



Open Tech Meetup

06th August 2024





Keep Local Traffic Local



Agenda

1. PoPs'n'Peers
2. DDNOG
3. ASN Traffic Stats
4. RIPE Labs
5. Open Discussion
6. Social: "Altes Wettbüro"



PoPs'n'Peers

PoP City Center



PoP City Center - Now Live

Infrastructure Update

- ✓ Equipment moved to CC on July 11
 - `ixp-rs01.dd-ix.net`
 - `ixp-cc-sw01.dd-ix.net`

Peers Update

+ DSI	AS16205	<i>Awaiting X-Connect</i>
+ SachsenGigaBit	AS62365	<i>Awaiting X-Connect</i>
+ Dresden-IT	AS215556	<i>Awaiting X-Connect</i>



PoPs

SachenGigabit Center

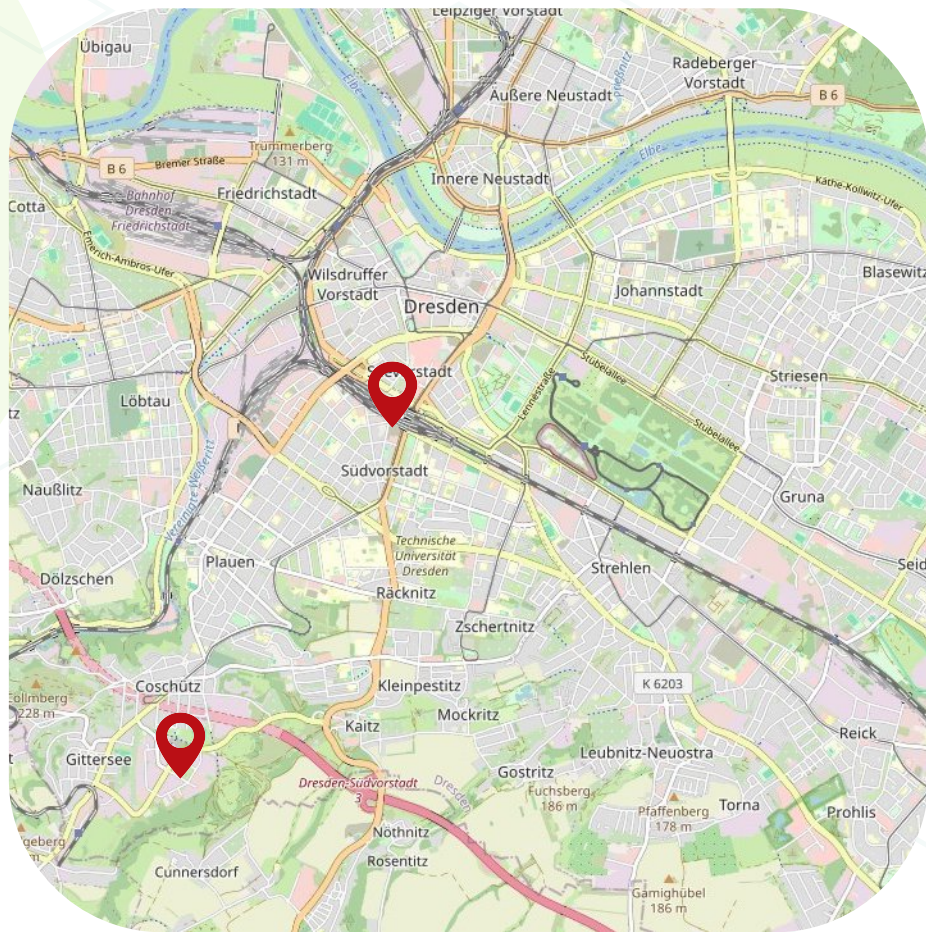
- Friedrich-List-Platz 2
- 01069 Dresden

IBH Dresden C2

- Heilbronner Str. 20
01189 Dresden

Peering Ports

- 10 GbE €150/mo.





Sachsen GigaBit

- Yesterday, 1 hour meeting with SachsenGigaBit.
- Very fruitful discussion about a modern peering ecosystem in Dresden.
- They plan to support DD-IX, e.g., with infrastructure and peering.



DDNOG

Dresden Network Operator Group



Which communication channel do **YOU** prefer to communication with your peers?

Email list? Matrix? ...?

Dresden Network Operator Group



Which communication channel do YOU prefer to communication with your peers?

Email list? Matrix? ...?

Subscribe Now!

dd-ix.net/g/ddnog



Dresden Network Operator Group



Which communication channel do YOU prefer to communication with your peers?

Email list? Matrix? ...?

Join Now!

#ddnog:envs.net



ASN Traffic Stats



Flow Statistics at LHD

- sFlow export with uacctd on VyOS
- Akvorado
- export and report scripts from DD-IX





Keep Local Traffic Local



sFlow config

```
set system flow-accounting disable-imt
set system flow-accounting enable-egress
set system flow-accounting interface 'eth3.101'
set system flow-accounting interface 'eth3.102'
set system flow-accounting interface 'eth3.201'
set system flow-accounting interface 'eth3.202'
set system flow-accounting interface 'eth2.1000'
set system flow-accounting sflow agent-address '194.49.19.236'
set system flow-accounting sflow sampling-rate '2000'
set system flow-accounting sflow server 194.49.19.235
set system flow-accounting sflow source-address '194.49.19.236'
```



sFlow Packet Payload

```

    Flow sample, seq 159956757
      0000 0000 0000 0000 0000 .... .... = Enterprise: standard sFlow (0)
      .... .... .... .... 0000 0000 0001 = sFlow sample type: Flow sample (1)
      Sample length (byte): 208
      Sequence number: 159956757
      0000 0000 .... .... .... .... = Source ID class: 0
      .... .... 0000 0000 0000 0000 0001 = Index: 1
      Sampling rate: 1 out of 2000 packets
      Sample pool: 2130569778 total packets
      Dropped packets: 0
      Input interface (ifIndex): 13
      > Output interface: 0x00000011
      Flow record: 2
      > Extended switch data
      > Raw packet header
        0000 0000 0000 0000 0000 .... .... = Enterprise: standard sFlow (0)
        Format: Raw packet header (1)
        Flow data length (byte): 144
        Header protocol: Ethernet (1)
        Frame Length: 146
        Payload stripped: 4
        Sampled header length: 128
      > Header of sampled packet [truncated]: 901b0ee59ed500900b7e59df0800450000e08f1000007a11b28857b9d090c231:
        > Ethernet II, Src: 00:90:0b:7e:59:df, Dst: 90:1b:0e:e5:9e:d5
        > Internet Protocol Version 4, Src: 87.185.208.144, Dst: 194.49.19.249
        > User Datagram Protocol, Src Port: 57511, Dst Port: 4500
  
```



Akvorado

- <https://github.com/akvorado/akvorado>
- sFlow and Netflow collector
- Enricher (GeoIP, SNMP)
- Database
- Visualization





Akvorado is a flow collector, enricher and exporter. It receives flows, adds some data like interface names and countries, and exports them to Kafka.

18
Flows/s

2
Exporters

Top source AS



553 20940 16509
15169 32934 Others

Top source countries

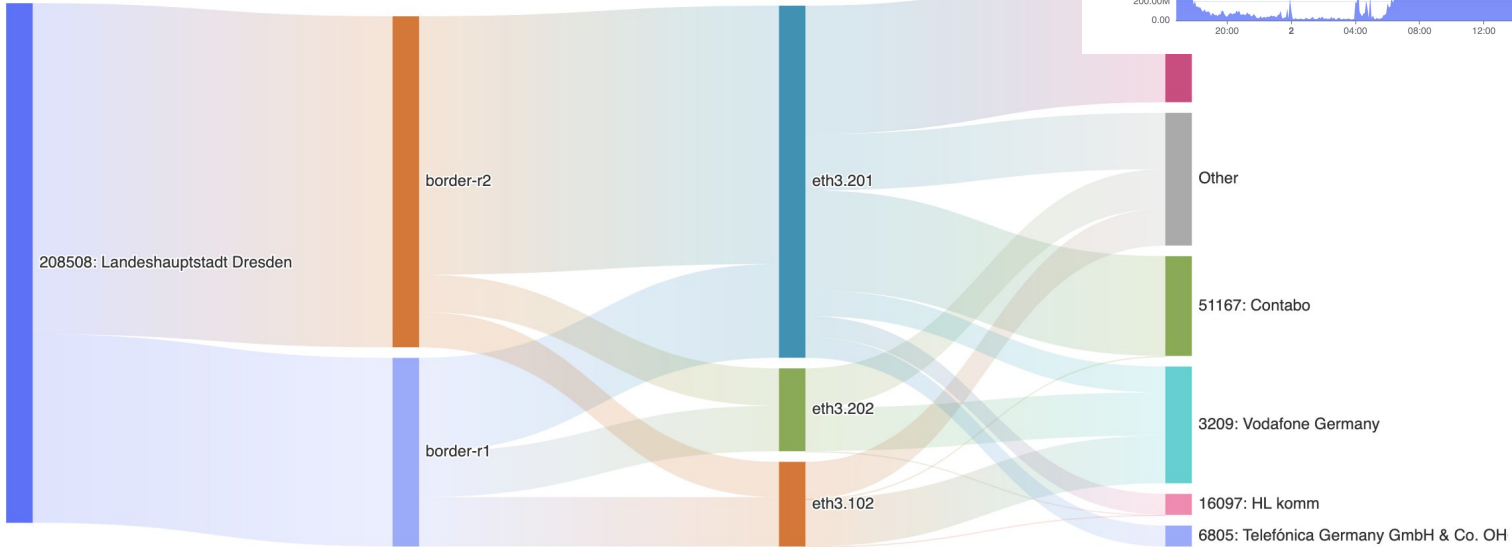
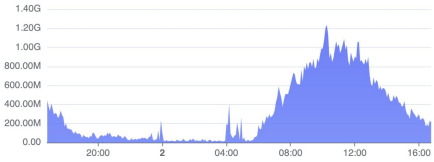


DE GB NL US IT
Others

IPv4/IPv6



IPv4





ASN Traffic Stats

all stats are provided by (future) peers

- limited to the top 50 ASN by P95
- aggregated by the peers
→ no GDPR concerns



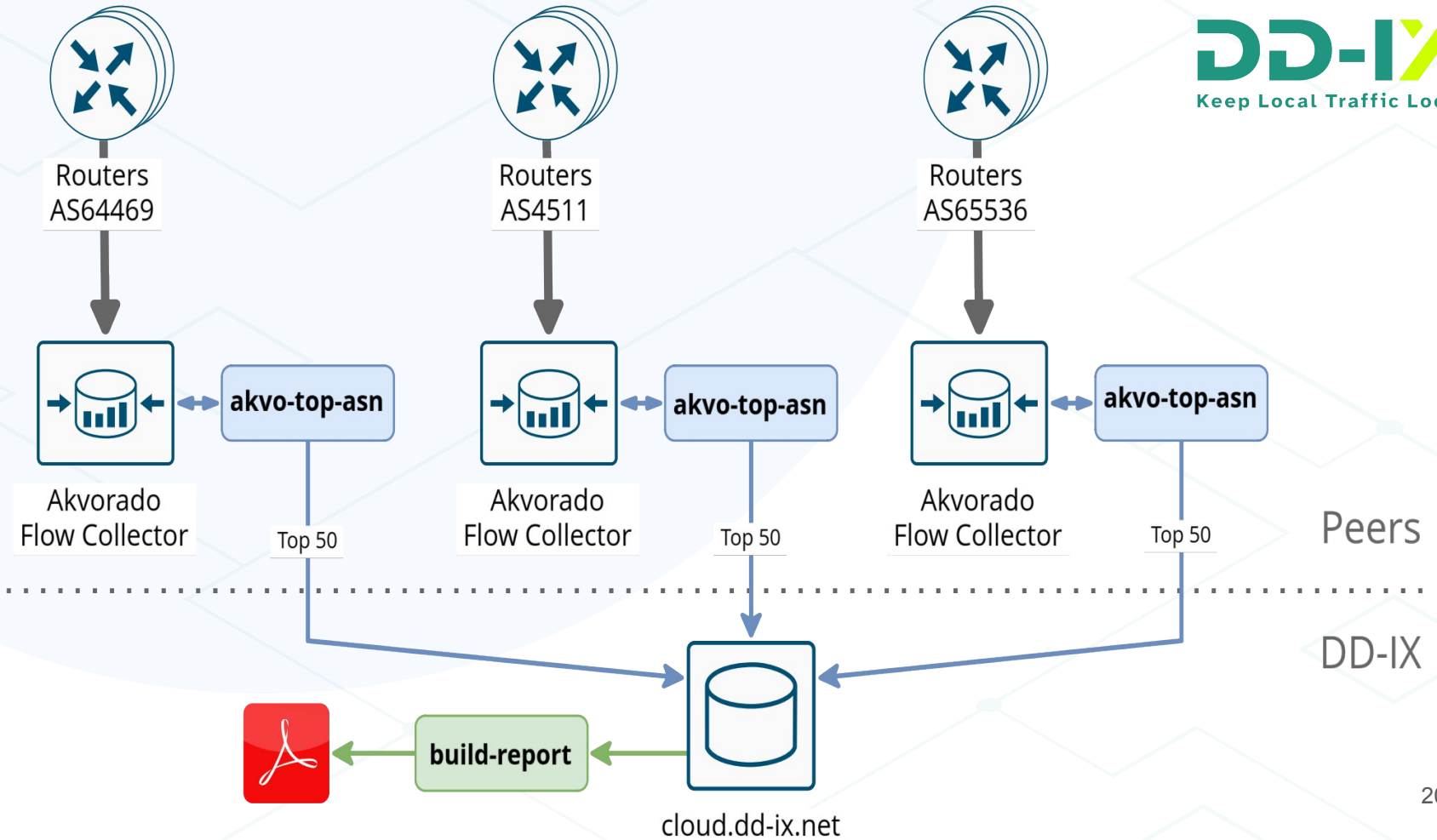


Exporter & Analysis Scripts

- <https://github.com/dd-ix/akvorado-stats>
- exporter creates yaml output

```
meta:  
  asn: 680  
  from: '2024-07-24 07:53:53'  
  org: DFN Deutsches Forschungsnetz e.V.  
  to: '2024-07-31 07:53:53'  
top_peers:  
  13335:  
    in_avg: 74203402.2463091  
    in_max: 365016532.30222225  
    in_p95: 148632207.2817777  
    org: Cloudflare  
    out_avg: 3260281.4788073697  
    out_max: 129548609.97333333  
    out_p95: 6693147.284
```





ASN Traffic Analysis

This report shows the traffic statistics of peers at [DD-IX Dresden Internet Exchange](#) with notable destination ASN. The analysis covers the time range from 2024-07-24 to 2024-08-01.

DD-IX Peers ASN

The following list contains all ASNs on which these traffic statistics are based. All ASNs are either a direct peer on [DD-IX](#) or a direct transit customer of a peer.

ASN	Organisation
680	DFN Deutsches Forschungsnetz e.V
11528	Photronics
15372	IBH IT-Service
208508	Landeshauptstadt Dresden

Traffic Savings at DD-IX

Based on the traffic statistics provided by our peers, the following table presents the minimum amount of traffic each ASes listed therein would save by [peering directly](#) at DD-IX.

ASN	Organisation	P95 _{in}	P95 _{out}
15169	Google	1.3 Gbps	182.7 Mbps
32934	Meta	965.4 Mbps	309.9 Mbps
20940	Akamai Technologies	1.2 Gbps	19.3 Mbps
16509	Amazon.com	781.6 Mbps	107.2 Mbps
3320	Deutsche Telekom	264.1 Mbps	538.5 Mbps
8075	Microsoft	363.5 Mbps	342.2 Mbps
32590	Valve Corporation	537.0 Mbps	11.4 Mbps



Top ASN list

Traffic Statistics

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Traffic Savings at DD-IX

Based on the traffic statistics provided by our peers, the following table presents the minimum amount of traffic your ASes listed therein would save by [peering directly](#) at DD-IX.

ASN	Organisation	P95 _{in}	P95 _{out}
16625	Akamai Technologies European AS	207.3 Mbps	4.3 Mbps
20940	Akamai Technologies	1.2 Gbps	19.3 Mbps
	Σ	1.4 Gbps	23.6 Mbps

ASN handout





Conclusions

- possible traffic savings for remote ASN at DD-IX (content & access providers)
- get more (future) peers to provide statistics
- get in touch with potential peers to make DD-IX more attractive to everyone



RIPE Labs



Featured article

A Comprehensive Review of RIR Policies in the Domain of AS Number Management

ripe research community internet number resources



Nachiket Kondhalkar — 19 Jul 2024

Based in Delft, Netherlands

4 min read

A research team at TU Delft is researching the management of AS Numbers across RIRs as well as the potential impact of the new annual maintenance fees for ASNs and we invite you to contribute.

Read article



Explore Categories: Network Operations Measurements and Statistics Internet Governance Technology and Innovation Community and Events RIPE NCC ... [View all](#)

Latest articles



Putting the MAU Into meowmeow: On Personal ASNs

Tobias Flebig · 22 Jul 2024 · 14 min read

Is the use of personal ASNs to gain hands-on operational experience really such a bad idea, or is this one of the ways we make sure the Internet remains a place of equitable participation, ...



Driving the ASN Truck Without a Licence

Radu Anghel · 18 Jul 2024 · 10 min read

Natural persons have been registering ASNs for a long time, and for many reasons, from running small businesses to keeping up a hobby. This isn't something wrong that needs to be fixed. ASNs should be assigned based on need. But "need" should not be defined as "my friends have one so I need one too..."



The RIPE Labs Article Competition - RIPE 89

Open until 13 September 2024

The RIPE Labs article competition is back again! Have something interesting to say about the past, present, or future state of the Internet? Tell your story on RIPE Labs and win a chance to join us at RIPE 89 this October in Prague, Czechia.

labs.ripe.net

We introduce a new RIPE Labs series



IXP EPISODE 1
FROM SCRATCH

Loose series of articles on the technical setup and design ideas of the DD-IX.

IXP-from-Scratch. Agenda.

1. Building a new IX
2. Network and Security Design
3. Implementing the Peering LAN
4. Network Automation Design
5. Implementing Switch Automation
for Arista EOS
6. Putting into Operation

To be continued...

Open Discussion



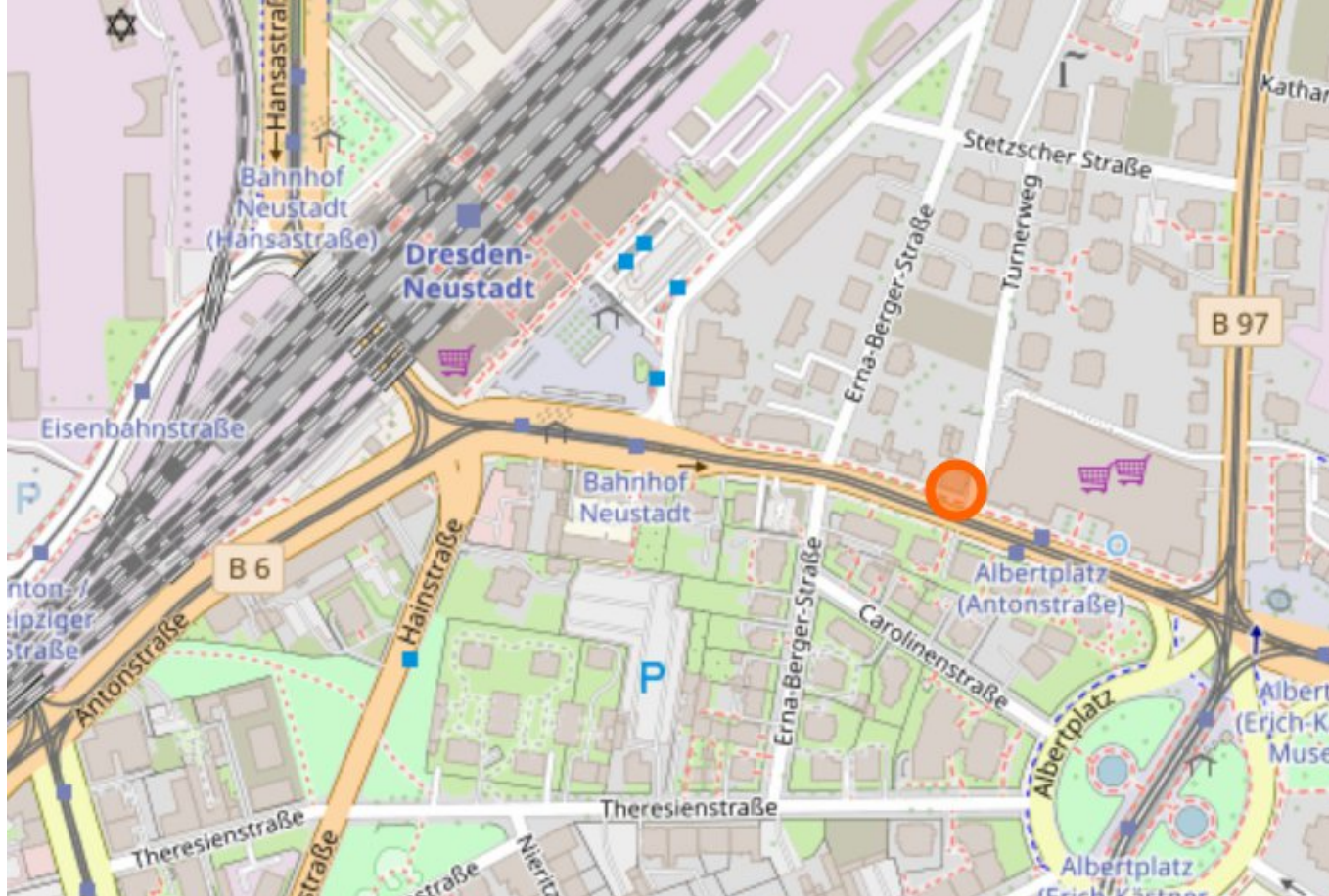
Keep Local Traffic Local

Contacts:

<https://dd-ix.net>

contact@dd-ix.net

News:



20:30 Altes Wettbüro