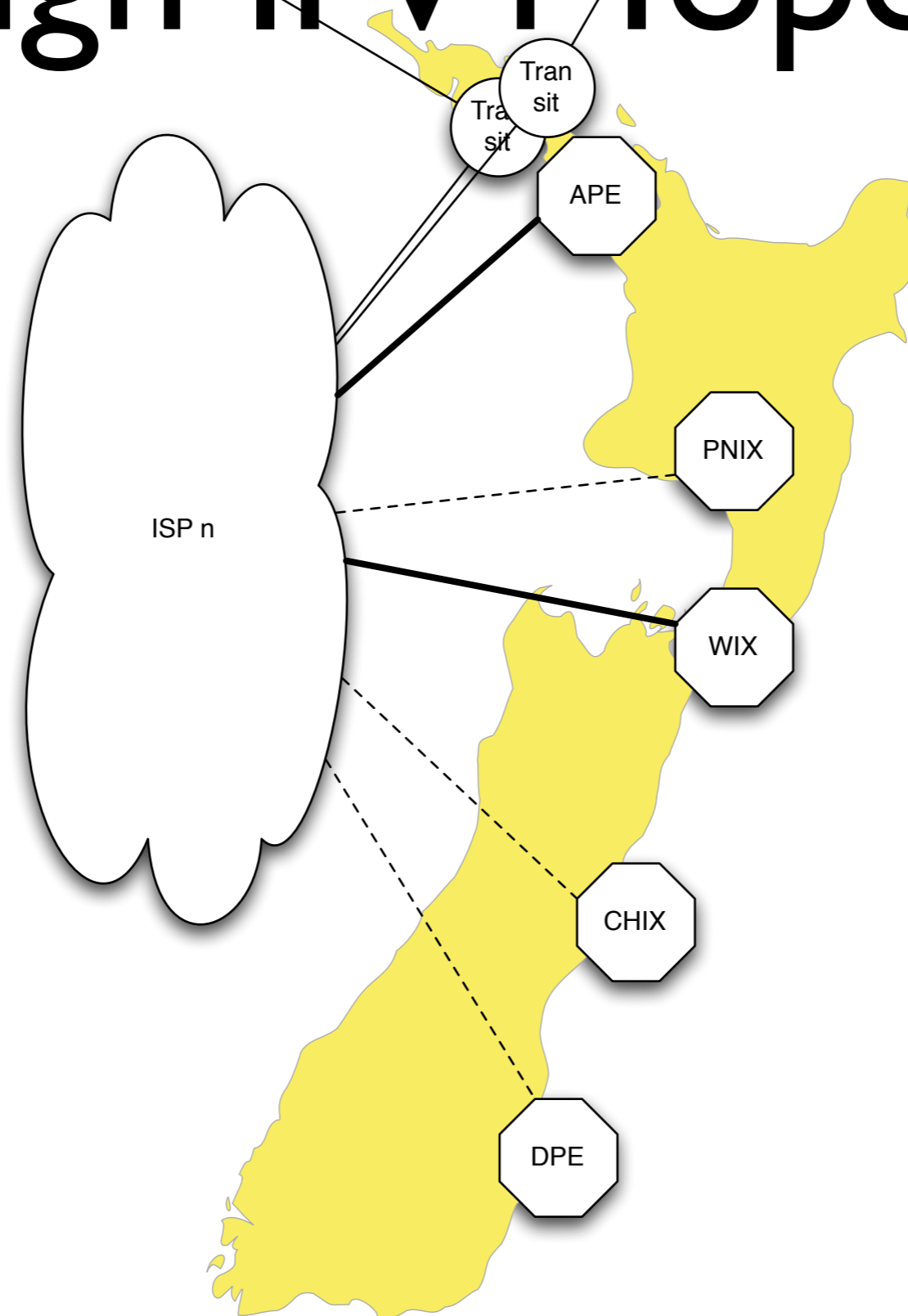
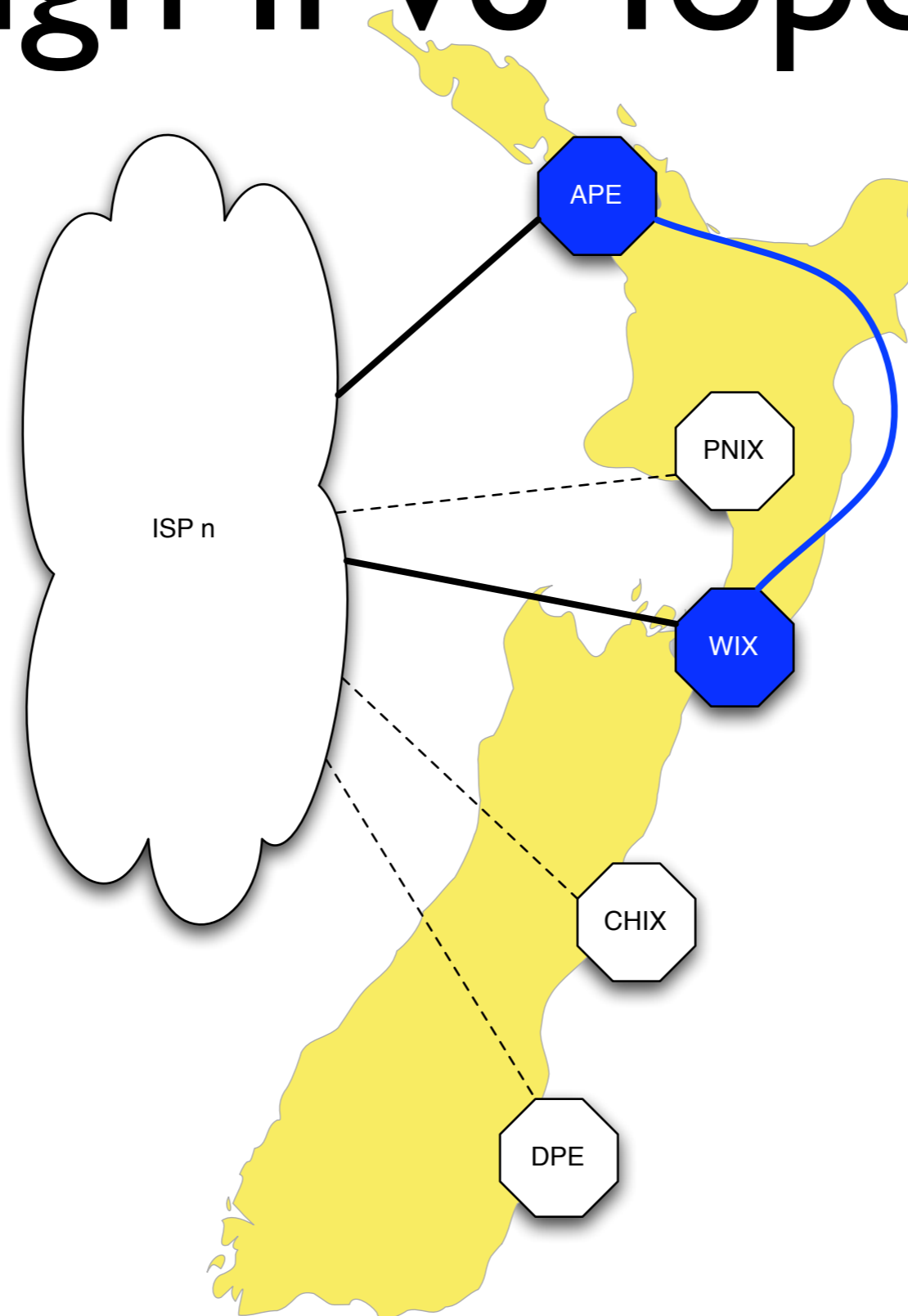


IPv6 in New Zealand

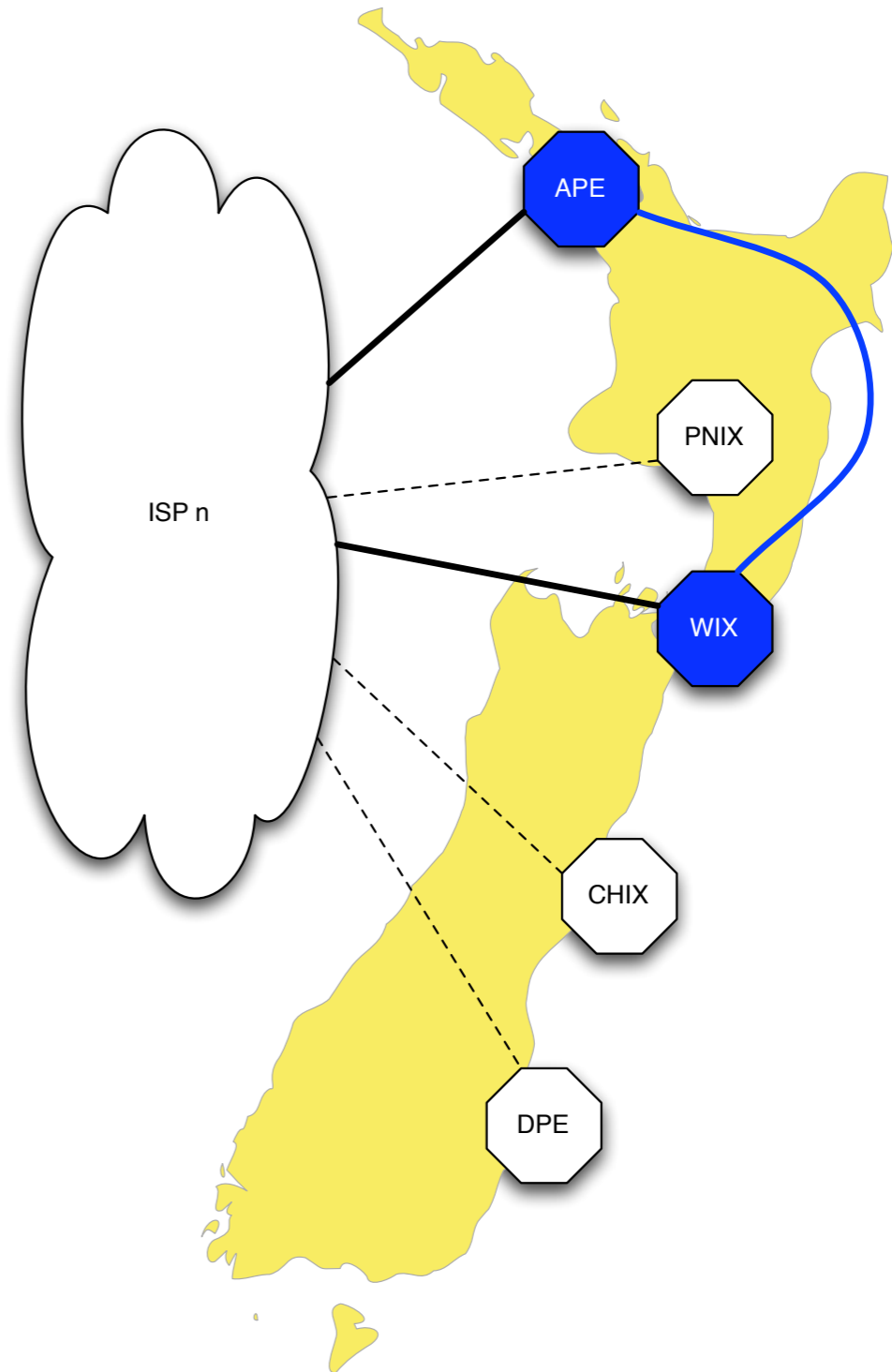
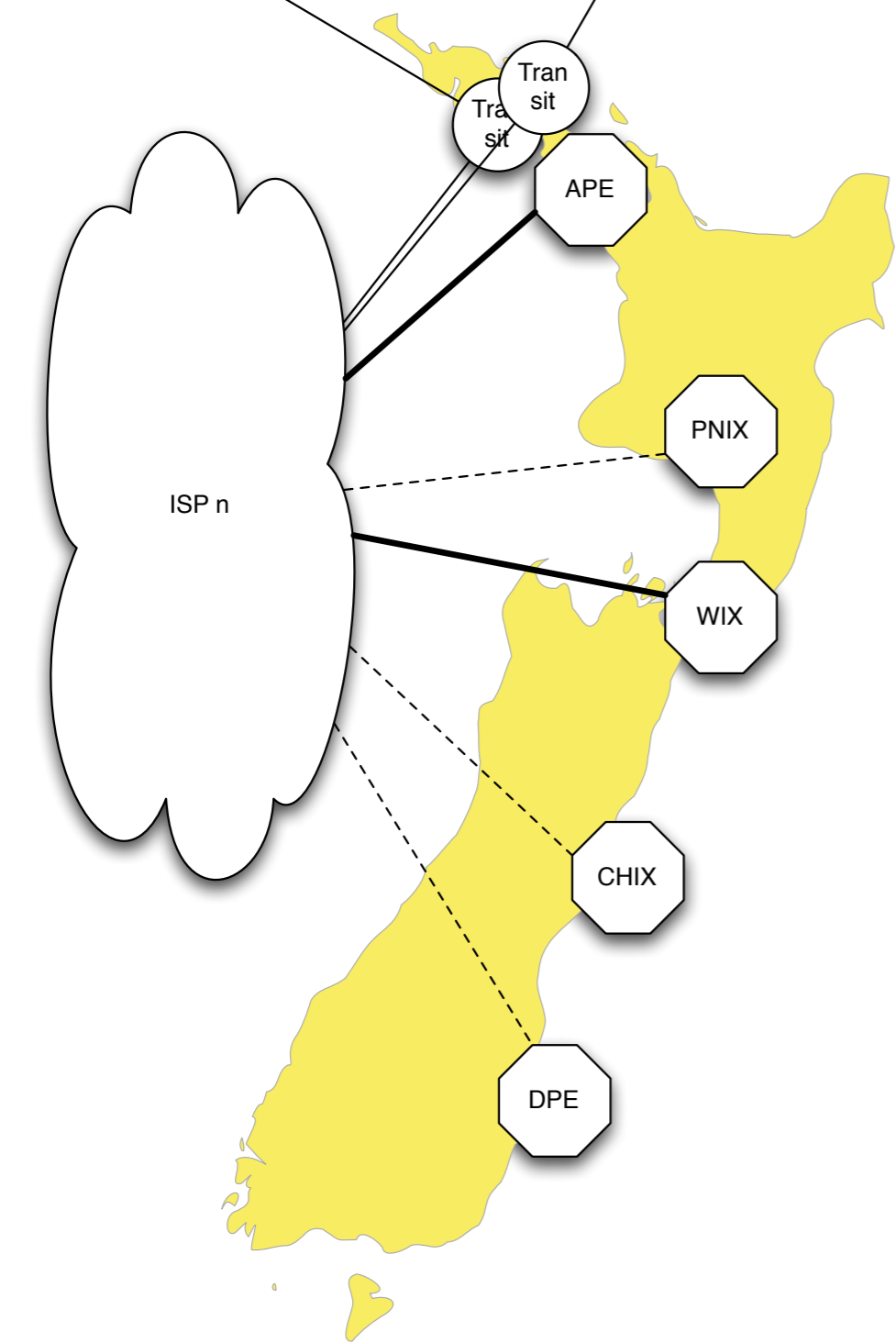
Rough IPv4 Topology



Rough IPv6 Topology



Spot the Difference



Domestic Connectivity

- Strong
 - Between networks with IPv6 capable edges at the IXes, and IPv6 cores
- Tunnels available to APE and WIX IXes for peering
- Poor between lab/experimental networks/end users

Offshore connectivity

- AS703/701, Asia Netcom, Sprint(?), Telecom Global Gateway
- Poor
 - Two of these offer IPv6 service, experimentally
- Only available over tunnels
 - No native IPv6

Tunnelling Protocols

- 6to4
 - Some networks have internal relays
 - One public relay
- Teredo
 - Few networks have internal relays
 - Zero public relays

Available Service

- A few providers offer IPv6 service to customers.
 - Only customers their techs know
 - Helpdesk and sales likely don't know what you're talking about
 - Very experimental
 - Not native off-shore
- One provider was doing IPv6 over ADSL - vendor issues turned that off (I understand)

ISP IPv6 Policies

- Common approach is “No one is asking us for it”
- Most engineers have an interest, and have probably played at home
- Few ISPs have labs for IPv6
- Even fewer have anything in test
- No one has supported IPv6 service

Business IPv6 Policies

- Common approach is “When our ISP offers/demands it, we’ll look in to it”
- Few NZ businesses can get/need portable IPv6 space
- Don’t want to have to renumber later
 - Most don’t know what an address looks like, let alone that, ULA etc. exists

IPv6 at the IXes

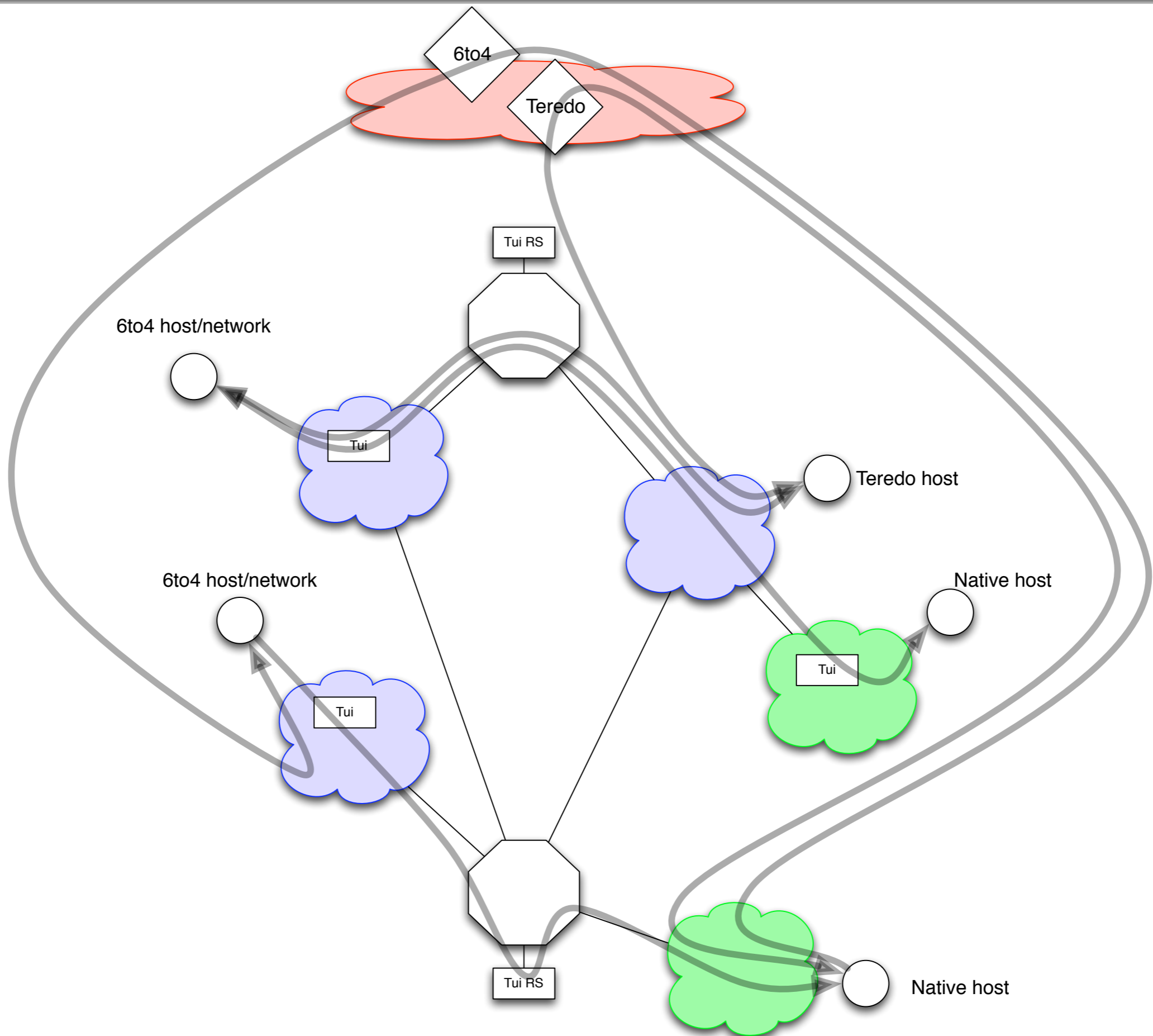
- Very little actual traffic
- APE has 10 peers (76 IPv4 peers)
- WIX has 16 peers (180 IPv4 peers)
- ~10 IPv6 tunnels to tunnel servers at the exchanges

Sixxs

- Sixxs have a POP here
- Located at ACSDData, an ISP in Wellington

Tui

- Pet project of mine
- Support from InternetNZ, APNIC, Citylink
- IPv6 magic appliance for ISPs and large networks
- Teredo relay (optionally public, up to ISP routing policy)
- 6to4 relay (optionally public, up to ISP routing policy)
- Automatic IPv6 over IPv4 tunnels to other Tui networks, and IXes, using 6to4 and BGP



Getting stuff built

- Few people with a “build an IPv6 network” project
- We sat in a room yesterday afternoon and fixed stuff