam	NL	Nov. 1, 2018, 6 p.m.	<input checked="" type="checkbox"/>	815
<input data-bbox="117 1145 170 1198" type="button" value="+"/>	61	AMS-IX Caribbean	Willemstad, Curacao	AN	July 23, 2018, 9:16 a.m.	<input checked="" type="checkbox"/>	12
<input data-bbox="117 1240 170 1293" type="button" value="+"/>	356	AMS-IX Hong Kong	Hong Kong	CN	Nov. 1, 2018, 6:01 p.m.	<input checked="" type="checkbox"/>	46



What we've been working on..

The Network tab:

INEX LAN1 (INTERNET NEUTRAL EXCHANGE ASSOCIATION LIMITED BY GUARANTEE)

IXPDB / IXPDB / Provider Networks

Provider **Networks** Points of presence Participants Traffic ▾

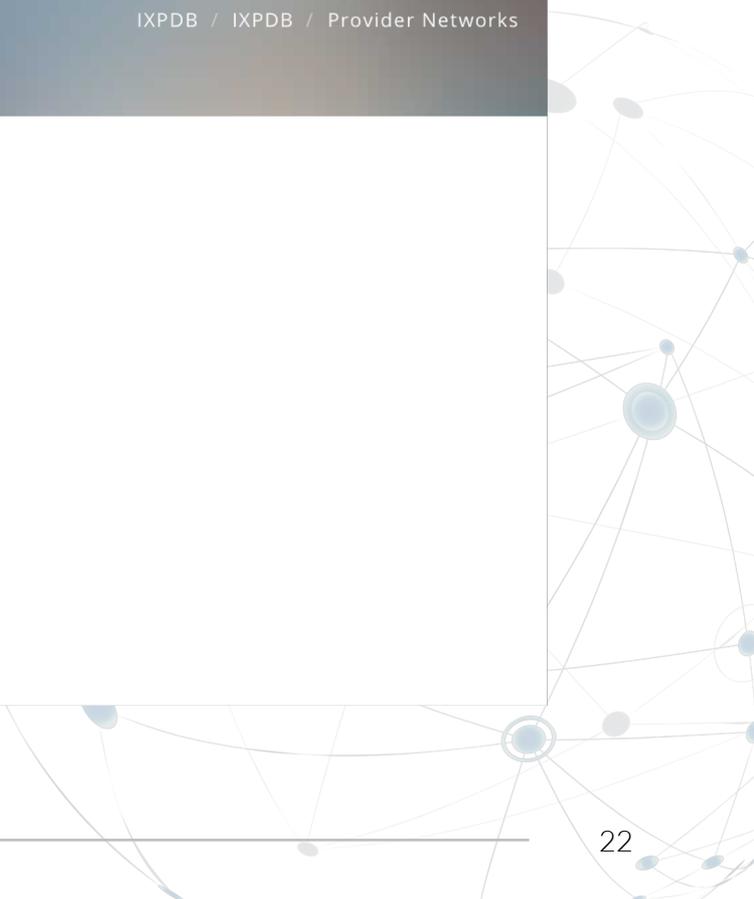
Peering LAN1

Addresses 185.6.36.0/23
2001:7f8:18::/64

Route servers:

ASN: 43760
IP v4 address 185.6.36.8
IP v6 address 2001:7f8:18::8

ASN: 43760
IP v4 address 185.6.36.9
IP v6 address 2001:7f8:18::9





What we've been working on..

The Points of Presence tab:

BCIX (BCIX MANAGEMENT GMBH)

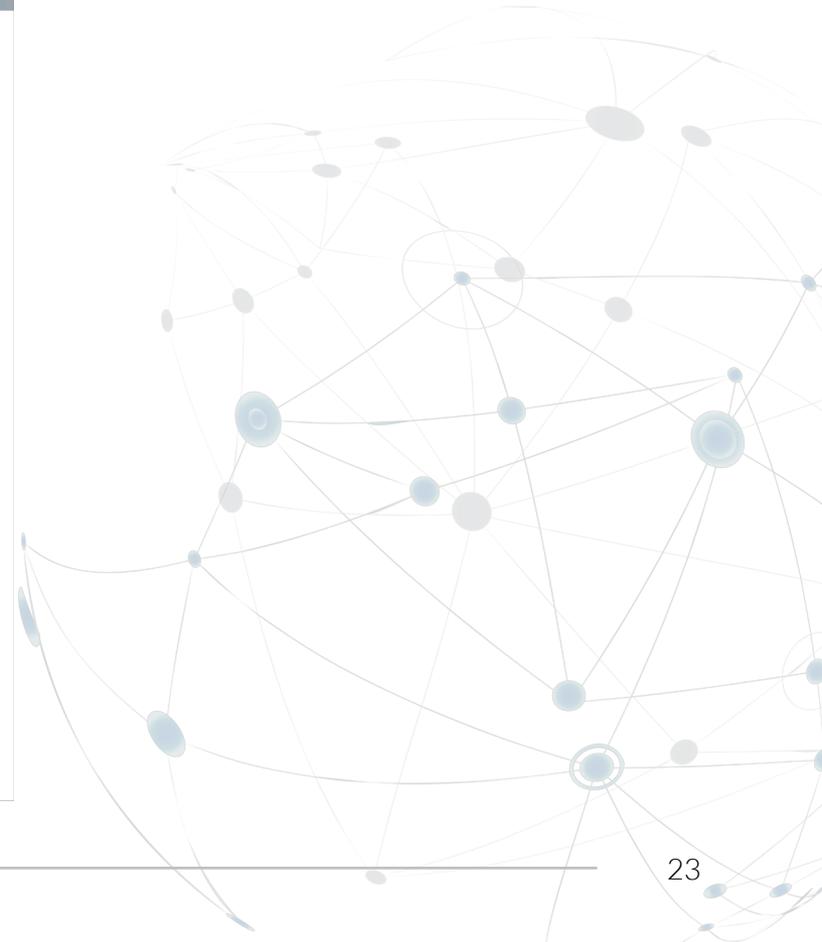
Provider Networks **Points of presence** Participants Traffic ▾

A36: euNetworks Berlin

Location
A36: euNetworks Berlin, Berlin, Germany

Switches

Name	f10-a36-01
Model	S4810
Connections	e.discom Telekommunikation GmbH (10000 Mb/s) euNetworks GmbH (10000 Mb/s) Verizon Digital Media Services Inc (10000 Mb/s) nazwa.pl (1000 Mb/s) Myra Security GmbH (1000 Mb/s) MessageLabs (1000 Mb/s) BNMG Brandenburgische Netz- und Media-Service GmbH (10000 Mb/s) TELE AG (10000 Mb/s)
Name	f10-a36-02
Model	Unknown
Connections	Telefonica Deutschland GmbH (100000 Mb/s)



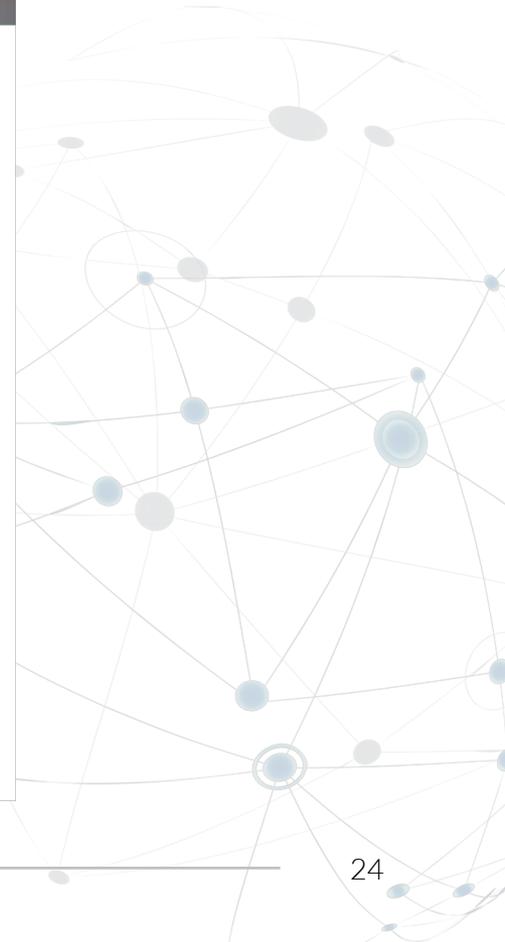


What we've been working on..

The Participants tab:

BCIX (BCIX MANAGEMENT GMBH) IXPDB / IXPDB / Provider Participants

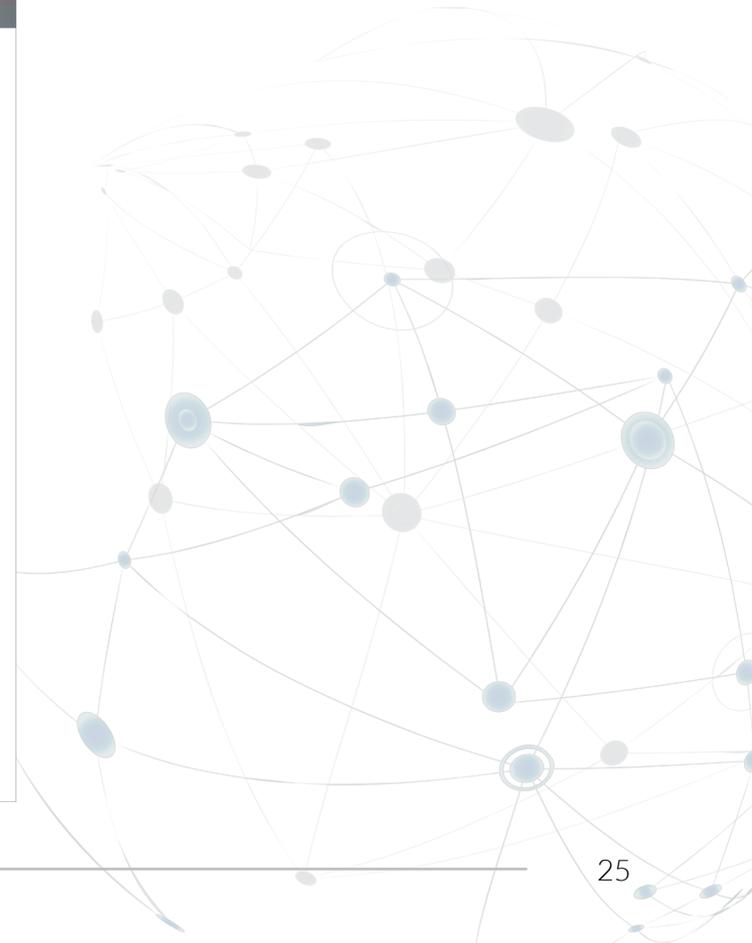
Provider	Networks	Points of presence	Participants	Traffic	
ASN ↓	Participant	Type	IP addresses	MAC addresses	# of IXP connection
42	Packet Clearing House	Educational/Research	193.178.185.27 2001:7f8:19:1::2a:1	88:5a:92:46:cf:d1	70
112	RIPE NCC Routing Information Service (RIS)	Non-Profit	193.178.185.112 2001:7f8:19:1::70:1	00:30:48:56:c8:05	21
250	AS250.net Network Operations	Non-Profit	193.178.185.23 2001:7f8:19:1::fa:1	00:25:90:a9:66:c0	6
286	KPN Eurorings bv	NSP	193.178.185.65 2001:7f8:19:1::11e:1	00:24:dc:ca:16:74	20
680	DFN Deutsches Forschungsnetz e.V.	Educational/Research	193.178.185.42 2001:7f8:19:1::2a8:1	78:ba:f9:35:79:88	3
714	Apple Europe Ltd	Not Disclosed	193.178.185.19 193.178.185.24		16
1547	TIRASTEL GmbH	Cable/DSL/ISP	193.178.185.62 2001:7f8:19:1::60b:1	00:26:98:25:bf:21 00:26:98:25:bf:23	5
2906	Netflix	Content	193.178.185.80 2001:7f8:19:1::b5a:1	44:4c:a8:96:8e:f3	36





What we've been working on..

The Traffic tab:





What we've been working on..

Back to the Provider tab..

IXPDB - VALIDATOR IX-F - SPONSORS -

PROVIDERS

Providers
Participants
Route Servers
Switches

IXPDB / IXPDB / Providers

IX-F ID, name, city or count Only with API

AFIX
 APIX
 Euro-IX
 LAC-IX
 North America

SEARCH

COMPARE	IX-F ID	Name ↓	City	Country	Last updated	API	# of participants
<input type="checkbox"/>	737	ams (Asteroid Amsterdam Internet Exchange)	Amsterdam	NL	Oct. 29, 2018, 5 p.m.	✓	27
<input type="checkbox"/>	2	AMS-IX	Amsterdam	NL	Nov. 1, 2018, 6 p.m.	✓	815
<input type="checkbox"/>	61	AMS-IX Caribbean	Willemstad, Curacao	AN	July 23, 2018, 9:16 a.m.	✓	12
<input type="checkbox"/>	356	AMS-IX Hong Kong	Hong Kong	CN	Nov. 1, 2018, 6:01 p.m.	✓	46
<input type="checkbox"/>	619	AMS-IX India	Mumbai	IN	Nov. 1, 2018, 6:01 p.m.	✓	19
<input type="checkbox"/>	532	AMS-IX USA Bay Area	San Francisco	US	Nov. 1, 2018, 6:01 p.m.	✓	28
<input type="checkbox"/>	533	AMS-IX USA Chicago	Chicago	US	Nov. 1, 2018, 6:01 p.m.	✓	31
<input type="checkbox"/>	412	AMS-IX USA New York	New York	US	Aug. 13, 2018, 11 a.m.	✓	0
<input type="checkbox"/>	746	ANIX (Albanian Neutral Internet Exchange)		AL	July 27, 2018, 1:02 p.m.	✓	7
<input type="checkbox"/>	741	BALT-IX (Baltic Internet Exchange)		LT	Oct. 10, 2018, 3 p.m.	✓	38
<input type="checkbox"/>	587	Bangkok Neutral Internet Exchange (BKNIX)		TH	Nov. 1, 2018, 6:01 p.m.	✓	25
<input type="checkbox"/>	21	BCIX (BCIX Management GmbH)		DE	Oct. 24, 2018, 9 a.m.	✓	96

- Search for an IXP
- Sort by:
 - IX-F ID
 - IXP name
 - City
 - Country
 - Last updated
 - API or not
 - Number of networks connected



What we've been working on..

The new compare function for IXPs:

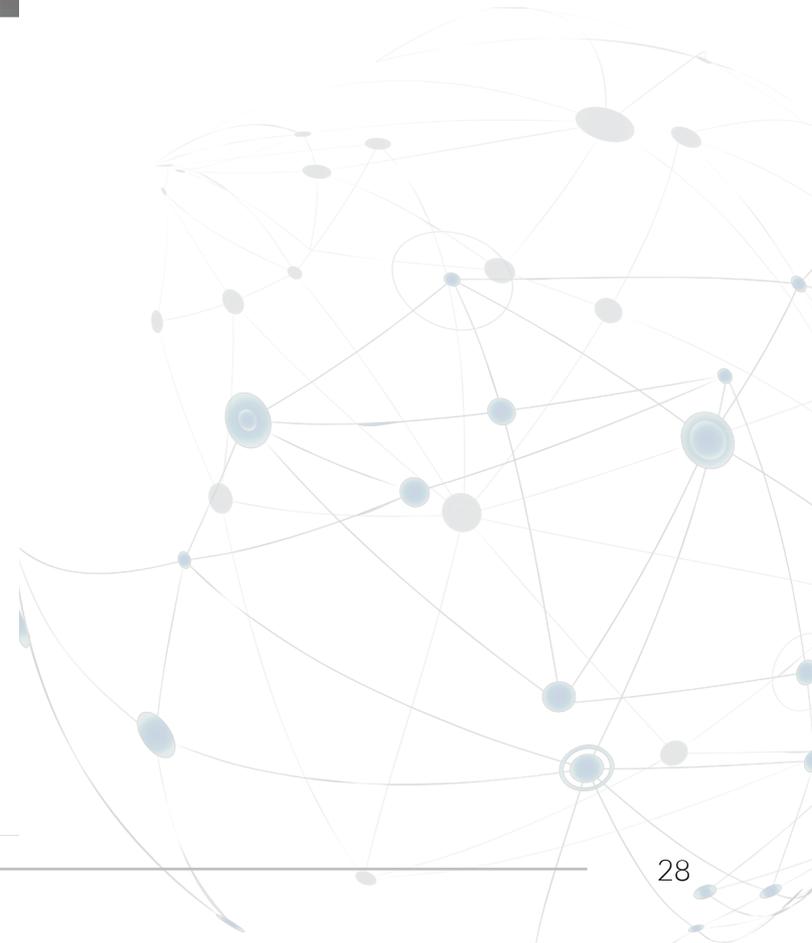
COMPARE	IX-F ID	Name ↓½	City	Country	Last updated	API	# of participants
+	737	ams (Asteroid Amsterdam Internet Exchange)	Amsterdam	NL	Oct. 29, 2018, 5 p.m.	✓	27
-	2	AMS-IX	Amsterdam	NL	Nov. 1, 2018, 6 p.m.	✓	815
+	61	AMS-IX Caribbean	Willemstad, Curacao	AN	July 23, 2018, 9:16 a.m.	✓	12
+	356	AMS-IX Hong Kong	Hong Kong	CN	Nov. 1, 2018, 6:01 p.m.	✓	46
+	619	AMS-IX India	Mumbai	IN	Nov. 1, 2018, 6:01 p.m.	✓	19
+	532	AMS-IX USA Bay Area	San Francisco	US	Nov. 1, 2018, 6:01 p.m.	✓	28
+	533	AMS-IX USA Chicago	Chicago	US	Nov. 1, 2018, 6:01 p.m.	✓	31



What we've been working on..

The new compare function for IXPs:

PROVIDERS COMPARISON		IXPDB / IXPDB / Providers / Providers Comparison	
	BIX (Budapest Internet Exchange)	CATNIX (Catalunya Neutral Internet eXchange)	CIXP (CERN Internet Exchange Point)
Number of locations	3	1	3
Type	Non-profit	Non-profit	Non-profit
Joining requirements	Legal entity AS number BGP-4	http://www.catnix.net/en/static/connection_requirements/6/	AS Number (mandatory) Installation of own router (recommended)
Application form	https://meu.ptt.br	http://www.catnix.net/en/contact/	http://cixp.net/how-join/application-form
Monitoring tools		IXP-Watch Cacti-RIPE Atlas	Spectrum (Computer Associates)
Topology	http://ptt.br/trafego/pix/sp		
Reseller program	✗	✗	✗
Private peering	✓	✓	✓
24x7 services	✓	✓	✓
24x7 access	✓	✓	✓
Multi-protocol Labels, MPLS	✓	✗	✗
Jumbo frames	✗	✓	✗
Maximum Transmission Unit, MTU	-	9198	-

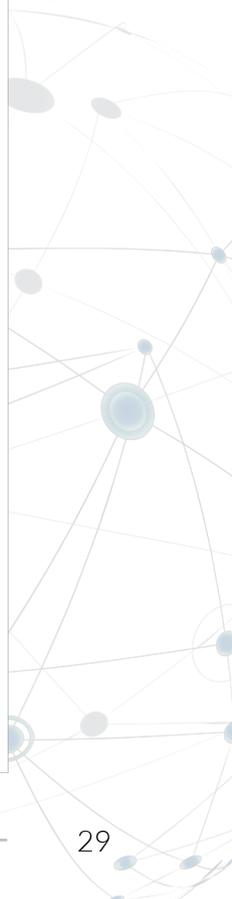




What we've been working on..

The new compare function for IXPs, continued:

Speed 100G	-	3900 €	-
Number of participants	65	41	39
Common participants	#1 Hurricane Electric		
Unique participants	#60 23VNet 3C Telecom ACE Telecom ActivCom Antenna Hungária BH Telecom British Telecommunications plc Deninet Kft. DIGI Docler Holding S.a r.l. DoclerNet Hosting Drávanet Externet EZIT Giganet Hungarnet iNES GROUP Inform Media Infotechna Ltd.	#35 Acens Adam Adamo Akamai International B.V. Altecom Andorra Telecom Anella Cientifica BitNap BT Telecomunicaciones Claranet CTTI Easynet LTD. EPorts Eurona Guifi.net Iberbanda IMI Iporium ISC Itconic	#35 Adeli Akenes S.A. Briod SA CERN Cogent Communications CTI DANTE Deutsche Telekom AG DFI Service SA Equinix (Switzerland) GmbH Forcepoint Cloud Ltd. Infomaniak Network SA Init Seven AG IP-Max (route collector)





What we've been working on..

Don't forget to clear your search 😊

	1	LINX LON1	London	GB	Oct. 30, 2018, 2 p.m.	✓	756
	600	LINX LON2	London	GB	Oct. 30, 2018, 1 p.m.	✓	356
	349	LINX Manchester	Manchester	GB	Oct. 30, 2018, 1 p.m.	✓	100
	426	LINX NoVA	Ashburn	US	Oct. 30, 2018, 1 p.m.	✓	46



Added to compare: 7,11,55

Total providers: 77





What we've been working on..

A look at the Participant / ASN Directory

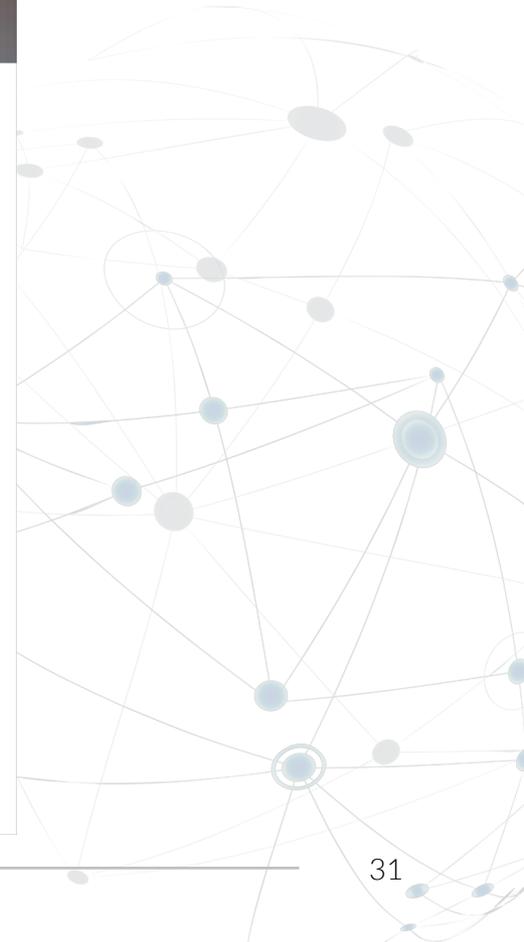
IXPDB IXPDB - VALIDATOR IX-F - SPONSORS -

PARTICIPANTS IXPDB / IXPDB

Providers
Participants
Route Servers
Switches

ASN, participant name, city

COMPARE	ASN	Participant	Type	IP addresses	MAC addresses	# of IXP connection
<input type="button" value="+"/>	6939	Hurricane Electric	NSP	103.247.139.6 185.1.58.17	cc:4e:24:1f:28:d3 00:0c:db:de:68:33	100
<input type="button" value="+"/>	15169	Google	Content	103.247.139.57 185.1.46.3	84:18:88:04:5f:ca f4:b5:2f:fc:2f:cb	90
<input type="button" value="+"/>	20940	Akamai International B.V.	Content	103.247.139.17 103.247.139.73	78:ba:f9:12:2d:38 78:ba:f9:12:2d:39	87
<input type="button" value="+"/>	3856	Packet Clearing House	Educational/Research	185.1.58.30 185.6.36.61	00:0c:29:b9:25:ee 00:0c:29:94:e9:77	77
<input type="button" value="+"/>	42	Packet Clearing House	Educational/Research	185.1.58.29 185.6.36.60	7c:69:f6:43:0f:b2 88:5a:92:46:cf:d1	70
<input type="button" value="+"/>	8075	Microsoft	NSP	103.247.139.28 185.1.68.16	0c:86:10:9c:9f:c1 f0:1c:2d:86:a5:cf	68
<input type="button" value="+"/>	13335	Cloudflare, Inc.	Content	103.247.139.50 185.1.58.2	7c:25:86:ee:db:7c 5c:5e:ab:d3:dd:65	61
<input type="button" value="+"/>	22822	Limelight Networks, Inc.	Content	103.247.139.49 185.1.46.1	00:24:38:7a:cc:53 cc:4e:24:92:d8:66	59
<input type="button" value="+"/>	10310	Yahoo Inc.	Content	103.247.139.58 185.1.68.111	5c:45:27:76:1f:08 30:7c:5e:e3:cb:04	51
<input type="button" value="+"/>	32934	FACEBOOK	Content	185.1.46.12 185.1.68.30	e8:b6:c2:33:f4:c6	48





What we've been working on..

A look at the Participant or ASN Directory

COMPARE	ASN	Participant	Type	IP addresses	MAC addresses	# of IXP connection
+	6939	Hurricane Electric	NSP	103.247.139.6 185.1.58.17	cc:4e:24:1f:28:d3 00:0c:db:de:68:33	100
+	15169	Google	Content	103.247.139.57 185.1.46.3	84:18:88:04:5f:ca f4:b5:2f:fc:2f:cb	90
+	20940	Akamai International B.V.	Content	103.247.139.17 103.247.139.73	78:ba:f9:12:2d:38 78:ba:f9:12:2d:39	87
+	3856	Packet Clearing House	Educational/Research	185.1.58.30 185.6.36.61	00:0c:29:b9:25:ee 00:0c:29:94:e9:77	77
+	42	Packet Clearing House	Educational/Research	185.1.58.29 185.6.36.60	7c:69:f6:43:0f:b2 88:5a:92:46:cf:d1	70
+	8075	Microsoft	NSP	103.247.139.28 185.1.68.16	0c:86:10:9c:9f:c1 f0:1c:2d:86:a5:cf	68
+	13335	Cloudflare, Inc.	Content	103.247.139.50 185.1.58.2	7c:25:86:ee:db:7c 5c:5e:ab:d3:dd:65	61
+	22822	Limelight Networks, Inc.	Content	103.247.139.49 185.1.46.1	00:24:38:7a:cc:53 cc:4e:24:92:d8:66	59
+	10310	Yahoo Inc.	Content	103.247.139.58 185.1.68.111	5c:45:27:76:1f:08 30:7c:5e:e3:cb:04	51
+	32934	FACEBOOK	Content	185.1.46.12 185.1.68.30	e8:b6:c2:33:f4:c6	48

- Search by ASN, Network name, city
- Sort by:
 - ASN
 - Name
 - Type (Content/NREN/NSP)
 - Number of connections to IXPs



What we've been working on..

Compare ASN, see which IXPs they share in common and no

IXPDB

IXPDB - VALIDATOR IX-F - SPONSORS -

PARTICIPANTS

Providers
Participants
Route Servers
Switches

IXPDB / IXPDB

ASN, participant name, city SEARCH

COMPARE	ASN	Participant	Type	IP addresses	MAC addresses	# of IXP connection
+	6939	Hurricane Electric	NSP	103.247.139.6 185.1.58.17	cc:4e:24:1f:28:d3 00:0c:db:de:68:33	100
+	15169	Google	Content	103.247.139.57 185.1.46.3	84:18:88:04:5f:ca f4:b5:2f:fc:2f:cb	90
+	20940	Akamai International B.V.	Content	103.247.139.17 103.247.139.73	78:ba:f9:12:2d:38 78:ba:f9:12:2d:39	87
+	3856	Packet Clearing House	Educational/Research	185.1.58.30 185.6.36.61	00:0c:29:b9:25:ee 00:0c:29:94:e9:77	77
+	42	Packet Clearing House	Educational/Research	185.1.58.29 185.6.36.60	7c:69:f6:43:0f:b2 88:5a:92:46:cf:d1	70
+	8075	Microsoft	NSP	103.247.139.28 185.1.68.16	0c:86:10:9c:9f:c1 f0:1c:2d:86:a5:cf	68
+	13335	Cloudflare, Inc.	Content	103.247.139.50 185.1.58.2	7c:25:86:ee:db:7c 5c:5e:ab:d3:dd:65	61
+	22822	Limelight Networks, Inc.	Content	103.247.139.49 185.1.46.1	00:24:38:7a:cc:53 cc:4e:24:92:d8:66	59
+	10310	Yahoo Inc.	Content	103.247.139.58 185.1.68.111	5c:45:27:76:1f:08 30:7c:5e:e3:cb:04	51
+	32934	FACEBOOK	Content	185.1.46.12 185.1.68.30	e8:b6:c2:33:f4:c6	48





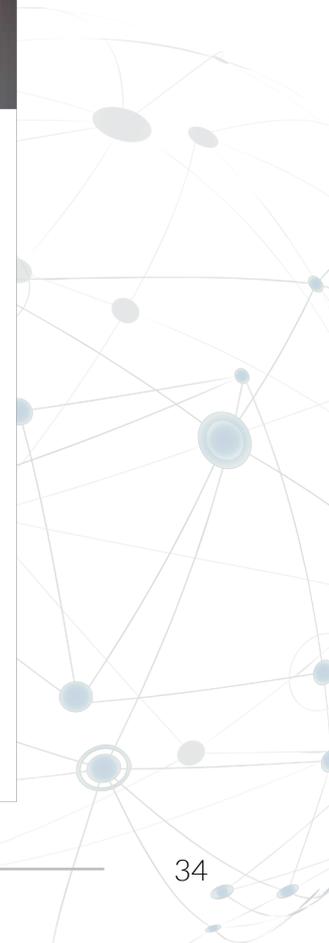
What we've been working on..

Compare ASN, see which IXPs they share in common and not

IXPDB IXPDB ▾ VALIDATOR IX-F ▾ SPONSORS ▾

PARTICIPANTS COMPARISON IXPDB / IXPDB

	Akamai International B.V.	Google
ASN	20940	15169
Type	Content	Content
Number of providers	87	90
Common providers		#62 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) LONAP Network (LONAP Ltd.) AMS-IX USA Chicago ECIX-BER SwissIX (SwissIX - Swiss Internet Exchange)





What we've been working on..

Compare ASN, see which IXPs they share in common or not..

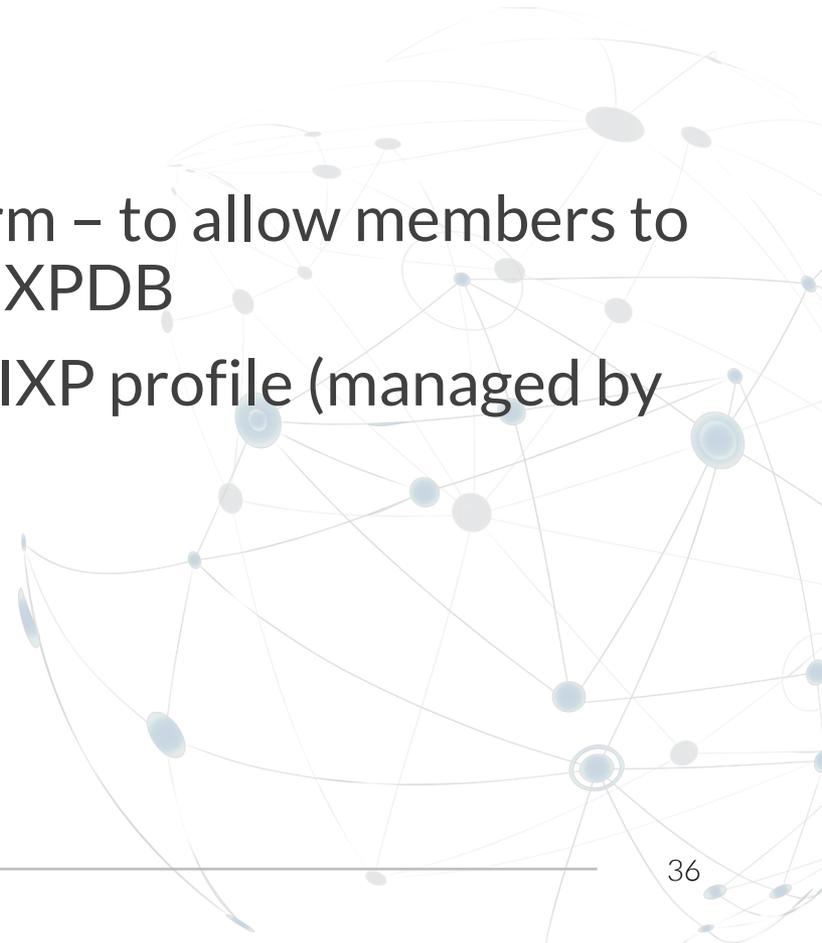
		Equinix San Jose (Equinix San Jose) Equinix Chicago (Equinix Chicago) NIX.SK (NIX.CZ, z.s.p.o. organizacna zlozka) Big APE (The big apple peering Exchange) PAIX Atlanta (Palo Alto Internet Exchange Atlanta) Equinix Palo Alto (Equinix Palo Alto)
Unique providers	#25	#28
	AAIX (Alpes Adria Internet Exchange) Bangkok Neutral Internet Exchange (BKNIX) BBIX - Tokyo (BroadBand Internet eXchange - Tokyo) BostonIX (Markley Boston Internet Exchange) DE-CIX Istanbul (DE-CIX Istanbul) Digital Realty - Phoenix (Digital Realty Phoenix) DIX - Lyngby (Danish Internet eXchange point) Equinix Dallas (Equinix Dallas) Equinix Los Angeles (Equinix Los Angeles) Equinix New York (Equinix New York) Equinix Zurich (Equinix Internet Exchange - Zurich) INEX Cork (Internet Neutral Exchange Association Limited by Guarantee) IXLeeds (Leeds Internet Exchange) Kampala 1 (Uganda Internet eXchange Point) KleyReX (Kleyer Rebstocker eXchange) LINX Manchester LINX Scotland MICE (Midwest Internet Cooperative Exchange) NAMEX (NAMEX Roma IXP) Netnod - COMIX (Netnod - COMIX) NL-ix (Neutral Internet Exchange) PAIX Dallas (Palo Alto Internet Exchange Dallas) PAIX Seattle (Palo Alto Internet Exchange Seattle) QIX (Quebec Internet eXchange) VIX (Vienna Internet Exchange)	ams (Asteroid Amsterdam Internet Exchange) BALT-IX (Baltic Internet Exchange) BIX (Budapest Internet eXchange) BIX (Budapest Internet Exchange) CINX - Cape Town (Cape Town Internet Exchange) DE-CIX HAM (DE-CIX Hamburg) DE-CIX Marseille (DE-CIX Marseille) DE-CIX PMO (DE-CIX Palermo) Digital Realty - New York (Digital Realty New York) EPIX (e-Poludnie Internet Exchange) EPIX Warsaw (e-Poludnie Internet Exchange) GN-IX (Groningen Internet Exchange) iAIX (iAdvantage Internet Exchange) INEX LAN2 (Internet Neutral Exchange Association Limited by Guarantee) IX-Denver (Interconnection Exchange Denver) IXPN (Internet Exchange Point of Nigeria) JPNAP - Tokyo I (Japan Network Access Point - Tokyo I) LAIIX (Los Angeles International IX) LINX LON2 NWAX (Northwest Access Exchange) Pacific Wave (Pacific Wave) PIPE Networks Sydney (PIPE Networks Sydney) Rio de Janeiro (RJ) (IX.br - Rio de Janeiro (RJ)) SFMIX (San Francisco Metropolitan Internet Exchange) SOLIX - Stockholm (SOLIX) SOX - Singapore (Singapore Open eXchange) TOP-IX (Torino Piemonte Exchange Point) TPIX - Taipei (Taipei Internet Exchange)





Road Map

- Improve tables and graphics
- Improve navigation
- New JSON spec to be published
- API Authentication
- Create IX-F JSON member list form – to allow members to create a JSON schema to update IXPDB
- Highlight ASNs not in PeeringDB IXP profile (managed by networks)
- New analysis tools
- Still loads to do...
- We want your input!



Questions?





Thank you!

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euro-ix