nic.br cgi.br | ix.br

Sao Paulo, Brazil

May/05/2025

IP block renumbering of an IXP in PeeringDB

LAC Peering Forum
2025

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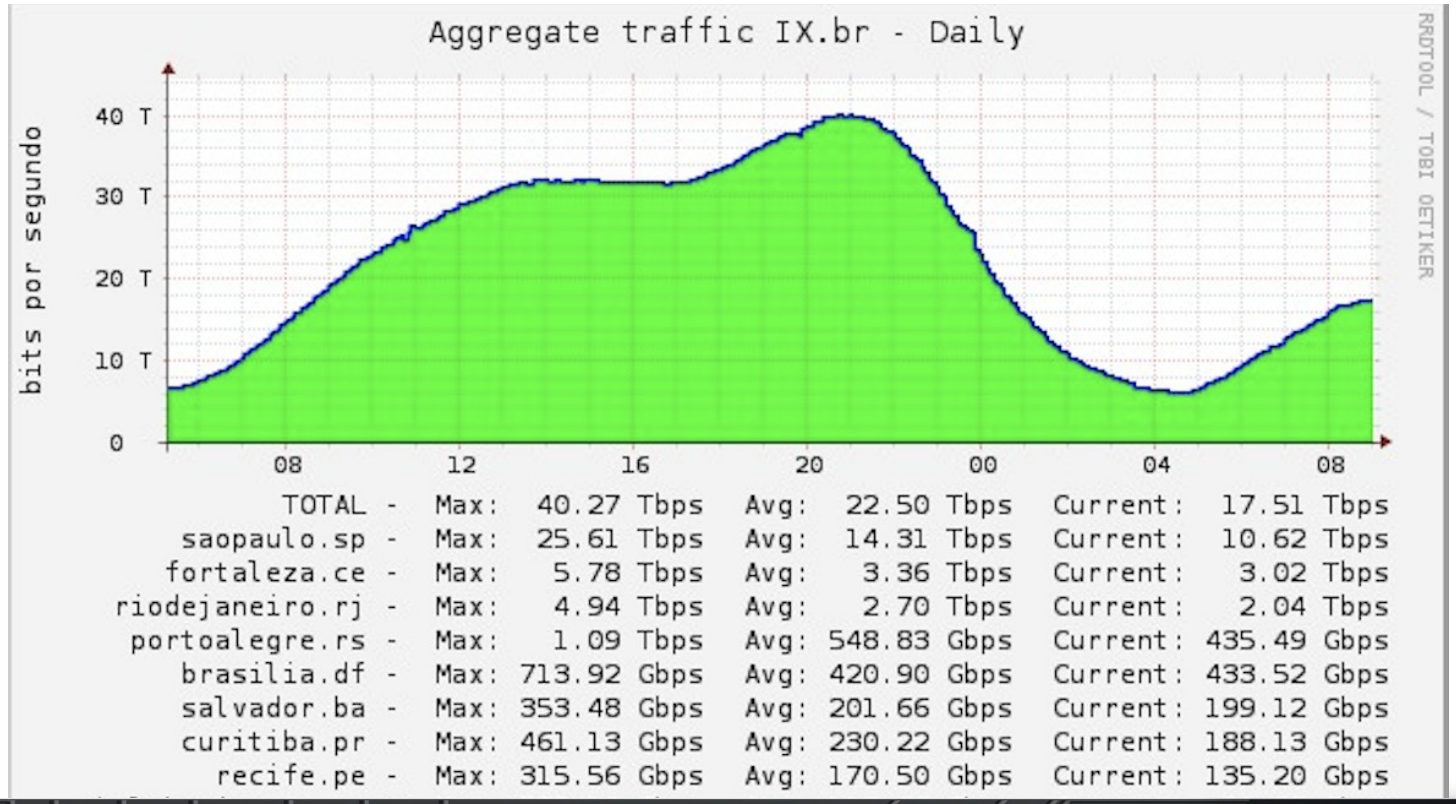
Topics

- PeeringDB
- IP block change for IX.br Fortaleza and IX.br Curitiba in PeeringDB
- Validations performed during the process

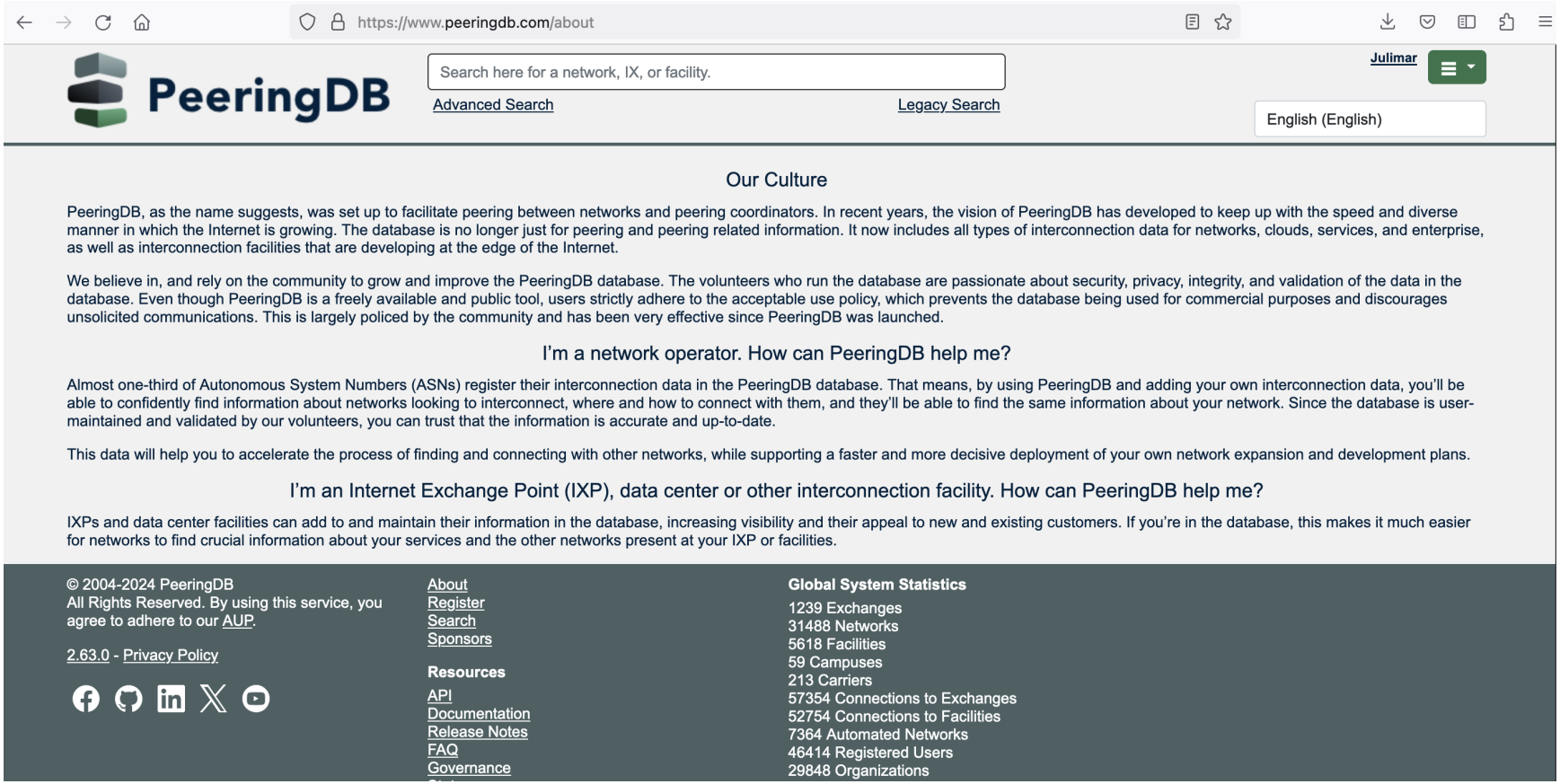
About NIC.br and IX.br

IX.br – Brasil Internet Exchange

- 38 IXPs spread throughout Brazil
- 40Tbps traffic peak
- 2527 ASNs connected to the IX.br São Paulo structure with 25Tbps traffic peak



PeeringDB



https://www.peeringdb.com/about

PeeringDB objects types

Fac: Represents an interconnection facility, such as a data center or suite within a data center

Facility: A place where networks can connect with other networks

Facix: An object derived from the intersection of a fac and an ix object

Ix: Represents an Internet Exchange Point (IXP)

Ixlan: Describes the LAN of an ix

Ixpfx: Describes the IP range (IPv4 and IPv6) for an ixlan

Netixlan: Describes the presence of a network at an exchange

Netfac: Describes the presence of a network at a facility

Org: Represents your organization's core record

Carrier: Describes providers offering L1 or L2 services in a facility

https://docs.peeringdb.com/glossary/

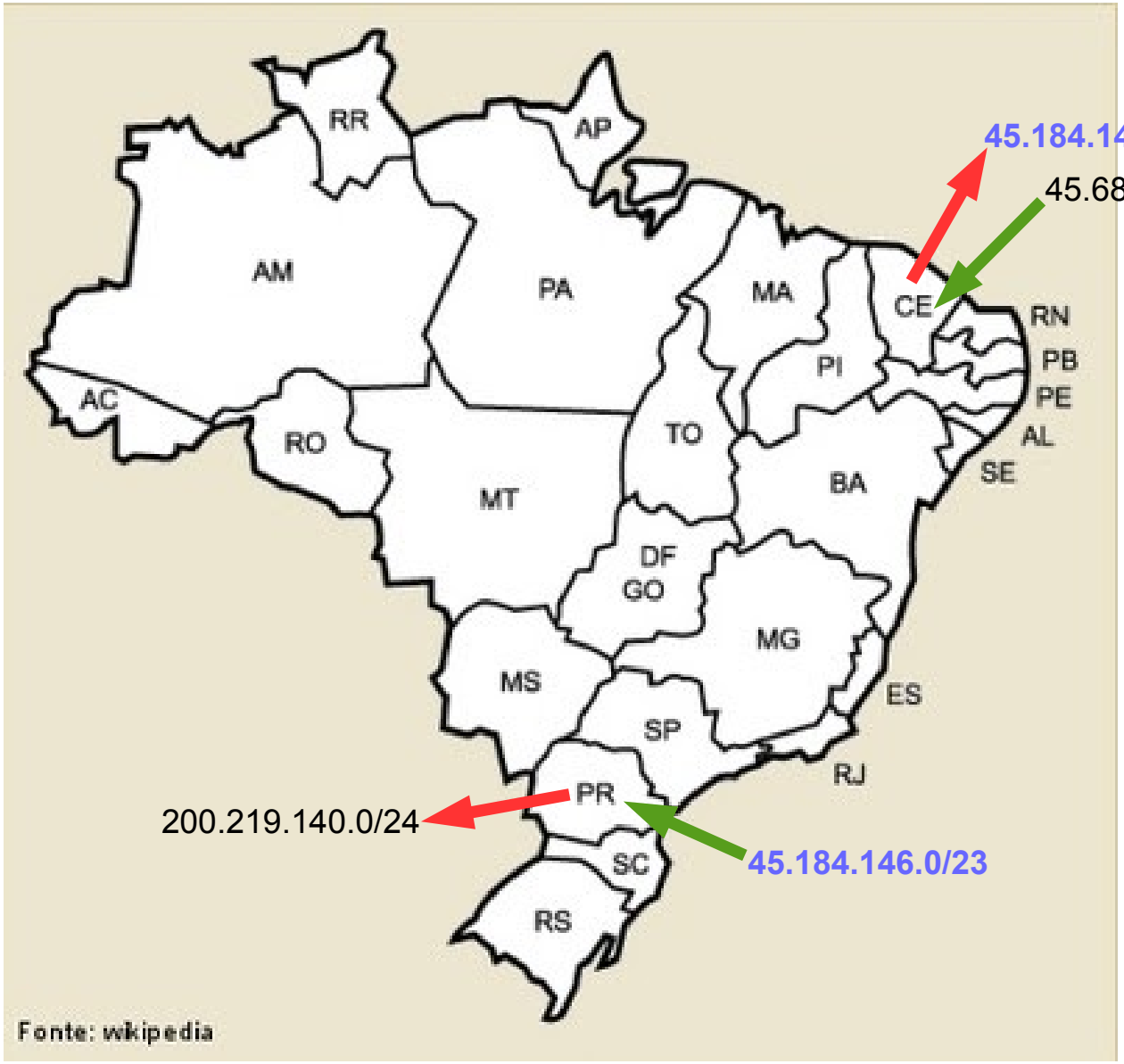
Renumbering of an IP block at an IXP

We had a demand for IPv4 block change in Fortaleza and Curitiba in 2024.

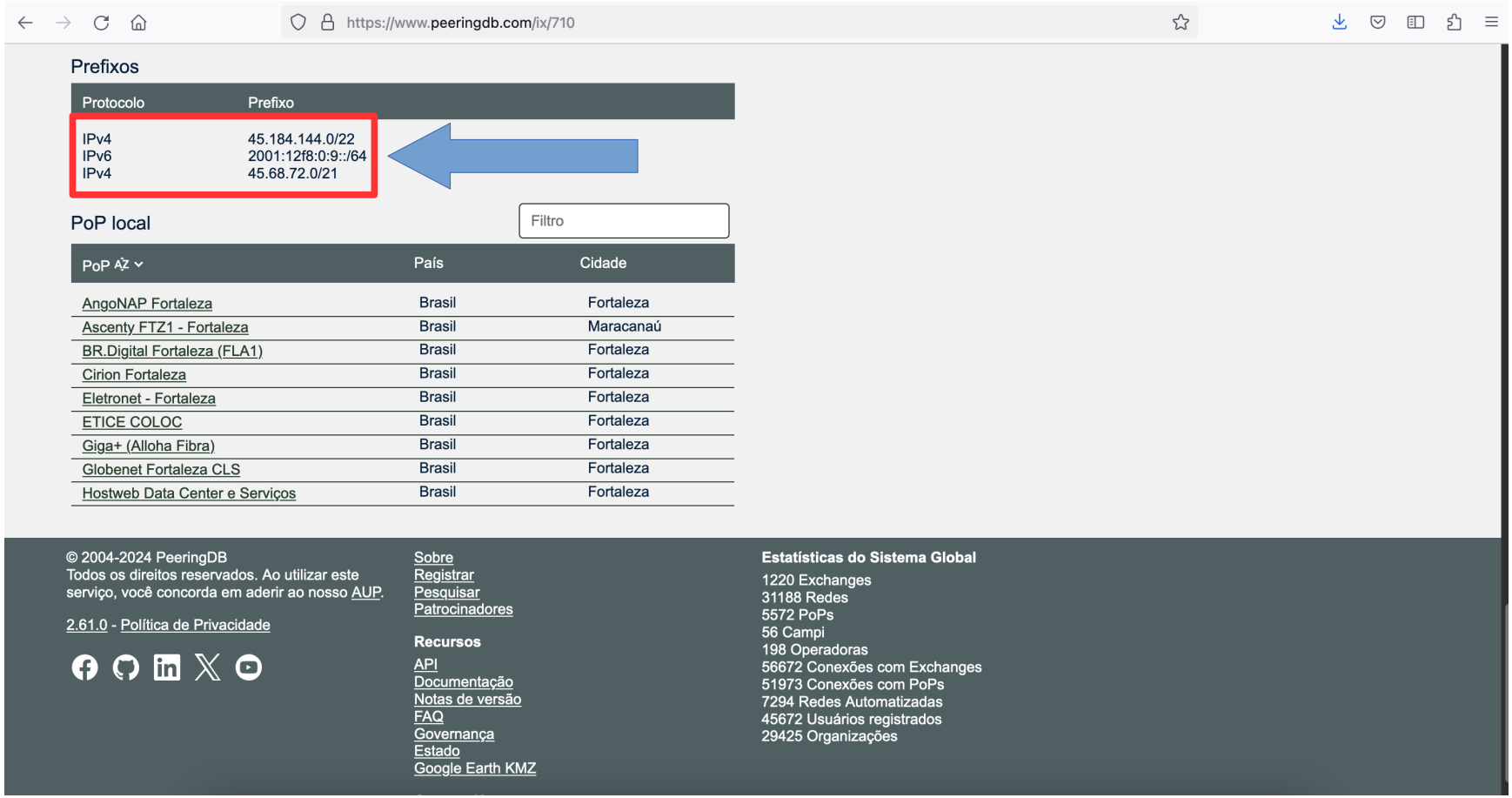
The process of renumbering IP addresses of participants of an IXP must be do by the own ASN in the PeeringDB. The IXP task is only to let theirs known the new block IP in the prefix field on PeeringDB properly.

Unfortunately, this work of removing and updating data is not always done by those responsible for these ASNs.

Renumbering of an IP block at an IXP



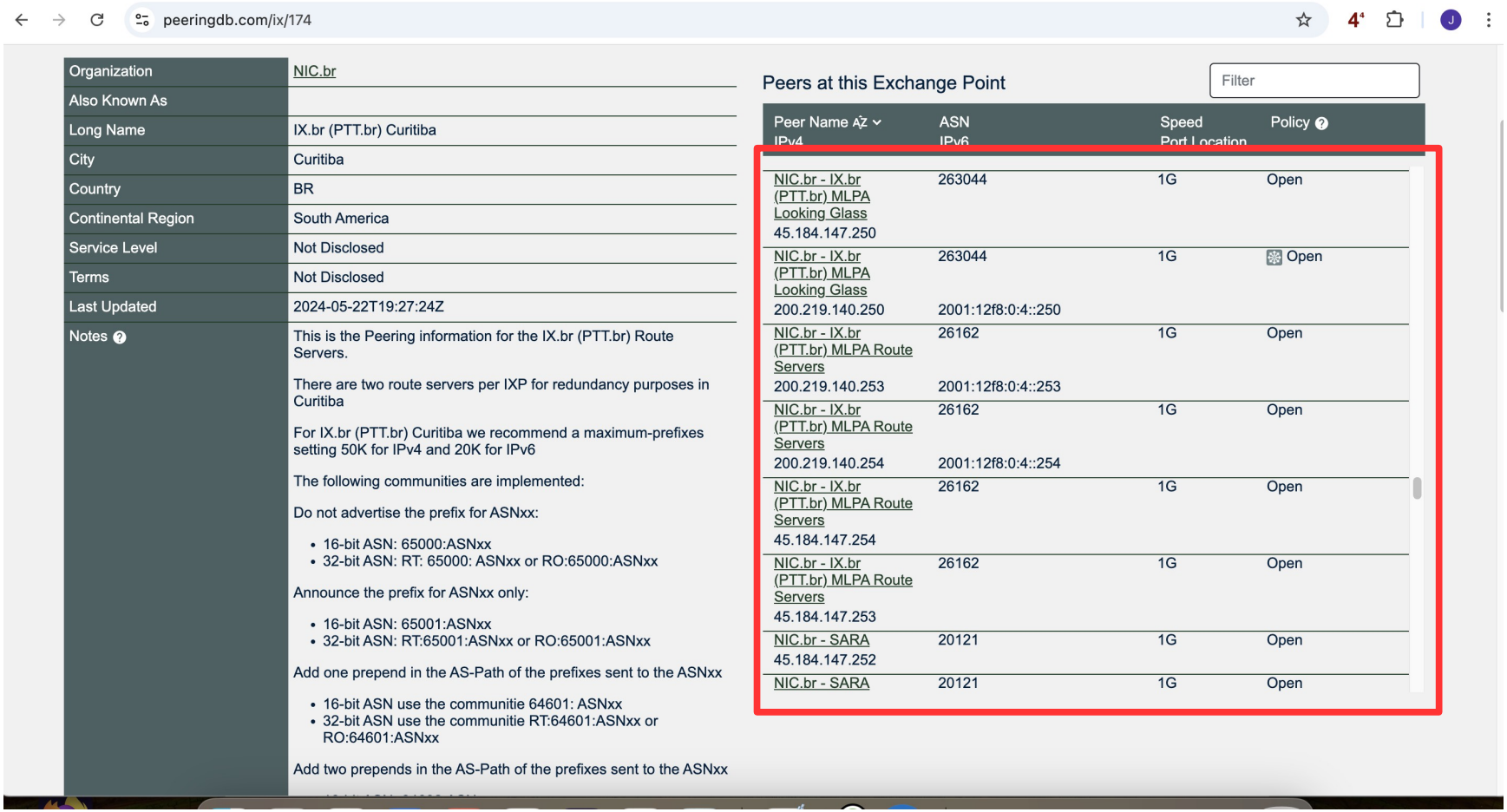
Renumbering of an IP block at an IXP



Information about the new registered IP block so that participants could update their information

IX.br Route Servers and Looking Glass services were updated with the new IP block at the beginning of the process

Transition phase with two IP addresses



For a short time, Route Servers had two IP addresses, the old and the new one.

The figure above shows how the information from IX.br Curitiba was during the transition period.

After the time for renumbering for the new IP block

Oct/11/2024 – IX.br Fortaleza

535 peers registered in the PeeringDB
21 ASNs updated their information for new IP block
514 ASNs not updated their information for new IP block

Nov/04/2024 – IX.br Curitiba

175 peers registered in the PeeringDB
10 ASNs updated their information for new IP block
165 ASNs not updated their information for new IP block

Obs: since the Fortaleza IP block would be used in Curitiba we would not have much time to wait for updates to each ASN.

Tasks for renumbering of the IX.br IP block

Since there were many entries with the old IP address, a list was made by the IX.br team and was sent to the PeeringDB team for a mass update with a PeeringDB script.

Thanks Chriztoffer Hansen (PeeringDB AC member).

A script was developed by William Prado from IX.br to check the IP addresses in the IX.br database versus what is registered in PeeringDB, this way we can anticipate inconsistencies between the databases.

We took the opportunity to remove entries that were in PeeringDB, but in the IX.br database were listed as free. This work prevents the opening of PeeringDB and IX.br tickets for reused IP addresses from deactivations. Our team frequently do the checking between the databases.

Collecting the PeeringDB data – REST API

https://www.peeringdb.com/ix/710

PeeringDB

Search here for a network, IX, or facility.

Advanced Search Legacy Search

Registeror Login

English (English)

IX.br (PTT.br) Fortaleza

Peers	Connections	Open Peers	Total Speed	% with IPv6
535	625	420	33.7T	95

EXPORT

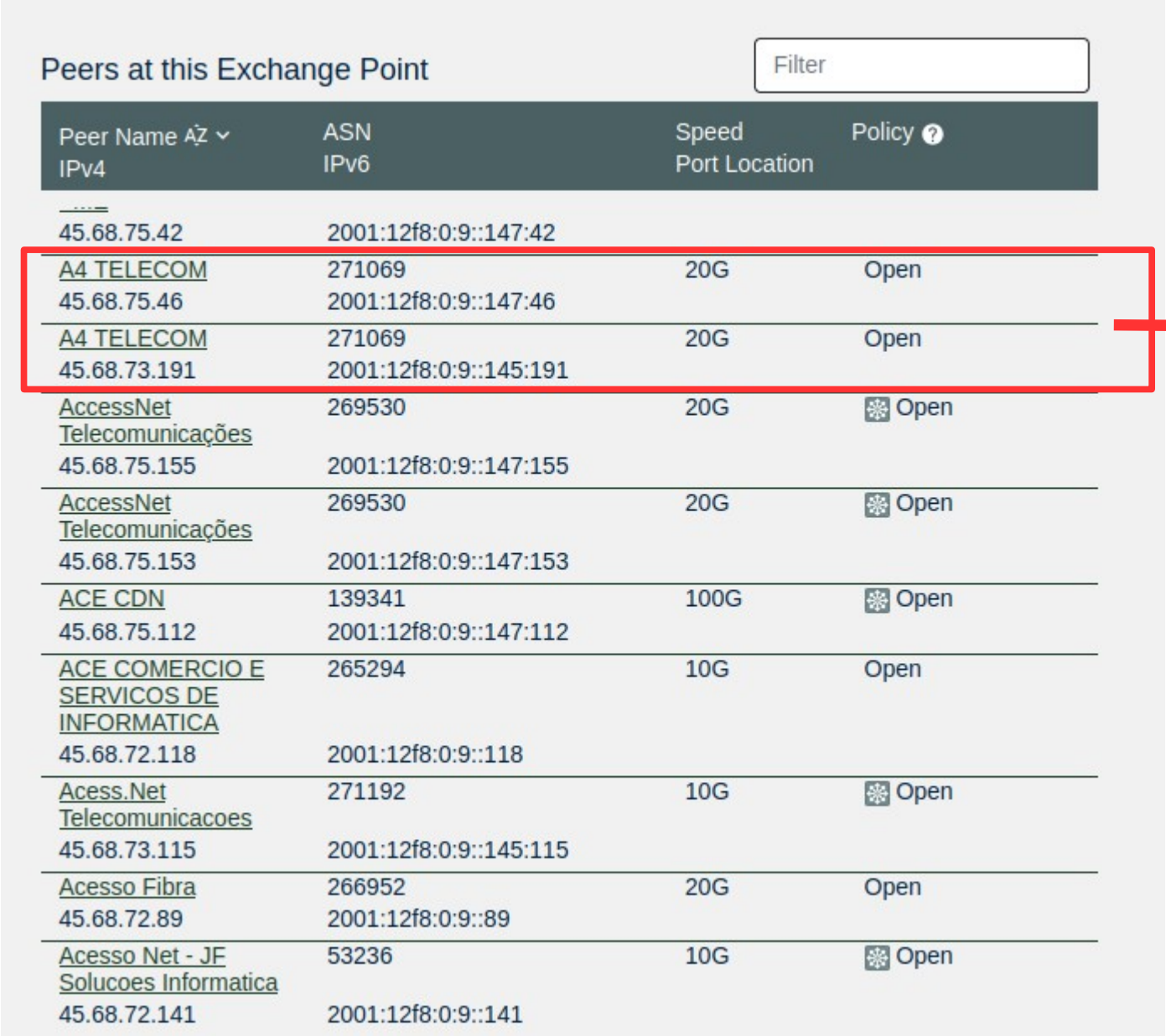
Organization	NIC.br
Also Known As	
Long Name	IX.br (PTT.br) Fortaleza
City	Fortaleza/CE
Country	BR
Continental Region	South America
Service Level	Not Disclosed
Terms	Not Disclosed
Last Updated	2024-11-25T18:20:35Z
Notes	This is the Peering information for the IX.br (PTT.br) Route Servers. There are two route servers per IXP for redundancy purposes in Fortaleza For IX.br (PTT.br) Fortaleza we recommend a maximum-prefixes setting 280K for IPv4 and 160K for IPv6 Communities added by the route server to identify the location where the prefix was received: • 16-bit ASN: 26162:65085 • 32-bit ASN: RT:26162:65085 or RO:26162:65085 IX.br Communities BGP Policy http://docs.ix.br/doc/politica-de-tratamento-de-communities-no-ix-br-v4_3-english.pdf Communities BGP Table http://docs.ix.br/doc/communities-table-ix-br-v2_1-14082024.pdf
	nic.br

Peers at this Exchange Point

Filter

Peer Name AŻ IPv4	ASN IPv6	Speed Port Location	Policy
(VIPLANET) E D TELECOMUNICES 45.68.72.78	266620 2001:12f8:0:9::78	100G	Open
1 Telecom Servicos de Internet 45.68.72.67	52965 2001:12f8:0:9::67	200G	Open
3L CLOUD INTERNET SERVICES 45.68.73.14	266444 2001:12f8:0:9::145:14	10G	Selective
A & G TELECOMUNICAÇÕES 45.68.74.8	264273 2001:12f8:0:9::146:8	10G	Selective
A2 TELECOM EIRELI - ME 45.68.75.42	266240 2001:12f8:0:9::147:42	10G	Open
A4 TELECOM 45.68.75.46	271069 2001:12f8:0:9::147:46	20G	Open
A4 TELECOM 45.68.73.191	271069 2001:12f8:0:9::145:191	20G	Open
AccessNet Telecomunicações 45.68.75.155	269530 2001:12f8:0:9::147:155	20G	Open
AccessNet Telecomunicações 45.68.75.153	269530 2001:12f8:0:9::147:153	20G	Open

Collecting the PeeringDB data – REST API



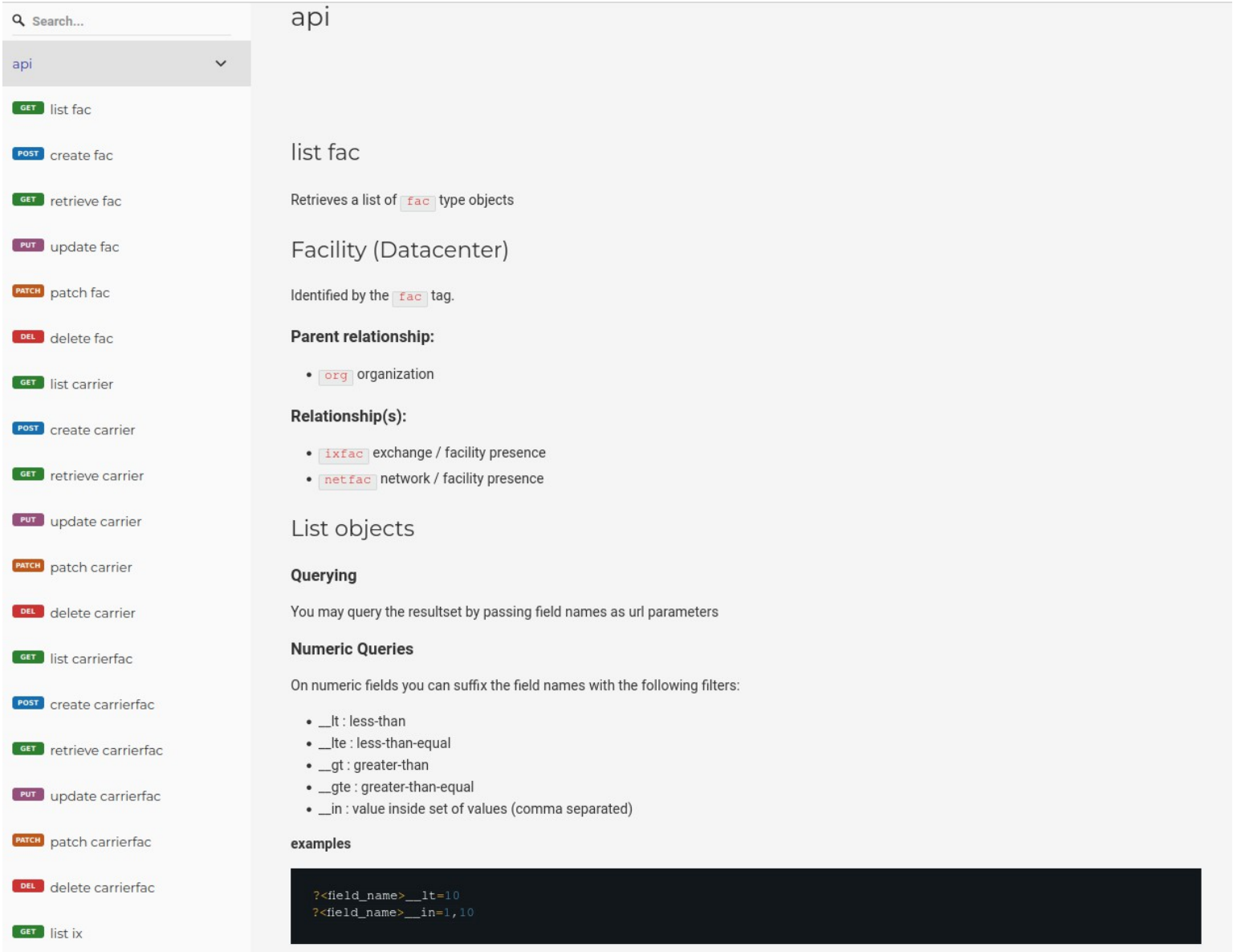
Peers at this Exchange Point

Filter

Peer Name AŻ IPv4	ASN IPv6	Speed Port Location	Policy
45.68.75.42	2001:12f8:0:9::147:42		
A4 TELECOM 45.68.75.46	271069 2001:12f8:0:9::147:46	20G	Open
A4 TELECOM 45.68.73.191	271069 2001:12f8:0:9::145:191	20G	Open
AccessNet Telecomunicações 45.68.75.155	269530 2001:12f8:0:9::147:155	20G	Open
AccessNet Telecomunicações 45.68.75.153	269530 2001:12f8:0:9::147:153	20G	Open
ACE CDN 45.68.75.112	139341 2001:12f8:0:9::147:112	100G	Open
ACE COMERCIO E SERVICOS DE INFORMATICA 45.68.72.118	265294 2001:12f8:0:9::118	10G	Open
Acess.Net Telecomunicacoes 45.68.73.115	271192 2001:12f8:0:9::145:115	10G	Open
Acesso Fibra 45.68.72.89	266952 2001:12f8:0:9::89	20G	Open
Acesso Net - JF Solucoes Informatica 45.68.72.141	53236 2001:12f8:0:9::141	10G	Open

ASN
IPv4

Collecting the PeeringDB data – REST API



https://www.peeringdb.com/apidocs/#tag/api

Collecting the PeeringDB data – REST API

Operations available in API:

- GET – get data/object;

- POST – create data/object;

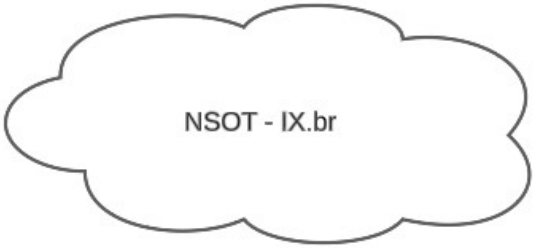
- PUT – update data/object;

- DELETE – delete data/object;

and other operations.

https://developer.mozilla.org/pt-BR/docs/Web/HTTP/Methods

Collecting the PeeringDB data – REST API




```python
import requests

load_dotenv()

API_KEY = os.getenv("API_KEY")
API_PDB = os.getenv("API_PDB")

headers = {"Authorization": "Api-Key " + API_KEY}

pdb = {"pdb_code": 710, "ix_code": "ce"}

try:
    data = {'ix_id': pdb['pdb_code'], 'fields': 'id,net_id,ixlan_id,speed,asn,ipaddr4,ipaddr6'}
    response = requests.get(API_PDB, headers=headers,params=data)
    print(response.json())

except Exception as err:
    print(err)
```

get_data_pdb.py

Collecting the PeeringDB data – REST API - Dump


```
{'id': 14779, 'net_id': 5654, 'ixlan_id': 710, 'speed': 1000, 'asn': 14026, 'ipaddr4': '45.68.72.3', 'ipaddr6': None}
{'id': 15015, 'net_id': 5803, 'ixlan_id': 710, 'speed': 1000, 'asn': 20121, 'ipaddr4': '45.68.72.252', 'ipaddr6': '2001:12f8:0:9::252'}
{'id': 17926, 'net_id': 6133, 'ixlan_id': 710, 'speed': 10000, 'asn': 263311, 'ipaddr4': '45.68.72.25', 'ipaddr6': '2001:12f8:0:9::25'}
{'id': 18570, 'net_id': 30605, 'ixlan_id': 710, 'speed': 10000, 'asn': 269178, 'ipaddr4': '45.68.72.7', 'ipaddr6': '2001:12f8:0:9::7'}
{'id': 18938, 'net_id': 5310, 'ixlan_id': 710, 'speed': 200000, 'asn': 52965, 'ipaddr4': '45.68.72.67', 'ipaddr6': '2001:12f8:0:9::67'}
{'id': 19312, 'net_id': 6618, 'ixlan_id': 710, 'speed': 100000, 'asn': 28598, 'ipaddr4': '45.68.74.70', 'ipaddr6': '2001:12f8:0:9::146:70'}
{'id': 19467, 'net_id': 618, 'ixlan_id': 710, 'speed': 1000, 'asn': 20144, 'ipaddr4': '45.68.72.12', 'ipaddr6': None}
{'id': 22149, 'net_id': 4328, 'ixlan_id': 710, 'speed': 20000, 'asn': 1916, 'ipaddr4': '45.68.72.2', 'ipaddr6': '2001:12f8:0:9::2'}
{'id': 25655, 'net_id': 5677, 'ixlan_id': 710, 'speed': 4000, 'asn': 262727, 'ipaddr4': '45.68.72.21', 'ipaddr6': '2001:12f8:0:9::21'}
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{'id': 27465, 'net_id': 33077, 'ixlan_id': 710, 'speed': 10000, 'asn': 61854, 'ipaddr4': '45.68.74.12', 'ipaddr6': '2001:12f8:0:9::146:12'}
{'id': 27582, 'net_id': 9584, 'ixlan_id': 710, 'speed': 20000, 'asn': 28308, 'ipaddr4': '45.68.72.33', 'ipaddr6': '2001:12f8:0:9::33'}
{'id': 27938, 'net_id': 11079, 'ixlan_id': 710, 'speed': 10000, 'asn': 262644, 'ipaddr4': '45.68.73.108', 'ipaddr6': '2001:12f8:0:9::145:108'}
{'id': 29956, 'net_id': 10959, 'ixlan_id': 710, 'speed': 40000, 'asn': 52981, 'ipaddr4': '45.68.72.15', 'ipaddr6': None}
{'id': 32289, 'net_id': 2786, 'ixlan_id': 710, 'speed': 10000, 'asn': 28573, 'ipaddr4': '45.68.72.13', 'ipaddr6': '2001:12f8:0:9::13'}
{'id': 32840, 'net_id': 457, 'ixlan_id': 710, 'speed': 300000, 'asn': 2906, 'ipaddr4': '45.68.72.55', 'ipaddr6': '2001:12f8:0:9::55'}
{'id': 32841, 'net_id': 457, 'ixlan_id': 710, 'speed': 300000, 'asn': 2906, 'ipaddr4': '45.68.72.56', 'ipaddr6': '2001:12f8:0:9::56'}
{'id': 33065, 'net_id': 23744, 'ixlan_id': 710, 'speed': 10000, 'asn': 269023, 'ipaddr4': '45.68.72.50', 'ipaddr6': '2001:12f8:0:9::50'}
{'id': 33350, 'net_id': 10557, 'ixlan_id': 710, 'speed': 30000, 'asn': 263321, 'ipaddr4': '45.68.72.38', 'ipaddr6': '2001:12f8:0:9::38'}
{'id': 33545, 'net_id': 7353, 'ixlan_id': 710, 'speed': 100000, 'asn': 52877, 'ipaddr4': '45.68.72.69', 'ipaddr6': '2001:12f8:0:9::69'}
{'id': 33588, 'net_id': 18781, 'ixlan_id': 710, 'speed': 40000, 'asn': 268512, 'ipaddr4': '45.68.72.36', 'ipaddr6': '2001:12f8:0:9::36'}
{'id': 33758, 'net_id': 12909, 'ixlan_id': 710, 'speed': 20000, 'asn': 264562, 'ipaddr4': '45.68.72.42', 'ipaddr6': '2001:12f8:0:9::42'}
{'id': 34667, 'net_id': 13455, 'ixlan_id': 710, 'speed': 20000, 'asn': 262887, 'ipaddr4': '45.68.73.195', 'ipaddr6': '2001:12f8:0:9::145:195'}
{'id': 34848, 'net_id': 8499, 'ixlan_id': 710, 'speed': 200000, 'asn': 61832, 'ipaddr4': '45.68.72.70', 'ipaddr6': '2001:12f8:0:9::70'}
{'id': 34885, 'net_id': 9621, 'ixlan_id': 710, 'speed': 10000, 'asn': 52683, 'ipaddr4': '45.68.72.66', 'ipaddr6': '2001:12f8:0:9::66'}
{'id': 35018, 'net_id': 9889, 'ixlan_id': 710, 'speed': 200000, 'asn': 53087, 'ipaddr4': '45.68.72.49', 'ipaddr6': '2001:12f8:0:9::49'}
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{'id': 35446, 'net_id': 13854, 'ixlan_id': 710, 'speed': 70000, 'asn': 264564, 'ipaddr4': '45.68.72.73', 'ipaddr6': '2001:12f8:0:9::73'}
```

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{'id': 26907, 'net_id': 9449, 'ixlan_id': 710, 'speed': 100000, 'asn': 263327, 'ipaddr4': '45.68.72.35', 'ipaddr6': '2001:12f8:0:9::35'}
{'id': 27465, 'net_id': 33077, 'ixlan_id': 710, 'speed': 10000, 'asn': 61854, 'ipaddr4': '45.68.74.12', 'ipaddr6': '2001:12f8:0:9::146:12'}
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{'id': 32840, 'net_id': 457, 'ixlan_id': 710, 'speed': 300000, 'asn': 2906, 'ipaddr4': '45.68.72.55', 'ipaddr6': '2001:12f8:0:9::55'}
{'id': 32841, 'net_id': 457, 'ixlan_id': 710, 'speed': 300000, 'asn': 2906, 'ipaddr4': '45.68.72.56', 'ipaddr6': '2001:12f8:0:9::56'}
{'id': 33065, 'net_id': 23744, 'ixlan_id': 710, 'speed': 10000, 'asn': 269023, 'ipaddr4': '45.68.72.50', 'ipaddr6': '2001:12f8:0:9::50'}
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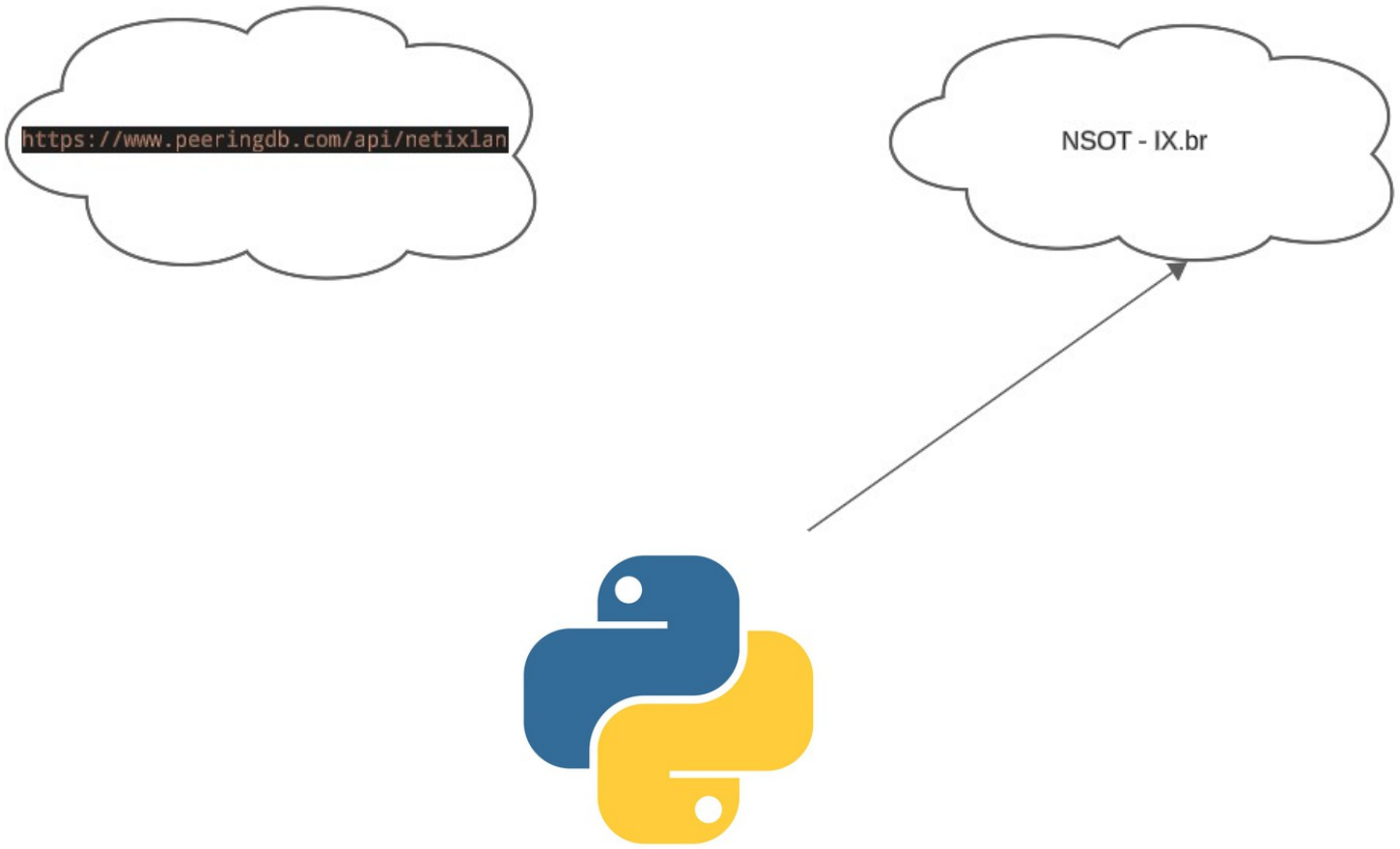
{'id': 35418, 'net_id': 13301, 'ixlan_id': 710, 'speed': 5120, 'asn': 266374, 'ipaddr4': '45.68.72.68', 'ipaddr6': '2001:12f8:0:9::68'}
{'id': 35446, 'net_id': 13854, 'ixlan_id': 710, 'speed': 70000, 'asn': 264564, 'ipaddr4': '45.68.72.73', 'ipaddr6': '2001:12f8:0:9::73'}
```



```
'asn': 14026, 'ipaddr4': '45.68.72.3', 'ipaddr6': None}
'asn': 20121, 'ipaddr4': '45.68.72.252', 'ipaddr6': '2001:12f8:0:9::252'}
 'asn': 263311, 'ipaddr4': '45.68.72.25', 'ipaddr6': '2001:12f8:0:9::25'}
, 'asn': 269178, 'ipaddr4': '45.68.72.7', 'ipaddr6': '2001:12f8:0:9::7'}
, 'asn': 52965, 'ipaddr4': '45.68.72.67', 'ipaddr6': '2001:12f8:0:9::67'}
```

Collecting the NSOT IXBR data – REST API - Dump



get_data_nsot_ixbr.py

Collecting the NSOT IXBR data – REST API - Dump

```
{'asn': 265947, 'ipv6': '2001:12f8:0:9::147:96'}
{'asn': 265968, 'ipv4': '45.68.73.97'}
{'asn': 265968, 'ipv6': '2001:12f8:0:9::145:97'}
{'asn': 265983, 'ipv4': '45.68.72.26'}
{'asn': 265983, 'ipv6': '2001:12f8:0:9::26'}
{'asn': 265996, 'ipv4': '45.68.72.174'}
{'asn': 265996, 'ipv4': '45.68.75.38'}
{'asn': 265996, 'ipv6': '2001:12f8:0:9::174'}
{'asn': 265996, 'ipv6': '2001:12f8:0:9::147:38'}
{'asn': 265998, 'ipv4': '45.68.75.31'}
{'asn': 265998, 'ipv6': '2001:12f8:0:9::147:31'}
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{'asn': 266003, 'ipv4': '45.68.72.228'}
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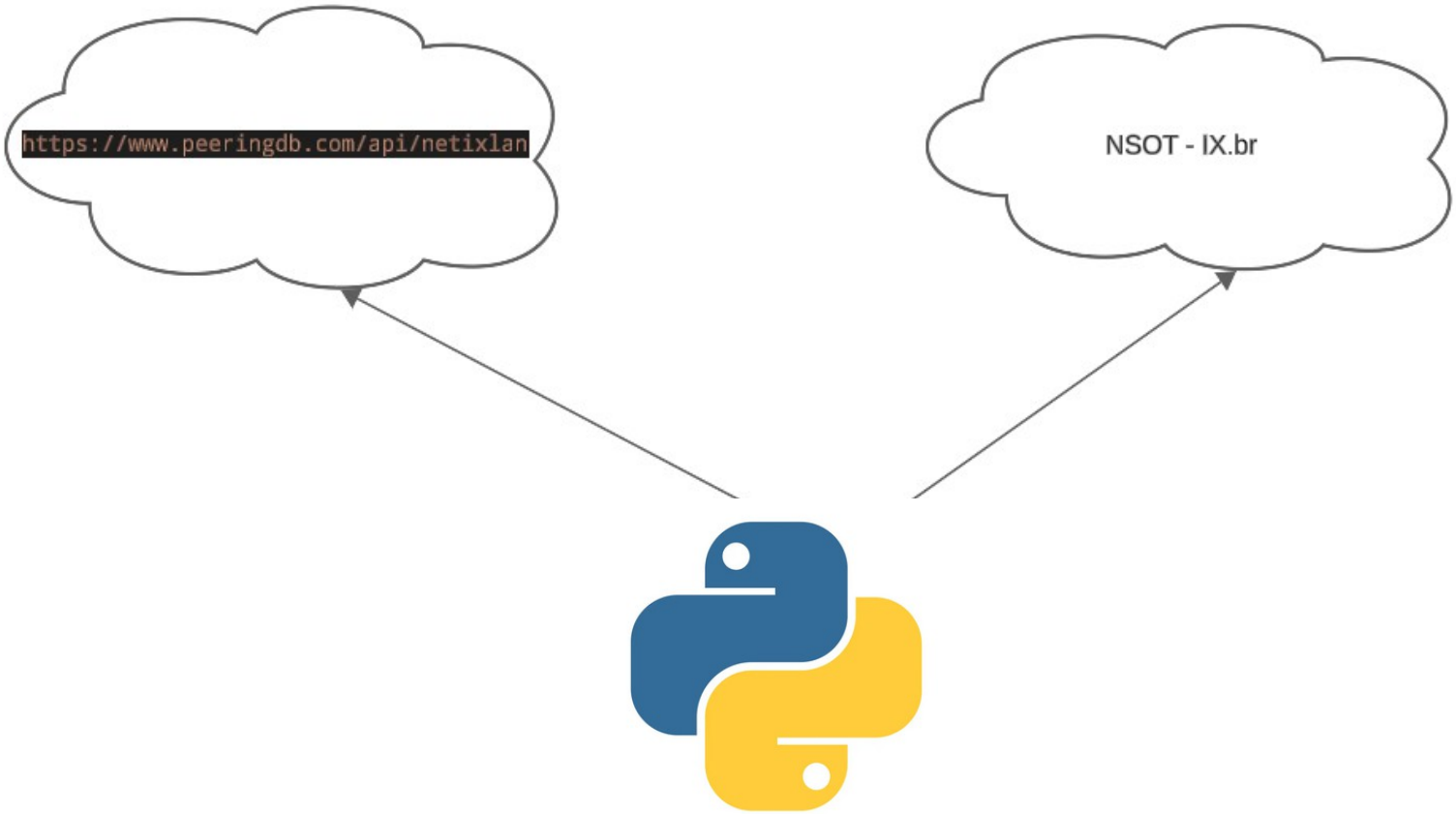
{'asn': 266003, 'ipv6': '2001:12f8:0:9::145:136'}
{'asn': 266009, 'ipv4': '45.68.74.94'}
{'asn': 266009, 'ipv4': '45.68.75.171'}
{'asn': 266009, 'ipv6': '2001:12f8:0:9::146:94'}
{'asn': 266009, 'ipv6': '2001:12f8:0:9::147:171'}
{'asn': 266020, 'ipv4': '45.68.74.176'}
{'asn': 266020, 'ipv4': '45.68.75.176'}
{'asn': 266020, 'ipv4': '45.68.75.167'}
{'asn': 266020, 'ipv6': '2001:12f8:0:9::146:176'}
{'asn': 266020, 'ipv6': '2001:12f8:0:9::147:176'}
{'asn': 266020, 'ipv6': '2001:12f8:0:9::147:167'}
{'asn': 266037, 'ipv4': '45.68.73.244'}
{'asn': 266037, 'ipv6': '2001:12f8:0:9::145:244'}
{'asn': 266076, 'ipv4': '45.68.72.148'}
{'asn': 266076, 'ipv6': '2001:12f8:0:9::148'}
{'asn': 266096, 'ipv4': '45.68.75.9'}
{'asn': 266096, 'ipv6': '2001:12f8:0:9::147:9'}
{'asn': 266098, 'ipv4': '45.68.73.164'}
{'asn': 266098, 'ipv6': '2001:12f8:0:9::145:164'}
{'asn': 266101, 'ipv4': '45.68.75.129'}
{'asn': 266101, 'ipv6': '2001:12f8:0:9::147:129'}
{'asn': 266120, 'ipv4': '45.68.76.23'}
{'asn': 266120, 'ipv6': '2001:12f8:0:9::148:23'}
{'asn': 266129, 'ipv4': '45.68.72.77'}
{'asn': 266129, 'ipv4': '45.68.74.57'}
{'asn': 266129, 'ipv4': '45.68.72.181'}
```

Validating data structures - PeeringDB x IXBR



validate_data_pdb_ixbr.py

Validating data structures - PeeringDB x IXBR – IXP Fortaleza


```
{
    "problems": [
        {
            "problem_description": "IPv4 not found on netbox - ASN: [illegible] - ipv4: [illegible] - localidade: ce",
            "problem_type": "peeringdb_check"
        },
        {
            "problem_description": "IPv4 not found on netbox - ASN: [illegible] - ipv4: [illegible] - localidade: ce",
            "problem_type": "peeringdb_check"
        },
        {
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            "problem_type": "peeringdb_check"
        },
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            "problem_type": "peeringdb_check"
        },
        {
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            "problem_type": "peeringdb_check"
        },
        {
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            "problem_type": "peeringdb_check"
        },
        {
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            "problem_type": "peeringdb_check"
        },
        {
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            "problem_type": "peeringdb_check"
        },
        {
            "problem_description": "IPv4 not found on netbox - ASN: [illegible] - ipv4: [illegible] - localidade: ce",
            "problem_type": "peeringdb_check"
        },
    ]
}
```

Validating data structures - PeeringDB x IXBR – IXP Curitiba


```
{
   "problem_description": "IPv4 not found on netbox - ASN:  - ipv4:  - localidade: pr",
   "problem_type": "peeringdb_check"
},
{
   "problem_description": "IPv4 not found on netbox - ASN:  - ipv4:  - localidade: pr",
   "problem_type": "peeringdb_check"
},
{
   "problem_description": "IPv4 not found on netbox - ASN:  ipv4:  - localidade: pr",
   "problem_type": "peeringdb_check"
},
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{
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},
{
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},
{
   "problem_description": "IPv6 not found on netbox - ASN  - ipv6:  - localidade: pr",
   "problem_type": "peeringdb_check"
},
{
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{
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   "problem_type": "peeringdb_check"
}
```

Final considerations

Some companies use some PeeringDB fields for automation, so we must pay attention to filling in each field and understand what each field is for.

Deactivated IXP IP addresses need to be removed asap, as they will be reused and it will prevent the new "owner" of the IP from registering correctly.

Set a scheduler to review your information in PeeringDB and other databases as well.

Keep your information updated!!

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Thank You

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