

PeeringDB Update

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ALNOF, Tirana, Albania

Presentation Goals

- Slide overview and content
 - We're developing a new 2017 slide deck with a short/medium/long format for presentation at conferences
 - A 101 introduction tutorial is at the end after the main deck
 - Planning to expand the tutorial into more detailed 201, 301, etc. versions
- Highlight integration with PeeringDB
 - We want to promote the lastest tools and integration developments
 - If you have a tool you'd like us to announce, please get in touch at productcom@lists.peeringdb.com
- We want your feedback on PeeringDB's presence at conferences!
 - Goal is to educate and evangelize PeeringDB to facilitate interconnection
 - How can we be most effective in building the peering community?



Agenda

1. Organization and Election Update

- 2. Strategic Goals and Organizational Objectives
- 3. Feature Planning Process and Roadmap Update
- 4. Third Party Integration



Mission statement: "PeeringDB, a nonprofit member-based organization, facilitates the exchange of user maintained interconnection related information, primarily for Peering Coordinators and Internet Exchange, Facility, and Network Operators."

- 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, so please
 - Update and maintain your whois information
 - Register from a company email address



Governance and Membership

- PeeringDB is a United States 501(c)(6) volunteer organization that is 100% funded by sponsorships
- Healthy organization, building financial reserves and executing the long term strategic plan
- Membership rules
 - 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
 - 327 addresses subscribed to the Governance mailing list (as of 25 Apr, 2017)
 - Governance list is at 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)



Arnold Nipper – Director (Term Expires 2019)



Patrick Gilmore – Director (Term Expires 2019)



Bijal Sanghani – Director (Term Expires 2019)



Aaron Hughes – President (Term Expires 2018)



Job Snijders – Vice President (Term Expires 2018)

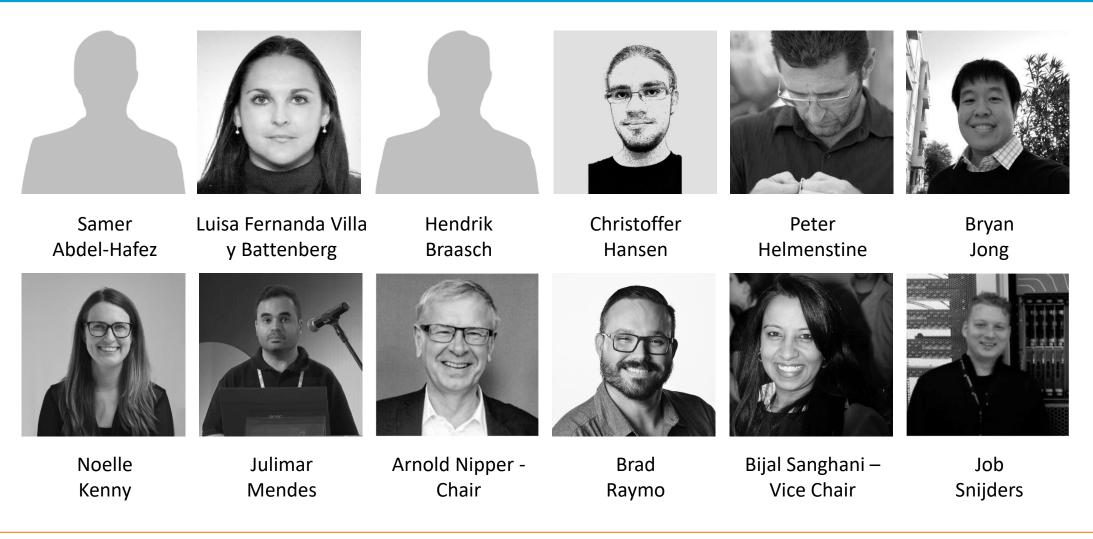
PeeringDB

Committees

Admin Committee	Operations Committee	Product Committee
 Manage administration of user accounts and PeeringDB records Answer support tickets 	Manage PeeringDB infrastructure	 Ask for input from the community on desired features Manage roadmap and development priorities Write SoWs to solicit bids to complete requested features
Leads: Arnold Nipper (Chair) and Bijal Sanghani (Vice Chair) Contact: admincom@lists.peeringdb.com	Leads: Job Snijders (Chair) and Aaron Huges (Vice Chair) Contact: pdb-ops@lists.peeringdb.com	Leads: Eric Loos (Chair) and Matt Griswold (Vice Chair) Contact: productcom@lists.peeringdb.com

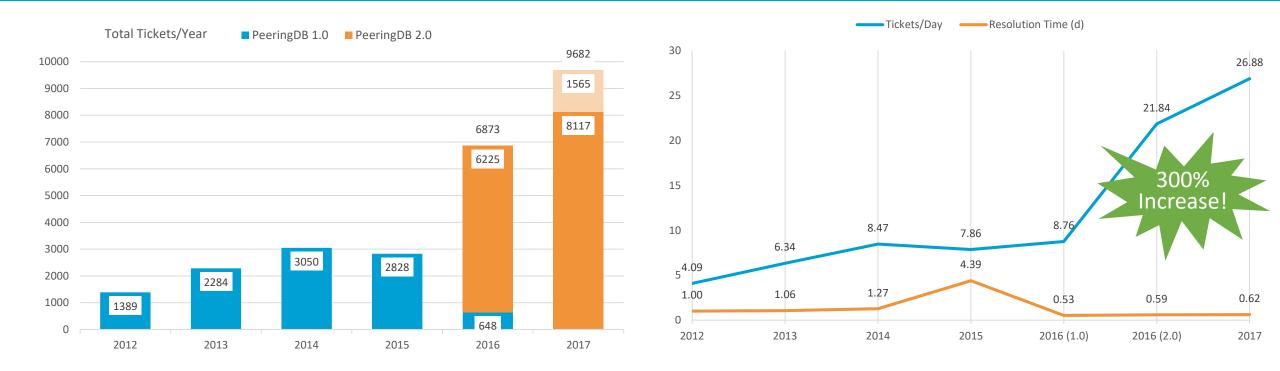


Admin Committee





Support Ticket Statistics



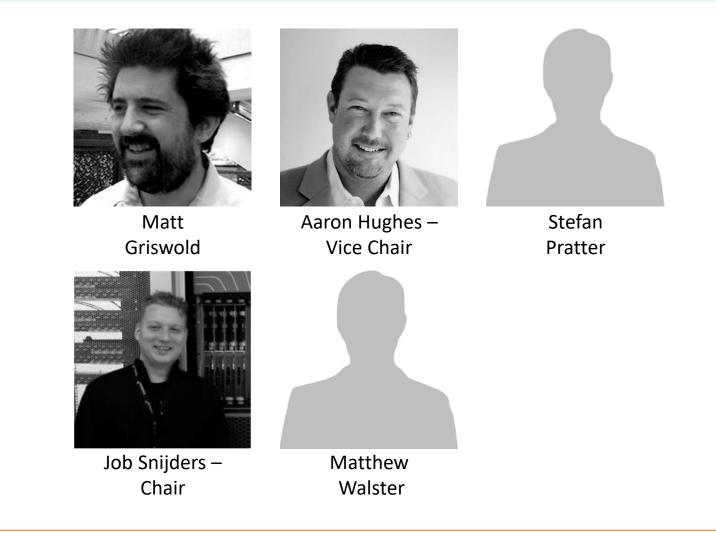
- Admin Committee volunteers are based around the world in a variety of time zones
- Goal is to resolve support tickets within 24 hours

Automated Request Validation

- A lot of support tickets were opened to manually approve new network registrations and affiliation requests
- Automated request validation was introduced in PeeringDB 2.2.1 on July 5, 2017
 - Validation is based on RIR whois information
 - LACNIC validation expected to work by mid-August with their new RDAP software
- Gives users immediate automated processing of these requests, no more waiting on a human to respond
- Significantly reduced the Admin Committee's workload
 - ~750 automated tickets services since July 5 , 2017 (30% of total tickets)
- First set of new, budgeted features following the Product Committee workflow



Operations Committee





Product Committee



Karthik Arumugham



Matt Griswold – Vice Chair



Arnold Nipper



Chris Phillips



Aaron Hughes

Kay

Rechthien



Martin Levy



Eric Loos – Chair



Bijal Sanghani



Job Snijders



Stephen

McManus

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 <u>sponsorship@peeringdb.com</u> for sponsorship info

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





Thank you to our sponsors!



Agenda

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- 3. Feature Planning Process and Roadmap Update
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2017 – 2018 Strategic Direction

- Ensure reliability, security and support of PeeringDB services
- Maintain, develop, and enhance functionality of PeeringDB services as sought by the users and supported by the membership and community
- Educate the community on effective use of PeeringDB
- Educate the community on interconnection
- Evangelize use of PeeringDB



Rock Solid Critical Infrastructure

Uptime Status: <u>http://status.peeringdb.com/</u>



2017 – 2018 Strategic Direction

- Encourage support of PeeringDB via sponsorship
- Build a reserve of 2 years of operational funds for the longterm stability of the organization
- Strengthen relationships with operator and peering forums, and other related databases, to work cooperatively on interconnection topics
- Legal review of liabilities, and insurance (D&O)
- Succession planning

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High Priority Projects for this Fall and Winter

- New Operations Committee formed to address recent outage
 - Members: Matt Griswold, Aaron Hughes, Stefan Pratter, Job Snijders (Chair), Matthew Walster
 - Responsible for managing infrastructure
 - Goal to move PeeringDB to a cloud provider before the end of the year
- PeeringDB code base to be open source
 - Open sourcing the platform will drive innovation
 - Open source license to be decided
 - Expected publication date of January 2018



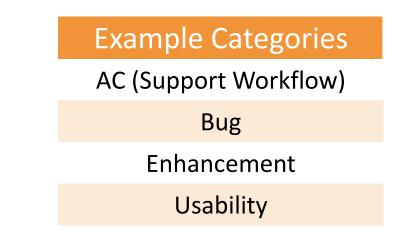
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Feature Workflow

- All features tracked using GitHub at <u>https://github.com/peeringdb/peeringdb/issues</u> with the ZenHub overlay
 - Anyone can open a feature requests, there are no internal or hidden requests
 - Open and transparent process for feature development
 - Workflow is at <u>http://docs.peeringdb.com/workflow/</u>
- Product Committee feature process
 - Evaluate and prioritize the requests
 - Request a quote for development costs
 - Request budget from the board
 - Manage implementation and scheduling



Your input is needed on features!

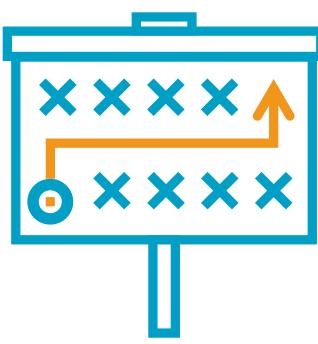
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New Release Process

- Announced at least one week in advance with all changes to give the community notice
 - Beta site is already running the development version for testing
 - Announced on PDB Announce list, Twitter, Facebook
- Released on Wednesdays at 0400Z and avoids
 - Mondays and Fridays
 - International holidays
 - Large conferences and events (APRICOT, EPF, GPF, NANOG, RIPE, etc.)
- List of current changes (release notes) for each version are on GitHub at

https://github.com/peeringdb/peeringdb/milestones



Beta Development

- 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
- Anyone can log bugs and feature requests in GitHub at https://github.com/peeringdb/peeringdb/issues



2017 Roadmap

- Several maintenance releases with small features have been released since PeeringDB 2.0 was launched
- We will have major releases with larger features in 2017
 - Released 2.5.3 on 2017-09-06
 - Updated to Django 1.11; added coordinates for facilities and organizational addresses
- Roadmap focus areas
 - Data quality, privacy, confidentiality
 - Usability and API
 - Platform stability and reliability
 - Product evolution
- Communication focus areas
 - Partner management
 - Communication outreach
 - Membership engagement



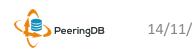
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Third Party Integration

- PeeringDB maintains interconnection data
 - Permissions and privacy on user information are set by the user
 - Accuracy is essential
 - Exchange sources are vetted
 - Data conflicts are resolved by the Admin Committee
- Third party integration with PeeringDB has started in two ways
 - Data exchange with organizations
 - Use by free and commercial software, full list at http://docs.peeringdb.com/#tools



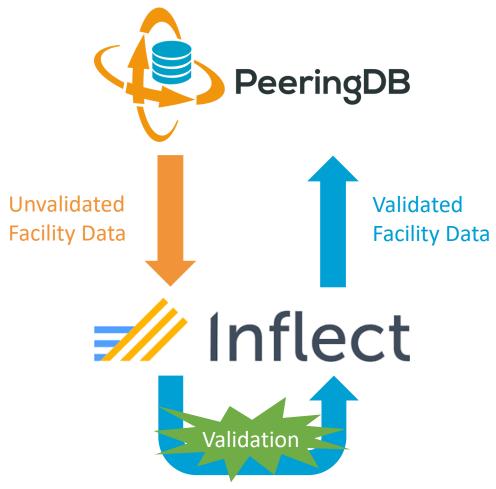
Data Exchange

- PeeringDB's goals are to
 - Maintain data integrity
 - Provide complete data needed for interconnection
- Working to exchange data with organizations that maintain data on facilities, IXPs, and networks
 - Open and transparent process and integration
 - Not for user data
- IXP data: IX-F, Euro-IX, PCH
- Network data: RIRs (ASNs)
- Facility data: Inflect



Facility Data Validation by Inflect

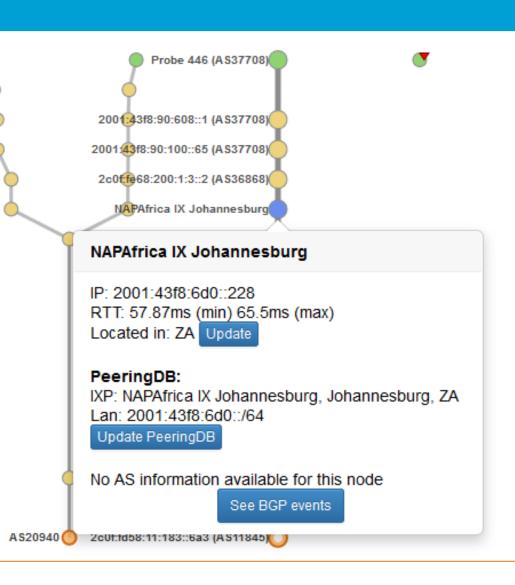
- Facility data is inconsistent and incomplete
 - Any registered user can suggest facility data
 - Sometimes it's maintained by the facility operator, often it's not
- Inflect is an open, neutral search and procurement tool for internet infrastructure services that provides accurate, validated information
 - Preferred partner to provide free validation of facility data
 - LOI signed August 4, 2017
 - Work in progress now to exchange and import validated facility data





Software Highlight: TraceMON

- TraceMON is a tool for visualizing a network topology generated by traceroutes
 - Provides one-click access to IXP and network info
 - Displays PeeringDB info and allows the user to update their record
- RIPE Atlas users can access it by selecting a traceroute measurement and clicking on the TraceMON tab at <u>https://atlas.ripe.net/measurements/?search=&</u> status=&af=&kind=2%2C4&age=#!tab-public
- Full article is at <u>https://labs.ripe.net/Members/massimo_candel</u> <u>a/tracemon-traceroute-visualisation-network-</u> <u>debugging-tool</u>





Information and Resources

- Announce list: http://lists.peeringdb.com/cgibin/mailman/listinfo/pdb-announce
- Governance list: http://lists.peeringdb.com/cgibin/mailman/listinfo/pdb-gov
- Technical list: http://lists.peeringdb.com/cgibin/mailman/listinfo/pdb-tech
- User Discuss list: http://lists.peeringdb.com/cgibin/mailman/listinfo/user-discuss
- Docs, presentations, guides, tools: http://docs.peeringdb.com/

- Board and Officers: stewards@lists.peeringdb.com
- Admins: support@peeringdb.com
- Presentation requests: productcom@lists.peeringdb.com
- Uptime status: http://status.peeringdb.com/
- Bugs and feature requests: https://github.com/peeringdb/peeringdb/
- Social media:
- @PeeringDB
- https://www.facebook.com/peeringdb/
- https://www.linkedin.com/company/peeringdb in





Questions?





Tutorial Slides



PeeringDB 2.0 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!





PeeringDB 2.0 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: <u>http://docs.peeringdb.com/api_specs/</u>

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, " ... }

List All Peers at an IXP (CATNIX)

Peers at this Exchange Point		Filter
Peer Name ▼ ASN	IPv4 IPv6	Speed Policy
Acens Technologies	193.242.98.9	1G
16371	None	Open
ADAM	193.242.98.137	1G
15699	2001:7f8:2a:0:2:1:1:5699) Open
Adamo Telecom Iberia S.A	193.242.98.143	10G
35699	2001:7f8:2a:0:2:1:2:9518	3 Open
Altecom (Alta Tecnologia en	193.242.98.4	10G
Comunicacions, S.L.) 16030	2001:7f8:2a:0:1:1:1:6030) Open
bitNAP Datacenter	193.242.98.160	1G
43578	2001:7f8:2a:0:3:1:4:3578	3 Open
BT Spain	193.242.98.145	1G
12541	2001:7f8:2a:0:2:2:0:8903	3 Open
CATNIX-SERVICES	193.242.98.119	6G
49638	None	Open
Claranet	193.242.98.131	1G
8426	2001:7f8:2a:0:2:1:0:8426	6 Selective
Cloudflare	193.242.98.153	10G
13335	2001:7f8:2a:0:2:1:1:3338	5 Open
Colt Technology Services	193.242.98.13	1G
8220	None	Open
CSUC	193.242.98.38	10G
13041	None	Open
Easynet Global Services	213.234.0.15	1G
4589	2001:7f8:2a:0:2:1:0:4589	9 Selective
EBRETIC ENGINYERIA SL	193.242.98.162	1G
199496	2001:7f8:2a:0:3:1:19:949	06 Open

```
% curl -s -X GET https://www.peeringdb.com/api/netixlan\?ixlan id=62 \
  | jq '.data[]'
  "id": 459,
  "net id": 91,
  "ix id": 62,
  "name": "CATNIX",
  "ixlan id": 62,
  "notes": "",
  "speed": 1000,
  "asn": 8220,
  "ipaddr4": "193.242.98.13",
  "ipaddr6": null,
  "is rs peer": false,
  "created": "2010-07-29T00:00:00Z",
  "updated": "2016-03-14T21:09:42Z",
  "status": "ok"
```



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/

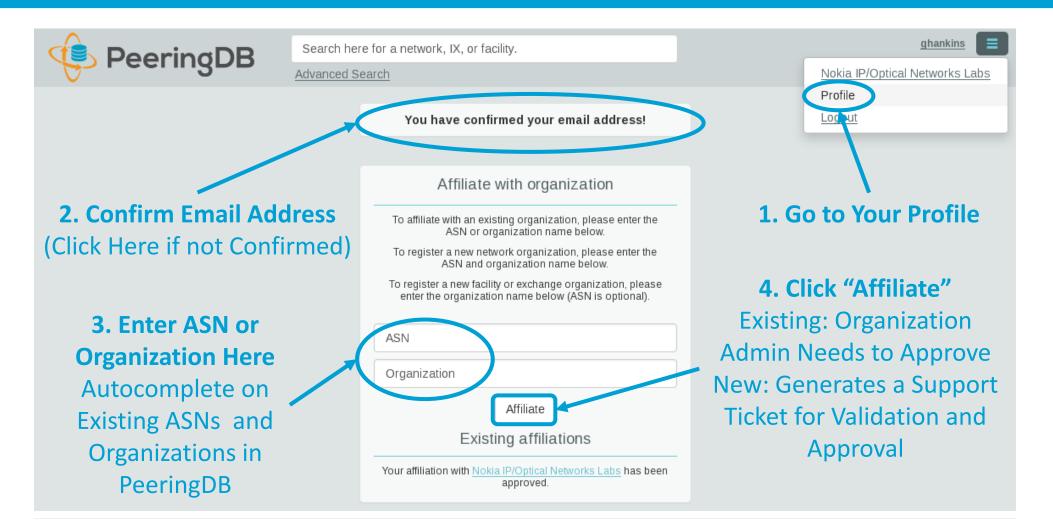


Python Client

- 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



Register or Request Affiliation to an Existing Organization



PeeringDB

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

😟 Peerir	oDB ^s	Search here for a network, IX, or facility	/.			ghankins-example	
		Ivanced Search Click "Re	quest Own	ership"			
Example-IX		Generates a Support Ti	cket for Va	lidation	and Approval	Request Ownership	
Organization	Example-IX		Peers a	t this Excl	nange Point	Filter	
Long Name	Example-IX, the only ATM multicast IX on the planet!					Crossel	
City	Atlanta		– Peer Nan ASN	ie 🗸	IPv4 IPv6	Speed Policy	
Country	US		Nothing matched your filter You may filter by Exchange, ASN, Policy or Speed				
Continental Region	North America			fou	may litter by Exchange, ASN, P	oncy of Speed	
Media Type	ATM						
Protocols Supported	🔿 Unicast IPv4 ⊘ N	Multicast 🔿 IPv6					

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Multiple Records Under a Single Organization

LINX Silver Sponso	T			
Website	https://www.linx.net	Facilities	Filter	Facilities are
Address 1	The London Internet Exchange Ltd			Shown Here
Address 2	5th Floor, 24 Monument Street	- Name ▼	Country City	LINX has 1
Location	London, , EC3R 8AJ	IXCardiff	United Kingdom	
Country Code	GB		Cardiff	Facility
		Networks	Filter	
		Name ▼ <u>LINX NoVA (LINX USA Inc.)</u> <u>LINX Route Servers</u>	ASN 21919 8714	Networks are
		London Internet Exchange (LINX)	5459	
		Exchanges	Filter	Shown Here
Exchange	es are Shown Here	Name 🔻	Country City	LINX has 2
		IXCardiff	United Kingdom	Network
LINX has 6 Exchange Records		IXManchester	Cardiff United Kingdom Manchester	Records
		IXScotland	United Kingdom Scotland	
		LINX LON1	United Kingdom	
			London United Kingdom	
		LINX LON2	United Kingdom London	
		LINX NoVA	United States of America	
			Northern Virginia	

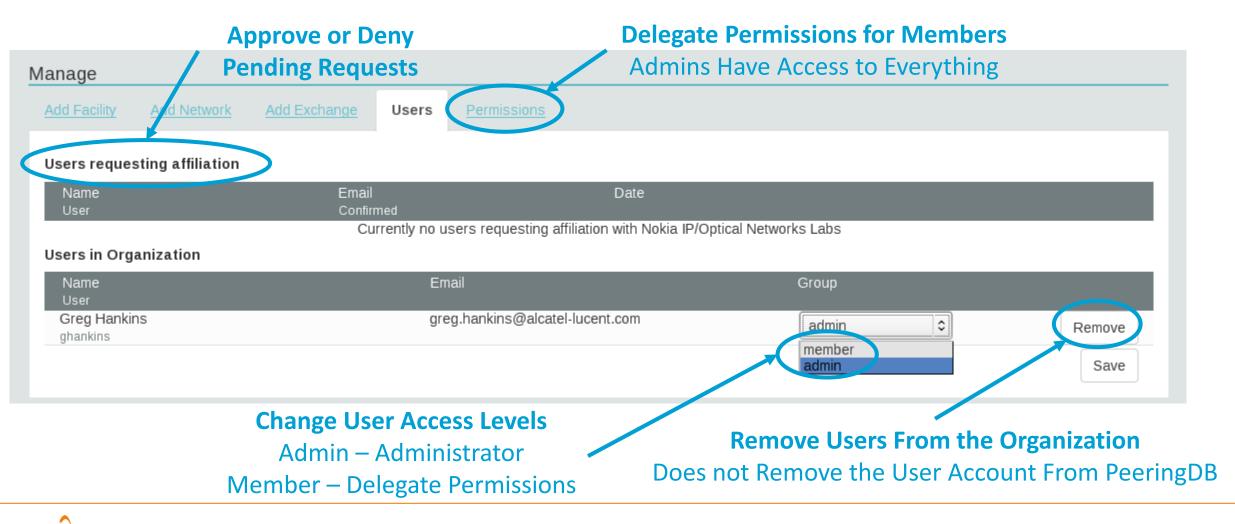


One Account Managing Multiple Organizations

🔶 Peering[Search here for a network, IX, or facility. Advanced Search	
	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 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

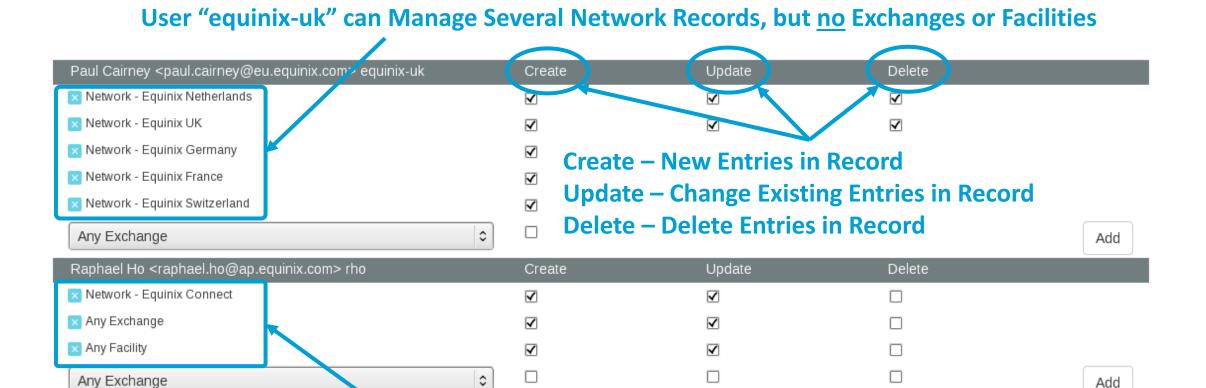


Organization User Management



PeeringDB

Administrative Permission Delegation



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



Network Record Contact Information Permissions

Contact Information

Role 🔻	Name Visiblity		Phone E-Mail
× NOC	Greg Hankins, Alas	tair	
	Users	•	as38016@alcatel-lucent.com
🗙 Technical	Greg Hankins, Alas	tair	
	Users	0	as38016@alcatel-lucent.com
Role	Abuse		•
Name			
Email	name@examp	ole.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



Adding Your Network to an IXP or Facility

- 1. Go to your network record and click on "Edit"
- 2. Start to type in the name of the IXP and select the IXP
- 3. If the IXP is missing, contact PeeringDB support
- 4. Add your IP addresses, port speed, and click the "RS Peer" box if you peer with the route server
- 5. Finally click on "Add Exchange Point"

PeeringDB

• Use the same procedure for adding a Facility

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World Phone Internet Services Pvt. Ltd.	Public Peering Exc	Public Peering Exchange Points			
http://www.worldphone.in	Exchange ▼ ASN	IPv4 IPv6 Nothing matched your filter			
18002	Exchange	You may filter by Exchange, ASN or Speed			
http://www.example.com	Local ASN	Mumbai Internet Exchange I Mumbai Convergence Hub : India's Mumbai IX (Mumbai CH)			
http://www.example.com	IPv6				
250	Speed (mbit/sec)	0			
0	RS Peer				
10-20Gbps					
Heavy Inbound	 Private Peering Fa 	acilities			
Asia Pacific	Facility ▼ ASN	Country City			
Unicast IPv4 Multicast IPv6		Nothing matched your filter You may filter by Facility, ASN, Country, City			
2017-06-29T11:54:36Z	Facility				

Add Facility

Filter

Speed RS Peer

lia's Largest Peering Internet Exchange Hub

Add Exchange Point

Filter

Adding a New Exchange to Your Organization

Manage		
Add Facility Add Netwo	rk Add Exchange <u>Users</u> <u>Permissions</u>	
Name Website City Country	http://www.example.com	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
Continental Region Media Type Unicast IPv4 Multicast IPv6	North America Ethernet	Generates a Support Ticket for Validation and Approval
Traffic Stats Website Technical E-mail Technical Phone Policy E-mail Policy Phone	http://www.example.com name@example.com name@example.com	Enter Exchange Info Here, Then Click "Submit Exchange"



Editing Your Exchange Record

Example-IX					Cancel Save
Organization	Example-IX		Peers at this Exc	change Point	Filter
Long Name	Example-IX, the only ATM multicast IX on the plane	!	Peer Name 🔻	IPv4	Speed
City	Atlanta		ASN	IPv6 Nothing matched your fill	Policy ter
Country	United States	\$	You may filter by Exchange, ASN, Policy or Speed		
Continental Region	North America	0			
Media Type	ATM 🗢		Networks are Still Required to		
Protocols Supported	🗆 Unicast IPv4 🗹 Multicast 🗆 IPv6		Associate their Record at a		
Contact Information			Facility or Exchange		
Company Website	http://www.example.com				
Traffic Stats Website	http://www.example.com				
Technical Email	name@example.com			Enter Exch	nange
Technical Phone				Info Here,	
Policy Email	name@example.com			Click "Sa	
Policy Phone				CIICK Sa	ive



Editing Your Exchange Record

Filter LANs DOT1Q Peering LAN \checkmark 9000 × IPv4 127.0.0.0/8 Add IPv4 0 Prefix Name Peering LAN DOT1Q \checkmark MTU 9000 Add LAN Filter Local Facilities Facility 🔻 Nothing matched your filter You may filter by Exchange or Long Name Facility 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

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PeeringDB



Questions?





Extra Slides



2017 Organizational Objectives

- Obtain contracts for all supporting service providers
- Ensure supporting services are always available
- Ensure regular backups for all services
- Ensure security for private user data
- Conduct redundancy and restoration test biannually
- Support the Admin Committee to ensure user expectations are met
- Manage contractor for maintenance, minor development and basic support for underlying PeeringDB platform
- Support the Product Committee for major development and feature enhancements to ensure user expectations are met

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- Provide education material in the form of a quick start guide, embedded online assistance, webinars and tutorials
- Participate in peering discussions globally where possible
- Expand social media presence as new material is created
- Survey the existing sponsors
- Write and implement surplus plan
- Present at major conferences where possible
- Conduct one election in April each year
- Conduct one member meeting in April each year
- Engage council for annual review of liabilities and insurance
- Write succession plan