Integrating Multiple Data Sources

For the efficient peering coordinator

Jac Kloots
Senior Solutions Engineer

What are the most common tools for the peering coordinator?

PeeringDB

Search here for a network, IX, or facility.

Advanced Search Legacy Search

nlhb

English (English)

A1 Telekom Austria AG

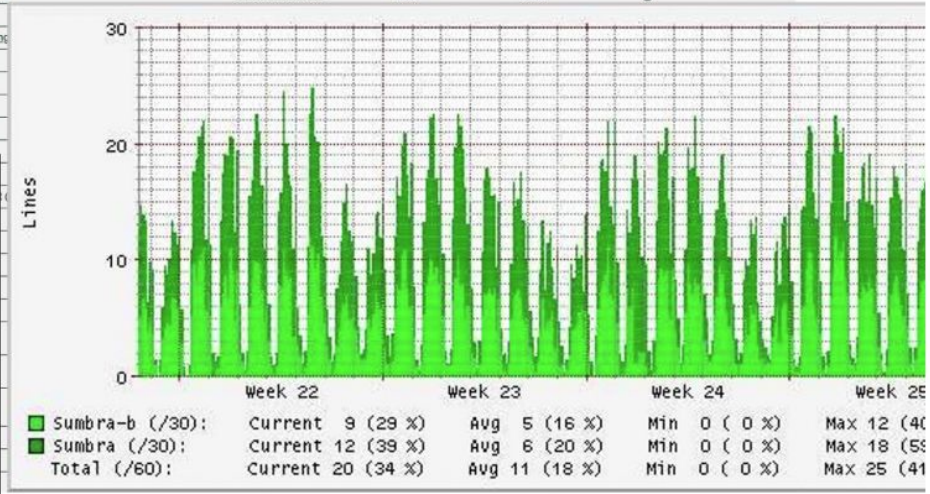
Organization	A1 Telekom Austria AG
Also Known As	AON/Highway 194
Long Name	
Company Website	http://www.a1.net/
ASN	8447
IRR as-set/route-set	RIPE::AS-PTA RIPE::AS-TA6
Route Server URL	
Looking Glass URL	http://ppp.a1.net/tools/lookinc
Network Types	Cable/DSL/ISP
IPv4 Prefixes	3000
IPv6 Prefixes	350
Traffic Levels	50-100Gbps
Traffic Ratios	Balanced

Public Peering Exchange Points

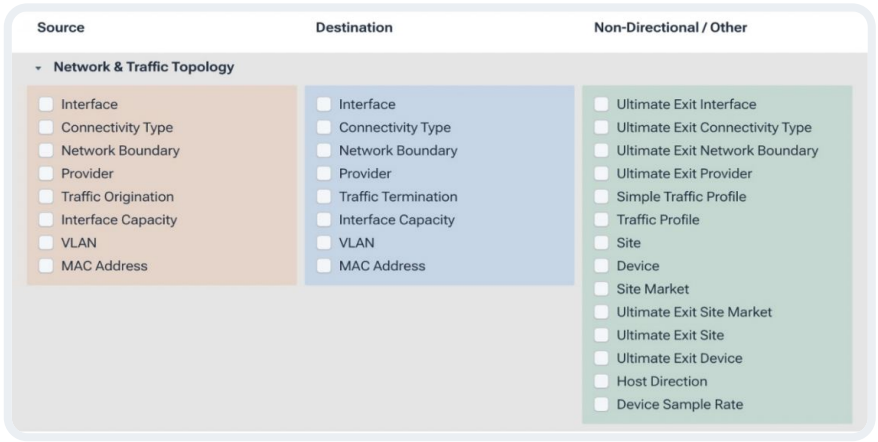
Filter

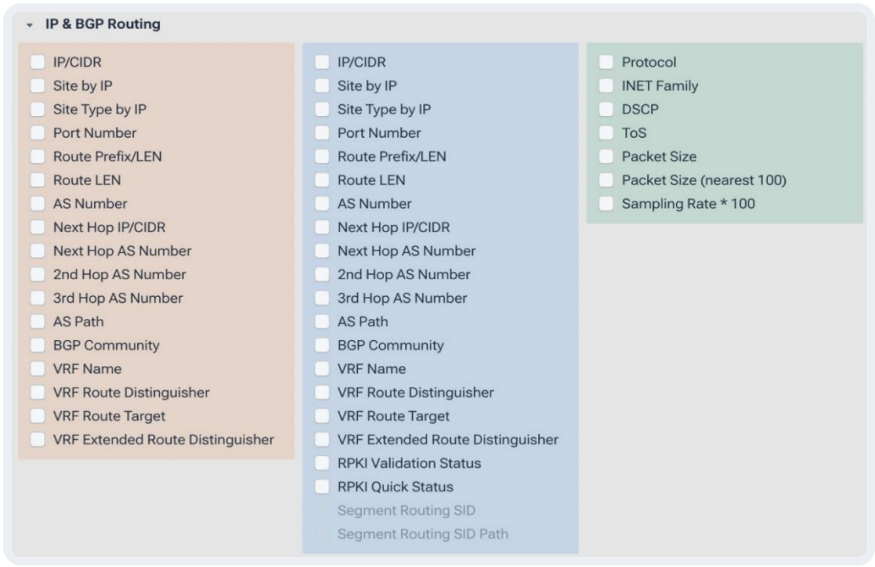
Exchange A-Z IPv4	ASN IPv6	Speed	RS Peer
AMS-IX 80.249.209.207	8447 2001:7f8:1::a500:8447:1	200G	✓
DE-CIX Frankfurt	8447	200G	✓

```
→  ~ traceroute www.a1.at
traceroute to www.a1.at (80.75.46.164), 64 hops max, 52 byte packets
 1  192.168.0.1 (192.168.0.1)  5.579 ms  5.512 ms  8.758 ms
 2  100.120.0.1 (100.120.0.1)  26.835 ms  6.560 ms  6.949 ms
 3  be230.aarh-dist01.link.stofa.net (45.80.92.116)  6.961 ms  11.962 ms  41.739 ms
 4  * * *
 5  be229.aarh-dist02.link.stofa.net (89.184.134.46)  18.533 ms  18.573 ms  18.306 ms
 6  be-190.aarh-cor03.ip.norlys.io (139.45.29.226)  17.875 ms  17.605 ms  17.337 ms
 7  be-182.koldb-cor03.ip.norlys.io (139.45.18.43)  18.154 ms  17.262 ms  17.603 ms
 8  be-200.frnx-br01.ip.norlys.io (139.45.29.174)  17.791 ms
    be-201.frnx-br01.ip.norlys.io (139.45.29.176)  18.931 ms  19.106 ms
 9  ipv4.de-cix.fra.de.as8447.a1.net (80.81.192.69)  104.883 ms  20.344 ms  17.862 ms
10  lg4-9080.as8447.a1.net (195.3.64.5)  32.450 ms  28.117 ms  28.182 ms
11  lg2-9082.as8447.a1.net (195.3.68.34)  29.289 ms  28.570 ms  28.689 ms
12  * * *
13  * * *
14  * * *
15  * * *
16  * * *
17  * *
```



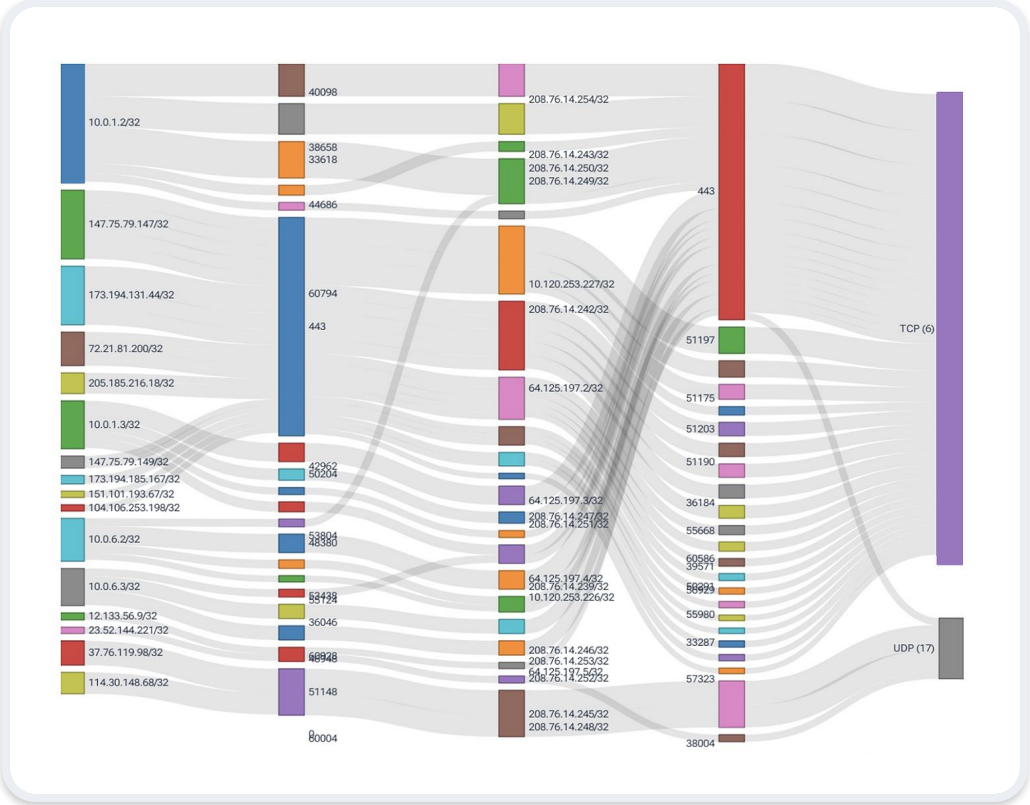
Adding NetFlow is a good step





IP addresses, ports and protocols are not enough

- It is awesome to see what traffic is flowing on the network.
- But what does any of this mean in terms or users, content, or network costs?



Telemetry Enrichment

Enrichment with metadata provides context

Geo-location	Threat feeds	Transit costs
BGP table information	Pod names	Public BGP data
PeeringDB information	IPAM	OTT service name
Application identifiers	Process IDs	CDN names
DNS information	Synthetic test results	Customer names

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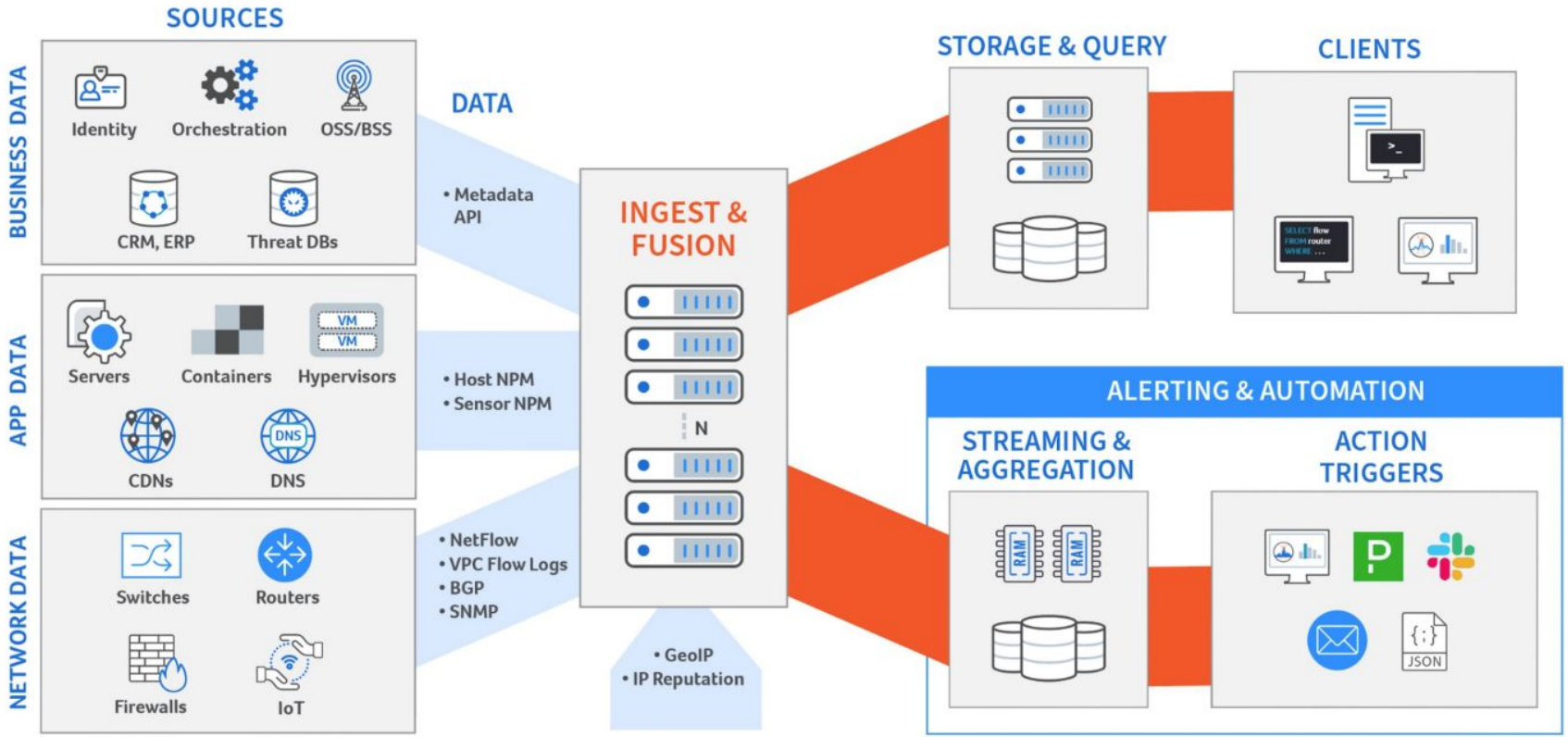
But how?

- ✓ There is no single source of truth
- ✓ The data exists but is spread across numerous sources
- ✓ Automation can pull this data together
- ✓ Using APIs, push it into a network observability platform that can enrich the network traffic

Best practices for leveraging contextual data



Results

Do we use our IX port well?

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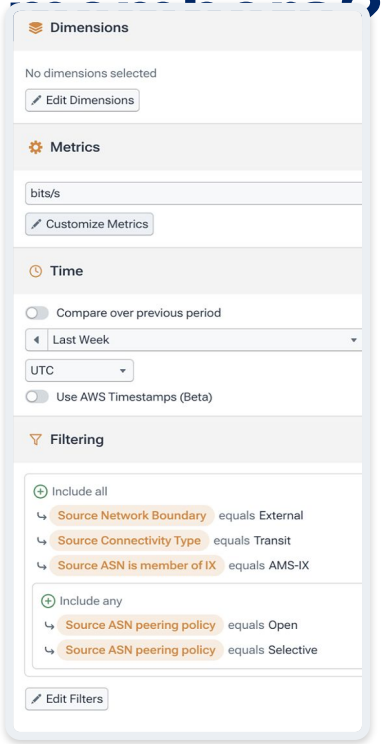
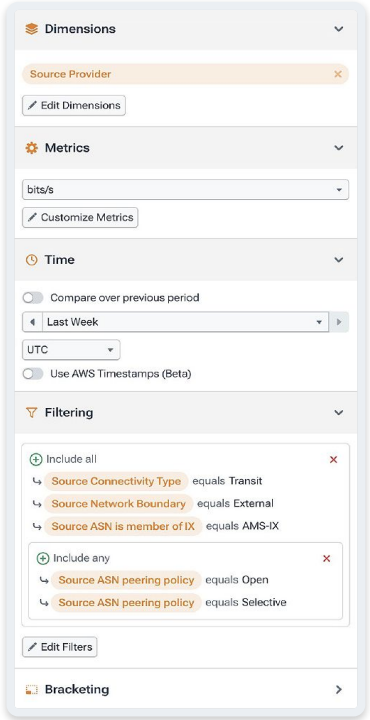
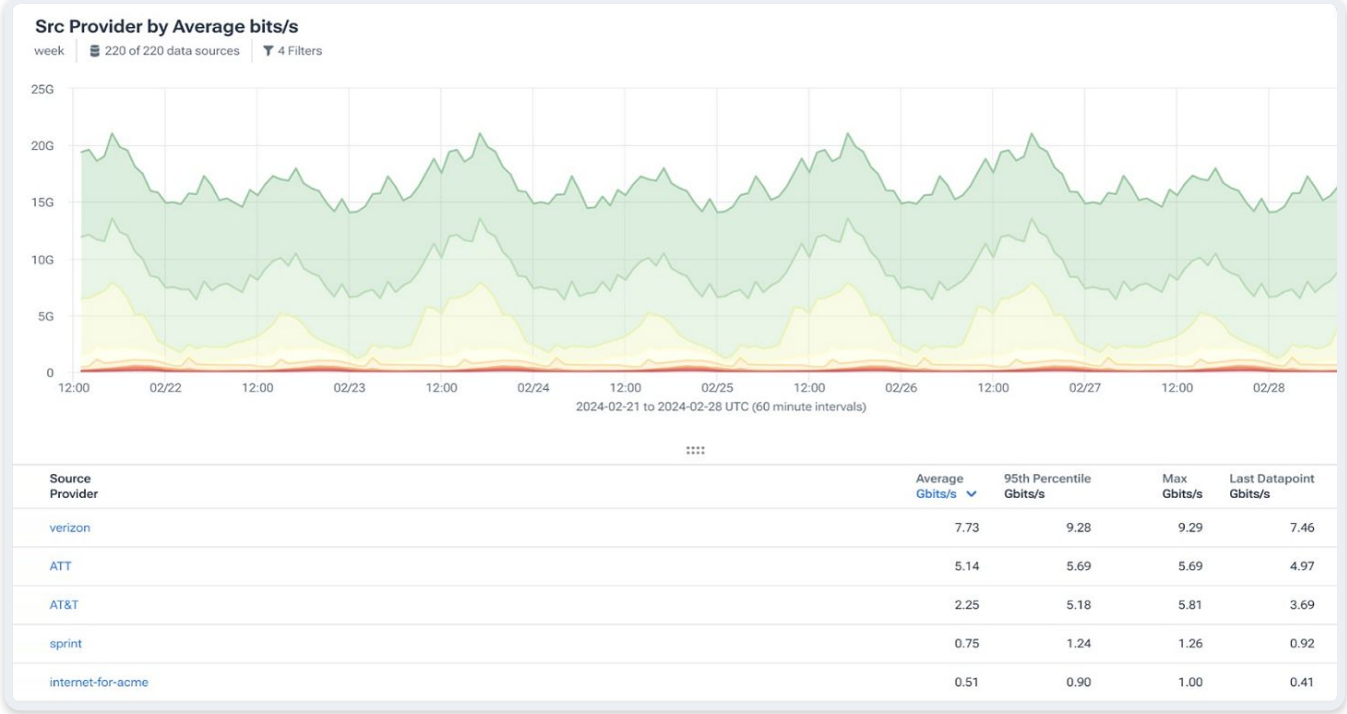
How much traffic on transit to AMS-IX members?



Do we use our IX port well?

Which transit providers?

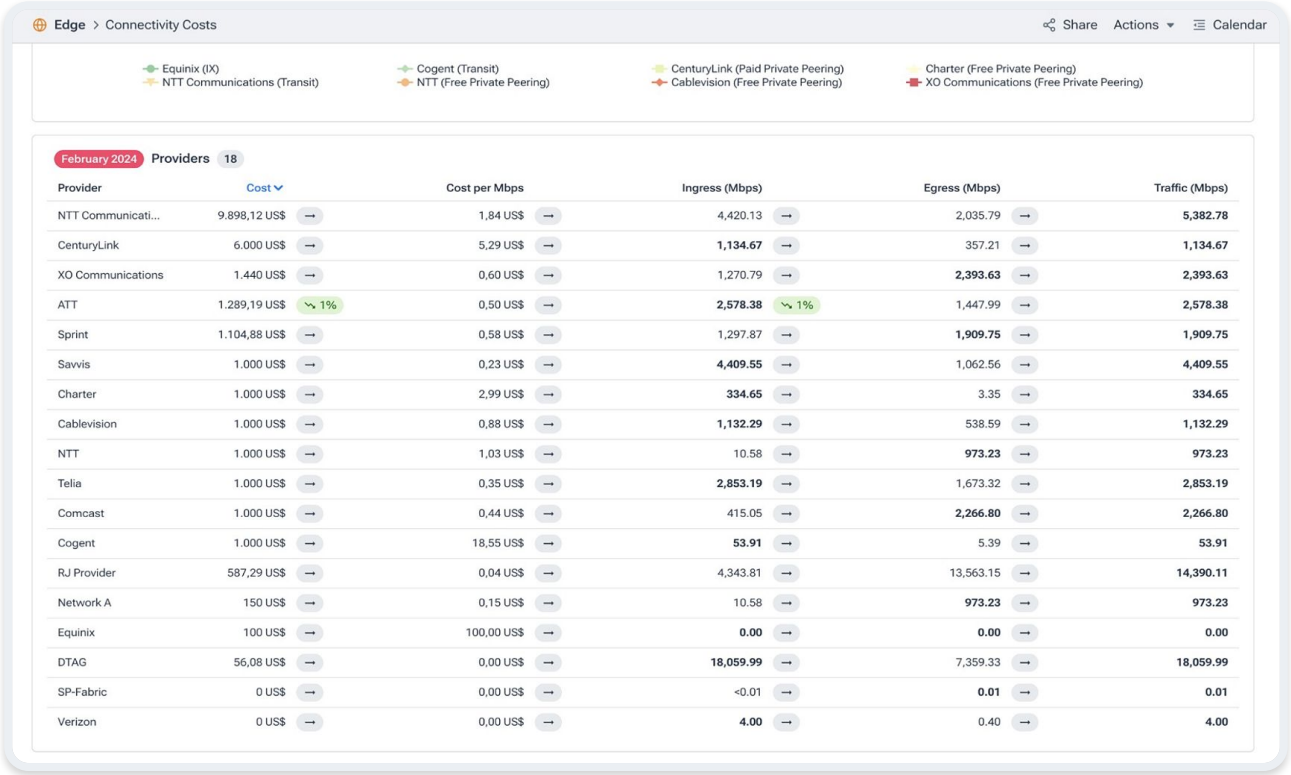




Source Provider	Average Gbits/s	95th Percentile Gbits/s	Max Gbits/s	Last Datapoint Gbits/s
verizon	7.73	9.28	9.29	7.46
ATT	5.14	5.69	5.69	4.97
AT&T	2.25	5.18	5.81	3.69
sprint	0.75	1.24	1.26	0.92
internet-for-acme	0.51	0.90	1.00	0.41

Do we use our IX port well?

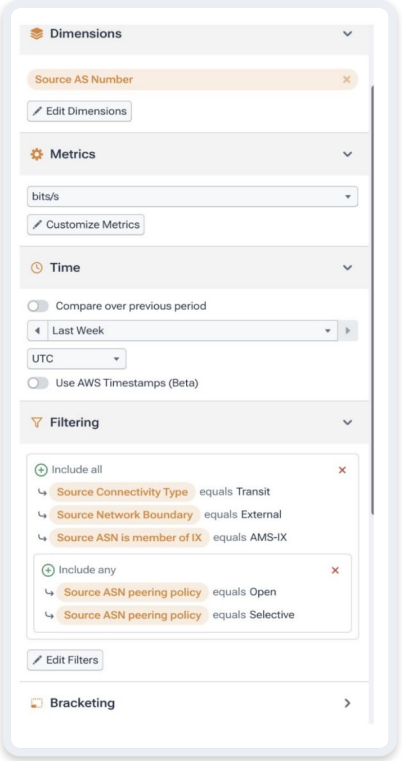
Transit cost

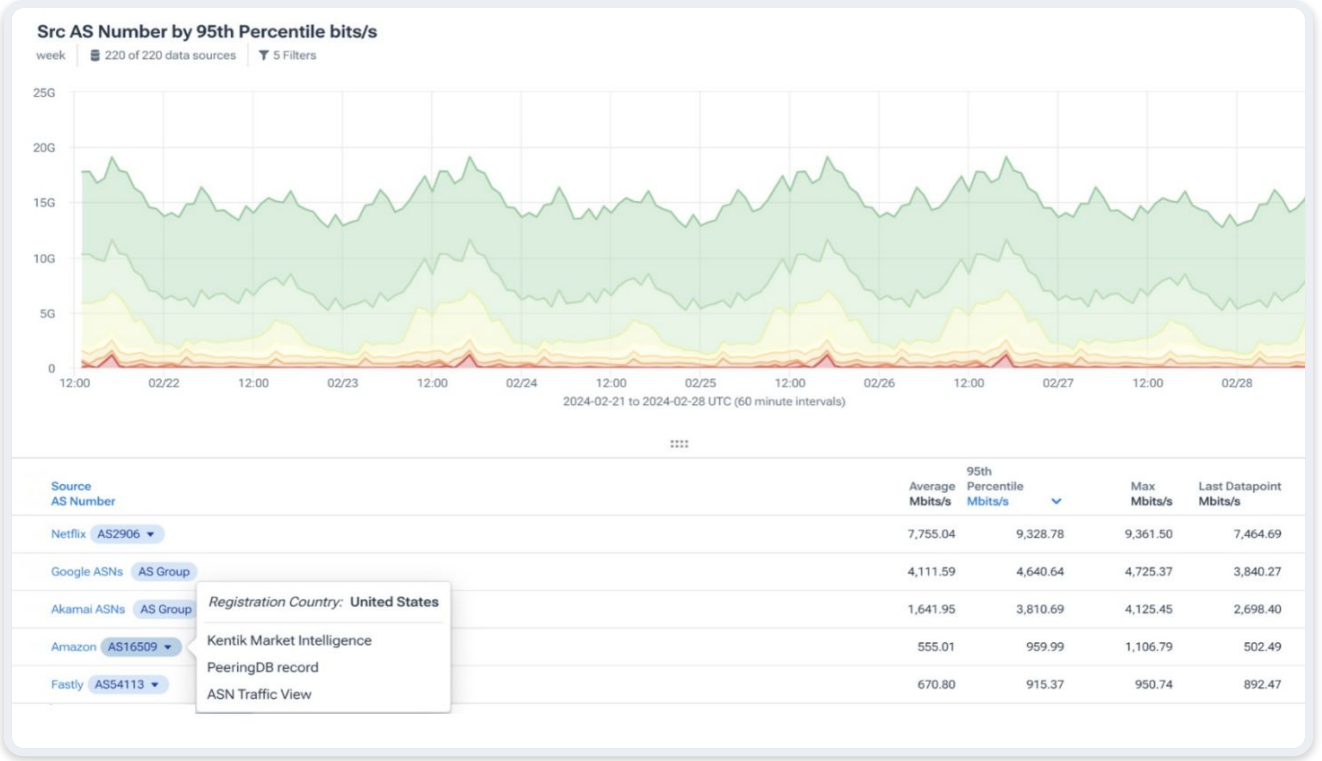


Provider	Cost	Cost per Mbps	Ingress (Mbps)	Egress (Mbps)	Traffic (Mbps)
NTT Communicati...	9.898,12 US$	1,84 US$	4,420.13	2,035.79	**5,382.78**
CenturyLink	6.000 US$	5,29 US$	**1,134.67**	357.21	**1,134.67**
XO Communications	1.440 US$	0,60 US$	1,270.79	**2,393.63**	**2,393.63**
ATT	1.289,19 US$ ↘ 1%	0,50 US$	**2,578.38** ↘ 1%	1,447.99	**2,578.38**
Sprint	1.104,88 US$	0,58 US$	1,297.87	**1,909.75**	**1,909.75**
Savvis	1.000 US$	0,23 US$	**4,409.55**	1,062.56	**4,409.55**
Charter	1.000 US$	2,99 US$	**334.65**	3.35	**334.65**
Cablevision	1.000 US$	0,88 US$	**1,132.29**	538.59	**1,132.29**
NTT	1.000 US$	1,03 US$	10.58	**973.23**	**973.23**
Telia	1.000 US$	0,35 US$	**2,853.19**	1,673.32	**2,853.19**
Comcast	1.000 US$	0,44 US$	415.05	**2,266.80**	**2,266.80**
Cogent	1.000 US$	18,55 US$	**53.91**	5.39	**53.91**
RJ Provider	587,29 US$	0,04 US$	4,343.81	13,563.15	**14,390.11**
Network A	150 US$	0,15 US$	10.58	**973.23**	**973.23**
Equinix	100 US$	100,00 US$	**0.00**	**0.00**	**0.00**
DTAG	56,08 US$	0,00 US$	**18,059.99**	7,359.33	**18,059.99**
SP-Fabric	0 US$	0,00 US$	<0.01	**0.01**	**0.01**
Verizon	0 US$	0,00 US$	**4.00**	0.40	**4.00**

Do we use our IX port well?

Which new peers?





If we build in Ashburn, which IX would we join?

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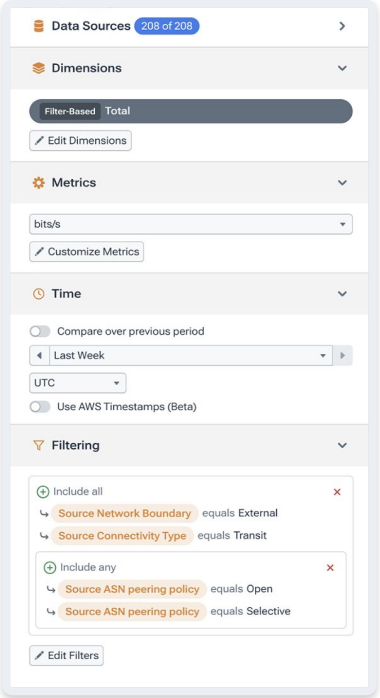
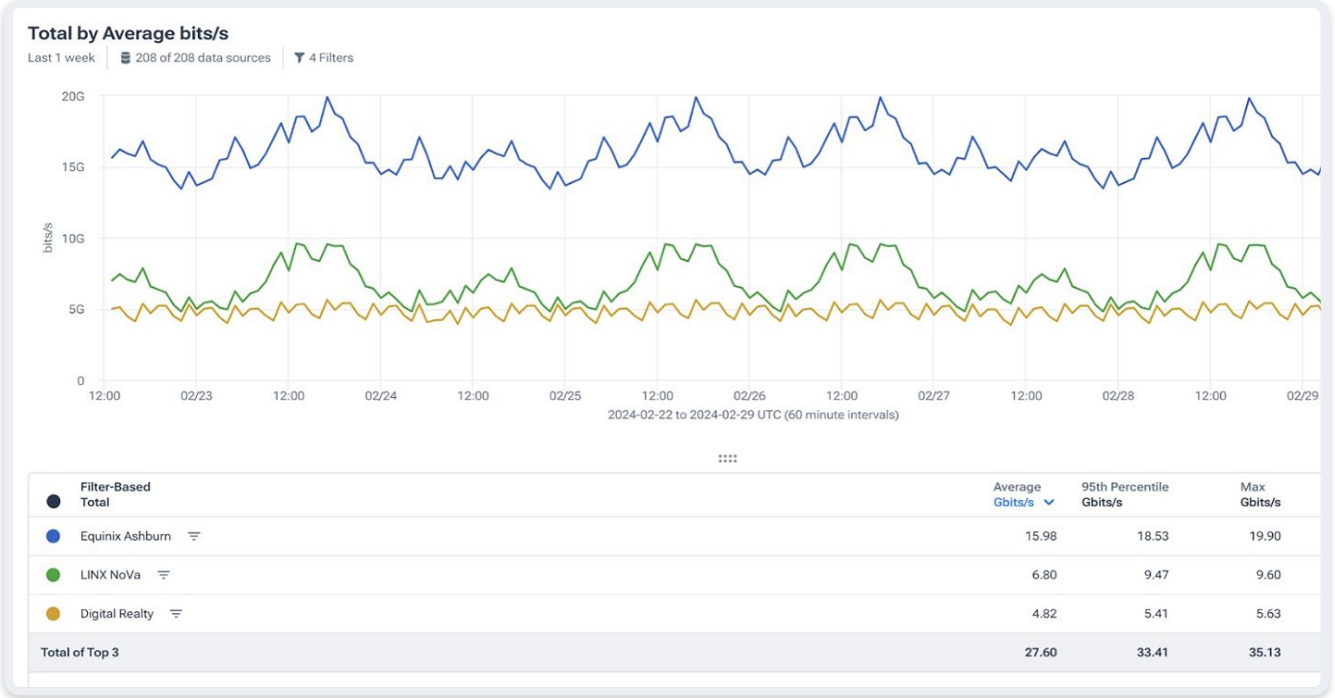
How much traffic do we send to members of each?

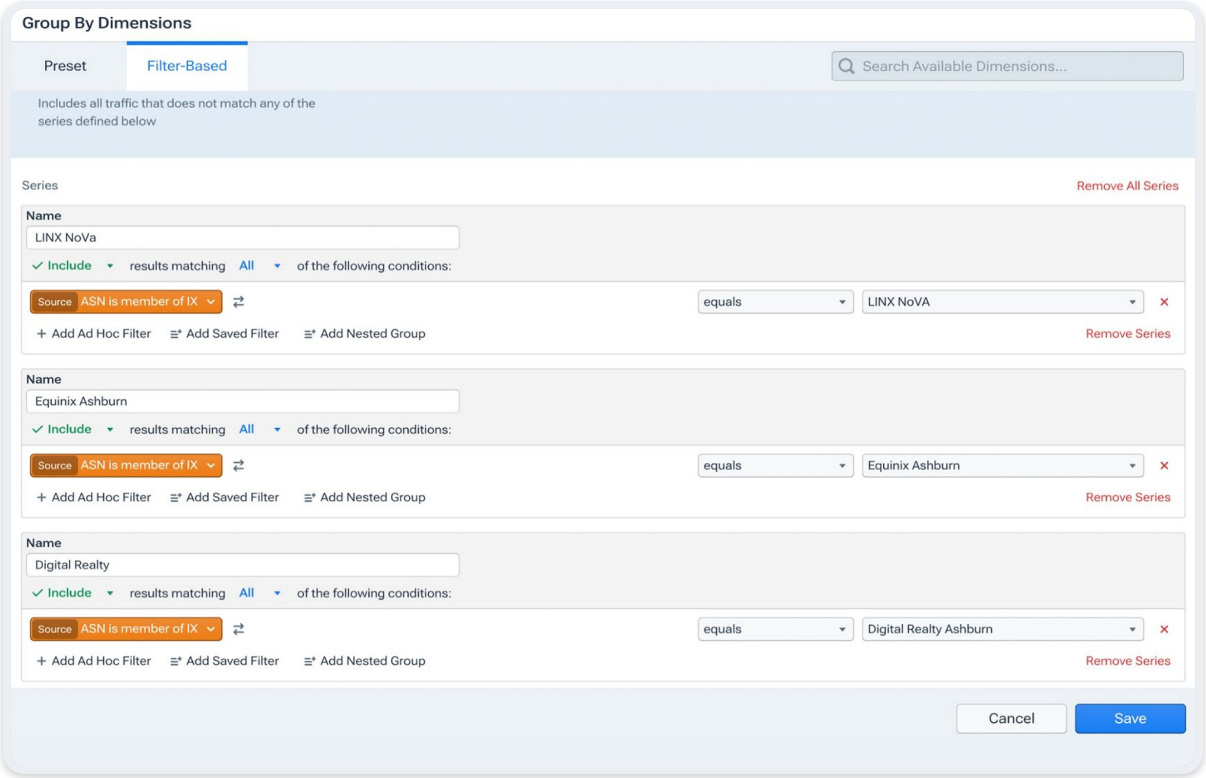




Filter-Based Total	Average Gbits/s	95th Percentile Gbits/s	Max Gbits/s
Equinix Ashburn	15.98	18.53	19.90
LINX NoVa	6.80	9.47	9.60
Digital Realty	4.82	5.41	5.63
Total of Top 3	**27.60**	**33.41**	**35.13**

If we build in Ashburn, which IX would we join?

Filters to dimensions



Where should we build next?

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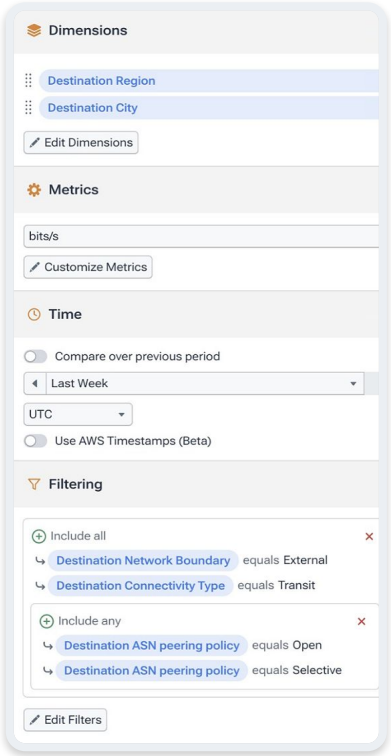
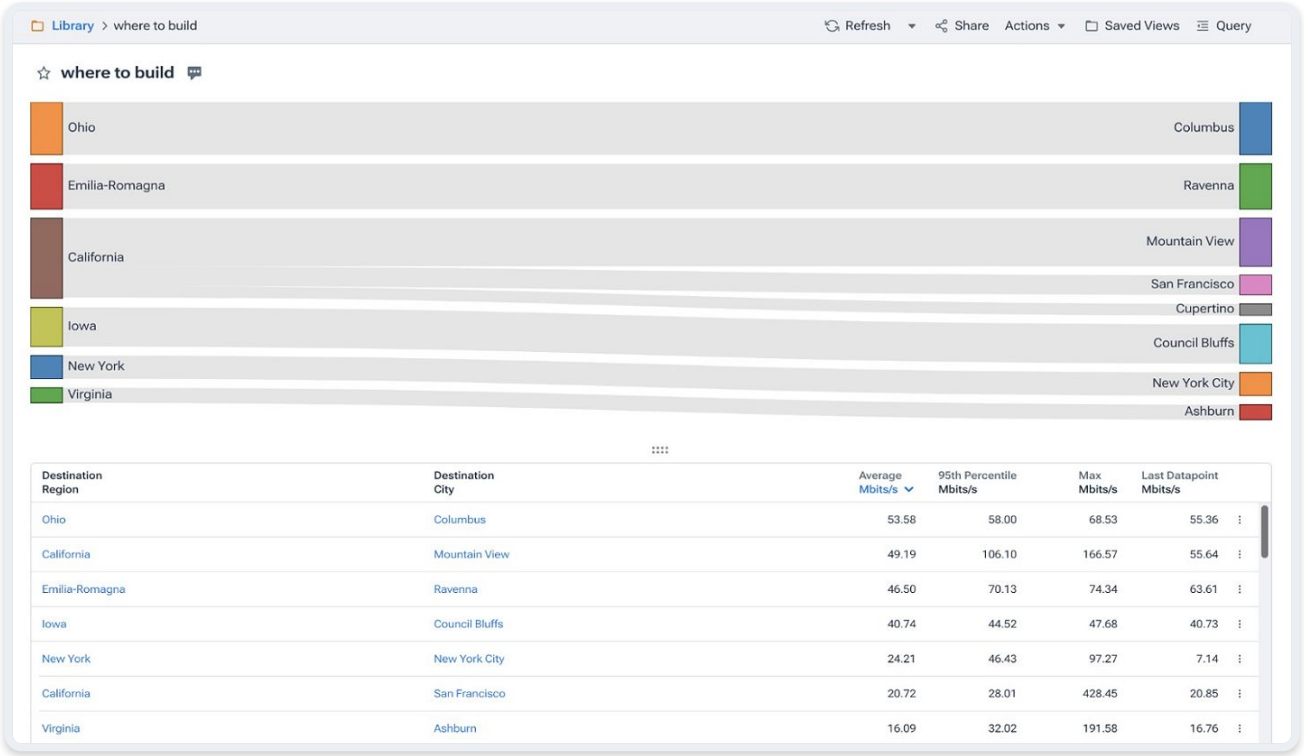
Where does the transit traffic go?

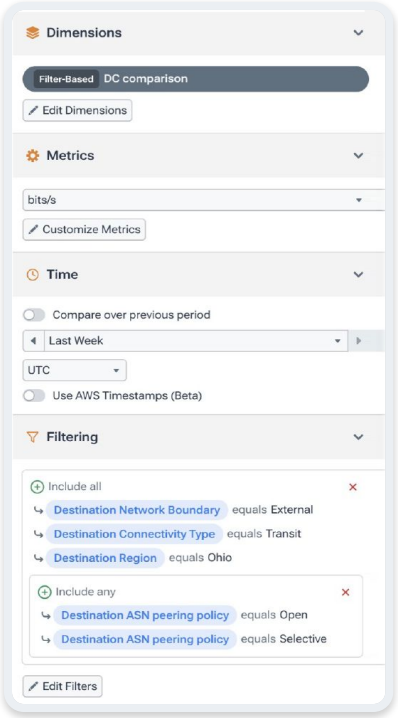




Destination Region	Destination City	Average Mbits/s	95th Percentile Mbits/s	Max Mbits/s	Last Datapoint Mbits/s
Ohio	Columbus	53.58	58.00	68.53	55.36
California	Mountain View	49.19	106.10	166.57	55.64
Emilia-Romagna	Ravenna	46.50	70.13	74.34	63.61
Iowa	Council Bluffs	40.74	44.52	47.68	40.73
New York	New York City	24.21	46.43	97.27	7.14
California	San Francisco	20.72	28.01	428.45	20.85
Virginia	Ashburn	16.09	32.02	191.58	16.76

Where should we build next?

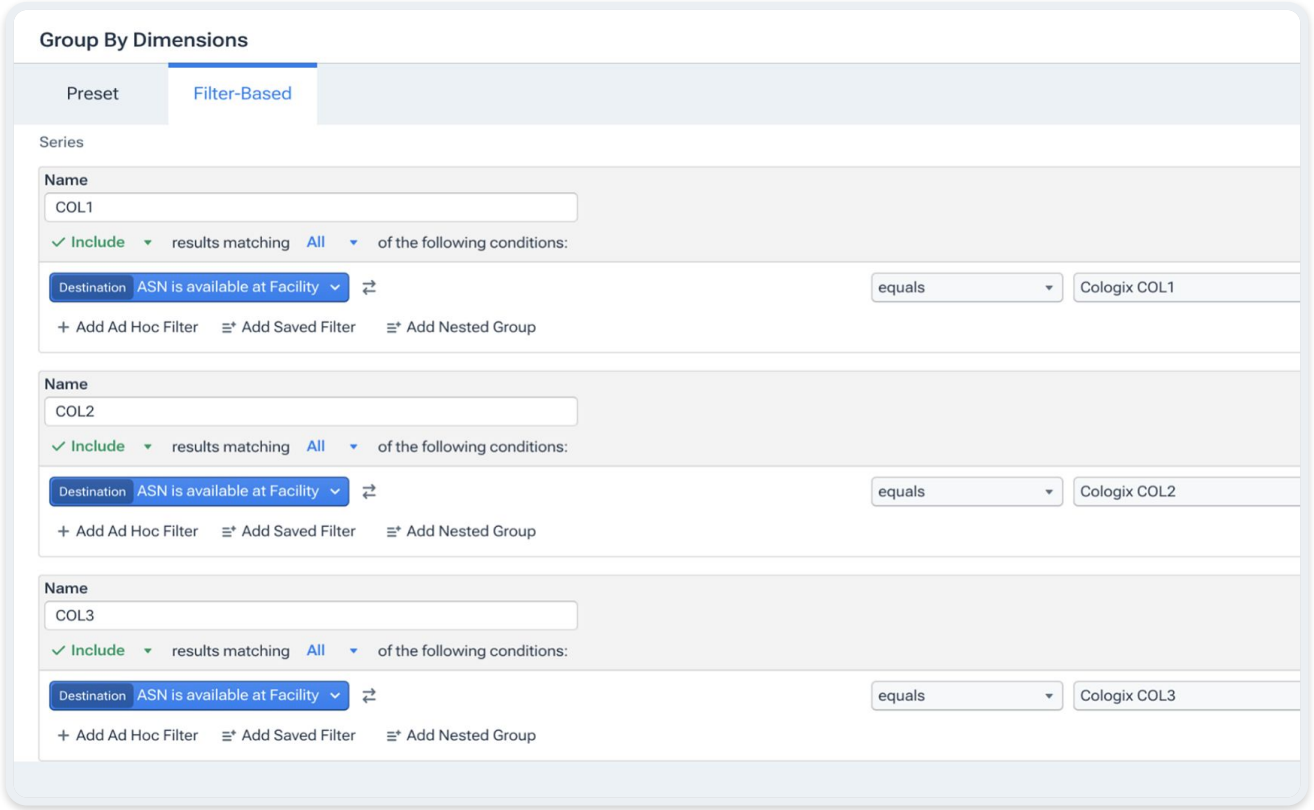
Which data center to build in?



Filter-Based DC comparioson	Average Mbits/s	95th Percentile Mbits/s	Max Mbits/s
COL1	53.82	58.89	70.40
COL3	0.81	4.59	39.37
COL2	0.32	1.68	15.16
Total of Top 3	54.94	65.15	124.93

Where should we build next?

Filters to dimensions



SHOUT OUT

Big shout out to the team and the community for creating and maintaining PeeringDB

There is a talk from PeeringDB already, but let us call out:

- ✓ Support the team
- ✓ Keep your records updated
- ✓ Bring in your ideas for improvements to the team

Enriched data is a way to create efficient workflows

The data shared from the community is valuable.
Imagine what else we could share and use?

Thank you!

Jac Kloots
jac@kentik.com

in/jkloots

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