
SDN & IXP's in NZ

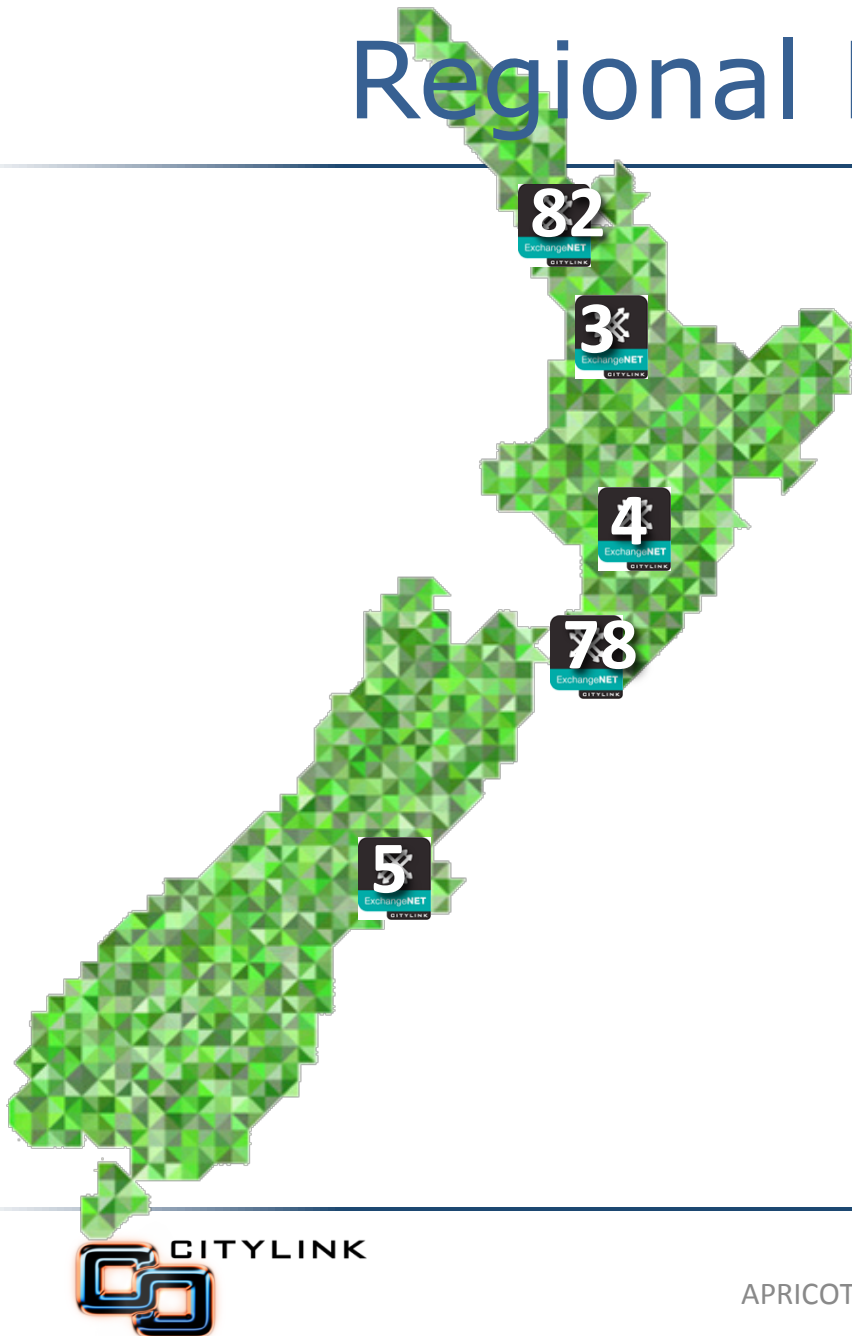
APRICOT 2013

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Regional Peculiarities



- Relatively small number of “traditional” IXP participants (i.e. ISP’s)
- Volume pricing for Transit is pervasive
- As a result there’s a reasonable number of “non ISP” participants at main IXP’s in Auckland and Wellington
- Small, Medium and Large Enterprise are peers in NZ IXP’s to side step volume charging (amongst other things).
- Which means BCP not necessarily followed as well as it could be.
- WIX and APE are distributed Metro Exchanges (i.e. >20 sites)

Observations

- There are some known security issues associated with current Internet Exchange Architectures.
 - As highlighted by Mike Jager at APNIC34.
(ref <http://bit.ly/13wzAHW>)
 - NZ peers fail (and will continue to) at BCP Router Hygiene i.e.
 - <https://www.ams-ix.net/config-guide>

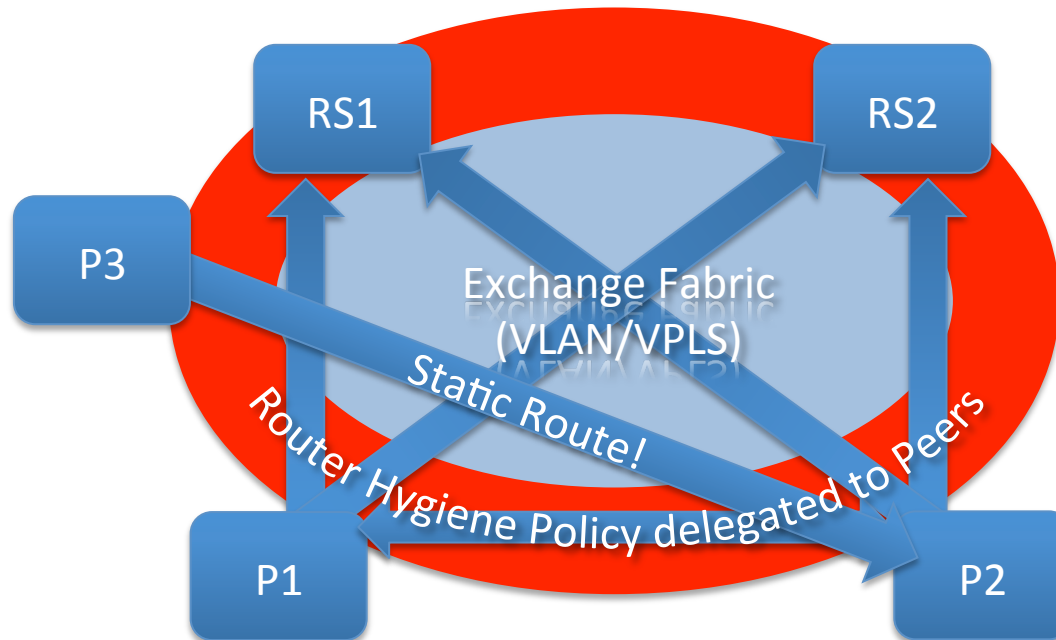
Observations

- Peers leaking IGP, CDP etc etc.
- Peers carrying full tables or default at their peering border.
- Other Peers pointing statics or default at a peer carrying a full table or default route.
- We're all spending a lot of time trying to stop things from happening and not enough time making things happen.
- Exchange Architecture has not been reviewed for some time.

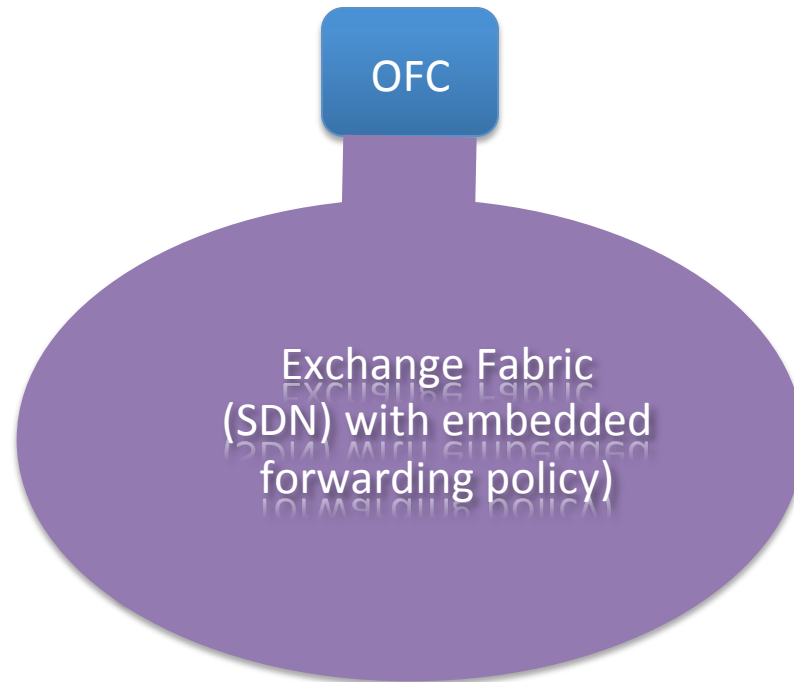
SDN & NZ IXP's

- New initiative within Citylink to take another look at how the IXP works.
- We are actively exploring the use of SDN/Openflow technology to:
 - Deal with Router hygiene issues (default deny instead of default allow).
 - Deal with “Capacity Theft” issues (as well as “noise” traffic)
 - Information interchange between the Route-server and the OF controller.
 - Lends itself well to the distributed nature of the APE & WIX in particular

Current IXP



SDN & The IXP

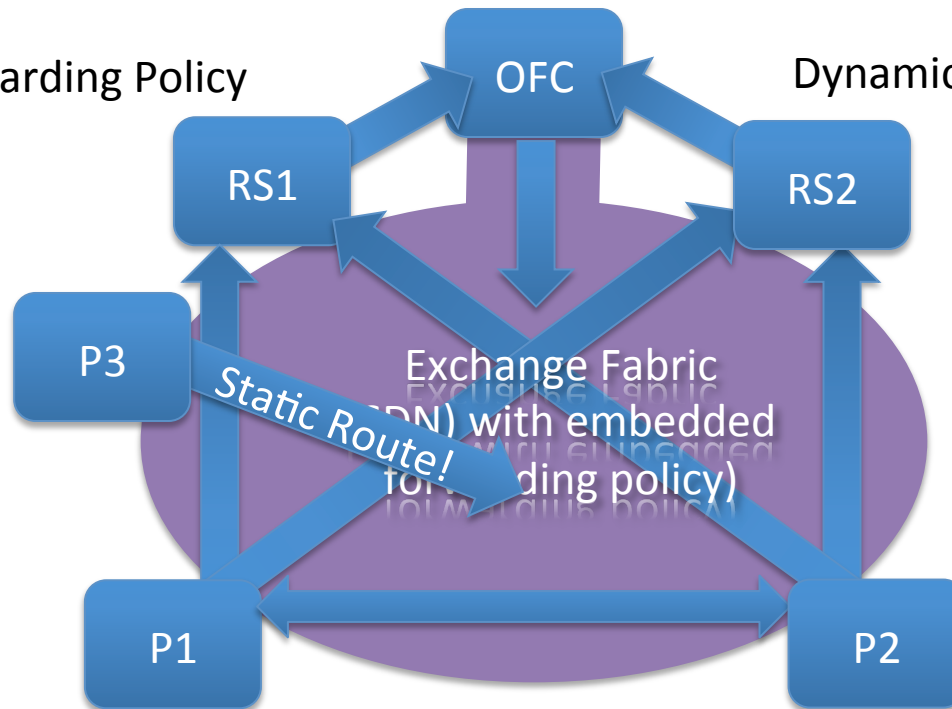


SDN & The IXP

Static Forwarding Policy
(Base Router Hygiene)

Dynamic Forwarding Policy

Dynamic Forwarding Policy



Other Aspects

- Regional Situation makes policing BCP by peers difficult.
- Peer Driven Portal to communicate desired “dynamic” forwarding policy essential. Enhanced Tools and Instrumentation comes with that.
- Database Driven IXP
- Peering Participant Reviewed base IXP characteristics essential
- Collaboration needed due to relatively small talent base but we’re busy improving that.