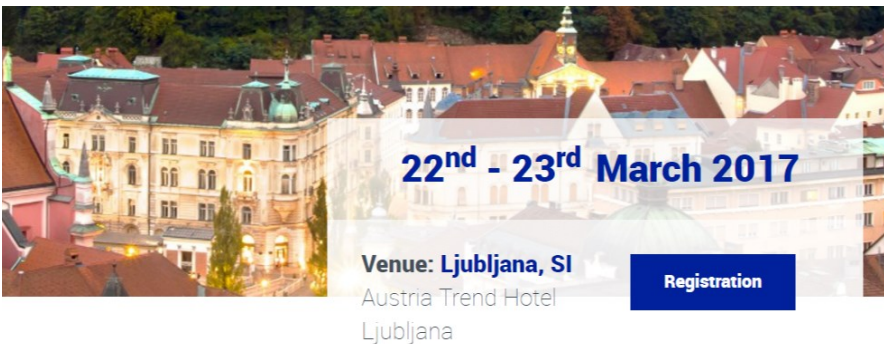




PeeringDB

Arnold Nipper

arnold@peeringdb.com



Agenda

- **PeeringDB 2.0**
- Membership and Governance
- Committees
- Sponsorship
- Information and Resources

What is PeeringDB?

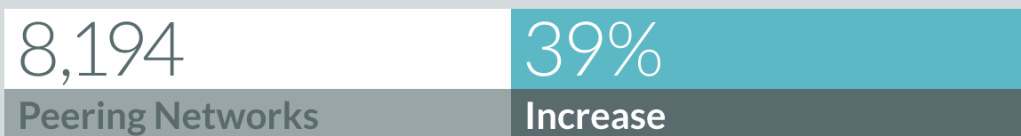
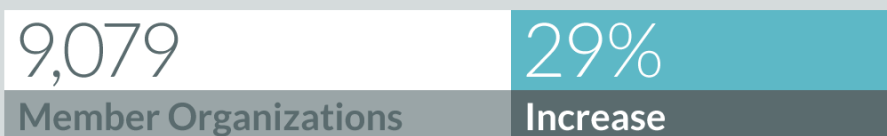
- PeeringDB is the database of peering information on the Internet
- Contains peering location and contact information for
 - Networks
 - Exchanges
 - Facilities
- A PeeringDB record makes it easy for people to find you, and helps you to establish peering
- If you aren't registered in PeeringDB, you can register at <https://www.peeringdb.com/register>
- We use basic verification for new accounts and require current whois information
 - Please update your whois information
 - Please register from a company email address

PeeringDB 2.0 is Here!

- PeeringDB 2.0 launched 15 March, 2016
 - Backend database (1.0) discontinued simultaneously
 - Last legacy SQL dump for public consumption:
<https://peeringdb.com/v1/dbexport/peeringdb.sql>
 - Investigating 404s for old SQL to contact users
 - Questions to support@peeringdb.com
- Challenges during the launch
 - Very minor bug fixes required, but overall a success!
 - Lots of support tickets
 - 20C (developer contractor) very responsive to community - thanks!
- Current release: 2.0.14

Vital Statistics and Growth

PeeringDB 2.0 Post-Launch (March 15, 2016 through December 31, 2016)



Usage (December 2016)

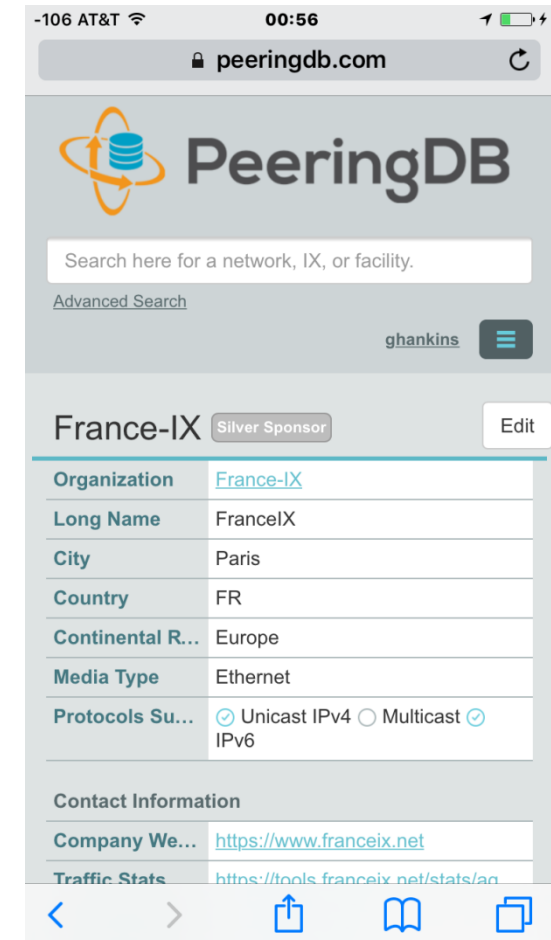
Total Hits	8,587,768
Avg. Daily Hits	277,024
Unique Hits	61,173

Support Tickets

Total Support Tickets	6,715
Avg. Tickets Per Day	22
Avg. Response Time	Less than 14 Hours

Key New Infrastructure Features

- Complete rewrite in Python
 - Python: fast and clean, widely used and supported
 - HTML5: adaptive design for desktop and mobile
 - Support for a multideveloper environment
- Redesigned schema with data validation
 - All data is permissioned and editable
 - Input validation on fields: IP addresses, email addresses, etc.
 - Validation in PeeringDB record: dropdown box to select ASN at exchange
- Data versioning
 - Revision history for every data change
 - Easy to restore and roll back
 - Historical data import from CAIDA going back to 2010 (not available yet)
- RESTful API
 - Stateless
 - Incremental database syncs
 - With documentation and tools, oh my!



Key New User Features

- Facilities and exchanges can now update their own info
 - Networks are still required to associate their record at a facility or exchange
- Multiple records of any type can be associated with an organization
 - Simpler organization management with a single account for network, facility, exchange records
- One account can manage multiple organizations
 - Manage all of the things with a single account
- Users can manage their accounts
 - Admin account for an organization can delegate fine-grained permissions
- Contact info has permissions
 - Private/users/public permissions
 - All users must register, no more guest account
 - Public view can see all info except contact info (no login needed)
- APIs and local database sync
 - Sync PeeringDB to a local database in any engine format

RESTful API Designed for Automation

- All operations are supported and are designed to be automated
 - Read
 - Create
 - Update
 - Delete
- Each object type has an associated tag
 - org
 - net
 - ix
 - fac
- List of objects: <https://peeringdb.com/apidocs/>
- API documentation: http://docs.peeringdb.com/api_specs/







Quick Examples Return Output in JSON

- List all networks: `curl -X GET https://<username>:<password>@www.peeringdb.com/api/net`
- Show a specific network: `curl -X GET https://<username>:<password>@www.peeringdb.com/api/net/20`




```
{ "meta": {}, "data": [{ "id": 20, "org_id": 10356, "org": { "id": 10356, "name": "20C", "website": "http://20c.com", "notes": "", "net_set": [20], "fac_set": [], "ix_set": [], "address1": "", "address2": "", "city": "Chicago", "country": "US", "state": "IL", "zipcode": "", "created": "2014-11-17T14:59:34Z", "updated": "2016-03-23T20:39:18Z", "status": "ok" }, "name": "20C", "aka": "", "website": "http://20c.com", "asn": 63311, ... } ] }
```

Status Page

Monitors

Status	Last 7 Days		Type	20 Mar	19 Mar	18 Mar	17 Mar	16 Mar	15 Mar	14 Mar
	99.650%	Database & API	keyword	100.00%	100.00%	100.00%	100.00%	100.00%	99.304%	98.248%
	99.719%	HTTPS PeeringDB.com	http	100.00%	100.00%	100.00%	100.00%	100.00%	98.855%	99.181%
	100.00%	Offsite Backup Creation	keyword	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
	100.00%	Outbound Email Delivery	keyword	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
	100.00%	PeeringDB DeskPRO	http	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
	100.00%	PeeringDB.com ICMP Ping	ping	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

Quick Stats

	Up	6
	Down	0
	Paused	0

Overall Uptime

100.00% (last 24 hours)
99.895% (last 7 days)
99.970% (last 30 days)

Latest Downtime

It was recorded (for the monitor Database & API) on 2017-03-15 04:27:45 and the downtime lasted for 0 hrs, 1 mins.

<http://status.peeringdb.com/>

Beta Development and Reporting Issues

- Beta server
 - Available at <https://beta.peeringdb.com/>
 - Runs the latest beta software version
 - Full access over HTTP and the API
 - Database is local to the beta server only, changes are not reflected on the production servers
- Latest changes
 - Available at <https://beta.peeringdb.com/changes>
 - Redirects to the list of issues on GitHub
 - Documents all of the changes in the current beta version
- Log bugs and feature requests at <https://github.com/peeringdb/peeringdb/issues> on GitHub

Agenda

- PeeringDB 2.0
- **Membership and Governance**
- **Committees**
- **Sponsorship**
- **Information and Resources**

Membership and Governance

- PeeringDB organization formally formed 16 Dec, 2015
- PeeringDB 501(c)(6) filed 7 Jan, 2016 (approved 24 Feb, 2016)
- 2nd election held April 2016: 94 organizations registered, 80 voted
 - 3rd election scheduled for mid April 2017 to end of April 2017
- 299 addresses subscribed to the Governance mailing list (as of 17 Oct 2016)
- A corporation, limited liability company, partnership or other legal business entity may be a Member of the Corporation. Membership is determined by having both an active PeeringDB.com account and an individual representative or role subscription to the PeeringDB Governance mailing list:
 - <http://lists.peeringdb.com/cgi-bin/mailman/listinfo/pdb-gov>
 - More information available at <http://gov.peeringdb.com/>

Board of Directors and Officers



Chris Caputo – Secretary & Treasurer
(Non-Board Member)



Patrick Gilmore – Director
(Term Expires 2017)



Matt Griswold – Director
(Term Expires 2017)



Aaron Hughes – President
(Term Expires 2018)



Arnold Nipper – Director
(Term Expires 2017)



Job Snijders – Vice President
(Term Expires 2018)

Committees

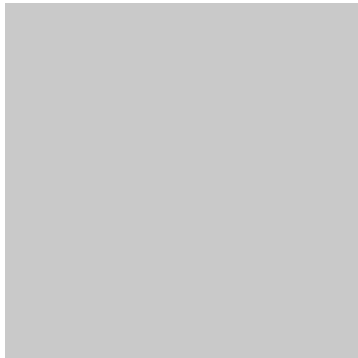
Admin Committee

- Manage administration of user accounts and PeeringDB records
- Answer support tickets
- Board members Job Snijders (Chair) and Arnold Nipper (Vice Chair)
- Seeking 2 community volunteers (1 year term)
- Contact: support@peeringdb.com

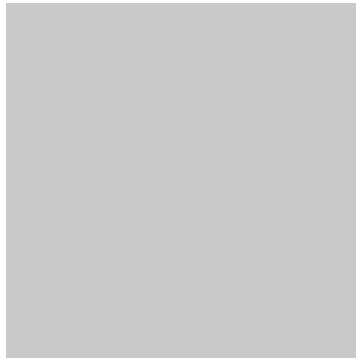
Product Committee

- Ask for input from the community on desired features
- Manage roadmap and development priorities
- Write SoWs to solicit bids to complete requested features
- Board members Aaron Hughes (Chair) and Matt Griswold (Vice Chair)
- Seeking 0 community volunteers (1 year term)
- Contact: productcom@lists.peeringdb.com

Admin Committee



Samer
Abdel-Hafez



Hendrik
Braasch



Kate
Gerry



Peter
Helmenstine



Florian
Hibler



Eric
Lindsjö



Arnold Nipper –
Vice Chair



Eduardo
Ascenço Reis



Job Snijders –
Chair



Michael
Still

PeeringDB 2.0 Support Ticket Statistics

Year	Tickets	Tickets/Day	Resolve Time (d)	Remark
2012	1389	4.09	1.00	
2013	2284	6.34	1.06	
2014	3050	8.47	1.27	
2015	2828	7.86	4.39	
2016	648	8.76	0.53	PeeringDB 1.0
2016	6225	21.84	0.59	PeeringDB 2.0
2017	1950	24.68	1.25	

- Admin Committee volunteers are based around the world in a variety of time zones
- Goal is to resolve support tickets within 24 hours

Product Committee



Karthik
Arumugham



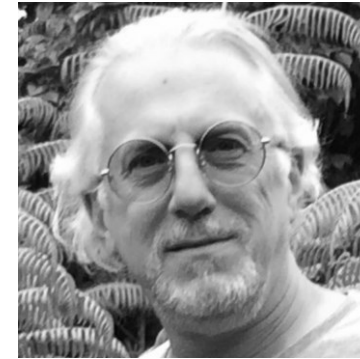
Matt Griswold –
Vice Chair



Greg
Hankins



Aaron Hughes –
Chair



Martin J.
Levy



Eric
Loos



Chris
Malayter



Stephen
McManus



Arnold
Nipper



Kay
Rechthien



Walt
Wollny

Become a PeeringDB Sponsor!

- **Diamond Sponsorship - \$25,000 / year**
 - Limited to 2 sponsors
 - Very large logo on top line of Sponsors page with URL
 - Diamond Sponsor badge display on all records
 - Social media promotion
- **Platinum Sponsorship - \$10,000 / year**
 - Large logo on second line of Sponsors page with URL
 - Platinum Sponsor badge display on all records
 - Social media promotion
- **Gold Sponsorship - \$5,000 / year**
 - Medium logo on third line of Sponsors page
 - Gold Sponsor badge display on all records
 - Social media promotion
- **Silver Sponsorship - \$2,500 / year**
 - Small logo on fourth line of Sponsors page
 - Silver Sponsor badge display on all records
 - Social media promotion
- Contact sponsorship@peeringdb.com for sponsorship info



Microsoft Diamond Sponsor	
Organization	Microsoft
Also Known As	8068
Company Website	http://www.microsoft.com
Primary ASN	8075
IRR Record	AS-MICROSOFT

DE-CIX Frankfurt Platinum Sponsor	
Organization	DE-CIX Management GmbH
Long Name	Deutscher Commercial Internet Exchange
City	Frankfurt
Country	DE
Continental Region	Europe



Proud Sponsor of
PeeringDB
GOLD

Thank you to our sponsors!

Diamond
Sponsors



Microsoft

Platinum
Sponsors



Google MARKLEY YAHOO!

Gold
Sponsors

facebook






AUSTRALIA
INTERNET PEERING FOR AUSTRALIA

Silver
Sponsors



Information and Resources

- Announce list:
<http://lists.peeringdb.com/cgi-bin/mailman/listinfo/pdb-announce>
 - Governance list:
<http://lists.peeringdb.com/cgi-bin/mailman/listinfo/pdb-gov>
 - Technical list:
<http://lists.peeringdb.com/cgi-bin/mailman/listinfo/pdb-tech>
 - User Discuss list:
<http://lists.peeringdb.com/cgi-bin/mailman/listinfo/user-discuss>
 - Docs, presentations, guides, tools:
<http://docs.peeringdb.com/>
 - Board and Officers:
stewards@lists.peeringdb.com
 - Admins: support@peeringdb.com
 - Bugs and feature requests:
<https://github.com/peeringdb/peeringdb/>
 - Status: <http://status.peeringdb.com/>
-  [@PeeringDB](https://twitter.com/PeeringDB)
-  <https://www.facebook.com/peeringdb/>
-  <https://www.linkedin.com/company/peeringdb>



Questions?

Local Database Sync

- Database sync gives you a local copy of PeeringDB for customization or internal use
 - Sync as often as you like
 - Incremental sync is supported
- Improves performance and reduces load on PeeringDB servers
- Build custom indexes and interfaces
- Add custom fields
- Choice of database engines
 - Currently supported: MySQL, Postgres, SQLite
- Sync using the provided tools or build your own using the API

Django Library

- django-peeringdb is a Django library with a local PeeringDB database sync
- Defines the database schema to create a local database copy
- Easy to integrate in a common framework for locals tools and custom interfaces
- Supports multiple database engines (MySQL, Postgres, SQLite)
- Available at <http://peeringdb.github.io/django-peeringdb/>

Python Client

- peeringdb-py is a Python client for PeeringDB
- Gets objects and outputs in JSON or YAML format
- Provides a whois-like display of records
- Integrated local database sync
- Python library for integration with custom tools
- Available at <http://peeringdb.github.io/peeringdb-py/>
- Examples at <https://github.com/grizz/pdb-examples>

Multiple Records Under a Single Organization

LINX Silver Sponsor

Website	https://www.linx.net
Address 1	The London Internet Exchange Ltd
Address 2	5th Floor, 24 Monument Street
Location	London, , EC3R 8AJ
Country Code	GB

Facilities

Filter

Name ▼	Country City
IXCardiff	United Kingdom Cardiff

Networks

Filter

Name ▼	ASN
LINX Route Servers	8714
London Internet Exchange (LINX)	5459

Exchanges

Filter

Name ▼	Country City
IXCardiff	United Kingdom Cardiff
IXManchester	United Kingdom Manchester
IXScotland	United Kingdom Scotland
LINX Extreme LAN	United Kingdom London
LINX Juniper LAN	United Kingdom London
LINX NoVA	United States Northern Virginia

Exchanges are Shown Here
LINX has 6 Exchange Records

Facilities are
Shown Here
LINX has 1
Facility

Networks are
Shown Here
LINX has 2
Network
Records

One Account Managing Multiple Organizations

PeeringDB Search here for a network, IX, or facility. [Advanced Search](#)

job

Affiliate with Organization

To affiliate with an Organization, please enter a valid ASN or Organization name below.

ASN

Organization

Affiliate

Existing Affiliations

Your affiliation with [NTT Communications \(Global\)](#) has been approved

Your affiliation with [NLNOG RING](#) has been approved

Your affiliation with [Netwerkvereniging Coloclue](#) has been approved

Your affiliation with [Snijders IT](#) has been approved

**Account “job” is
Affiliated with 4
Organizations**

Request Ownership of an Existing Organization

- Network records should already have an organization admin copied from PeeringDB 1.0
- Facility and exchange records will need to have an organization admin assigned

PeeringDB

Search here for a network, IX, or facility.

ghankins-example

Advanced Search

Click “Request Ownership”
Generates a Support Ticket for Validation and Approval

Example-IX

Organization	Example-IX
Long Name	Example-IX, the only ATM multicast IX on the planet!
City	Atlanta
Country	US
Continental Region	North America
Media Type	ATM
Protocols Supported	<input type="radio"/> Unicast IPv4 <input checked="" type="radio"/> Multicast <input type="radio"/> IPv6

Peers at this Exchange Point

Filter

Peer Name ▼ ASN	IPv4 IPv6	Speed Policy
Nothing matched your filter You may filter by Exchange , ASN , Policy or Speed		

Request Ownership

Register or Request Affiliation to an Existing Organization

The screenshot shows the PeeringDB website interface. At the top left is the PeeringDB logo. To its right is a search bar with the placeholder text "Search here for a network, IX, or facility." and a link for "Advanced Search". In the top right corner, the user "ghankins" is logged in, with a menu showing "Nokia IP/Optical Networks Labs", "Profile", and "Logout". The "Profile" link is circled in blue. A blue arrow points from the "Profile" link to the instruction "1. Go to Your Profile".

In the center of the page is a box titled "Affiliate with organization". It contains instructions for affiliating with an existing organization, registering a new network organization, and registering a new facility or exchange organization. Below these instructions are two input fields: "ASN" and "Organization". Both fields are circled in blue. A blue arrow points from the "ASN" field to the instruction "3. Enter ASN or Organization Here Autocomplete on Existing ASNs and Organizations in PeeringDB".

Below the input fields is a blue "Affiliate" button, which is also circled in blue. A blue arrow points from the "Affiliate" button to the instruction "4. Click 'Affiliate' Existing: Organization Admin Needs to Approve New: Generates a Support Ticket for Validation and Approval".

At the top of the "Affiliate with organization" box, a message "You have confirmed your email address!" is circled in blue. A blue arrow points from this message to the instruction "2. Confirm Email Address (Click Here if not Confirmed)".

At the bottom of the "Affiliate with organization" box, a message states: "Your affiliation with [Nokia IP/Optical Networks Labs](#) has been approved."

2. Confirm Email Address
(Click Here if not Confirmed)

3. Enter ASN or Organization Here
Autocomplete on Existing ASNs and Organizations in PeeringDB

1. Go to Your Profile

4. Click "Affiliate"
Existing: Organization Admin Needs to Approve
New: Generates a Support Ticket for Validation and Approval

Adding a New Exchange to Your Organization

Manage

[Add Facility](#) [Add Network](#) **Add Exchange** [Users](#) [Permissions](#)

Add a new Exchange to your Organization. Note that the newly created Exchange will need to be approved by PeeringDB staff before it will appear in the search results or the API listings

Submit Exchange

Generates a Support Ticket for Validation and Approval

Enter Exchange Info Here, Then Click "Submit Exchange"

Name

Website

City

Country

Continental Region

Media Type

Unicast IPv4

Multicast

IPv6

Traffic Stats Website

Technical E-mail

Technical Phone

Policy E-mail

Policy Phone

http://www.example.com

United States

North America

Ethernet

☐

☐

☐

http://www.example.com

name@example.com

name@example.com

Editing Your Exchange Record

Example-IX

Cancel

Save

Organization	Example-IX
Long Name	Example-IX, the only ATM multicast IX on the planet!
City	Atlanta
Country	United States
Continental Region	North America
Media Type	ATM
Protocols Supported	<input type="checkbox"/> Unicast IPv4 <input checked="" type="checkbox"/> Multicast <input type="checkbox"/> IPv6
Contact Information	
Company Website	http://www.example.com
Traffic Stats Website	http://www.example.com
Technical Email	name@example.com
Technical Phone	
Policy Email	name@example.com
Policy Phone	

Peers at this Exchange Point

Filter

Peer Name ▼	IPv4	Speed
ASN	IPv6	Policy
Nothing matched your filter		
You may filter by Exchange, ASN, Policy or Speed		

Networks are Still Required to Associate their Record at a Facility or Exchange

Enter Exchange Info Here, Then Click "Save"

Editing Your Exchange Record

The screenshot shows a web interface for managing network records. The top section, titled 'LANs', contains a table with columns 'Name', 'DOT1Q', and 'MTU'. It lists 'Peering LAN' and 'IPv4' entries. Below this is a detailed form for editing a LAN, with fields for 'Name', 'DOT1Q', and 'MTU'. The bottom section, titled 'Local Facilities', has a search bar and a list of facilities. Annotations with arrows point to the LAN table and the facility search results.

Name	DOT1Q	MTU
<input checked="" type="checkbox"/> Peering LAN	<input checked="" type="checkbox"/>	9000
<input checked="" type="checkbox"/> IPv4	127.0.0.0/8	

Name	DOT1Q	MTU
Peering LAN	<input checked="" type="checkbox"/>	9000

Facility	Country	City
Nothing matched your filter You may filter by Exchange or Long Name		
atlanta		
Equinix Atlanta (AT2/3) 56 Marietta St NW		
Telx Atlanta 56 Marietta St		
Level(3) Atlanta Courtland 345 Courtland St Ne		

Enter LAN Info Here
Name – Optional Name
DOT1Q – 802.1Q Tag
MTU
IPv4/IPv6 Addresses

Add Facilities Here
Autocomplete on
Existing Facilities, Must
Contact Support to Add
a New Facility

Organization User Management

Manage

[Add Facility](#) [Add Network](#) [Add Exchange](#) **Users** Permissions

Approve or Deny Pending Requests

Delegate Permissions for Members
Admins Have Access to Everything

Users requesting affiliation

Name User	Email Confirmed	Date
Currently no users requesting affiliation with Nokia IP/Optical Networks Labs		

Users in Organization

Name User	Email	Group
Greg Hankins ghankins	greg.hankins@alcatel-lucent.com	<div>admin</div> <div>member</div> <div>admin</div>

Change User Access Levels
Admin – Administrator
Member – Delegate Permissions

Remove Users From the Organization
Does not Remove the User Account From PeeringDB

Remove

Save

Administrative Permission Delegation

User “equinix-uk” can Manage Several Network Records, but no Exchanges or Facilities

The screenshot displays the Equinix administrative interface with two user profiles. The top profile, Paul Cairney (equinix-uk), has permissions for five network records (Netherlands, UK, Germany, France, Switzerland) but no permissions for exchanges or facilities. The bottom profile, Raphael Ho (rho), has permissions for 'Network - Equinix Connect', 'Any Exchange', and 'Any Facility'. Annotations include blue boxes around the network record lists, blue circles around the 'Create', 'Update', and 'Delete' action buttons, and blue arrows pointing from the text descriptions to these buttons.

User	Network Records	Any Exchange	Any Facility	Create	Update	Delete
Paul Cairney (equinix-uk)	Network - Equinix Netherlands Network - Equinix UK Network - Equinix Germany Network - Equinix France Network - Equinix Switzerland			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Raphael Ho (rho)	Network - Equinix Connect Any Exchange Any Facility	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Create – New Entries in Record
Update – Change Existing Entries in Record
Delete – Delete Entries in Record

User “rho” can Manage the “Equinix Connect” Network Record, and Any Exchange or Facility

Network Record Contact Information Permissions

Contact Information

Role ▼	Name Visibility	Phone E-Mail
<input checked="" type="checkbox"/> NOC	Greg Hankins, Alastair Users	 as38016@alcatel-lucent.com
<input checked="" type="checkbox"/> Technical	Greg Hankins, Alastair Users	 as38016@alcatel-lucent.com

Role	Abuse
Name	
Email	name@example.com
Phone	
Visibility	Private Private Users Public

Separate Visibility Preferences for Each Role

Private – Organization Only (Default)

Users – Registered Users Only

Public – Anyone (no Login Required)

Roles:

Abuse

Policy

Technical

NOC

Public Relations

Sales

PeeringDB IXP Statistics

Region	# of IXP	# of members at largest IXP	Total # of members (unique)	Total # of members (duplicates)	# of IXP most peered ASN is connected to
Africa	38	172	259	531	18
Australia	27	144	330	1005	17
Asia Pacific	80	208	762	1734	23
Europe	222	749	2963	8008	72
Middle East	8	41	66	76	3
North America	138	273	1480	3642	65
South America	62	735	966	1573	26

- Not all networks are associated at an IXP even if they are connected
- As of 2017-02-21