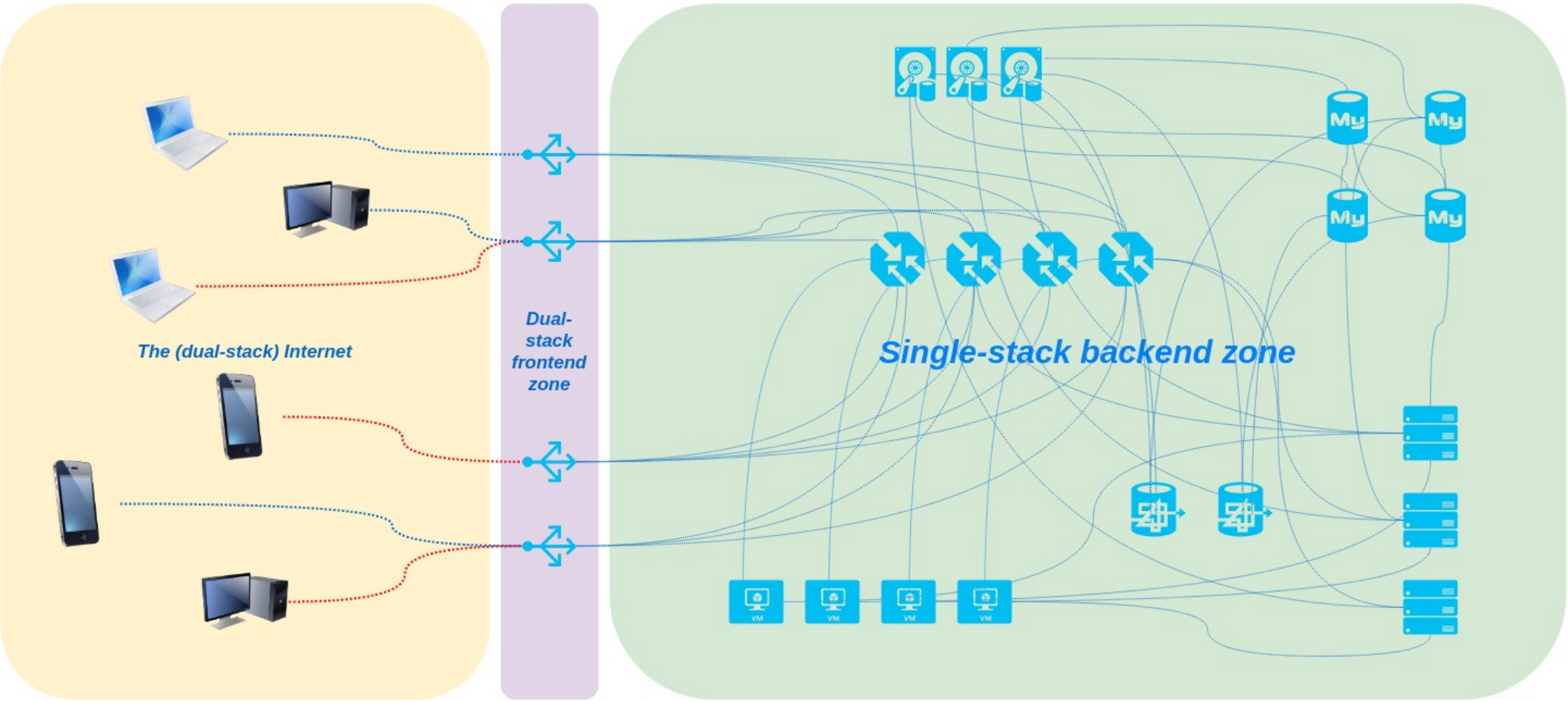


IPv6-only in the data centre

Tore Anderson, RIPE NCC::Educa IPv6-only, June 2020

Dual-stack your public frontends, single-stack your internal backends

- Some users are better served by IPv4, others by IPv6
 - Dual-stack frontends lets their browser choose
- Avoid dual-stack in the backend, however - too complex
 - More stuff to configure, monitor, troubleshoot, etc.
 - Devs must spend effort supporting both protocols
 - Decide on a single IP version to use, and stick with it

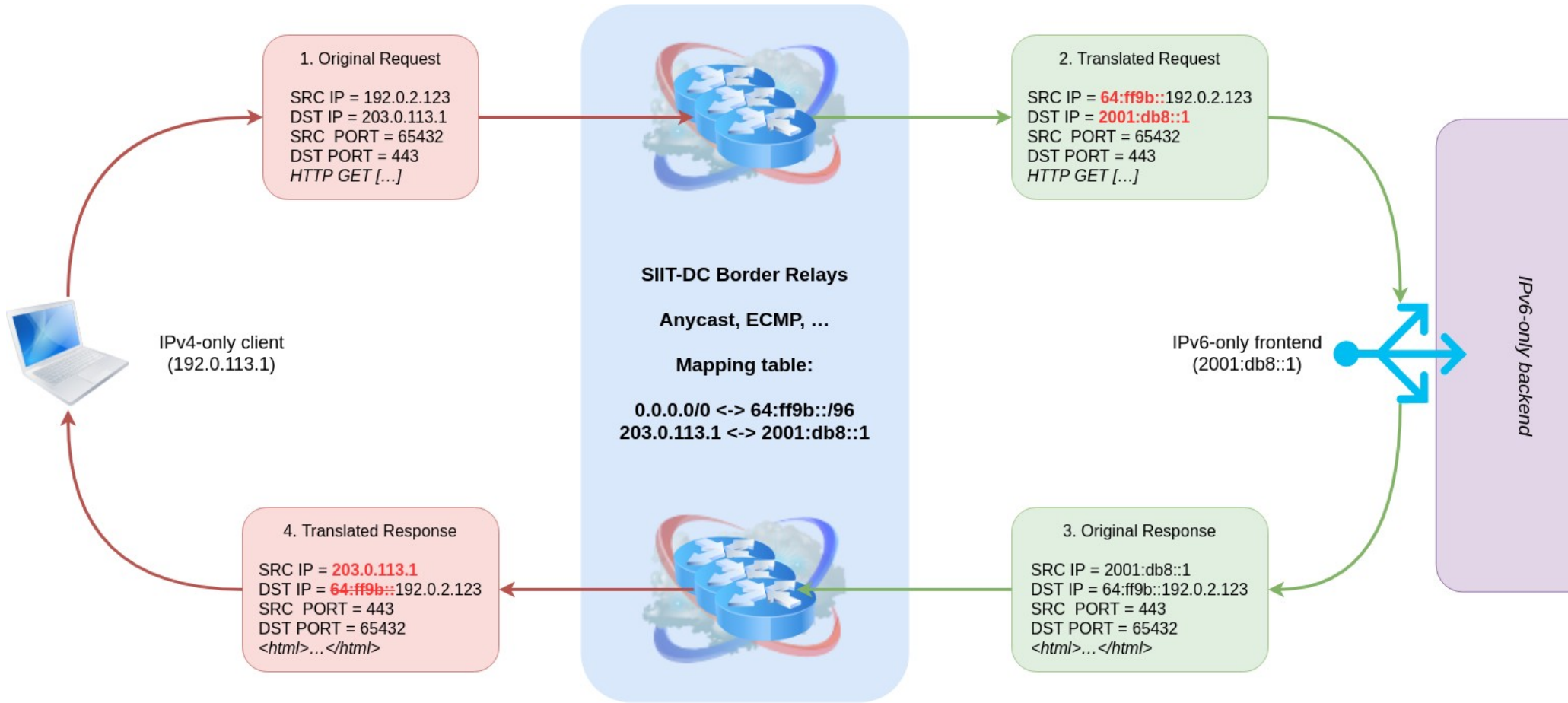


Single-stack IPv4 or IPv6 in the backend?

- Does the infrastructure platform and all the software you're using support IPv6?
 - If «no», you should probably go with IPv4
- If «yes», give IPv6-only serious consideration
 - Global addresses everywhere - no need for NAT and never again experience RFC1918 collisions
 - Infinite LAN segments - never again renumber
 - Maximum utilisation of scarce IPv4 addresses
 - Future proof - no painful IPv6 migration project later

SIIT-DC – facilitates single-stack IPv6-only frontends

- Stateless 1:1 IPv4 ↔ IPv6 NAT function
 - IPv4 clients mapped to an IPv6 prefix: 0.0.0.0/0 ↔ 64:ff9b::0.0.0.0/96
 - IPv6 frontends mapped to an IPv4 address: 203.0.113.1 ↔ 2001:db8::1
 - Static table of arbitrary 1:1 IPv4 ↔ IPv6 mappings
 - Layer-3 NAT (not NATPT!), does not touch TCP/UDP payload
- May be deployed anywhere in the network backbone
 - Or in a different autonomous system altogether (think IPv4aaS)
- Removes complexity from the frontend layer, same as backend
- Hardware and open-source software implementations exist



Redpill
Linpro