

# UNIVERSITETET I OSLO

## Protocol Racing

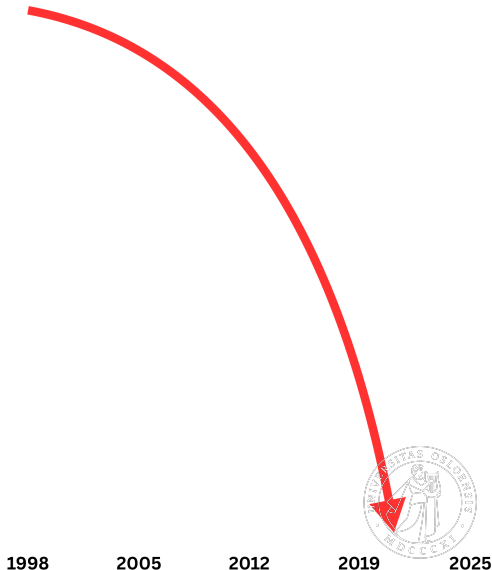
Is it really an advancement?

Joar Heimonen

[contact@joar.me](mailto:contact@joar.me)

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Available IPv4 blocks



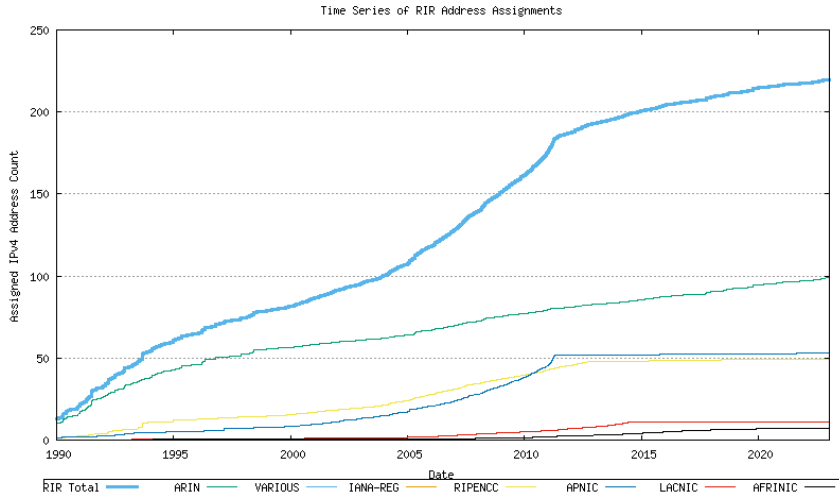
# Agenda

- ① A bit of history
- ② Main
- ③ Wrap-up

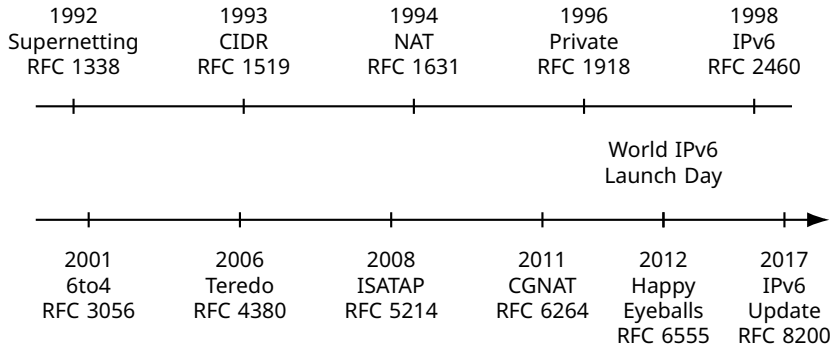
# IPv4

- **RFC 791** – *Internet Protocol*
- Written for DARPA in 1981 (before the IETF existed)
- Designed to interconnect different packet-switched networks (ARPANET, SATNET, university nets)
- Created under the assumption that every device would have its own globally unique, routable address
- 32-bit address space —  $2^{32} = 4,294,967,296$  possible addresses
- Sounds like a lot... until you remember that there are 8 billion people alive

# The problem with IPv4



# Timeline of stopgap measures



*Timeline of stopgap measures from Supernetting (aggregation strategy) to IPv6 'v2'*

# Key Idea

## Takeaway

Keep each slide focused on one idea.

Questions?

# References I

 *IPv4 Address Report* (2025). <https://ipv4.potaroo.net/>. (**urlseen** 16/10/2025).



Joar Heimonen

E-post: [contact@joar.me](mailto:contact@joar.me)

## **Protocol Racing**

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