

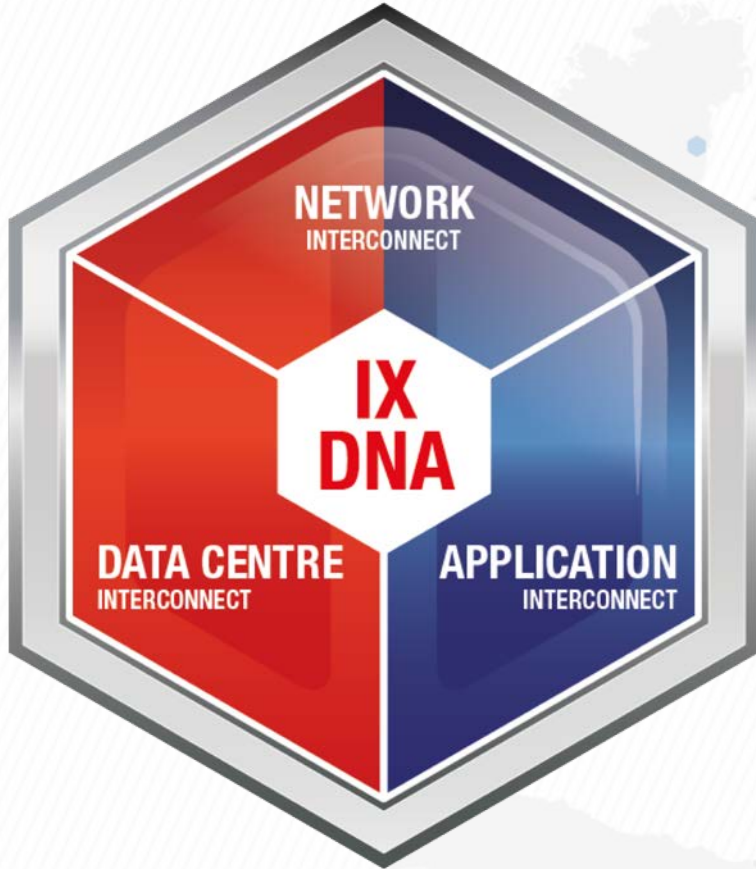
Managing customer insights on a Distributed Exchange

Ripe76

Marseille, May 16, 2018

Jerry Grondel

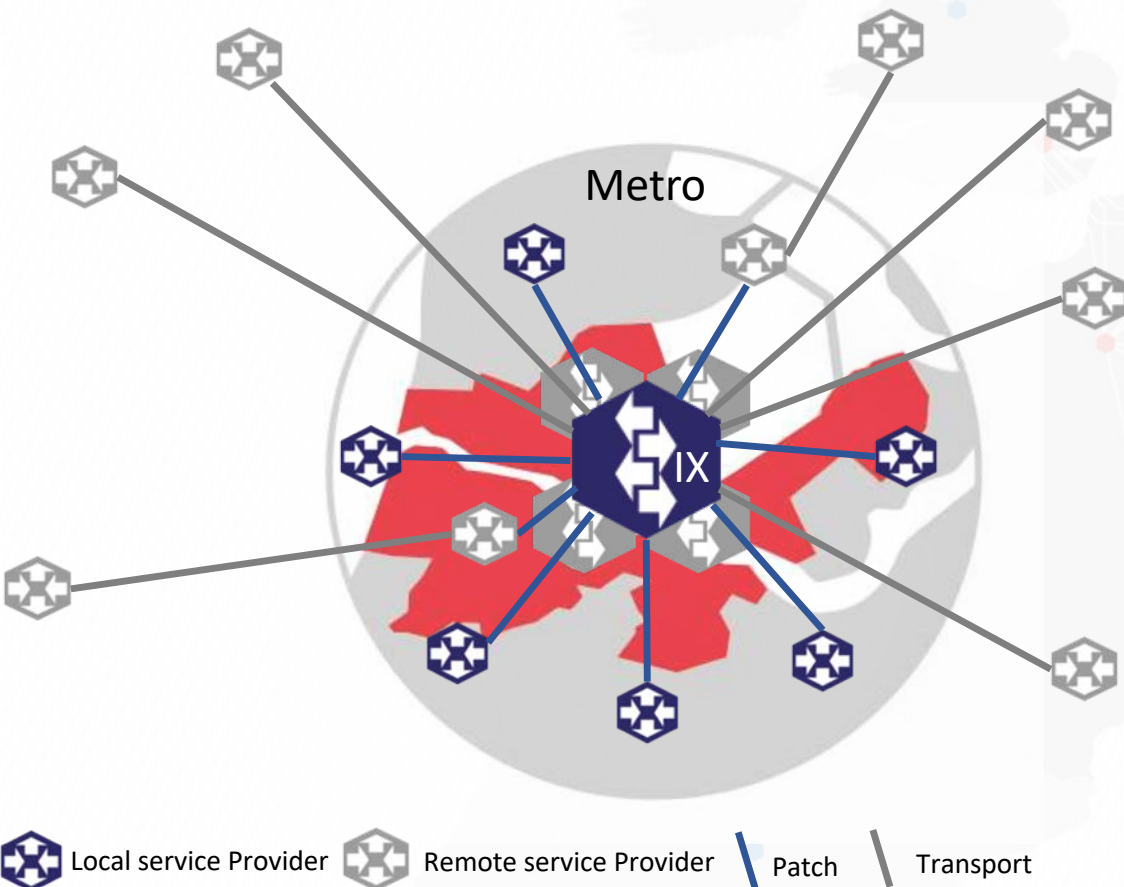
About NL-ix



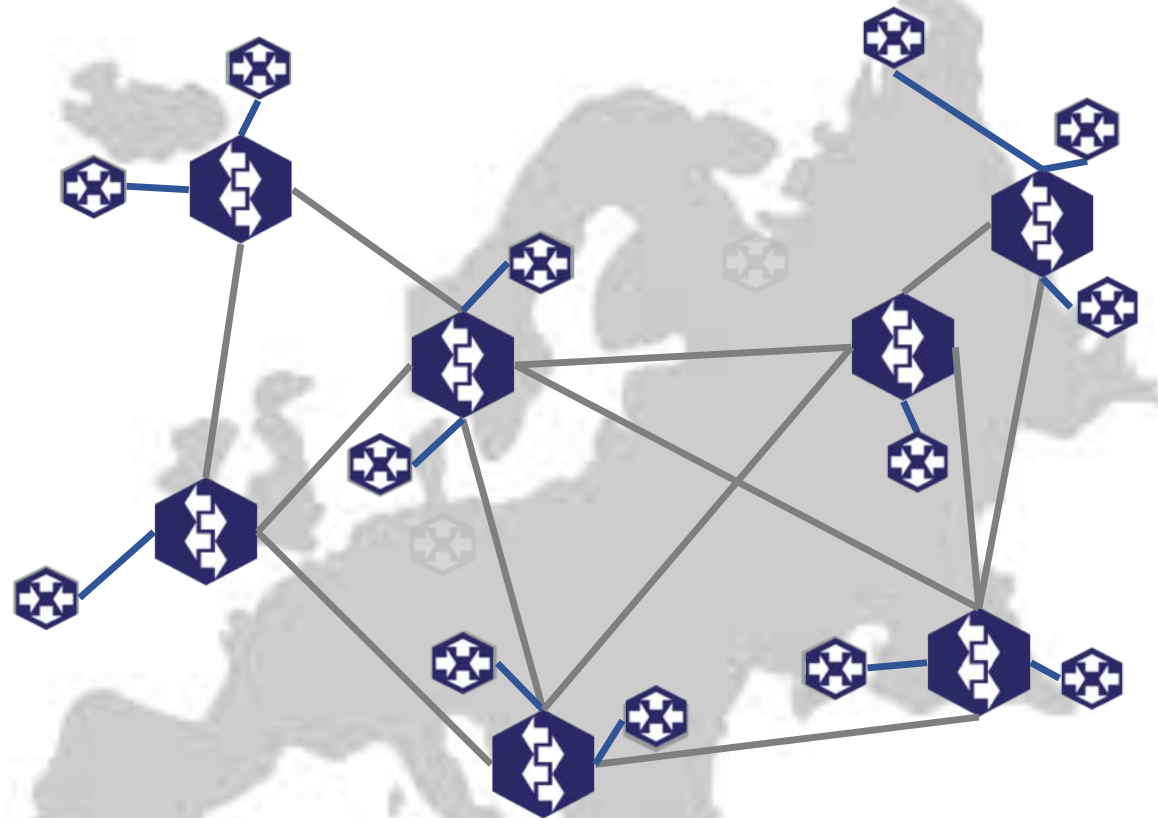
- Established in 2001
- Pan-European MPLS Backbone
 - 24 Metro's
 - 115 DC's
 - 14 countries
- 2.3 Tbps (peak), 1.9 Tbps (95%)
- 674 Connected networks

Different IX Models

Traditional IX model



Distributed Exchange (1 VLAN)



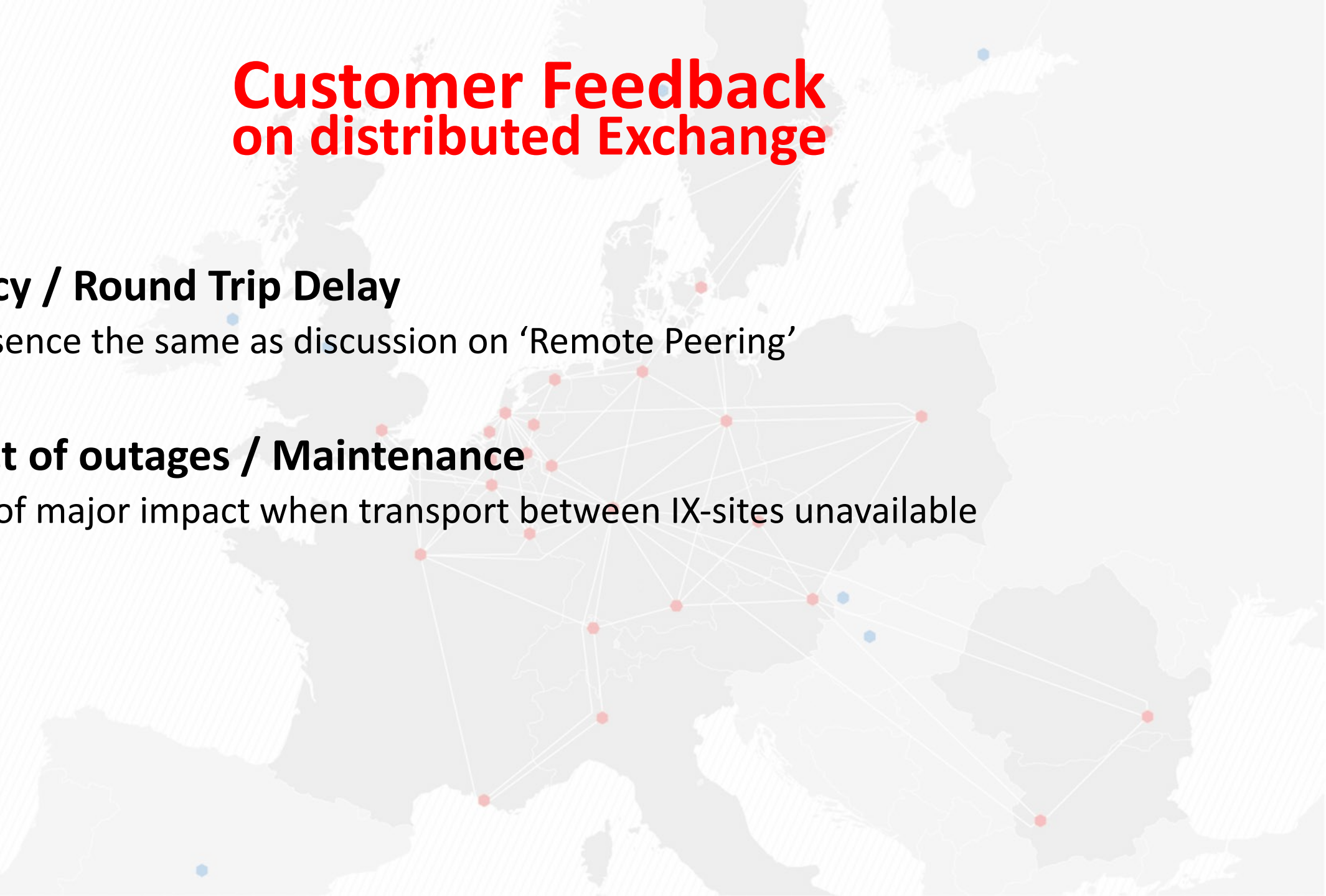
Customer Feedback on distributed Exchange

- **Latency / Round Trip Delay**

In essence the same as discussion on 'Remote Peering'

- **Impact of outages / Maintenance**

Fear of major impact when transport between IX-sites unavailable



The facts

- **Measure Network performance**

- Accedian Performance Elements in 24 Metro's

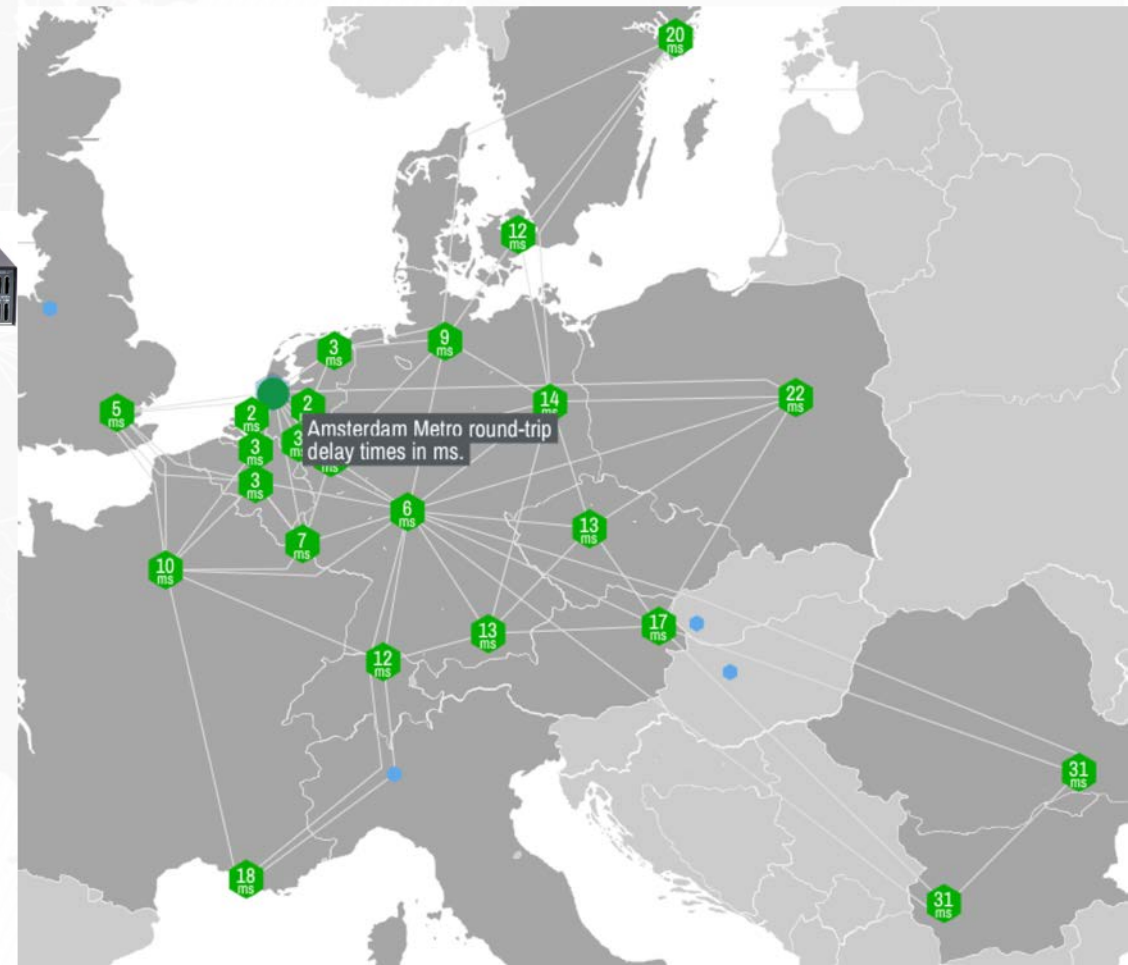
- 22x GT
- 2x LT



- RTD every 5 mins
 - Also: Packet loss, Jitter

- **Visualise results on Website**

- Fully transparent



Facilitate selection of peers

Route Server Dashboard with filter options based on static input

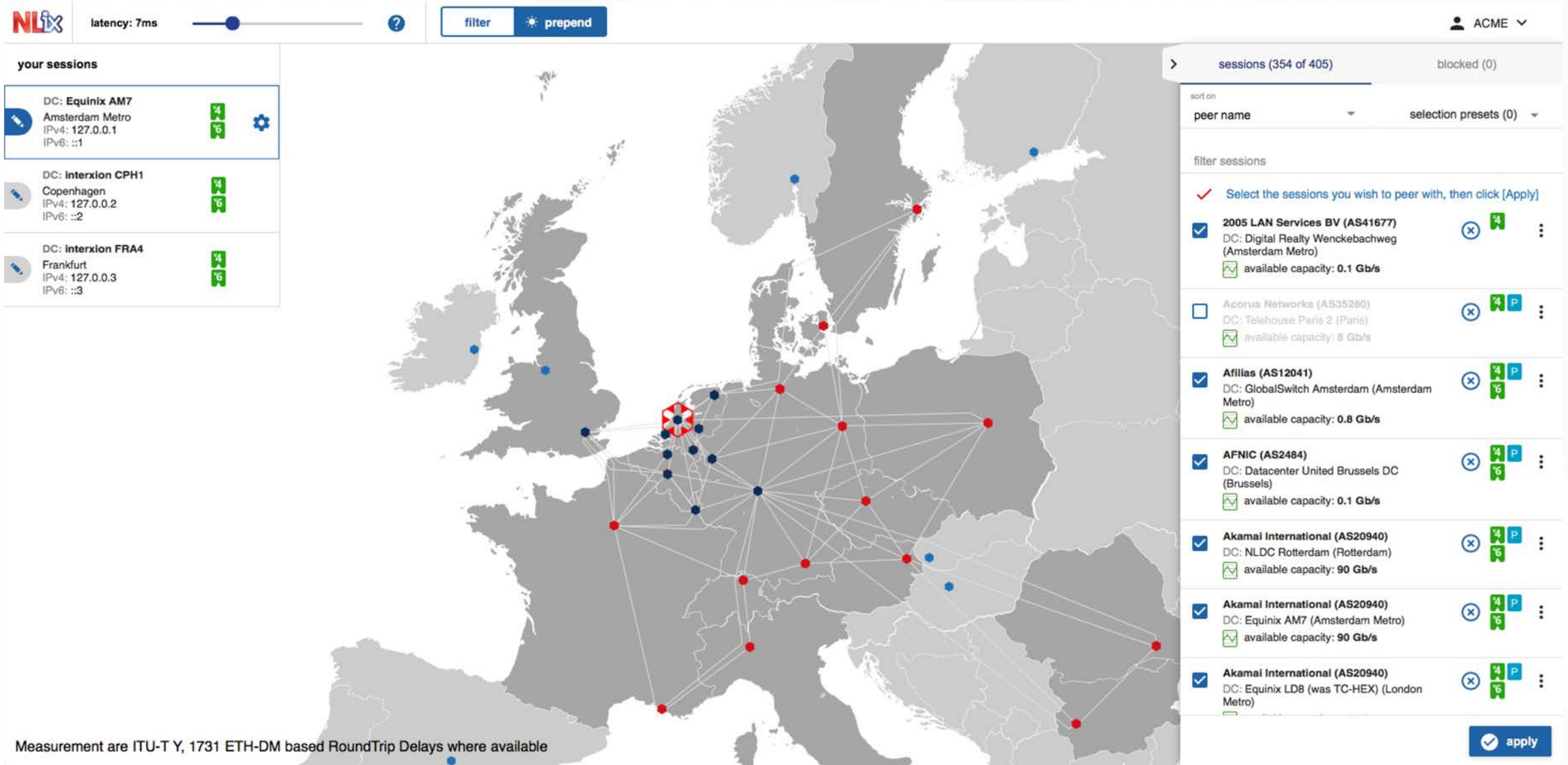


Member list for bilateral sessions

ASN	Organisation	Country	Metro	City	Route server
		BE			All
12392	VOO/BRUTELE	BE	Brussels	Zaventem	✓
199670	DNS Belgium	BE	Antwerp	Antwerpen	✓
199670	DNS Belgium	BE	Antwerp	Antwerpen	✓
2484	AFNIC	BE	Brussels	Zaventem	✓
30961	Openminds	BE	Brussels	Diegem	
3856	PCH	BE	Brussels	Zaventem	
39923	Unix-Solutions	BE	Brussels	Zaventem	✓
48635	Astralis RV	RF	Antwerp	Antwerpen	

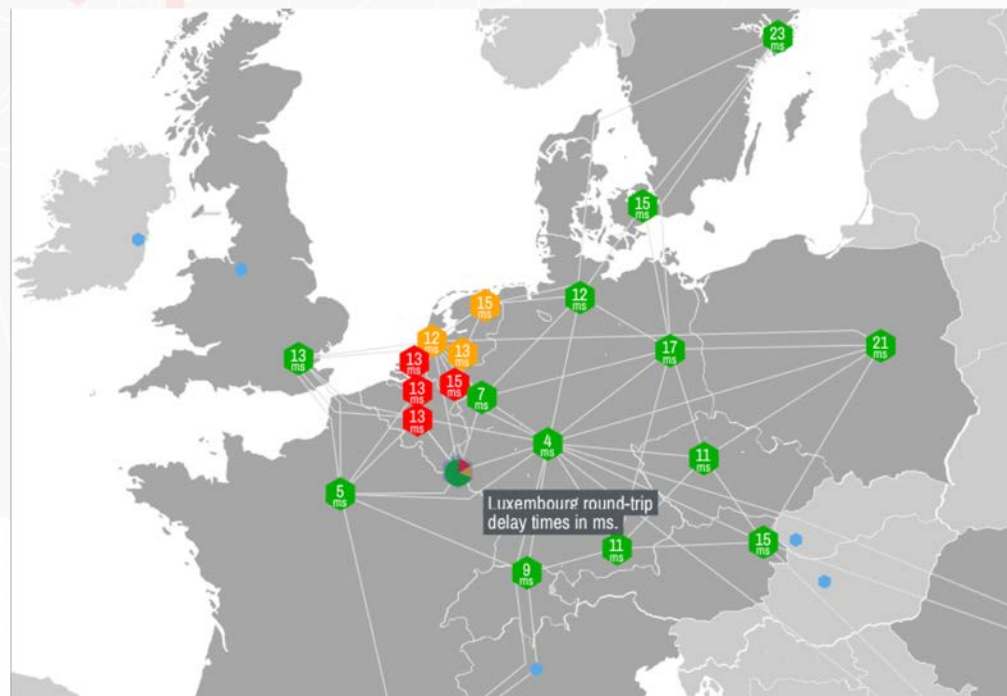
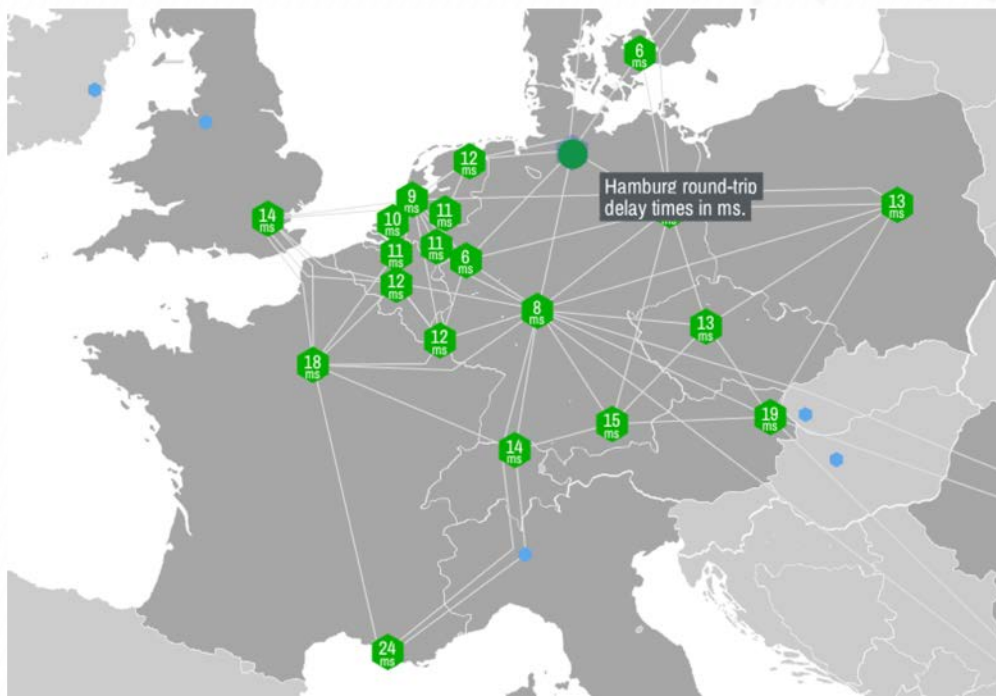
- Website
- .JSON (planned)

Route Server Dashboard



Impact of outages

- A list of outages is the Industry standard, but outages don't effect everyone
- Current RTD's show the actual impact on member experience
 - E.g. outage link Luxembourg <> Antwerp



Luxembourg round-trip delay times in ms.		
Antwerp	13	+9
Brussels	13	+10
Netherlands South	15	+9
Rotterdam	13	+8
Amsterdam Metro	12	+6
Netherlands East	13	+6
Netherlands North	15	+7
Berlin	17	+2
Bucharest	29	+1
Copenhagen	15	+1
Dusseldorf	7	+1
Frankfurt	4	+1
Hamburg	12	+1
London Metro	13	+4
Marseille	17	+2
Munich	11	+1
Paris	5	+1
Prague	11	+1
Sofia	29	+1
Stockholm	23	+1
Vienna	15	+1
Warsaw	21	+1
Zurich	9	+1

Future developments

The background of the slide features a light gray map of Europe. Overlaid on this map is a network diagram consisting of numerous red dots, which represent nodes or servers, connected by thin white lines. The nodes are distributed across the European continent, with a higher concentration in the central and western regions. The network lines form a complex web, suggesting a highly interconnected system.

- Current RTD's as input for Route Server Filter
 - BGP behaviour / Router performance on rapid changing tables?
 - Thresholds?
- Capacity API
 - Opt-in feature to publish 'free inbound capacity' on a member port
 - To be read and handled by capacity intensive CP's

Questions?
Demo?
Feedback?

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