

PeeringDB Update

Bijal Sanghani

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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



What is PeeringDB?

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)



Patrick Gilmore – Director (Term Expires 2019)



Aaron Hughes – President (Term Expires 2018)



Arnold Nipper – Director (Term Expires 2019)



Bijal Sanghani – Director (Term Expires 2019)



Job Snijders – Vice President (Term Expires 2018)



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



Samer Abdel-Hafez



Luisa Fernanda Villa y Battenberg



Hendrik Braasch



Christoffer Hansen



Peter Helmenstine



Bryan Jong



Noelle Kenny



Julimar Mendes



Arnold Nipper -Chair



Rob Parker



Brad Raymo



Bijal Sanghani – Vice Chair

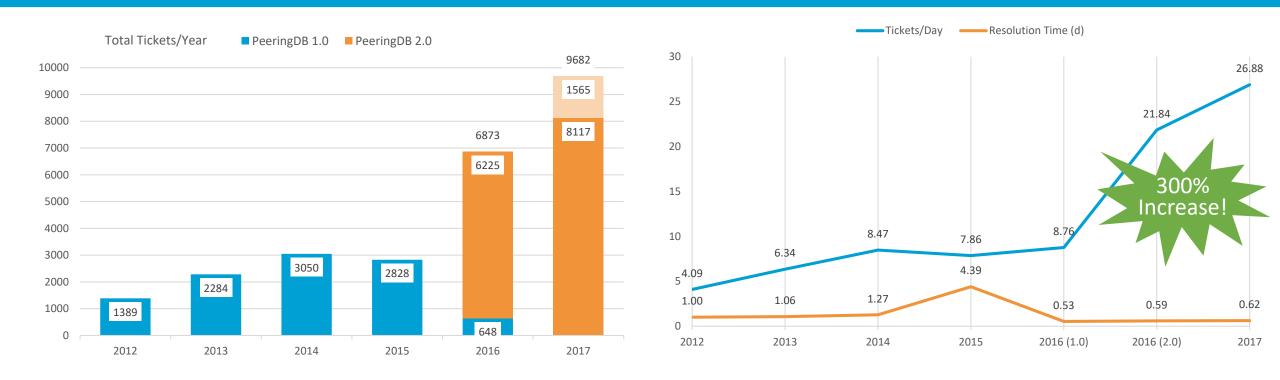


Job Snijders



Marty Strong

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



Matt Griswold



Job Snijders – Chair



Aaron Hughes – Vice Chair



Matthew Walster



Stefan Pratter

Product Committee



Karthik Arumugham



Matt Griswold – Vice Chair



Greg Hankins



Aaron Hughes



Martin Levy



Eric Loos – Chair



Stephen McManus



Arnold Nipper



Chris Phillips



Kay Rechthien



Bijal Sanghani



Job Snijders

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	

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



Thank you to our sponsors!





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Silver **Sponsors**









































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- 2. Strategic Goals and Organizational Objectives
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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

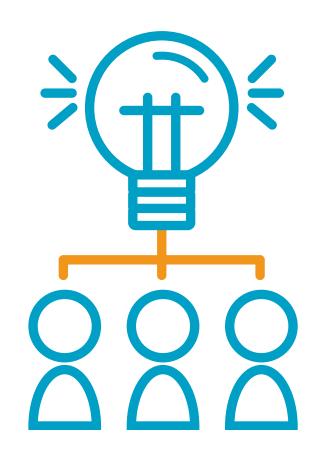


Uptime Status: http://status.peeringdb.com/



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



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 https://github.com/peeringdb/peeringdb/issues 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 http://docs.peeringdb.com/workflow/
- Product Committee feature process
 - Evaluate and prioritize the requests
 - Request a quote for development costs
 - Request budget from the board
 - Manage implementation and scheduling

Example Categories

AC (Support Workflow)

Bug

Enhancement

Usability

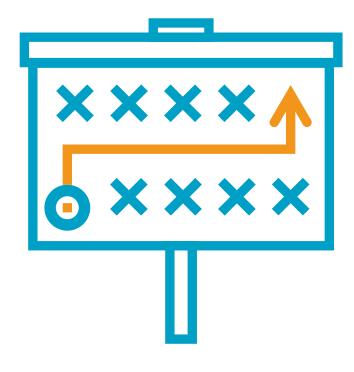
Your input is needed on features!



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

Beta

PeeringDB

- 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



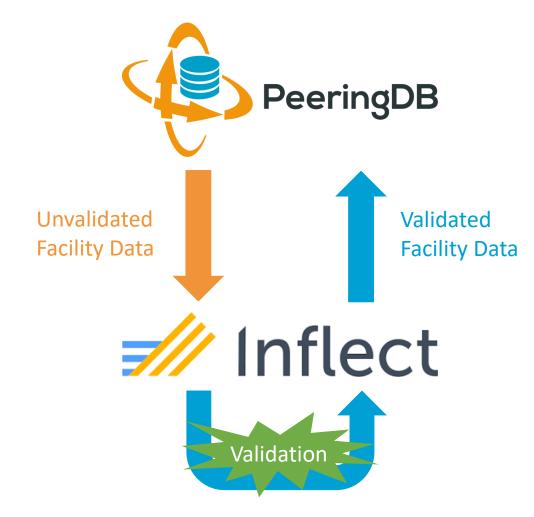
Data Exchange

- 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
 - https://atlas.ripe.net/measurements/?search=&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-debugging-tool</u>





Information and Resources

- Announce list:
 http://lists.peeringdb.com/cgi-bin/mailman/listinfo/pdb-announce
- Governance list: <u>http://lists.peeringdb.com/cgi-bin/mailman/listinfo/pdb-gov</u>
- Technical list: <u>http://lists.peeringdb.com/cgi-bin/mailman/listinfo/pdb-tech</u>
- User Discuss list: <u>http://lists.peeringdb.com/cgi-bin/mailman/listinfo/user-discuss</u>
- 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/
 - Social media:
- @PeeringDB
- https://www.facebook.com/peeringdb/
- https://www.linkedin.com/company/peeringdb





Questions?





Tutorial Slides



Peering DB 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!





Peering DB 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: 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, " ... }
```



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
<u>ADAM</u>	193.242.98.137	1G
15699	2001:7f8:2a:0:2:1:1:5699	Open 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.)	2001:7f8:2a:0:1:1:1:6030) Open
16030		
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	Selective
Cloudflare	193.242.98.153	10G
13335	2001:7f8:2a:0:2:1:1:3335	Open 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	Selective 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/

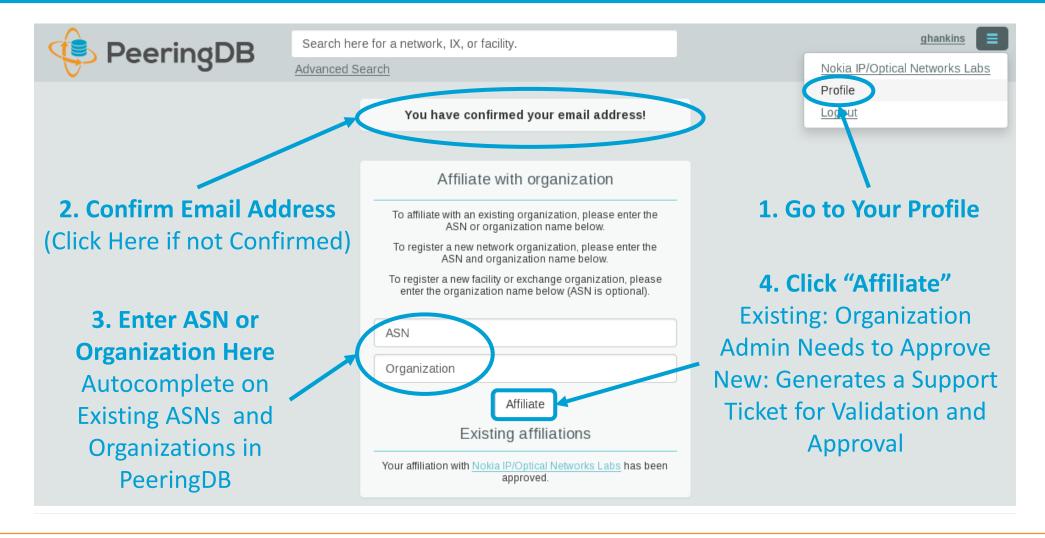


Python Client

- 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



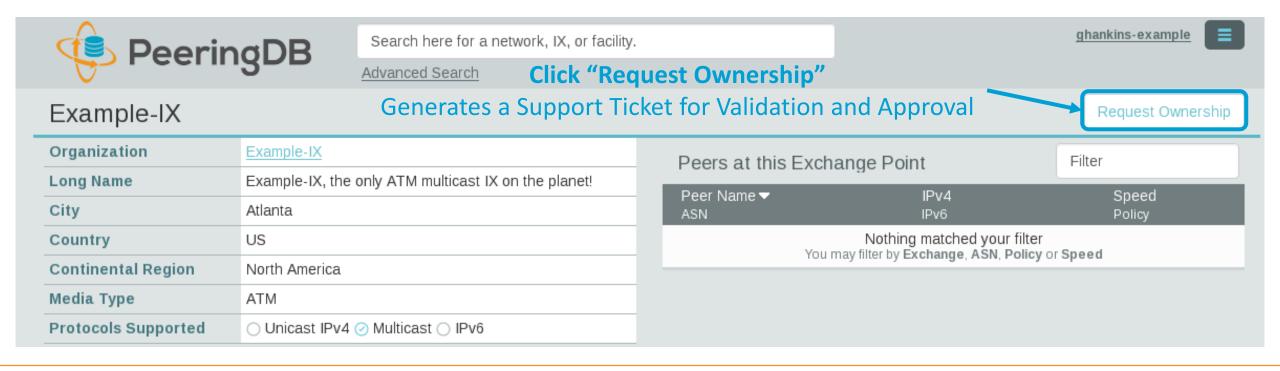
Register or Request Affiliation to an Existing Organization





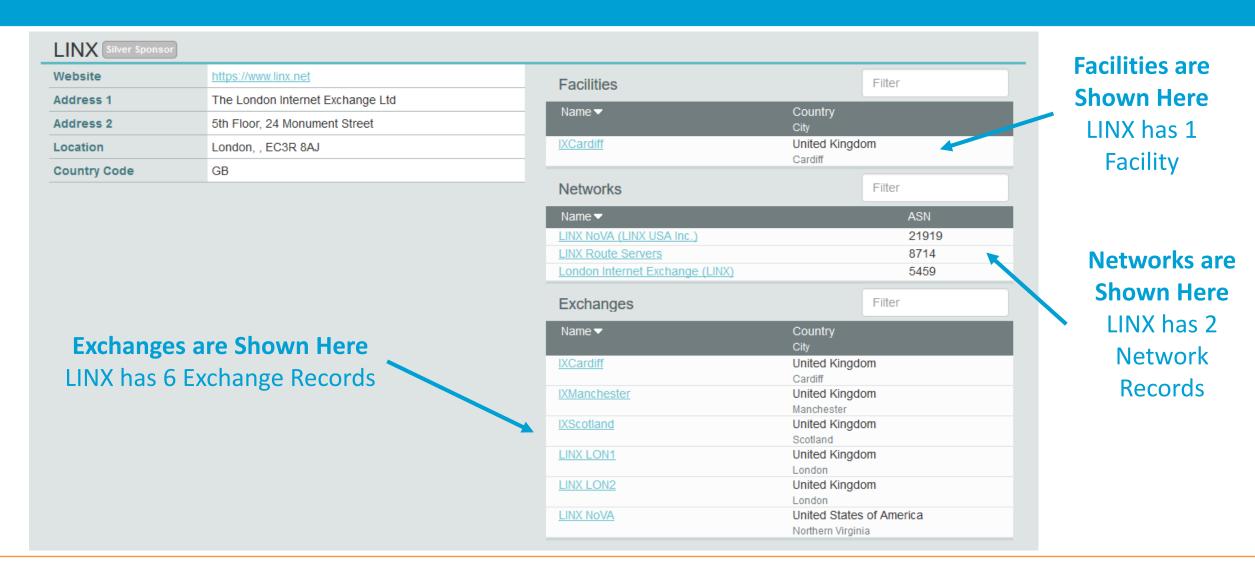
Request Ownership of an Existing Organization

- 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



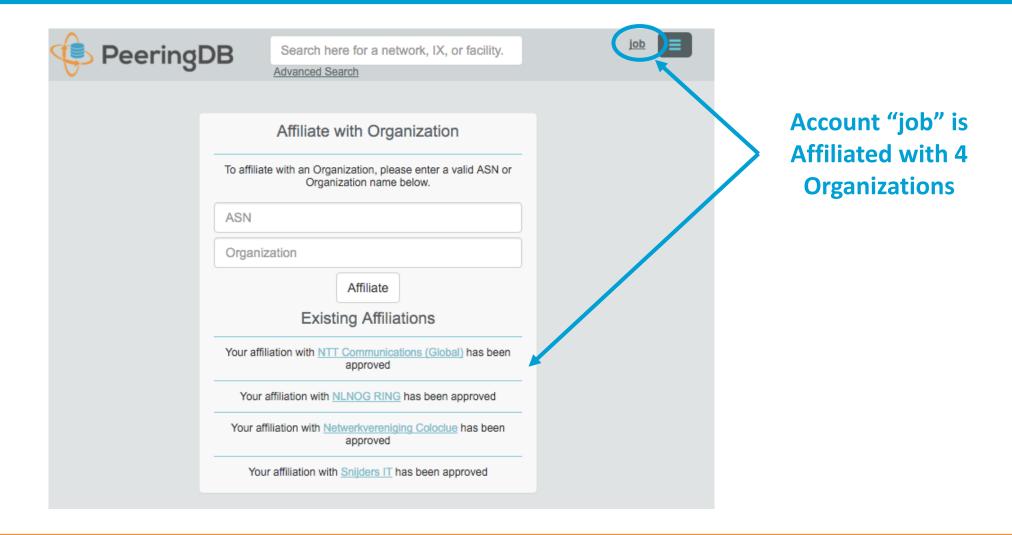


Multiple Records Under a Single Organization





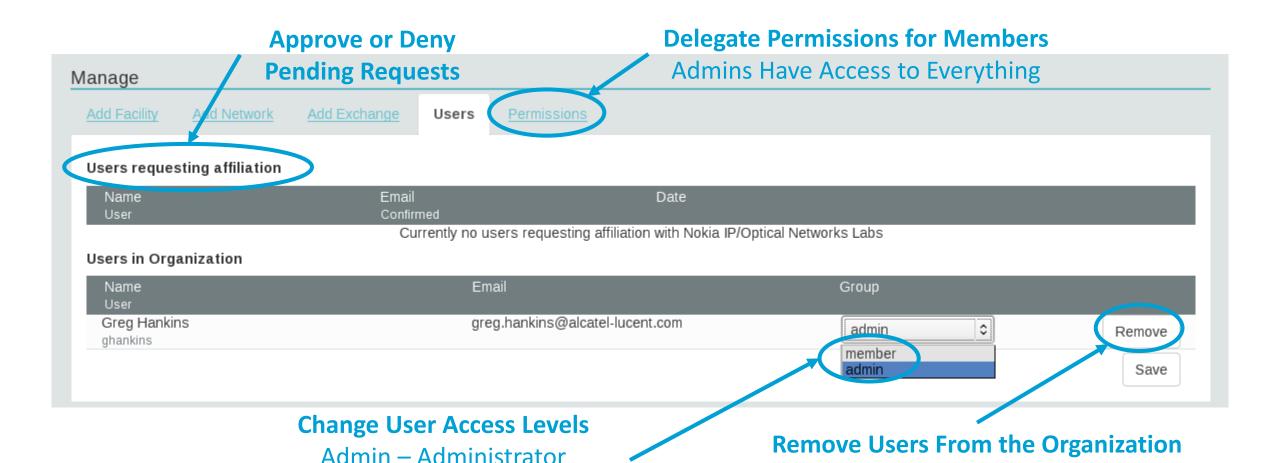
One Account Managing Multiple Organizations





Organization User Management

Member – Delegate Permissions

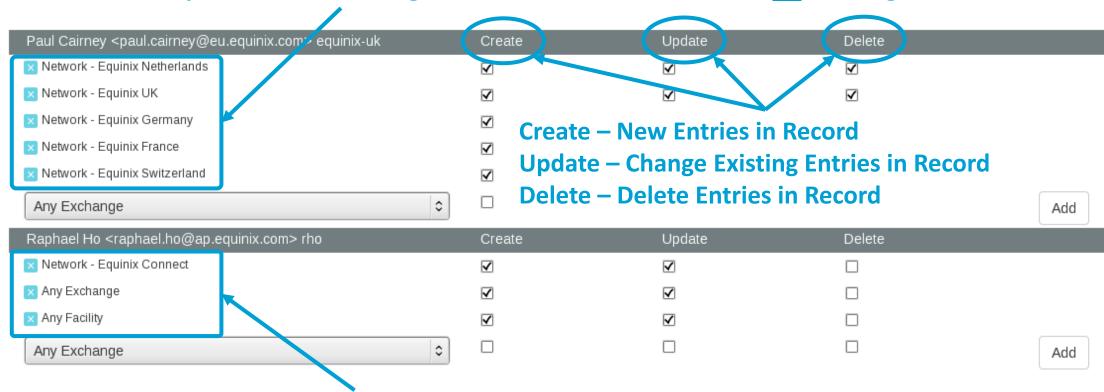




Does not Remove the User Account From PeeringDB

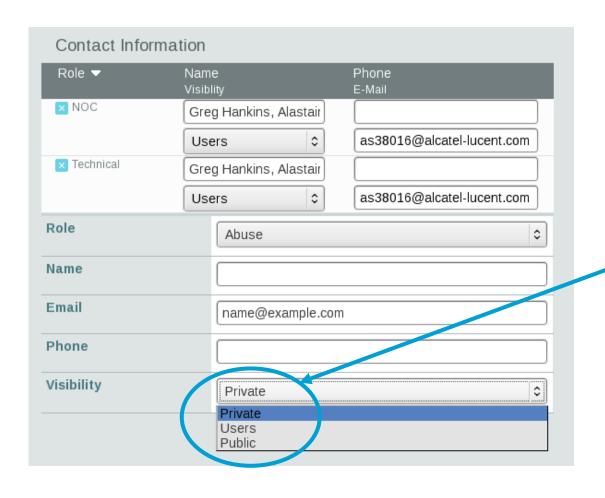
Administrative Permission Delegation

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



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

Network Record Contact Information Permissions



Separate Visibility Preferences for Each Role

Private – Organization Only (Default)
Users – Registered Users Only
Public – Anyone (no Login Required)

Roles:

Abuse

Policy

Technical

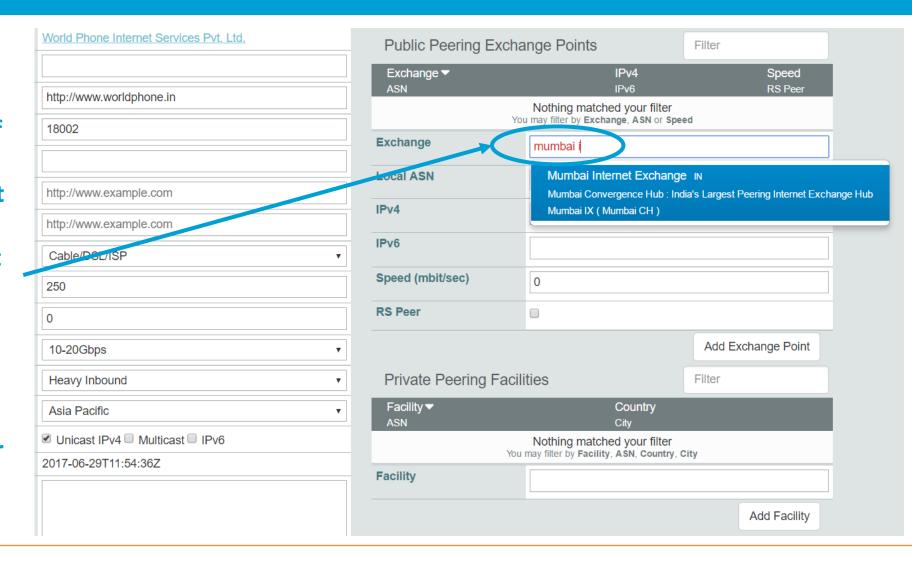
NOC

Public Relations

Sales

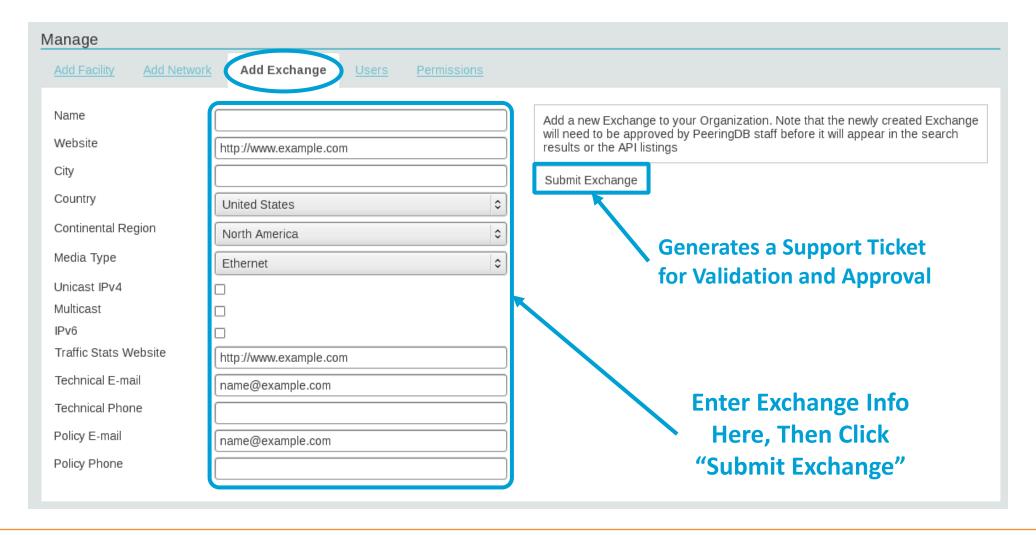
Adding Your Network to an IXP or Facility

- 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"
- Use the same procedure for adding a Facility



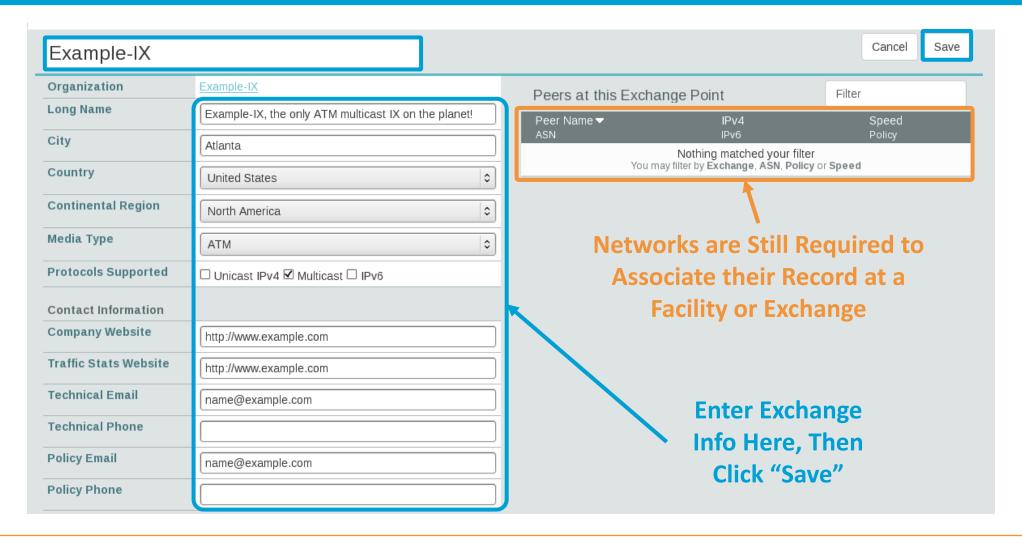


Adding a New Exchange to Your Organization



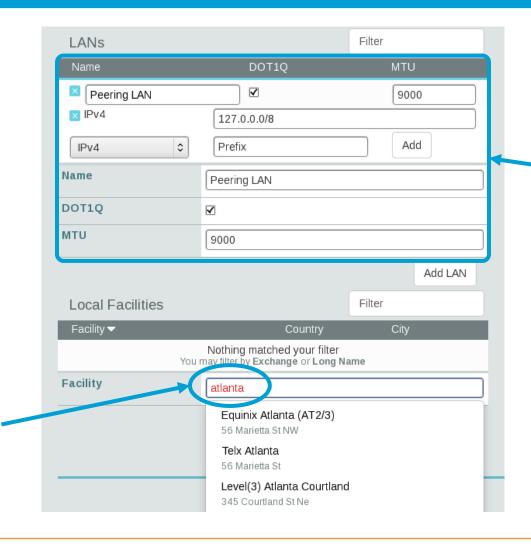


Editing Your Exchange Record





Editing Your Exchange Record



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



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

- 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

