



Part II – NBN build or buy decisions

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Overview

- Analysis of NBN Co's options for building new access infrastructure or buying and integrating existing network elements
- Discussion around complementary infrastructure and considerations for service level performance of the NBN



NBN Co - Build Focus

- NBN Co is building Layer 1 and Layer 2 access services
- Where ‘scale’ means the one supplier is most cost effective
- Outside of major centres
- Outside inter-capital backhaul
- Service Providers and existing infrastructure owners
can then effectively compete :
 - Layers 3 and above
 - Inter-capital backhaul
 - CBD Layers 1 & 2

* **Ref:** ‘NBNCo – Initial Steps’ - Mike Quigley (23 September 2009)

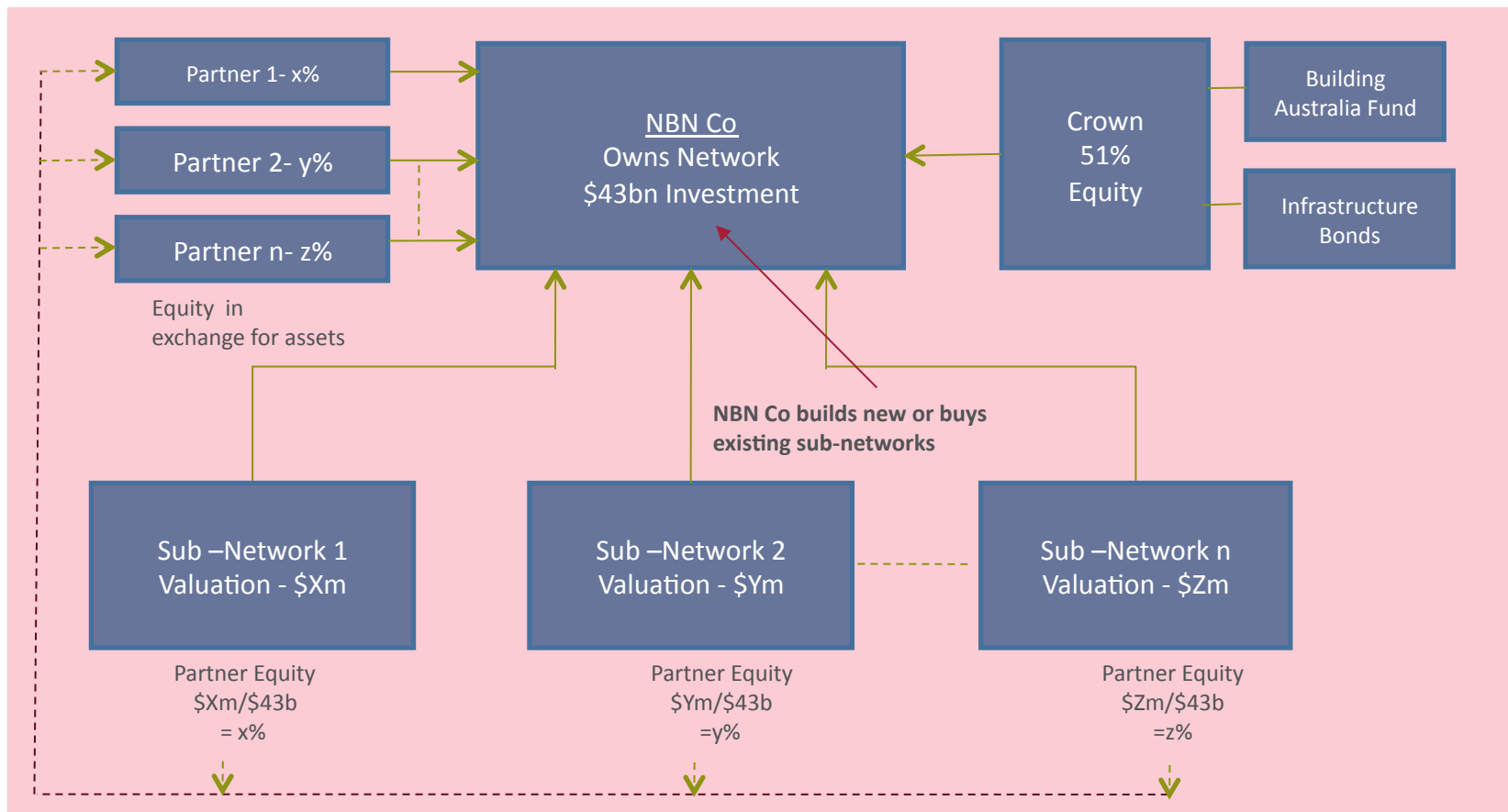


NBN Co Challenge

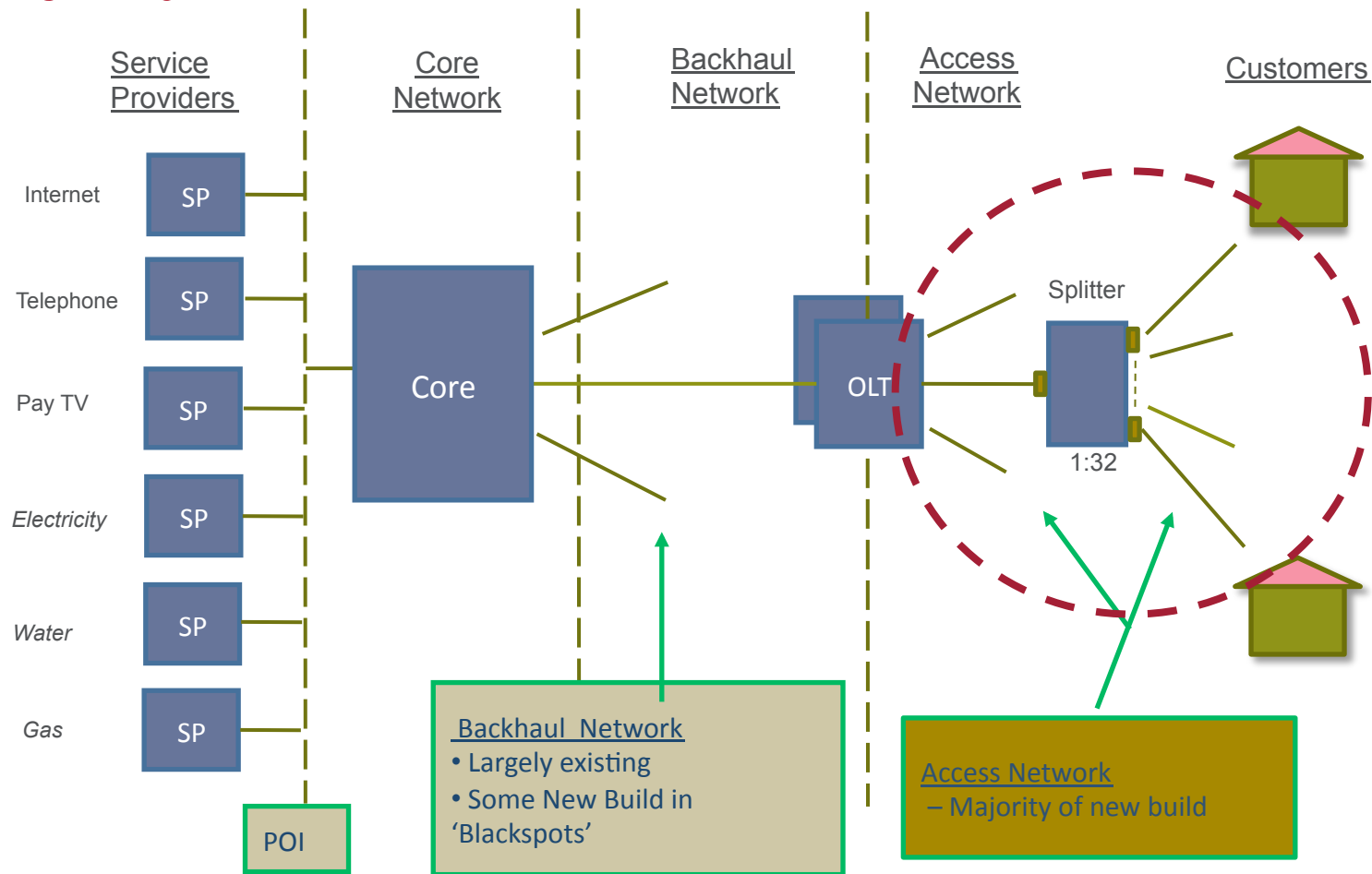
- To build a new NBN network in under-served areas
 - avoid overbuild in already served areas
 - whilst creating a cohesive, integrated NBN network that achieves the 90% fibre and 10% wireless / satellite coverage objective
- The Commonwealth has contemplated the ‘vending-in’ of existing infrastructure to NBN Co to help achieve this outcome
- Why is this beneficial?
 - Avoids duplication of existing infrastructure
 - Faster realisation of NBN
 - Less disruption to community
 - Avoids stranding existing assets
 - Build vs Buy negotiation will result in lower costs

Potential Infrastructure / Equity Arrangements

- as contemplated by DBCDE



Where might Complementary Assets be Available - Majority of New Build is in Access Network



Access could be as much as 75% of overall cost

- based on ACCC PSTN Cost Model as Comparative

	Cost Category	\$ Billion		
Access	Ducts	\$22.98	75%	% of Access cost
	Cable	\$5.90	19%	% of Access cost
	Other CAN	\$0.27	1%	% of Access cost
	Line Pair Gain Systems	\$0.20	1%	% of Access cost
	Radio Access	\$0.53	2%	% of Access cost
	Overheads	\$0.59	2%	% of Access cost
	Total Access	\$30.46	74%	% of Total
	Cost Category	\$ Billion		
Core	Switching equipment	\$3.37	31%	% of Core Cost
	Transmission (Backhaul)	\$6.11	57%	% of Core Cost
	Data Equipment	\$0.80	7%	% of Core Cost
	Satellite Equipment	\$0.01	0%	% of Core Cost
	Other	\$0.22	2%	% of Core Cost
	Overheads	\$0.21	2%	% of Core Cost
	Total Core	\$10.71	26%	% of Total
	Grand Total	\$41.18	100%	

*Based on ACCC Fixed Line Network Cost Model



Network Considerations

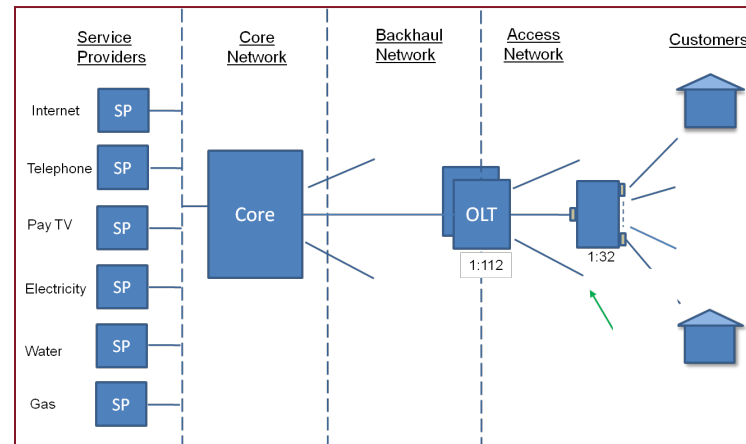
Streamlining of Access Regulations

In its discussion Paper *'National Broadband Network: Regulatory Reform for 21st Century Broadband'* the Government announced:

- it will introduce streamlined arrangements which will apply to all fibre optic roll-outs to the home and workplace to ensure that consumers do not have to wait unnecessarily for services.
- is building a national network and it will create unnecessary costs if requirements vary from one suburb to the next or one town to the next
- it will also seek to reduce the costs of deploying fibre optic networks to the home and workplace by:
 - allowing optical fibre to be rolled out overhead on existing poles
 - allowing telecommunications carriers access to poles, ducts and pipes of other utilities, where feasible, for installing fibre optic infrastructure &
 - improving access to information about the location and availability of poles, ducts and pipes.

Network Considerations - Backhaul

- Carrier Networks utilise traffic concentration (and contention) as a normal design approach
- Residential Telephony and Broadband services are examples of 'best efforts' services
- Some services are not contended eg. Business Grade services but users pay more
- This is the QoS principle applied
- NBN expected to be no different
- It is not practical to allocate 100Mbit/s, 100% of the time to all subscribers



- Given that concentration will be designed in, NBN must still ensure adequate backbone capacity is available for future demand
- NBN Co if it is to 'buy' backhaul, will probably lean to dark fibre or wavelengths from day 1. (ie. not capacity based services from existing infrastructure owners)
- This said, ultimately it will be be SPs that set contention ratios for services



Network Considerations

Points of Interconnect

- Locations where SPs will pick up aggregated customer traffic
- Capital Cities (Type A) + Regional (Type B)
 - SP expectation of choice
 - No overbuild of existing transmission
 - NBN could buy its 'transport' from existing carriers
 - Possible Implications for End Users
 - Expectation is normalised price across the country
 - Dilemma – Providing choice of cheaper prices for local interconnect drives a distance factor into SPs costs
 - Is one option for NBN Co to purchase required collective backhaul and amortise the cost?

Network Considerations

What does 100Mbit/s mean?

- Users can pay higher price for higher QoS but
- What will be the characteristics of the most widely-used ‘best-efforts’ Broadband service
- By necessity, there will still be statistical concentration in the network
- What will be the minimum speed for best efforts
- ACCC very interested in this area in the past
- User bandwidth increasing 50% every year – in 12 years ~ 100 times what we use today.
- Network must adequately scaled now for longer term
- Possible differentiation point for SPs - how much aggregated backhaul capacity they commit to per user. Will NBN Co set minimum?



Network Considerations

Resilience

- What level of ‘availability’ do we want at the end user level?
- Telstra achieves ~ 99.90% for PSTN
- Should we be aiming to meet 99.90% or should it be higher
- Chance now to design-in improved SLA
 - Less failures + faster restoration
 - Ring architecture to OLT , Distribution points
 - Built in service testing capability for SP



Retail Considerations

Competitive Market

- Internet, Telephony, Video retail ready services beyond NBN Co scope
- ‘Switching’ outside NBN Co
- Interception still SP responsibility
- Triple Play a key capability for SPs
- Telstra ownership in Foxtel
 - Significant lever on customer proposition
 - Still has market power
- Case for a ‘scale’ wholesale IPTV Multicaster



Operational Considerations

- Transition Arrangements

- Who provides, owns and maintains ONT
- (NBN Co indication it will own and maintain)
- For wireless equivalent , does this still apply
- Which of my Service Providers will be the Access Seeker?
- How is existing service bundle transitioned to the new network?
 - New service level or equivalent?
 - Same Price ?
 - Introductory Broadband service available?
 - Telephony only available?



Other Discussion Points

- Allocation of QoS allowances (packet loss, jitter, delay) between
 - On-net within NBN Co network
 - Off-net – Service Providers and International
- Relation of NBN service to CSG
- Relation to NBN service to USO

Thank you



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