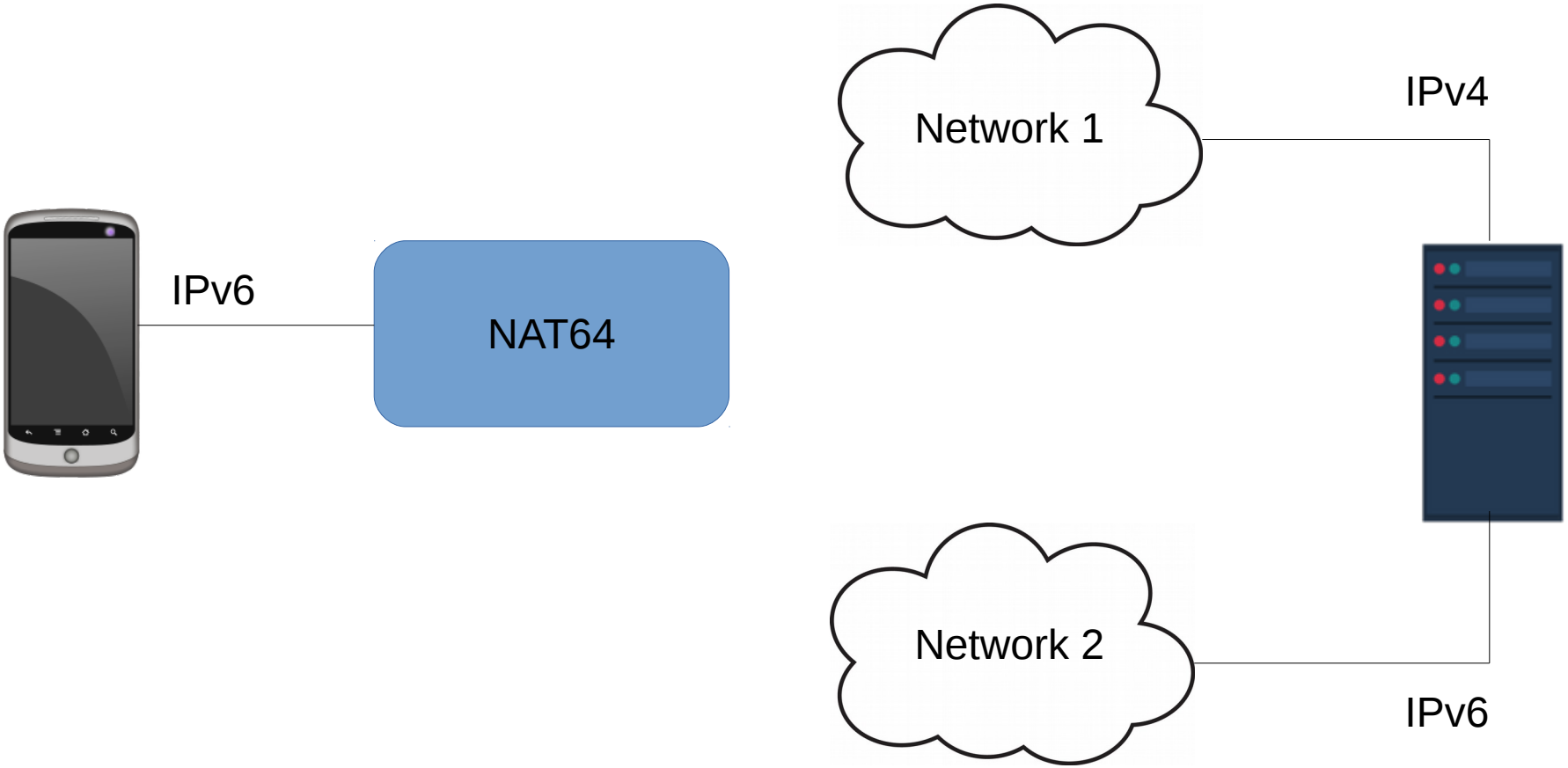
# Multipath TCP with NAT64 Networks

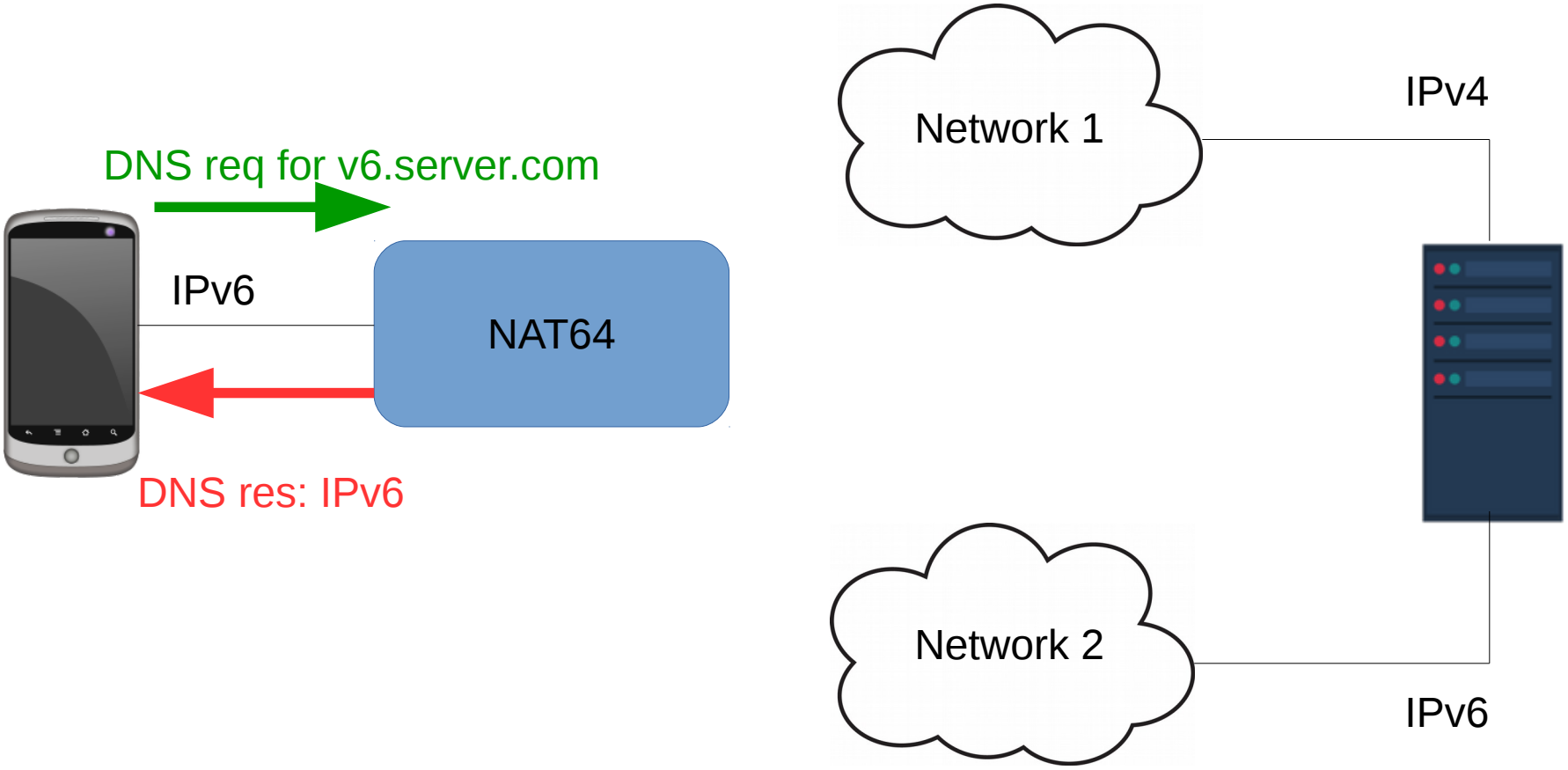
Playing with ietf-nat64 Wireless Network

Quentin De Coninck (quentin.deconinck@uclouvain.be)
Olivier Bonaventure (olivier.bonaventure@uclouvain.be)

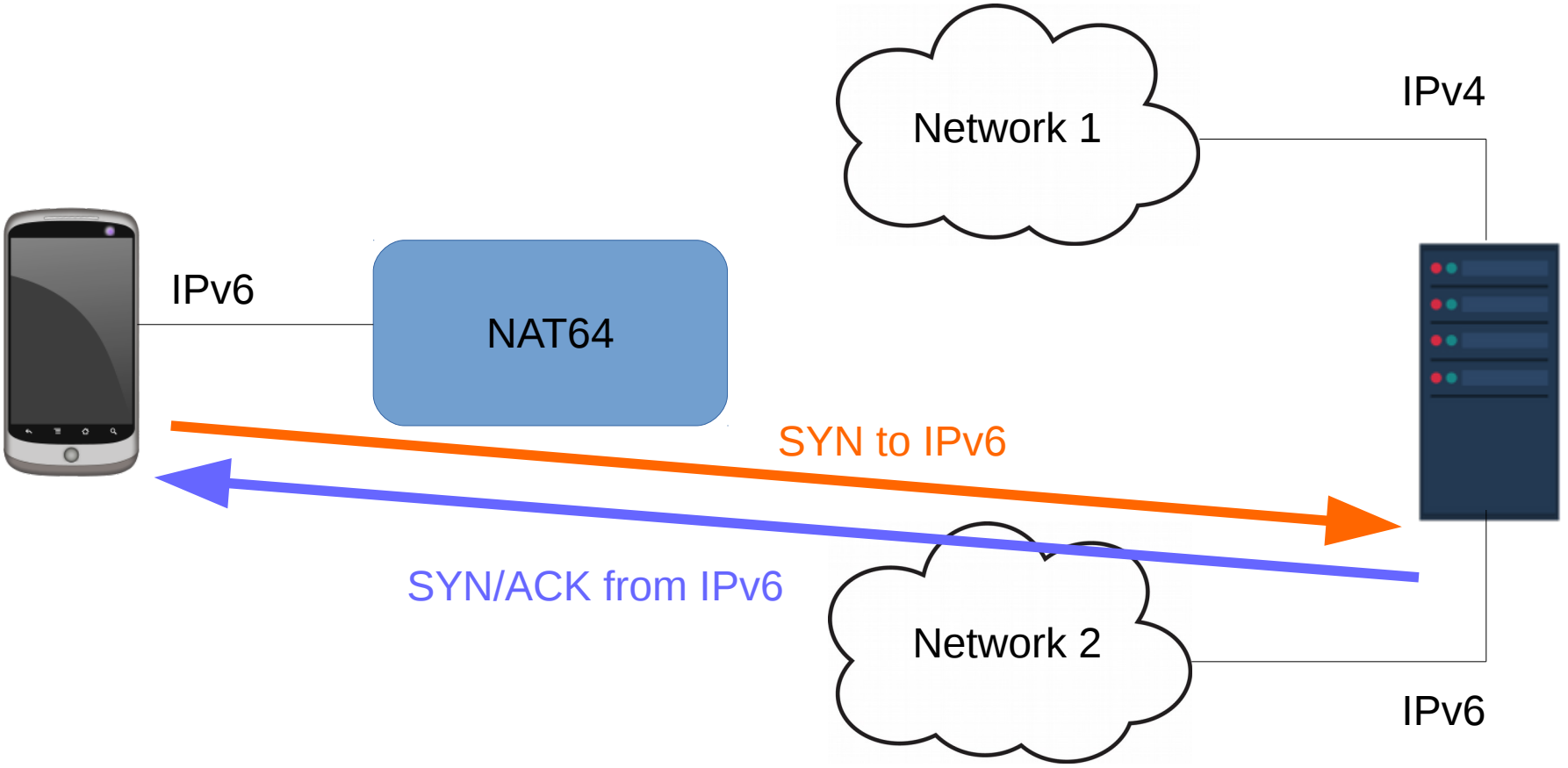
# A NAT64 Environment



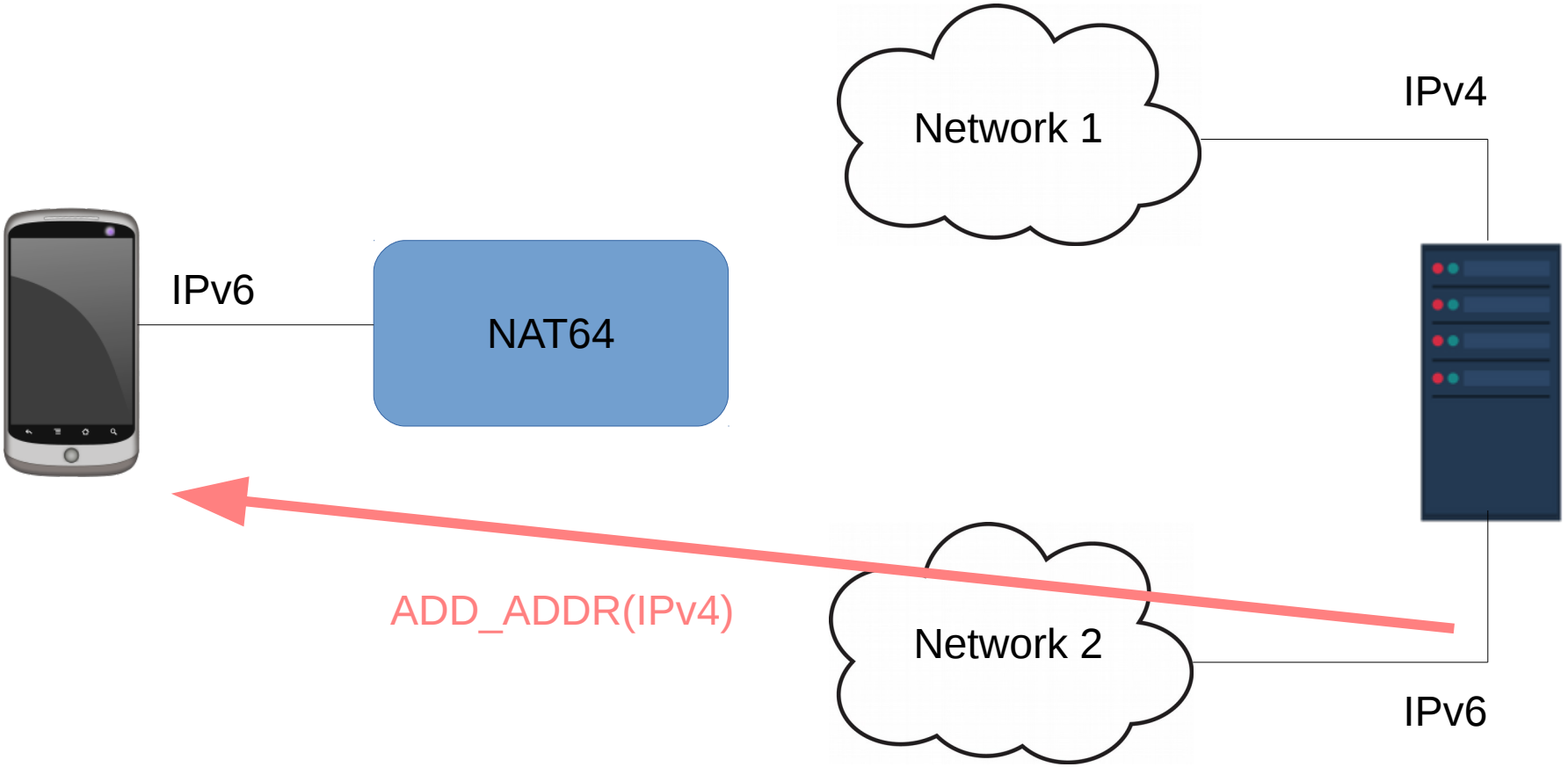
# Initiating Connection on v6



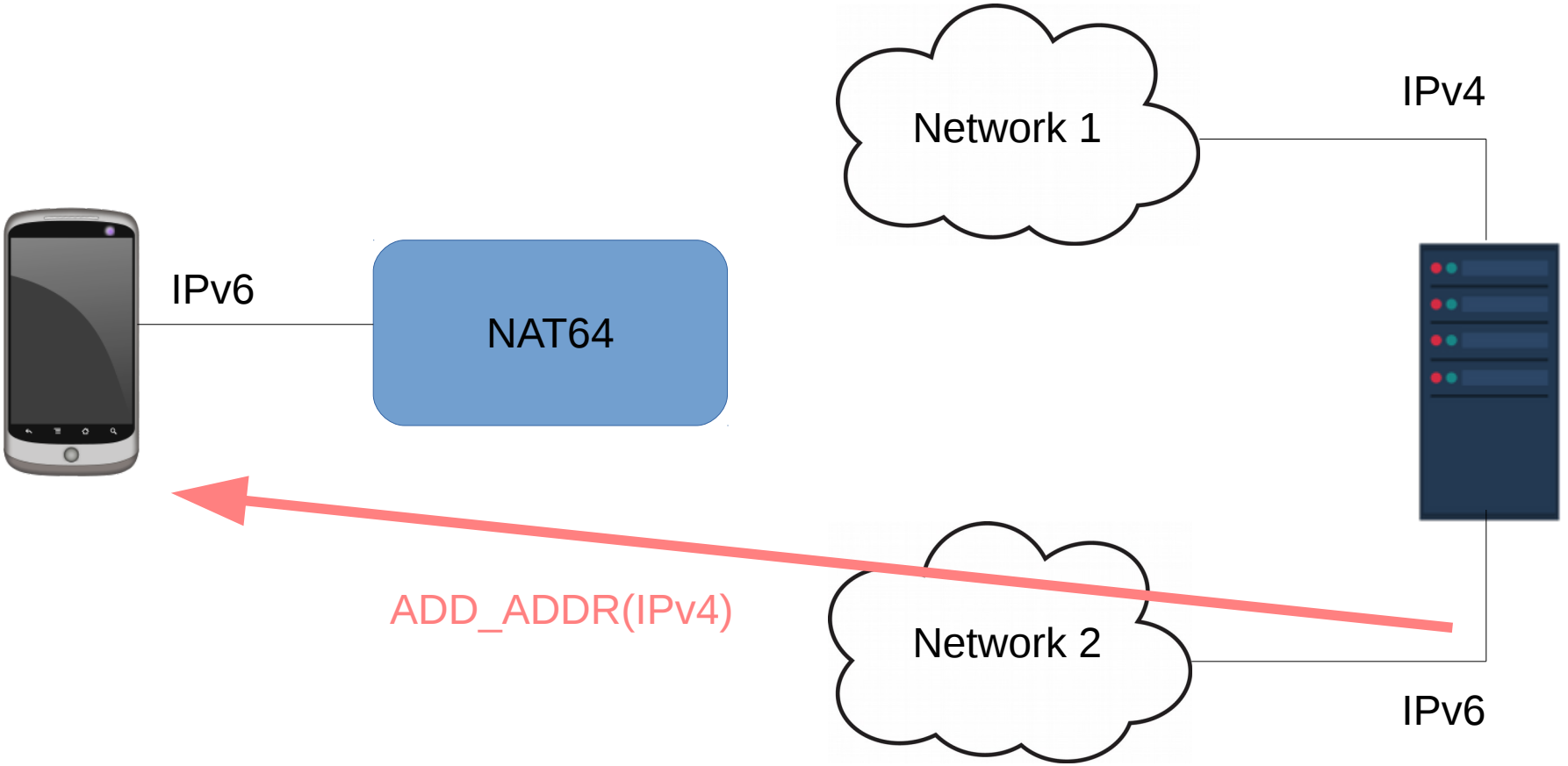
# Initiating Connection on v6



# Then Adding IPv4 Subflow



# Then Adding IPv4 Subflow




**Currently, no way for the client to infer the embedding!**

# What is the Problem?

- Client receives IPv4 address, but is IPv6 only
  - Address conversion performed by NAT64
  - Through DNS resolution
- Performing conversion at NAT64 seems bad
  - This is probably not its business
  - Could face problems with TCP option space
    - IPv6 takes 12 more bytes than IPv4 in ADD_ADDR
    - What if there is not enough space in the packet?

# How to Solve This?

- Opportunistic client test
  - Client performs embedding of v4 into IPv6 address
  - Quite easy to implement…
  - … but only with Well-Known-Prefix (64:ff9b::/96)
- NAT64 can have Network-Specific Prefixes
  - Currently no way to infer it (easily)
    - Especially if client is behind multiple NAT64
  - But could be communicated thorough DHCP option
    - draft-li-intarea-nat64-prefix-dhcp-option-01