



RIPE NCC
RIPE NETWORK COORDINATION CENTER

Analysis of Cable Cuts with RIPE Atlas

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RIPE Atlas

- A global network of sensors monitoring Internet paths in real time
- Consists of *anchors* and *probes*
 - Probes: 12.464
 - Anchors: 818
- Measurements
 - User-Defined
 - System measurements
- Atlas runs system measurements against various targets
 - DNS
 - Anchor mesh



Cable Cuts

- Recently there were multiple sub-sea incidents in the black sea
 - 17 November 2024: BSC East-West Interlink cable (Lithuania - Sweden) [0]
 - 18 November 2024: C-Lion1 cable (Finland - Germany) [0]
 - 26 January 2025: Latvia - Sweden cable cut [1]

- As well as other cable cuts
 - 3 December 2024: Finland-Sweden terrestrial cable cut [2]

- Incidents are not necessarily malicious

[0]:

<https://www.submarinenetworks.com/en/systems/intra-europe/sea-lion/c-lion1-breaks-in-the-baltic-sea,-no-evidence-of-intentional-damage>

[1]: <https://www.theguardian.com/world/2025/jan/26/latvia-investigating-significant-damage-to-undersea-fibre-optic-cable>

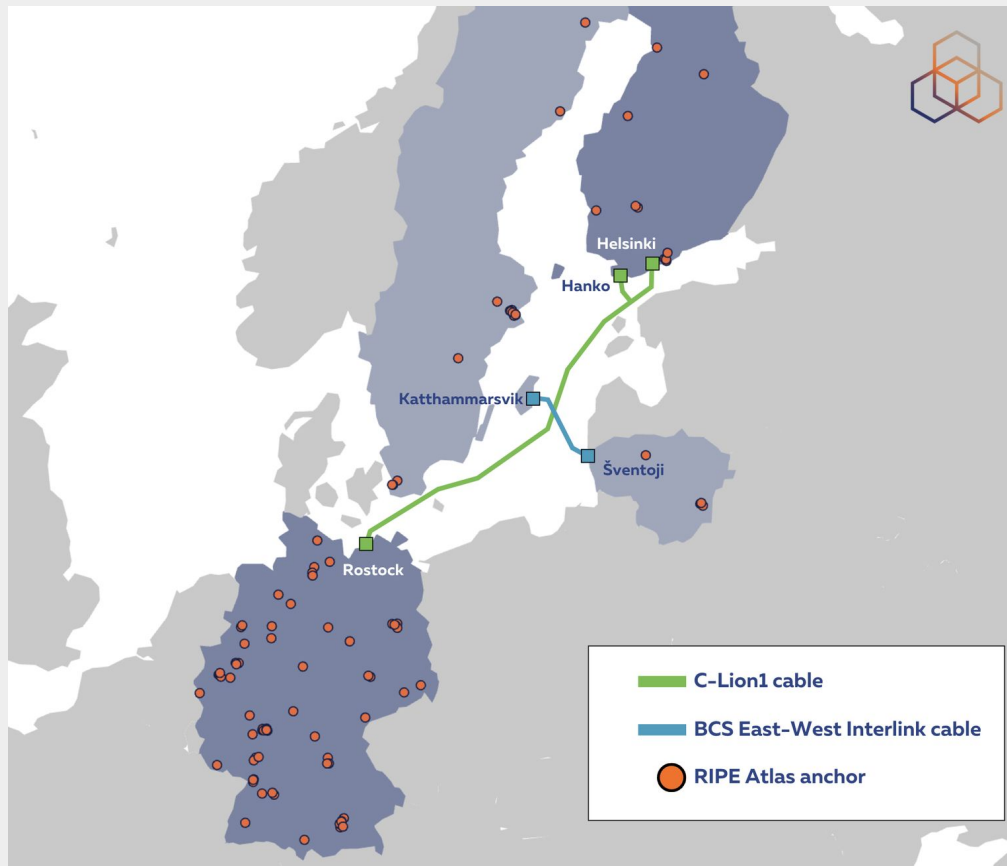
[2]: <https://www.bbc.com/news/articles/cy8900p333zo>

Cables and Atlas Anchors



Overview

- C-Lion1 and BSC East-West Interlink cable
- RIPE Atlas Anchors in bordering countries



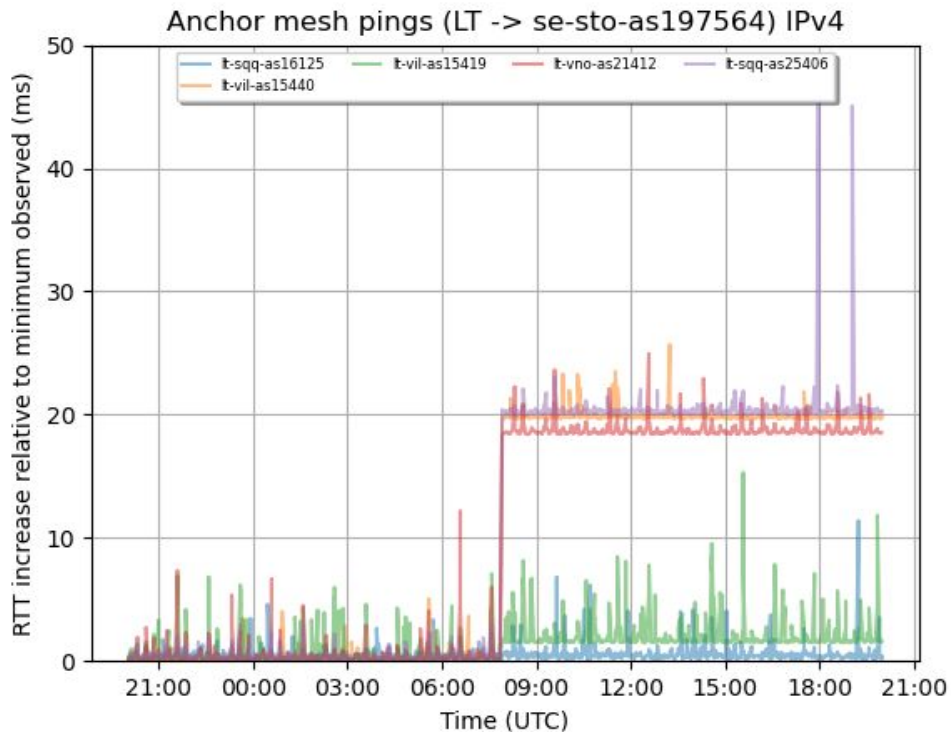
BSC East-West Interlink cable cut



Overview

- 15 anchors in Sweden
- 5 anchors in Lithuania

- `rtt - rtt.min()`



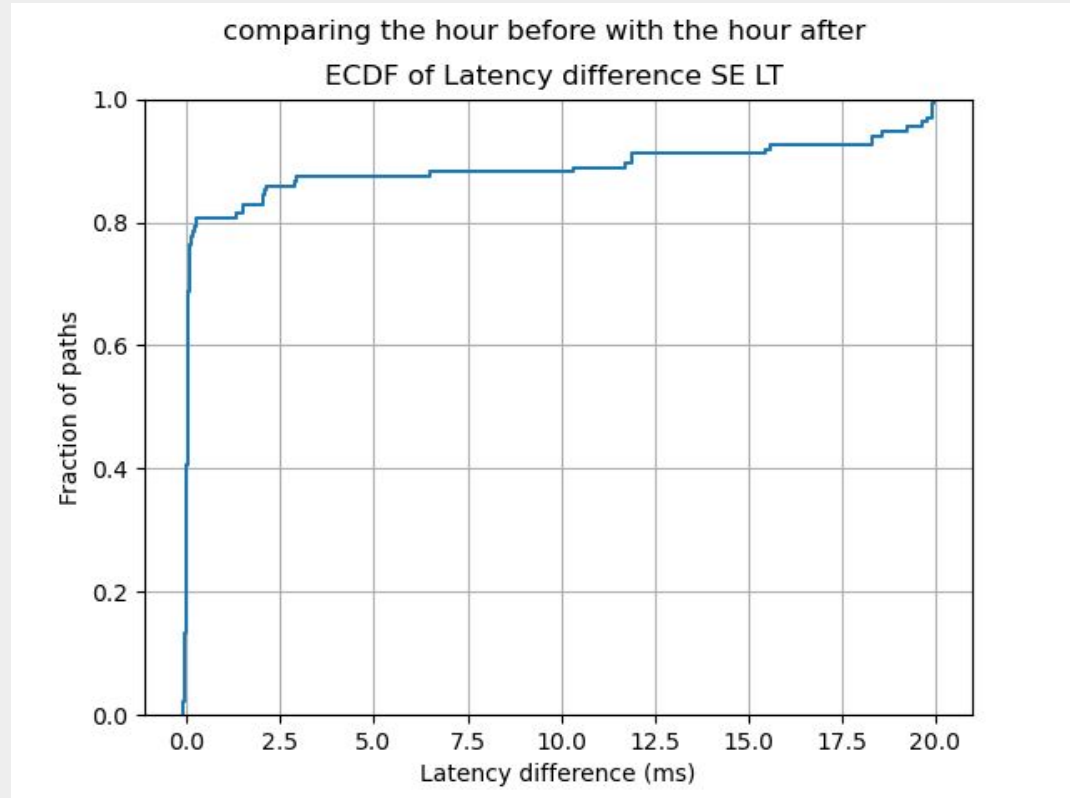
BSC East-West Interlink cable cut



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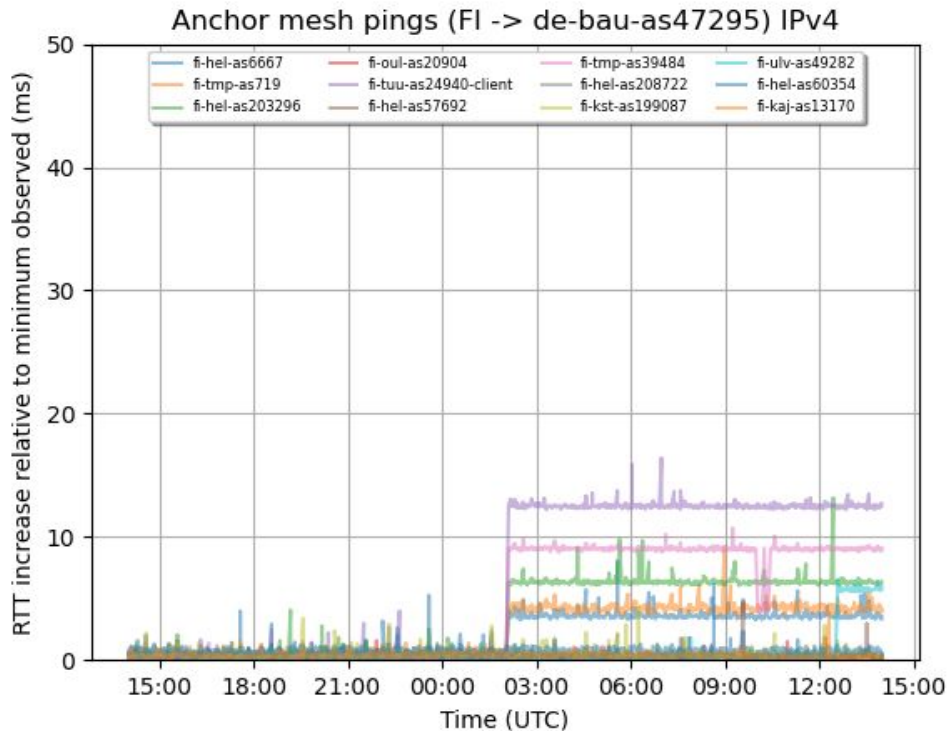
C-Lion1 Cable Cut



Overview

- 100 anchors in Germany
- 12 anchors in Sweden

- `rtt - rtt.min()`

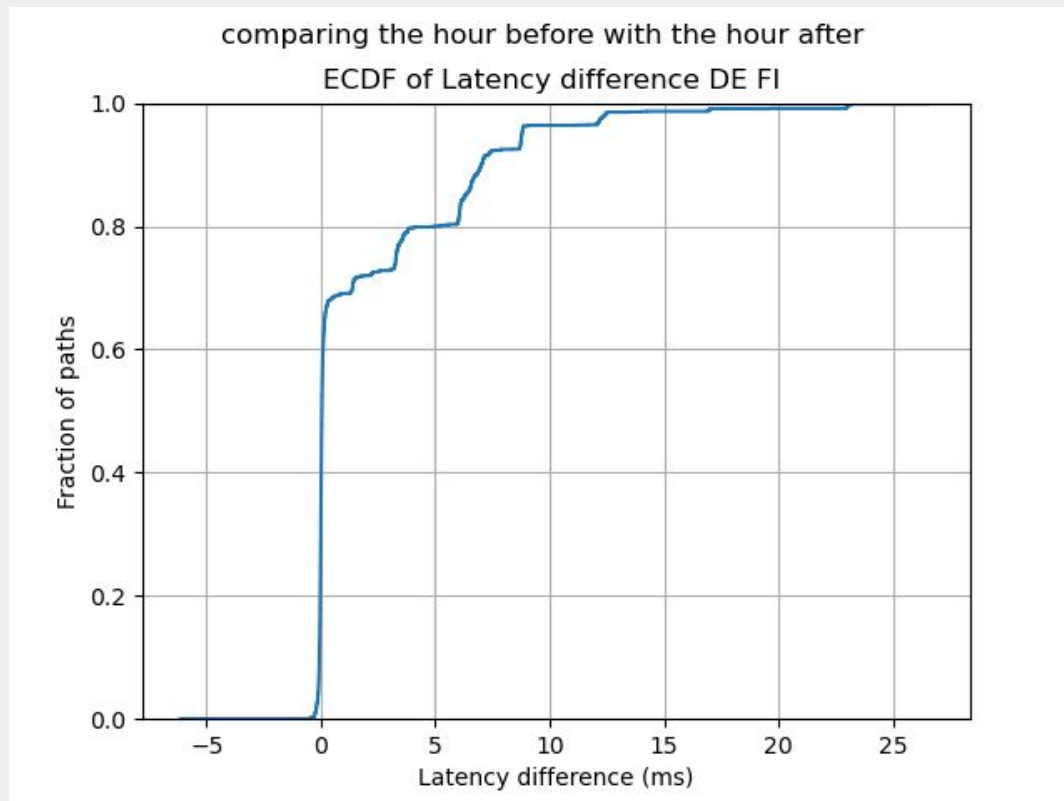




Overview

- 100 anchors in Germany
- 12 anchors in Sweden

- $\text{rtt} - \text{rtt.min}()$
- 70%: no latency increase
- 20% > 5ms



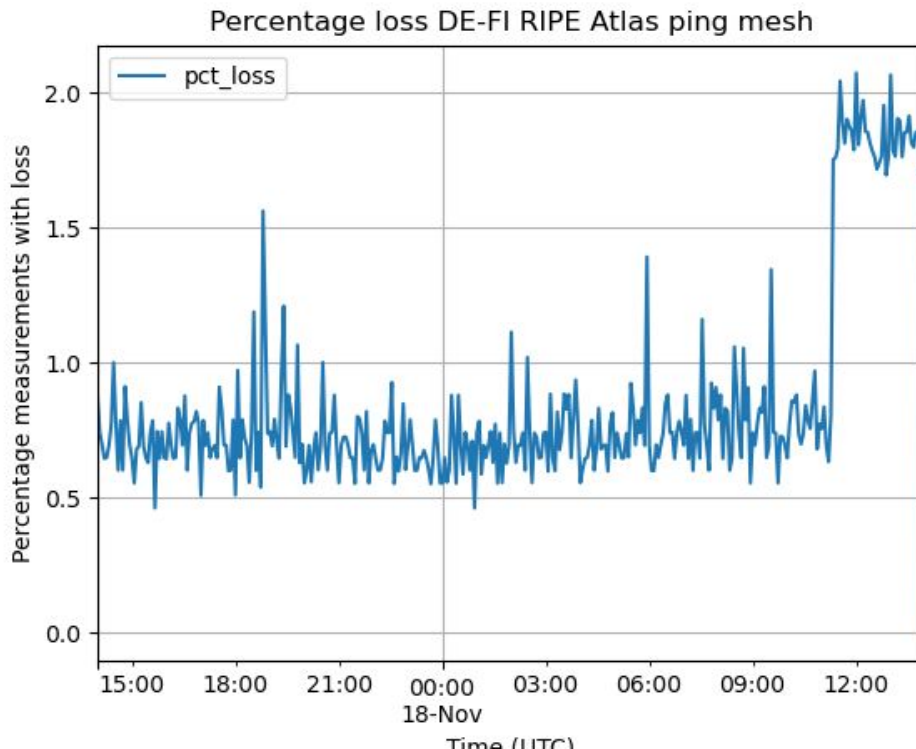
C-Lion1 Cable Cut



Overview

- 100 anchors in Germany
- 12 anchors in Sweden

- 0.5-1% packet loss
- **No change**
- Packet loss **later** in the day.



Conclusion



- In the Baltic region, the Internet managed to route around the damage that occurred.
- Relatively minor latency consequences and no visible packet loss.
- No visibility into (additional) (link) resilience



More Cable Cut Analysis is Ongoing

- More incidents happen
- We plan to follow these and publish on them.
- The atlas mesh measurement is a unique dataset

Baltic Sea cable cuts



- Sweden-Latvia Internet cable belonging to Latvia State Radio and Television Center (LVRTC) was reportedly cut on 26 Jan 2025.
- This is another in a series of cuts on submarine cables in the region in recent months.
- Packet delays between selected RIPE Atlas anchors increased by 5-20ms at around 00:45 UTC – *but absence of packet loss indicates that the Internet successfully routed around the damage.*

Read further analyses of cable cuts and Internet outages on [RIPE Labs](#):

<https://labs.ripe.net/search/tag/outages/>

