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 latest 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?
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
• 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

<table>
<thead>
<tr>
<th>Admin Committee</th>
<th>Product Committee</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Manage administration of user accounts and PeeringDB records</td>
<td>• Ask for input from the community on desired features</td>
</tr>
<tr>
<td>• Answer support tickets</td>
<td>• Manage roadmap and development priorities</td>
</tr>
<tr>
<td>• Board members Arnold Nipper (Chair) and Bijal Sanghani (Vice Chair)</td>
<td>• Write SoWs to solicit bids to complete requested features</td>
</tr>
<tr>
<td>• Language experience is helpful</td>
<td>• Eric Loos (Chair) and Matt Griswold (Vice Chair)</td>
</tr>
<tr>
<td>• Contact: <a href="mailto:admincom@lists.peeringdb.com">admincom@lists.peeringdb.com</a></td>
<td>• Contact: <a href="mailto:productcom@lists.peeringdb.com">productcom@lists.peeringdb.com</a></td>
</tr>
</tbody>
</table>
Admin Committee

Samer Abdel-Hafez
Luisa Fernanda Villa y Battenberg
Hendrik Braasch
Kate Gerry
Christoffer Hansen
Peter Helmenstine
Florian Hibler

Bryan Jong
Julimar Mendes
Arnold Nipper - Chair
Brad Raymo
Bijal Sanghani – Vice Chair
Job Snijders
Michael Still
• 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
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
1. Organization and Election Update
2. Strategic Goals and Organizational Objectives
3. Feature Planning Process and Roadmap Update
4. Third Party Integration
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
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 bi-annually
- 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
Agenda

1. Organization and Election Update
2. Strategic Goals and Organizational Objectives
3. Feature Planning Process and Roadmap Update
4. Third Party Integration
Feature Workflow

- All features tracked using GitHub at
  [https://github.com/peeringdb/peeringdb/issues](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/](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

• 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
1. Organization and Election Update
2. Strategic Goals and Organizational Objectives
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4. Third Party Integration
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
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 https://labs.ripe.net/Members/massimo_candelaf/tracemon-traceroute-visualisation-network-debugging-tool
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
- Presentation requests: productcom@lists.peeringdb.com
- Uptime status: http://status.peeringdb.com/
- Bugs and feature requests: https://github.com/peeringdb/peeringdb/
Questions?
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!
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

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

```json
{
  "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)

% curl -s -X GET https://www.peeringdb.com/api/netixlan\?ixlan_id=62 \ 
| jq '.data[]'

```json
{
  "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/
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

1. Go to Your Profile
2. Confirm Email Address (Click Here if not Confirmed)
3. Enter ASN or Organization Here Autocomplete on Existing ASNs and Organizations in PeeringDB
4. Click “Affiliate”
   - Existing: Organization Admin Needs to Approve
   - New: Generates a Support Ticket for Validation and Approval
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

### Facilities
- **Name**: IXCardiff
- **Country**: United Kingdom
- **City**: Cardiff

### Networks
- **Name**: LINX NoVA (LINX USA Inc.)
  - **ASN**: 21019
- **Name**: LINX Route Servers
  - **ASN**: 6714
- **Name**: London Internet Exchange (LINX)
  - **ASN**: 5459

### Exchanges
- **Name**: IXCardiff
  - **Country**: United Kingdom
  - **City**: Cardiff
- **Name**: IXManchester
  - **Country**: United Kingdom
- **Name**: IXScotland
  - **Country**: United Kingdom
- **Name**: LINX LON1
  - **Country**: United Kingdom
- **Name**: LINX LON2
  - **Country**: United Kingdom
- **Name**: LINX NoVA
  - **Country**: United States of America
    - **City**: Northern Virginia

Facilities are Shown Here
LINX has 1 Facility

Networks are Shown Here
LINX has 2 Network Records

Exchanges are Shown Here
LINX has 6 Exchange Records
Account “job” is Affiliated with 4 Organizations
## Organization User Management

### Approve or Deny Pending Requests

- **Users requesting affiliation**
  - Name: User
  - Email: Email
  - Date: Date

  Currently no users requesting affiliation with Nokia IP/Optical Networks Labs

### Delegate Permissions for Members

- **Admins Have Access to Everything**

### Change User Access Levels

- **Admin** – Administrator
- **Member** – Delegate Permissions

### Remove Users From the Organization

- Does not Remove the User Account From PeeringDB

---

**Table:**

<table>
<thead>
<tr>
<th>Name</th>
<th>Email</th>
<th>Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Greg Hankins</td>
<td><a href="mailto:greg.hankins@alcatel-lucent.com">greg.hankins@alcatel-lucent.com</a></td>
<td>Member</td>
</tr>
</tbody>
</table>

**Diagram:**

- **Manage**
  - Add Facility
  - Add Network
  - Add Exchange
  - Users
  - Permissions

- **Remove**
## Administrative Permission Delegation

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

<table>
<thead>
<tr>
<th>User</th>
<th>Network Records</th>
<th>Create</th>
<th>Update</th>
<th>Delete</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paul Caine <a href="mailto:paul.caine@eu.equinix.com">paul.caine@eu.equinix.com</a> equinix-uk</td>
<td>✔ Network - Equinix Netherlands</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td></td>
<td>✔ Network - Equinix UK</td>
<td>✔</td>
<td></td>
<td>✔</td>
</tr>
<tr>
<td></td>
<td>✔ Network - Equinix Germany</td>
<td>✔</td>
<td></td>
<td>✔</td>
</tr>
<tr>
<td></td>
<td>✔ Network - Equinix France</td>
<td>✔</td>
<td></td>
<td>✔</td>
</tr>
<tr>
<td></td>
<td>✔ Network - Equinix Switzerland</td>
<td>✔</td>
<td></td>
<td>✔</td>
</tr>
<tr>
<td>Raphael Ho <a href="mailto:raphael.ho@ap.equinix.com">raphael.ho@ap.equinix.com</a> rho</td>
<td>✔ Network - Equinix Connect</td>
<td>✔</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>✔ Any Exchange</td>
<td>✔</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>✔ Any Facility</td>
<td>✔</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **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

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
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

### Manage

<table>
<thead>
<tr>
<th>Name</th>
<th>Website</th>
<th>City</th>
<th>Country</th>
<th>Continental Region</th>
<th>Media Type</th>
<th>Unicast IPv4</th>
<th>Multicast IPv6</th>
<th>Traffic Stats Website</th>
<th>Technical E-mail</th>
<th>Technical Phone</th>
<th>Policy E-mail</th>
<th>Policy Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><a href="http://www.example.com">http://www.example.com</a></td>
<td></td>
<td></td>
<td></td>
<td>Ethernet</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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.

**Enter Exchange Info Here, Then Click “Submit Exchange”**

Generates a Support Ticket for Validation and Approval
Editing Your Exchange Record

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

Enter Exchange Info Here, Then Click “Save”
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?