

Issues and Impacts in BGP Peering Configurations

nog.fi - 2023.11 - Bernd Spiess

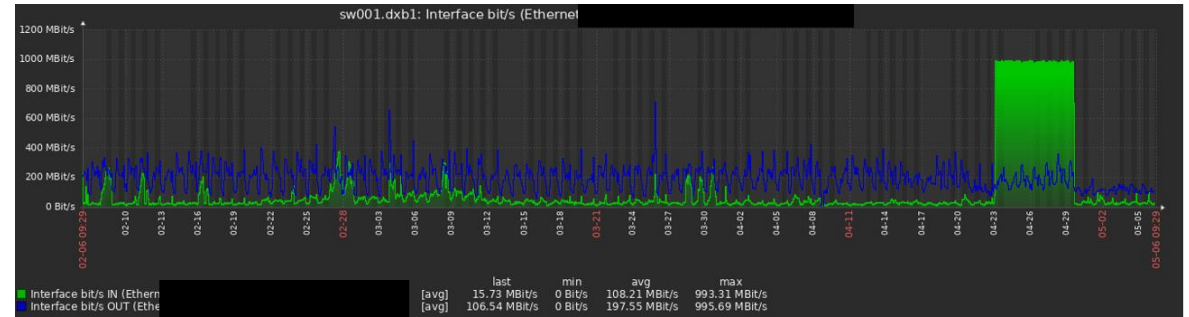
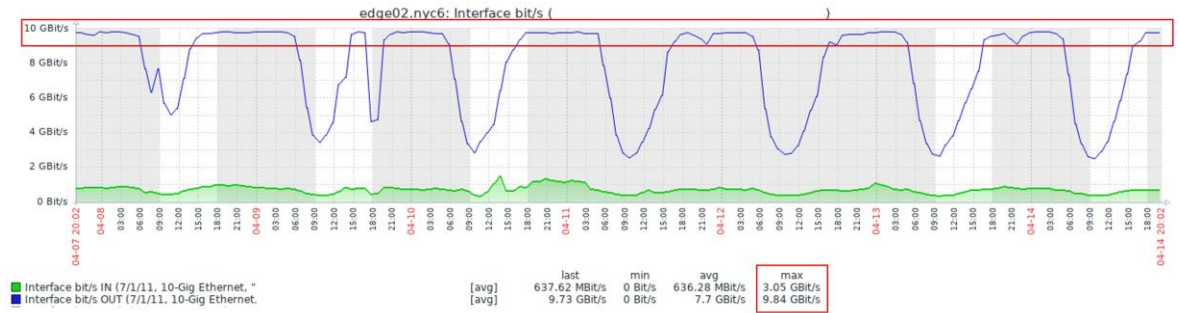
1. Full Ports

Cases:

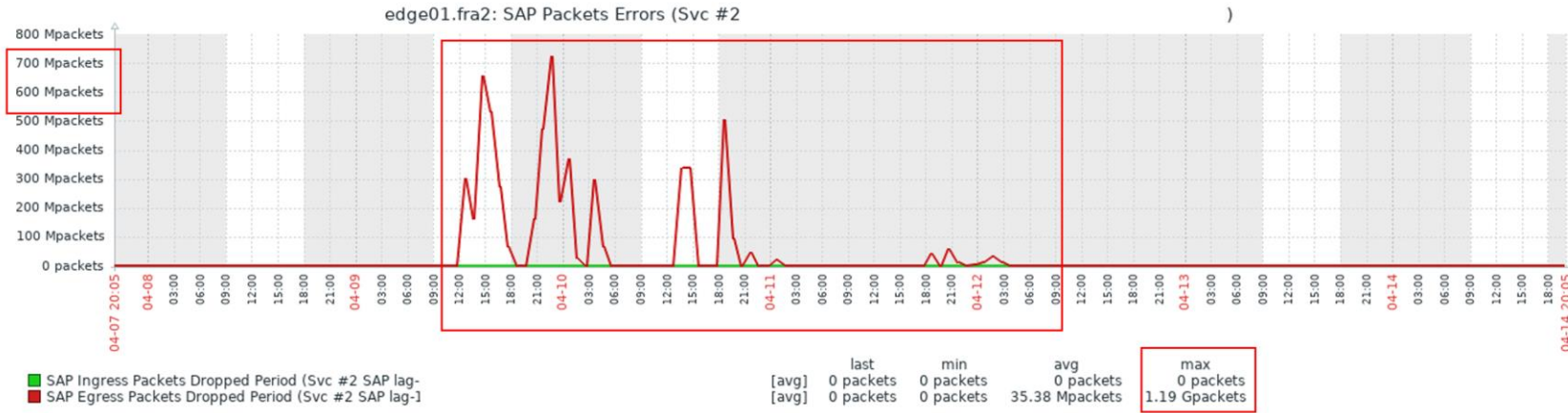
- a) Repeated – easy to see
- b) Single happening – challenging (?)
- c) Ultra short peaks (not shown) – nasty ...

Problems:

- End-Customers annoyed – mistrust – service ceases
- Throughput problems – depeering – loss of revenue with End-Customers



2. Packet Drops



- How to detect these at your side?
- How to detect these at the other interface side?
- How to alert these?

Problems:

- End-Customers annoyed – mistrust – service ceases
- Throughput problems – depeering – loss of revenue with End-Customers

3. Prefix Amount Unbalanced by Design or Mistake?

→ Example:

Prefixes Announced (v4): 24,477
Prefixes Announced (v6): 6,900

Ok in Frankfurt:

25179	23996	1183	251804
23310	21746	1564	251804

But ca. 70% of these are missing in NYC!

7080	6574	506	163607
------	------	-----	--------

Problems:

→ Loss of Revenue with End-Customers

→ missed opportunities for better End-Customer satisfaction etc...

4. Partial or Reduced Advertisements

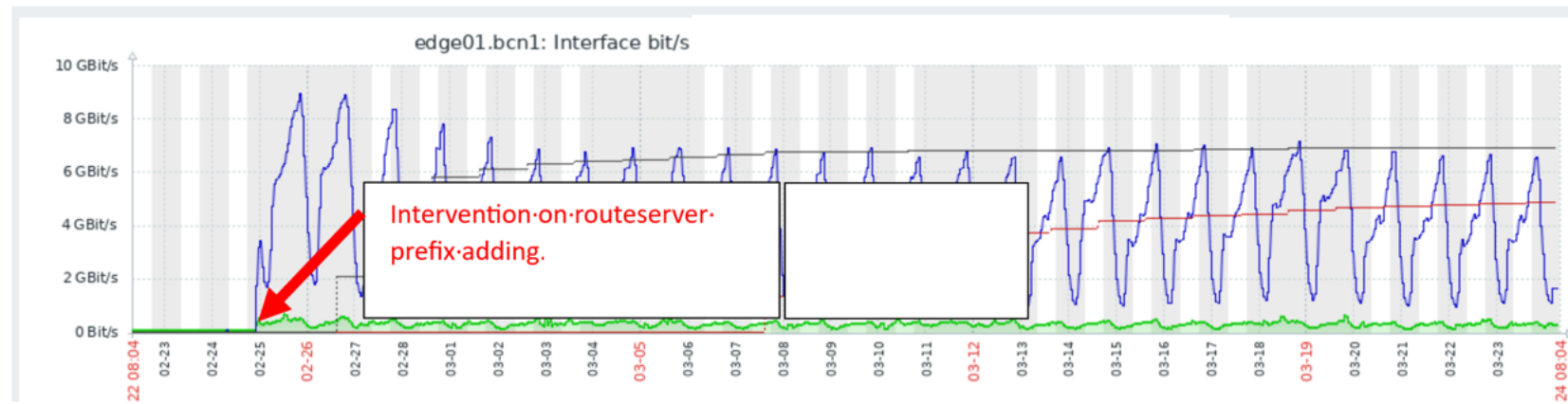
→ Example: Customer in Frankfurt:



→ Loss of Revenue with End-Customers

→ missed opportunities for better End-Customer satisfaction etc...

5. Forgetting Prefixes Add and Import at Routeserver



- Loss of Revenue with End-Customers
- missed opportunities for better End-Customer satisfaction etc...

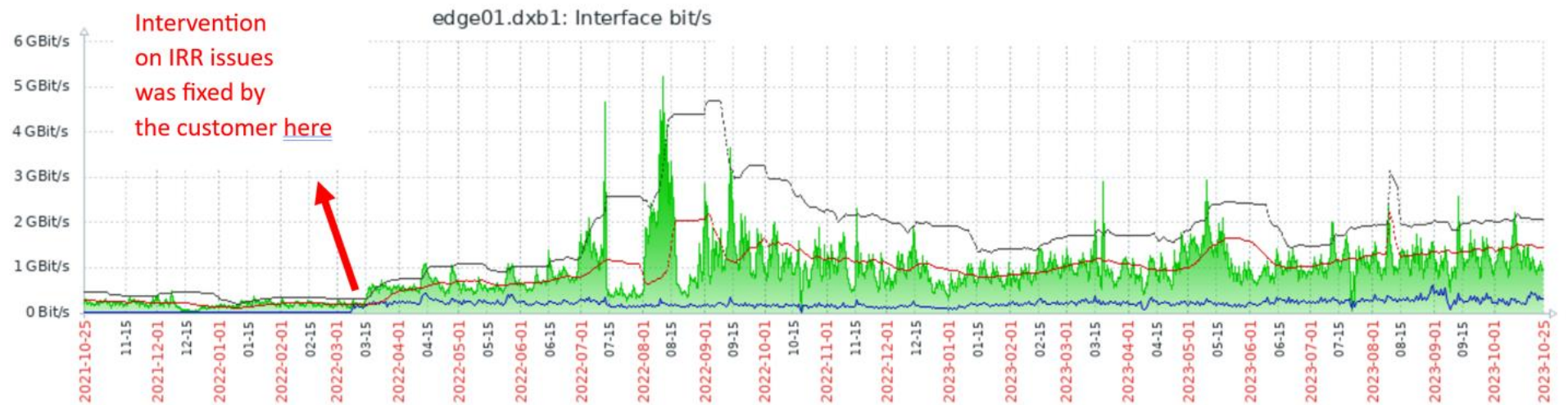
6. IRR/RPKI Blockings

Problems:

- Loss of Revenue with End-Customers
- missed opportunities for better End-Customer satisfaction etc...

ROUTES FILTERED

Network	Next-Hop	AS Path
103.110.161.0/24 <small>IRRDB lookup: Unable to resolve prefix for origin AS</small>	206.82.	717 58717 58717 58717 137496 137496 137496
103.110.162.0/24 <small>IRRDB lookup: Unable to resolve prefix for origin AS</small>	206.82.	717 58717 58717 58717 137496 137496 137496
103.110.215.0/24 <small>RPKI Invalid</small>	206.82.	7494
103.111.13.0/24 <small>RPKI Invalid</small>	206.82.	717 58717 58717 58717
103.119.238.0/24 <small>IRRDB lookup: Unable to resolve prefix for origin AS</small>	206.82.	13296 137647
103.12.116.0/24 <small>IRRDB lookup: Unable to resolve prefix for origin AS</small>	206.82.	3229
103.120.48.0/24 <small>"Never via route servers"</small>	206.82.	717 58717 58717 58717 137449 137449 137449 138023
103.122.53.0/24 <small>IRRDB lookup: Unable to resolve prefix for origin AS</small>	206.82.	17670



7. No Routeserver Session

Ok:

→ No routeserver by design

Problems:

→ No routeserver by forgotten

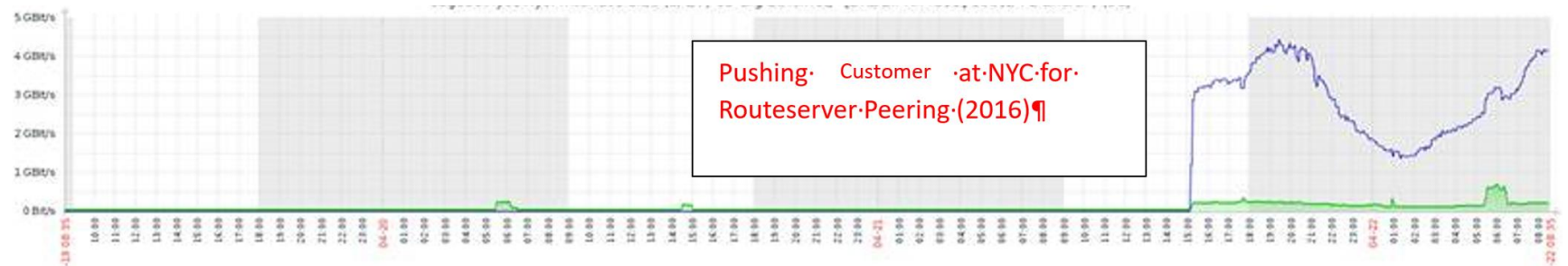
→ No routeserver by not having time

→ No routeserver by not having known

→ No routeserver by not knowing how

→ ...

Neighbor	ASN	State	Last State Change	Description
206.82.104.24	714	down	a year	Apple
206.82.104.65	714	down	a year	Apple
206.82.104.97	3630	down	a year	NYSERNet
206.82.104.219	4230	down	a year	Claro Brasil
206.82.104.179	4556	down	a year	PacketFabric
206.82.104.244	4637	down	a year	Telstra Limited
206.82.105.35	5769	down	a year	Videotron US Inc.
206.82.104.5	6233	down	a year	xTom
206.82.104.214	6327	down	a year	Shaw Communications Inc.
206.82.105.7	6447	down	a year	RouteViews
206.82.104.109	6677	down	10 months	Mila efh <small>Received: Administrative shutdown</small>
206.82.104.13	6908	down	6 months	Datahop Limited / Six Degrees Group
206.82.104.85	7029	down	a year	Windstream
206.82.105.19	7155	down	3 months	Viasat, Inc <small>Received: Peer de-configured</small>
206.82.104.48	7843	down	8 months	Charter Communications LLC
206.82.104.51	7843	down	8 months	Charter Communications LLC
206.82.104.215	8075	down	a year	Microsoft Corporation
206.82.104.133	8075	down	a year	Microsoft Corporation
206.82.104.152	9009	down	a year	M247 Europe SRL

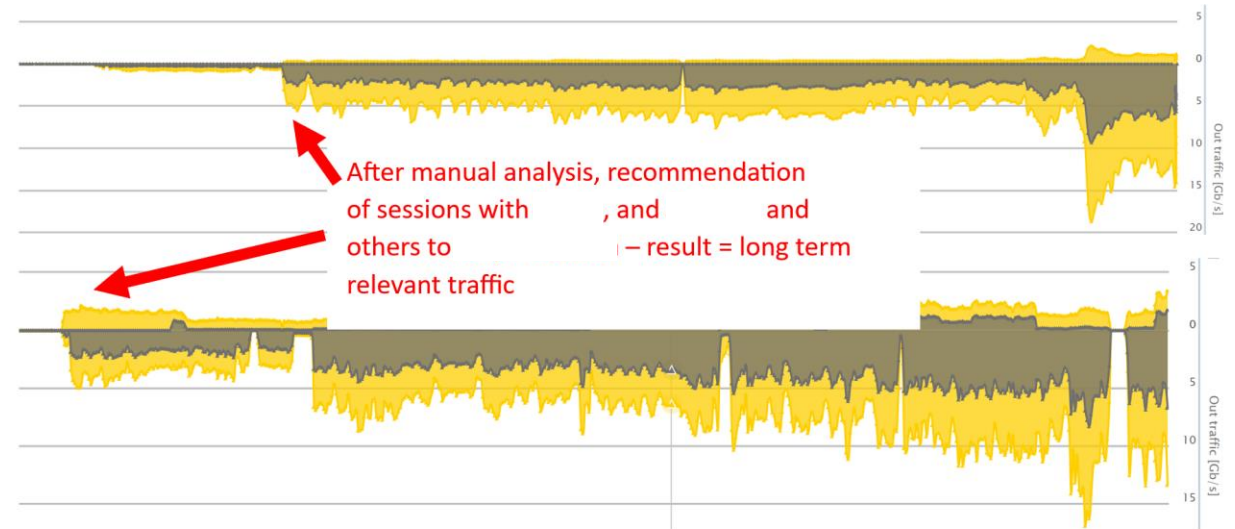


8. Not configured major sessions.

ASNs not using the routeserver

= ASK FOR SESSION NEEDED

No session = No nice/better peering traffic

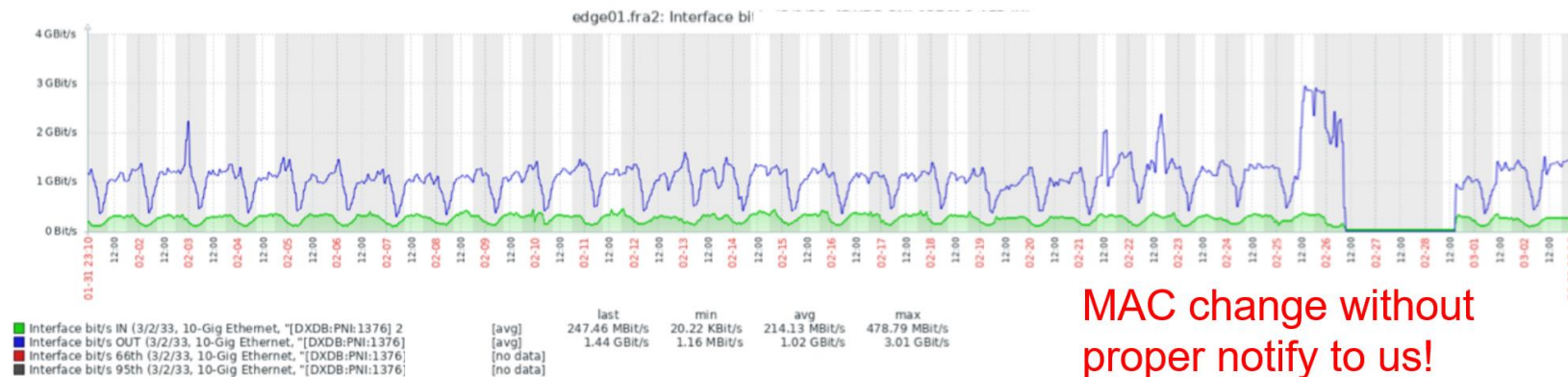


Problems:

- Loss of Revenue with End-Customers
- missed opportunities for better End-Customer satisfaction etc...

9. Peering downturns

→ Interventions/Changes with forgotten checks/follow-ups



Problems:

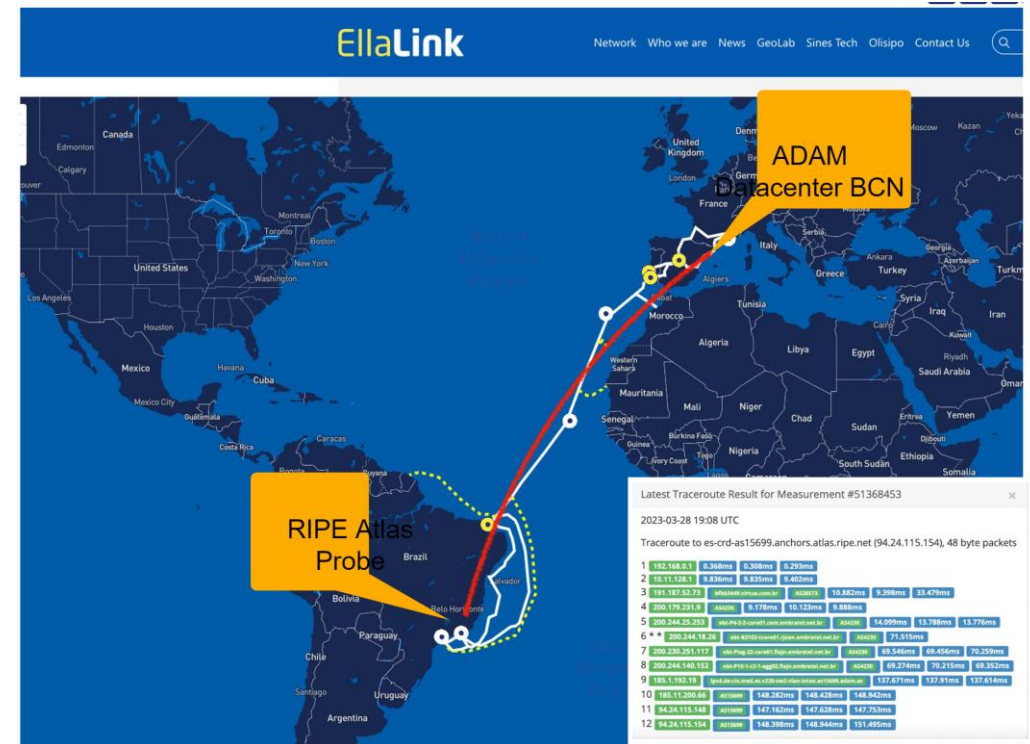
→ Loss of Revenue with End-Customers

→ missed opportunities for better End-Customer satisfaction etc...



10. Opportunity: Measure Results

- Have RTT/... measures in place
- Measure improvements on peering/transit before and after
- Support Measurement Platforms like e.g.: RIPE Atlas by running probes in your networks!



11. Prepends/Med/BGP-Community

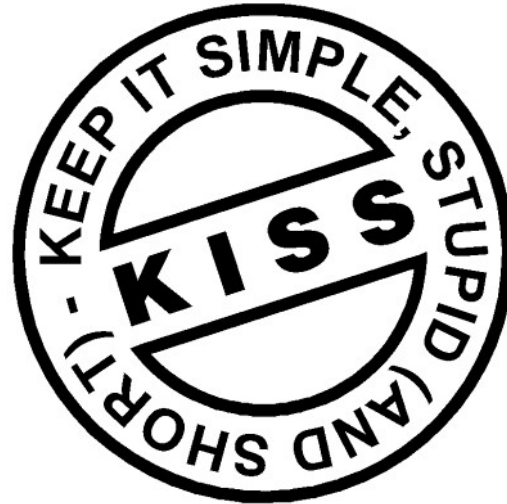
- Have an eye on the looking glasses:
- Do you really want to send prepends?
- Do you really want to send med > 0?
- Do you really want to send hindering BGP communities? (0:6695 ?)

Problems:

- Loss of Revenue with End-Customers
- missed opportunities for better End-Customer satisfaction etc...

ROUTES ACCEPTED			MED
Network	Next-Hop	AS Path	
102.165.183.0/24	206.82.104.78	10310 10310 10310 10310	0
152.199.145.0/24	206.82.104.78	10310 10310 10310 10310 26085 14210	50
183.177.70.0/24	206.82.104.78	10310 10310 10310 10310 7280 7280 7280 7280 7280 7280	0
183.177.71.0/24	206.82.104.78	10310 10310 10310 10310 7280 7280 7280 7280 7280 7280	0
184.165.0.0/20	206.82.104.78	10310 10310 10310 10310	0
184.165.10.0/24	206.82.104.78	10310 10310 10310 10310 14778	0
184.165.16.0/20	206.82.104.78	10310 10310 10310 10310	0
188.125.64.0/21	206.82.104.78	10310 10310 10310 10310 34010	0
188.125.66.0/23	206.82.104.78	10310 10310 10310 10310 34010	0
188.125.68.0/23	206.82.104.78	10310 10310 10310 10310 34010	200
			200
			200
			200
			200

12. Wild Mix of Supernets, Multi-More-Specifics



Problems:

Credit: Jegi at flickr: <https://www.flickr.com/photos/92501682@N00/5067471752>

- Does anyone know what you want with sending /22 + same /23 + /24 partially different everywhere?
- Expect others to give up and do some random decisions

Thanks for having me

Questions: bernd.spieß@de-cix.net

