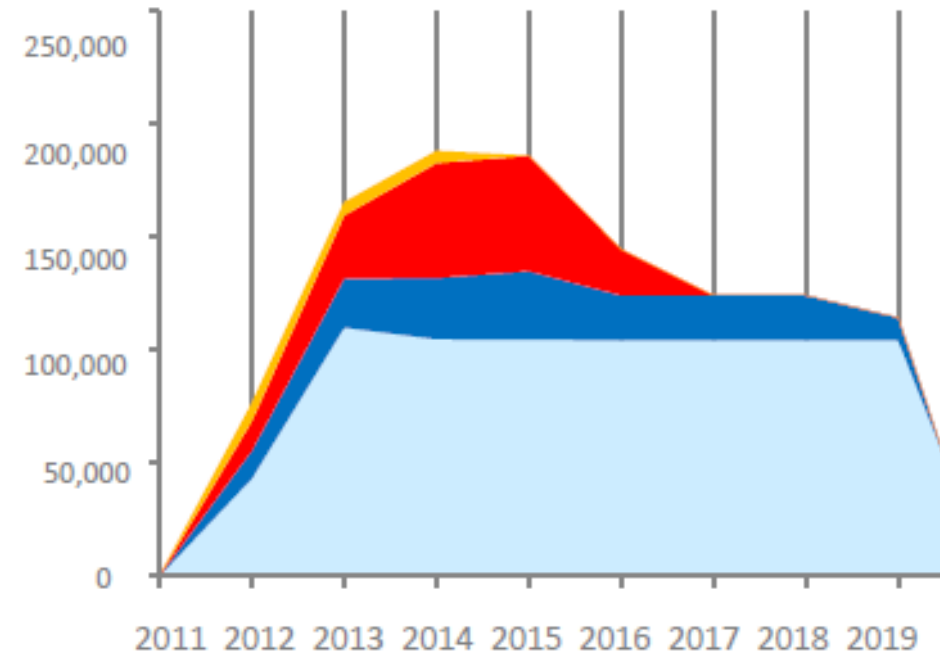


**Build** – Ed Beattie

# Unprecedented scale and scope

- > Chorus deploying fibre in 24 areas along ~44,000 streets
- > each rollout area has varying:
  - existing infrastructure available for re-use
  - geotypes (premises density and terrain)
  - local authority requirements
- > chart shows scale of Chorus ramp-up in initial years

**Premises Passed by Partner**  
*(Incremental per annum)*



Source: Crown Fibre Holdings, Ultra Fast Broadband update, 17 April 2012

# Auckland and Wellington >60% of Chorus rollout



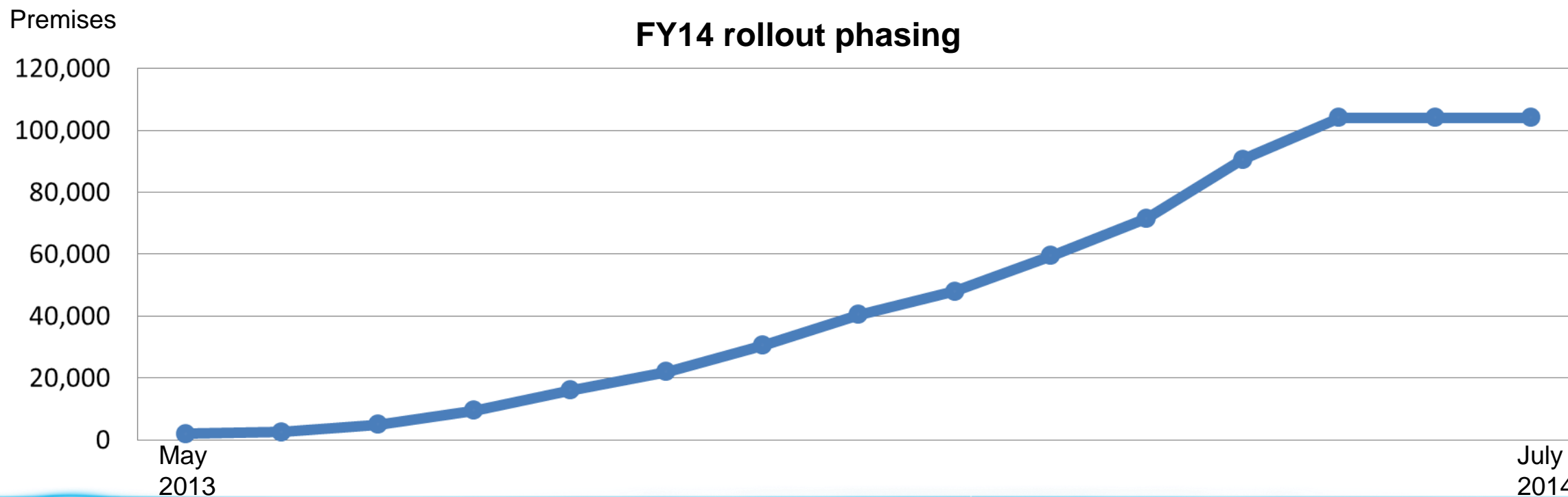
- > Highest population density and number of narrow or busy 'Level 2' roads
- > Already significant pressure on infrastructure
- > Underground utilities close together
- > Volcanic rock
- > CBD and inner suburbs require mostly underground deployment



- > Inner city has very high population density
- > Cobbled paving in CBD areas
- > Narrow roads and complex traffic management
- > Hilly with access challenges

# UFB rollout now at maximum pace

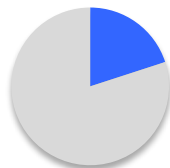
- > Flatter programme in FY14 as productivity increases, but still tail-end 'hump'
  - Target (cumulative): 255,000 premises to be passed by end of FY14
  - Build complete for 238,000 premises at 30 April = 93% target (cumulative)
  - Work already started on FY15 areas for 8% of premises



# Progress by Chorus area, as at 30 April

## Auckland (incl. Waiheke, Waiuku, Pukekohe)

372,000 premises  
20% complete



## Gisborne

12,300 premises  
17% complete



## Levin

7,100 premises  
15% complete



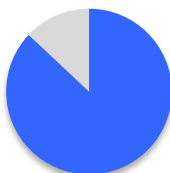
## Nelson

23,500 premises  
31% complete



## Timaru

12,800 premises  
87% complete



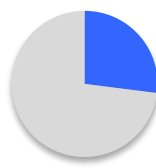
## Invercargill

19,700 premises  
43% complete



## Whakatane

5,500 premises  
27% complete



## Napier/Hastings

40,900 premises  
30% complete



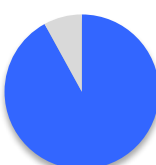
## Kapiti

16,400 premises  
17% complete



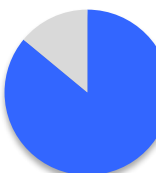
## Blenheim

11,100 premises  
92% complete



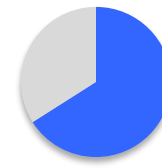
## Oamaru

5,800 premises  
86% complete



## Rotorua

20,900 premises  
66% complete



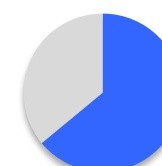
## Feilding

5,600 premises  
8% complete



## Masterton

8,500 premises  
64% complete



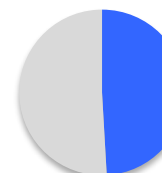
## Greymouth

3,500 premises  
0% complete



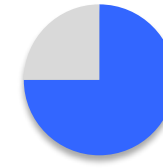
## Queenstown

4,900 premises  
54% complete



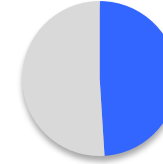
## Taupo

9,900 premises  
75% complete



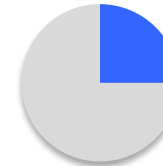
## Palmerston North

27,900 premises  
49% complete



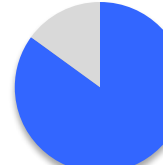
## Wellington

126,200 premises  
25% complete



## Ashburton

8,100 premises  
85% complete



## Dunedin

44,500 premises  
37% complete



Premises = total UFB premises in Candidate Area, excluding greenfields

# Understanding UFB communal capex

## > Civil costs

- drilling/trenching/aerial along street
- laterals to boundary
- reinstatement of road/footpath/berm
- traffic management
- arborists



## > Network specific costs

- materials
- hauling
- installing network components
- splicing and jointing
- testing



## > Other

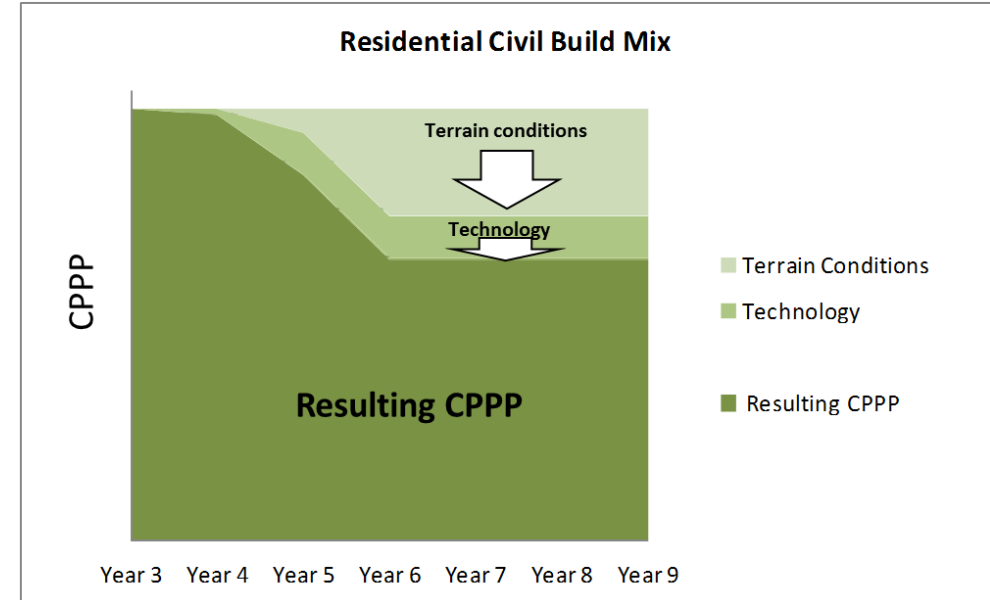
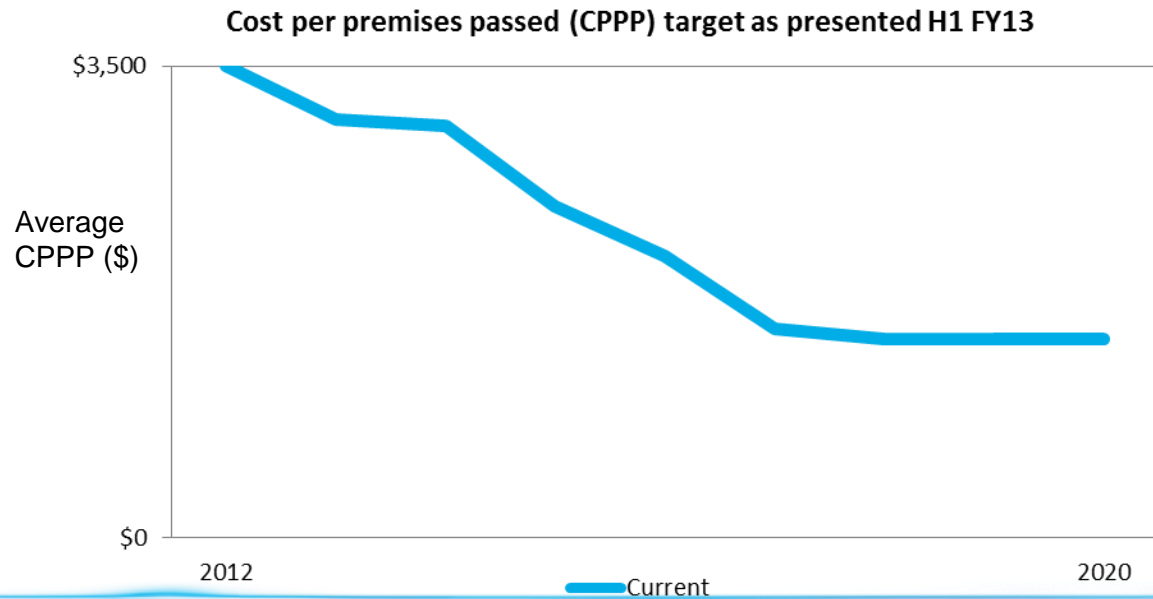
- project management
- consigned materials (e.g. fibre, duct)



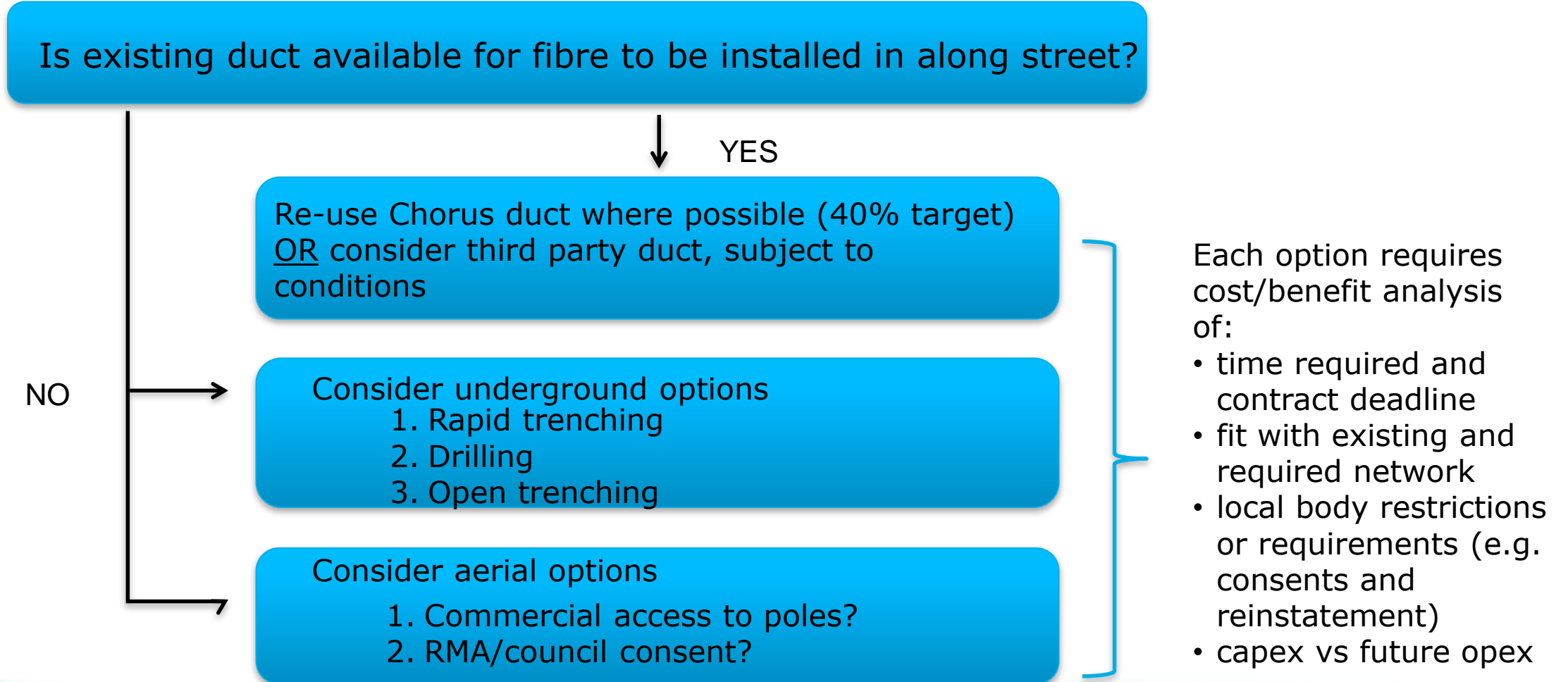
# Step down in CPPP from FY15

CPPP expected to decrease from FY14 as deployment mix begins to move from priority premises zones into suburban areas

- average property frontage reduces from 30m to 20m
- deployment options such as aerial and rapid trenching more widely available
- cobbled paving areas and traffic management requirements diminish



# Chorus' communal deployment 'toolbox'



# Options for installing underground duct

## **Open trenching:**

can be most disruptive (and costly) method as requires excavation of a trench along street for ducting



## **Directional drilling:**

enables new ducts and cables to be installed underground with just a series of 'potholes' along streets

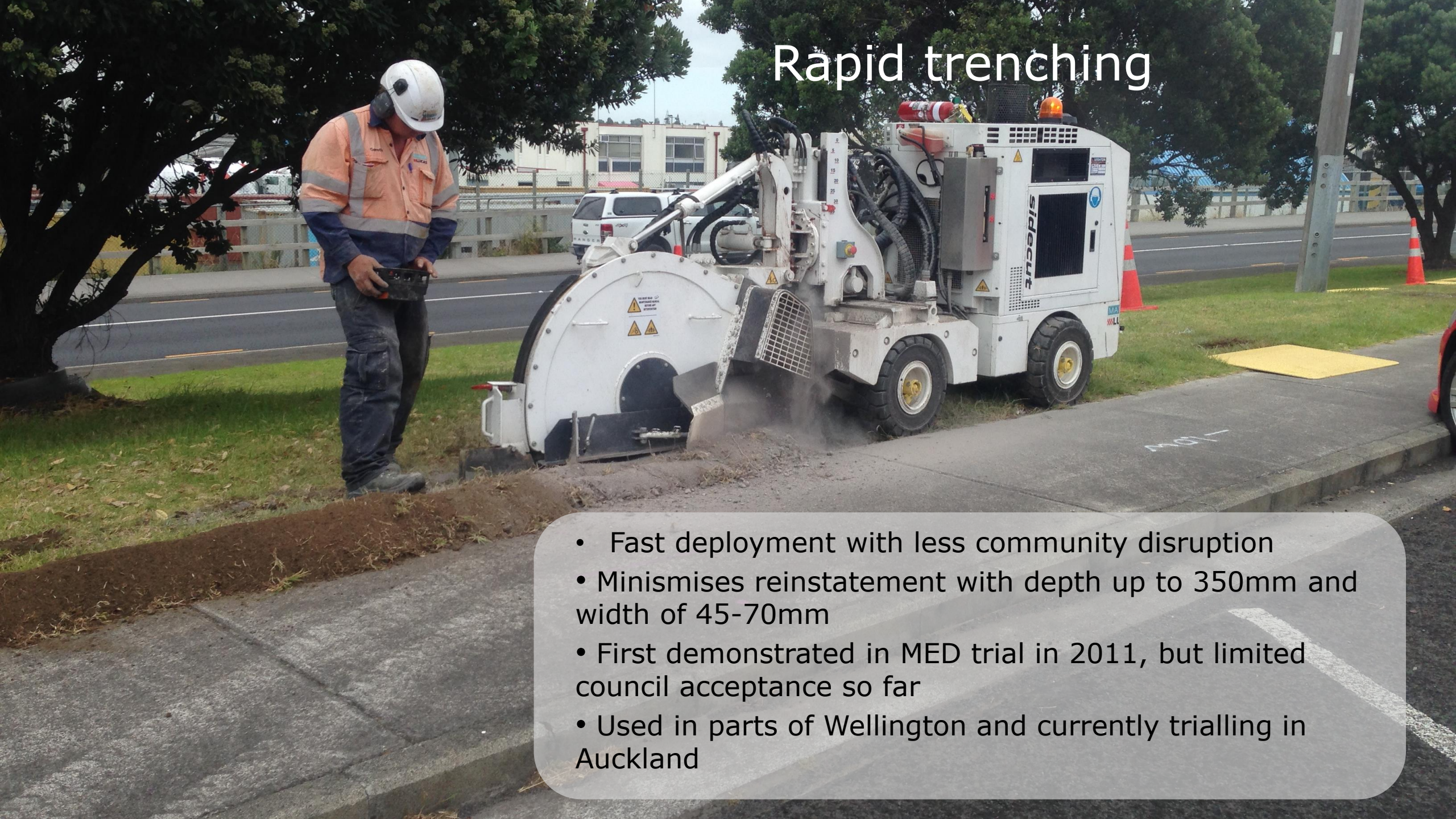


## **Rapid Trenching:**

mechanical saw enables narrow, shallow trenching



# Rapid trenching

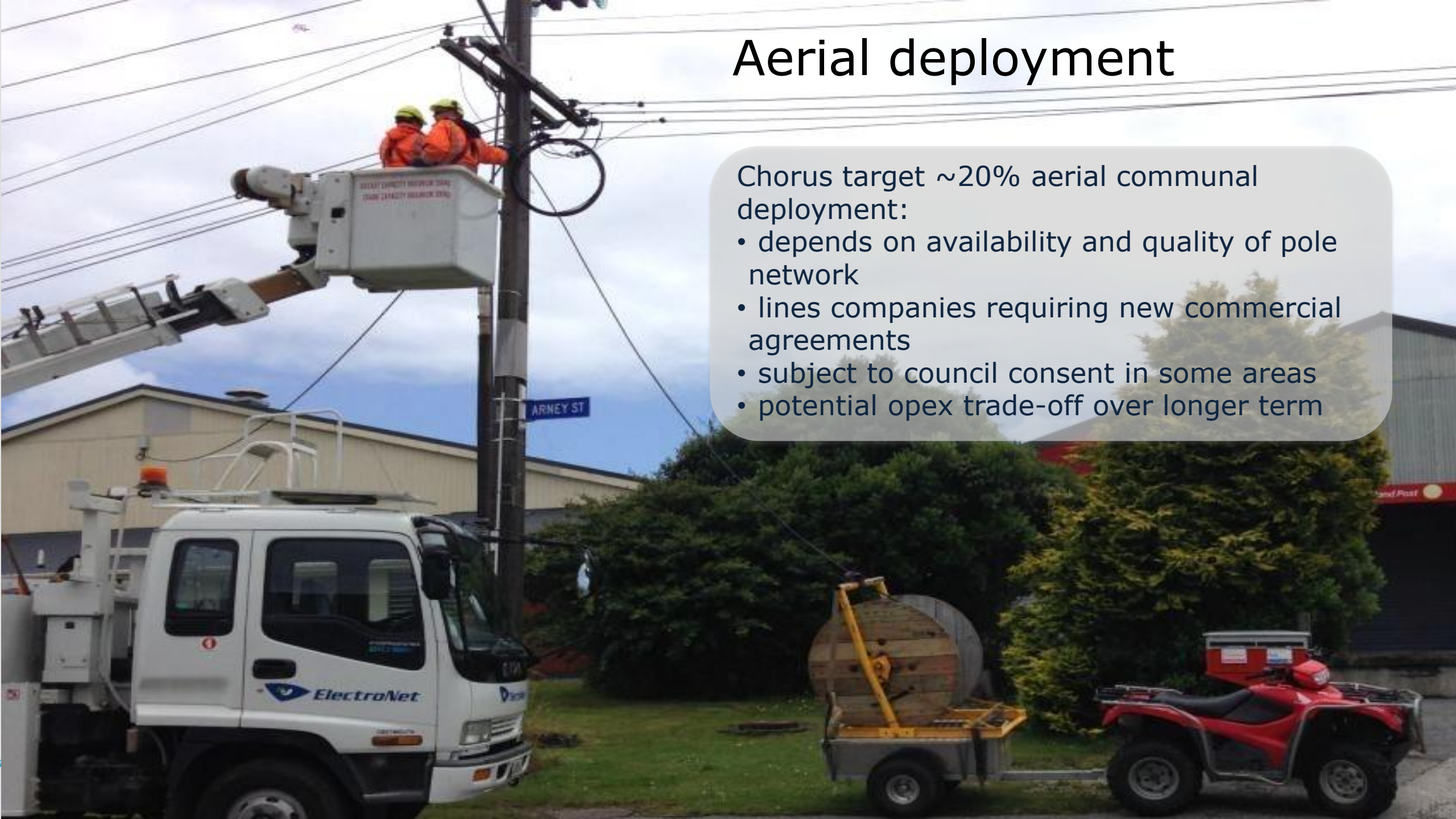


- Fast deployment with less community disruption
- Minimises reinstatement with depth up to 350mm and width of 45-70mm
- First demonstrated in MED trial in 2011, but limited council acceptance so far
- Used in parts of Wellington and currently trialling in Auckland

# Aerial deployment

Chorus target ~20% aerial communal deployment:

- depends on availability and quality of pole network
- lines companies requiring new commercial agreements
- subject to council consent in some areas
- potential opex trade-off over longer term



# Deployment flexibility: CFH agreement

- > Chorus now has ability to determine phasing of rollout and reschedule costly areas
  - includes deferral of build in existing business fibre zones
  - savings will be subject to cheaper deployment options being found and cost to build out existing business fibre in interim



**Example:** Existing business fibre footprint in Courtenay Place may enable deferral of UFB build.

# Premises types and connections process

*Premises type estimates from UFB deployment premises count methodology*



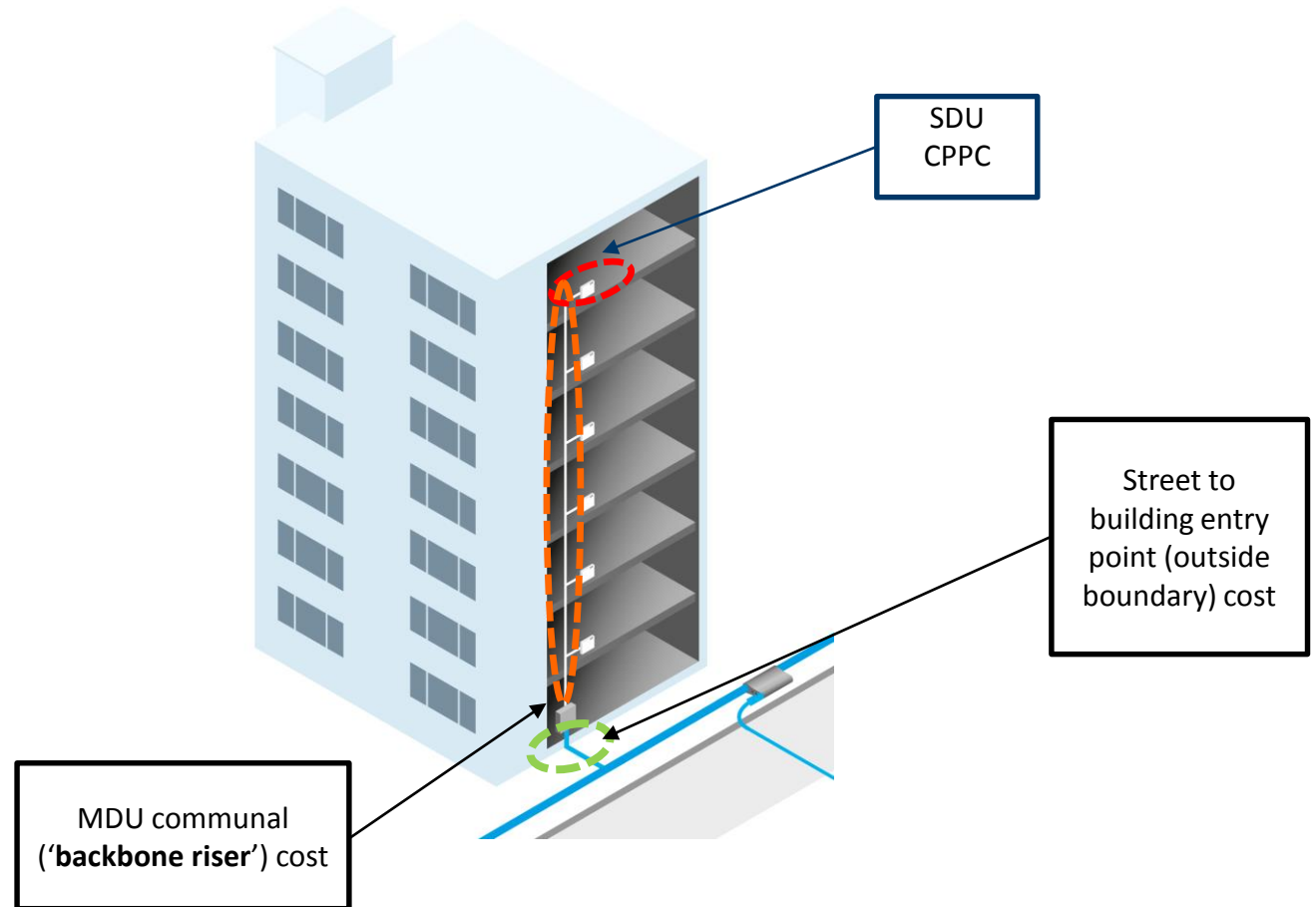
<b>Premises</b>	649,000	123,000	10,000	4,000	1,000	<b>787,000*</b>
<b>End user connections</b>	649,000	267,000	43,000	34,000	57,000	<b>1,050,000</b>

\*Total UFB premises in Candidate Area, excluding greenfields

Note: Rights of way may occur in any of the above premises type categories

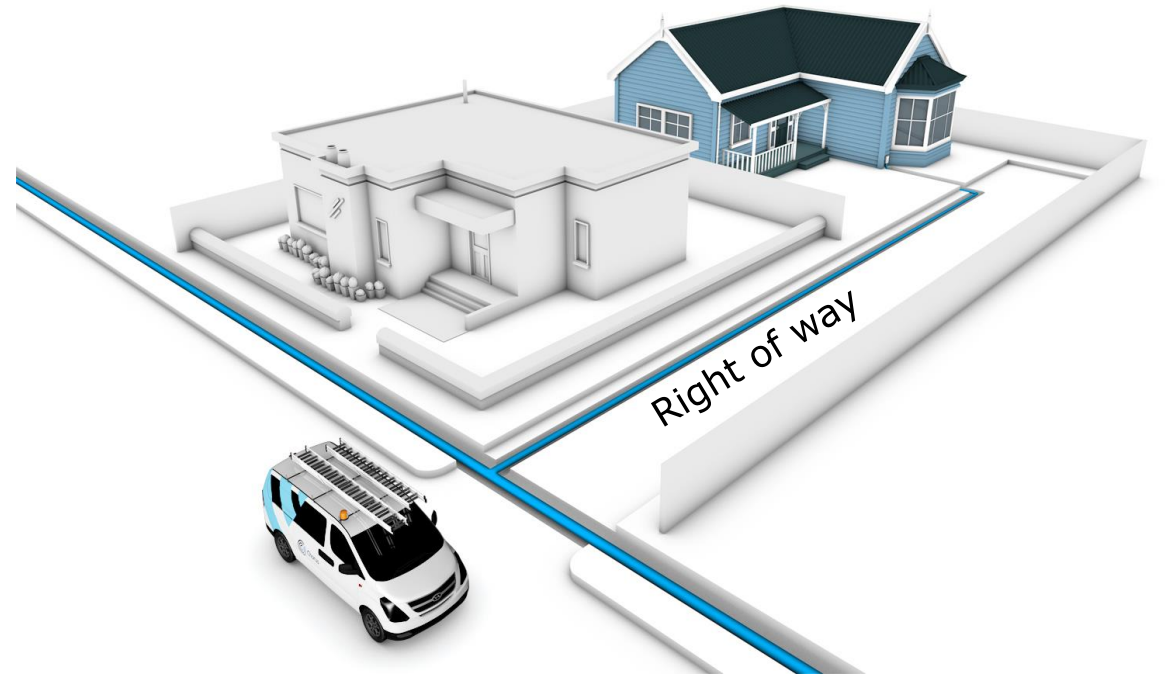
# Multi-Dwelling Units (MDUs)

- > premises containing more than one occupancy within the boundary
- > may include apartment or office blocks
- > some already fibre connected
- > connection funding varies depending on height of building and number of tenancies
- > general principle that Chorus funds up to \$1,000 per end user from the entry point to the apartment

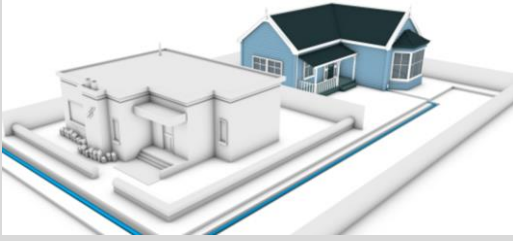





# Rights of way

- > more than one premises with separate ownership sharing a common access to the public roads
- > may include detached or semi-detached dwellings, apartment blocks, townhouses that share a common access
- > general principle that end users receive 'free' 15m connection from Chorus



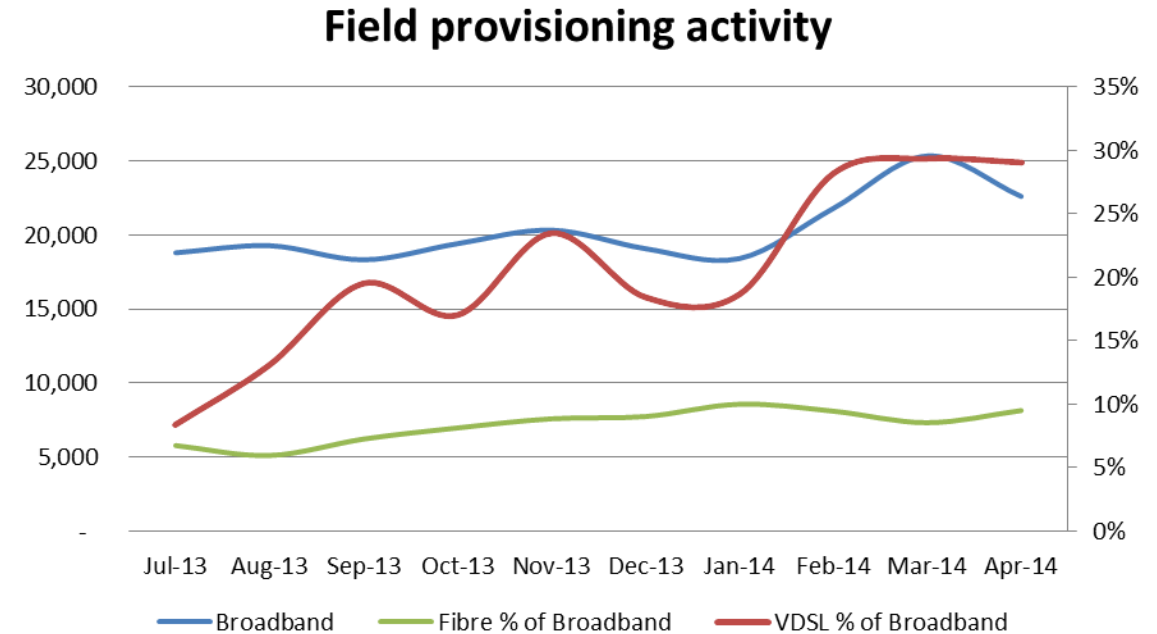
# UFB installation types and funding

	<b>Rights of way</b> 	<b>Single dwelling units</b> 	<b>Simple Multi-dwelling units (up to 3 stories)</b> 	<b>Complex Multi-dwelling units (&gt;3 stories)</b> 
<b>Chorus funded</b> Note: funding policy will change at end of UFB build contract in 2020	<b>Residential/business standard lead-in from street to building entry point at time of connection:</b> <ol style="list-style-type: none"> <li>1. New underground – up to 15m</li> <li>2. Existing conduit or open trench – up to 100m</li> <li>3. Aerial – 1 span</li> <li>4. In-home wiring to the ONT*</li> </ol> *Internal cabling limited to 5m once NSI fund ends.			
<b>Non-standard install Fund</b> Note: capped at \$28m funding from Chorus	<b>Residential non-standard RoW installation:</b> <ol style="list-style-type: none"> <li>1. New underground 15m to 200m</li> <li>2. Existing Conduit open trench &gt;100m to 200m</li> <li>3. Aerial &gt; 1 span</li> </ol>	<b>Residential non-standard installation:</b> NSI fund available for: <ol style="list-style-type: none"> <li>1. New underground 15m to 200m</li> <li>2. Existing conduit or open trench up to 200m</li> <li>3. Aerial &gt;1 span</li> </ol>		<b>Entry point to Apartment ('backbone riser'):</b> Chorus funds up to \$1k per residential/business tenancy
<b>Other funding required</b>	<b>Residential &gt;200m</b> charged via RSP			
	<b>Business non-standard RoW installation:</b> charged via RSP <ol style="list-style-type: none"> <li>1. New underground &gt;15m</li> <li>2. Existing conduit or open trench &gt;200m</li> <li>3. Aerial &gt; 1 span</li> </ol>	<b>Business non-standard install lead-in:</b> charged via RSP	<b>Simple business install:</b> charged via RSP (or building owner) to fund lead-in and backbone riser costs if exceeds Chorus funding.	Building owner to pay for lead-in and backbone riser costs if exceeds Chorus funding

Note: Installation is different from connection, which may be charged for business plans.

# Reducing cost to connect

- > Completed ~2,200 NGA installs in March; 100 more than February
  - no two properties the same
  - scope of work greater than in past
  - meeting SLAs
- > Data from installs to date has provided basis to begin implementing coded rates with service companies; most apply from early FY15
- > Emphasis on reducing civil costs between boundary and ETP
  - reviewing technology options and work methods



# Connections process

- > Agree + Build + Connect process
  - full implementation end May
  - splits expertise into 3-step process
  - reduced rescheduling by better matching resources and equipment to on-site conditions
  - end user time on-site halved to ~4 hours
  - continuing to work with RSPs to enhance information/equipment coordination and end user experience



## Agree

Meet with end user to agree an install plan.



## Build

External work from boundary to premises completed without presence of end user.



## Connect

Internal premises work completed with end user present to ensure service working.



**Market insights – Rosalie Nelson**

# Telecommunications globally is transforming

## Internet of 'things'



### Connected Home

- Multiple devices per user, per household
- Remote home management
- Personal cloud and storage



### Business data demands

- Cloud services & M2M monitoring
- Teleworking and home working
- Data analytics



### Ultra high-definition video

- TV on demand
- Video communications
- Gaming and e-learning
- Security and surveillance



### Smart Cities

- Utility asset management
- Intelligent public transport
- CCTV cameras and public safety
- Education and health services

## Trends in New Zealand

### Exponential device growth – slow on home management

- Average # of smart devices in NZ homes increased from 2.9 to 5.2 in 3 years
- Smartphones have grown from 13% penetration in 2011 to 68% in 2014
- Tablets have grown from 4% penetration in 2011 to 39% in 2013

*IDC NZ Consumerscape Survey 2014*

### New Zealand small business yet to capture productivity and revenue gains

- Business fibre uptake has grown from 9% to 15% between 2010 and 2012
- 41% of SME's have a website; 18% use cloud services
- \$33 billion in identified economic benefits

*NZ Statistics 'Business use of ICT 2012'; MYOB Trans-Tasman report 2014; Bell Labs UFB study,*

### Multiple devices and high definition video are driving bandwidth growth

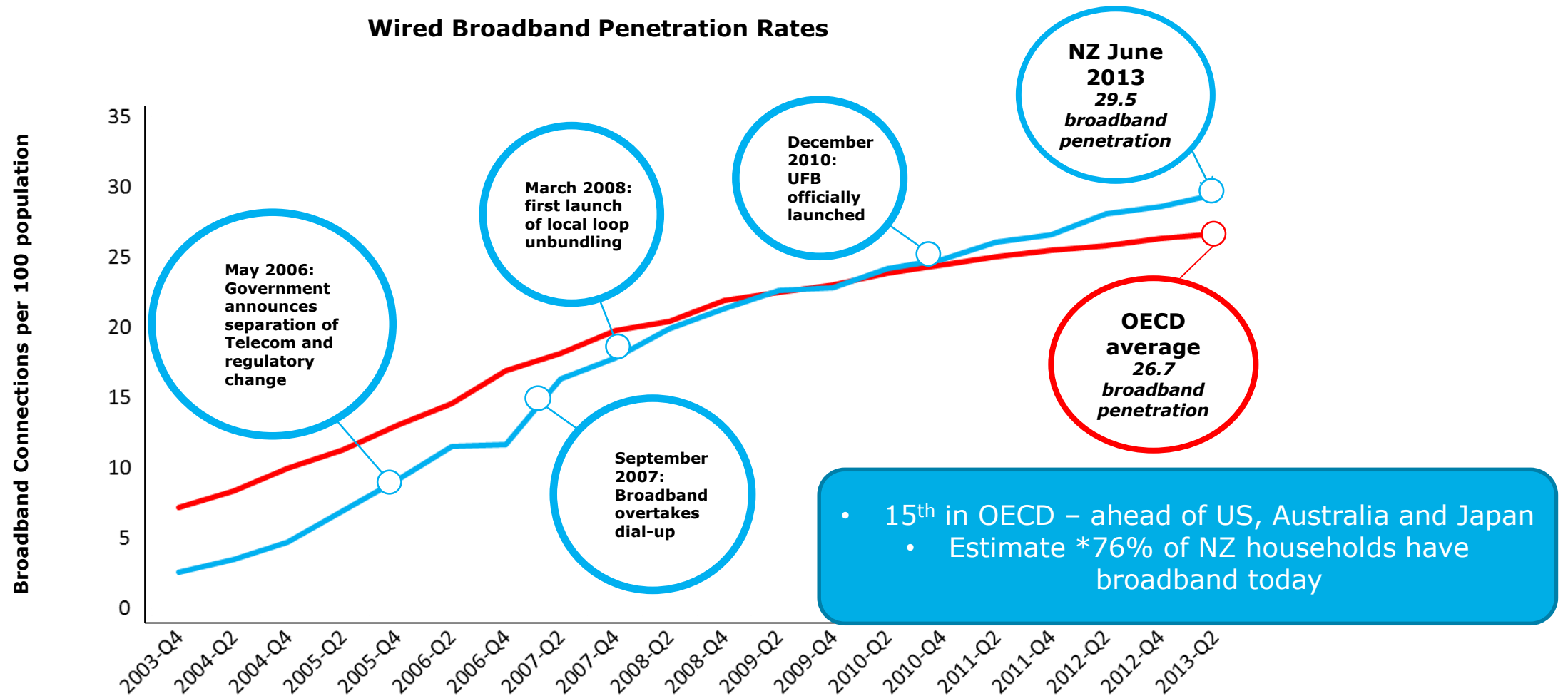
- NZ video traffic grew 40% in 2 years: consumer video comprises 61% of traffic The average household generated 23GB per month in 2013, up from 10GB in June 2011
- 21% of consumer's recent TV purchase was a 'Smart TV' - (Australia 18%)

*Cisco VNI forecast; NZ Statistics ISP survey, IDC NZ Consumerscape Survey 2014*

### Early stages: cities are developing 'digital strategies'

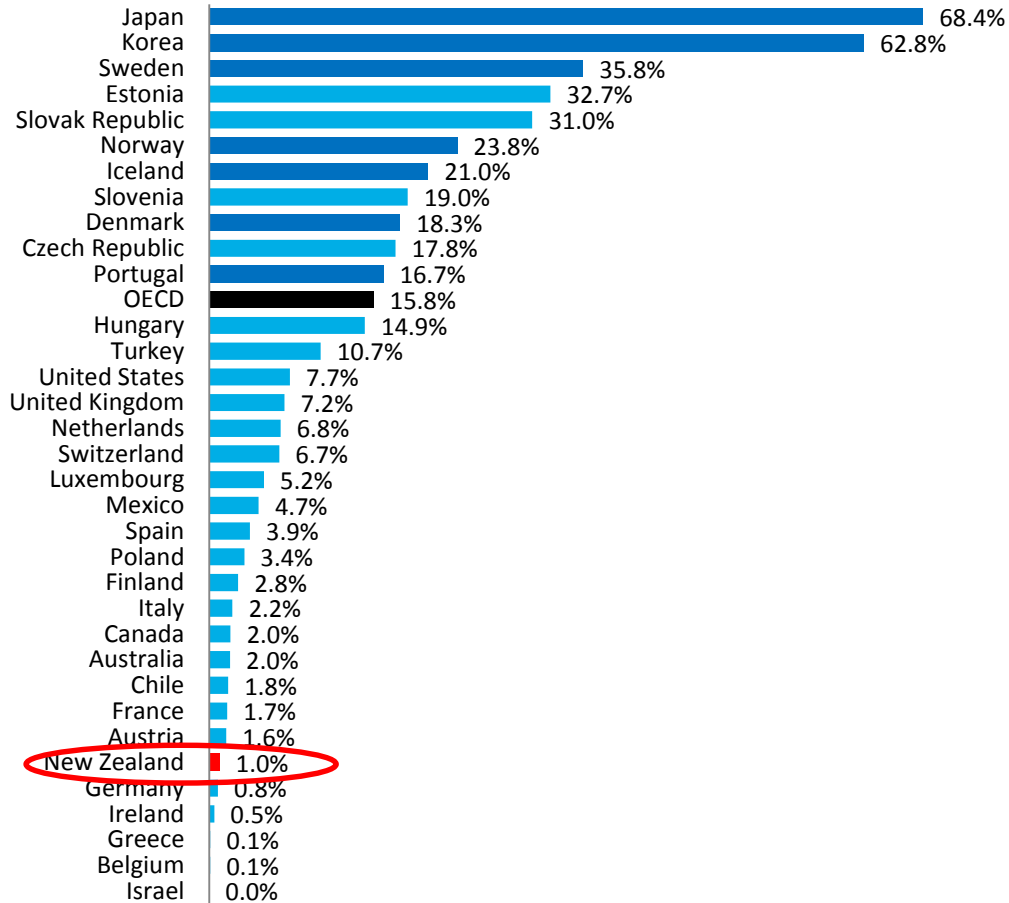
- Initial focus is intelligent transport platforms and enabled bus shelters
- Auckland developing innovation clusters – 'Techapuna' and Wynard Quarter
- Regional Gigatown contestants developing digital strategies

# In 2013 NZ was one of OECD's fastest-growing broadband markets

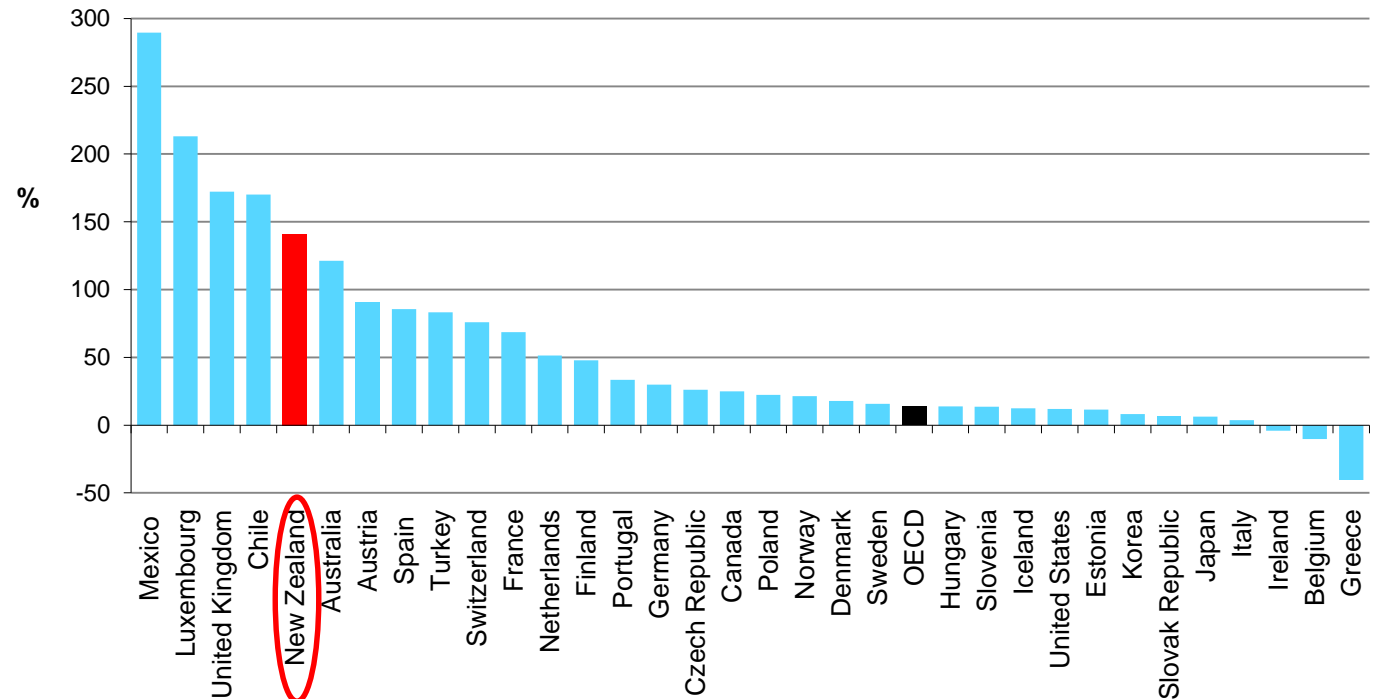


# Fibre penetration showing good growth from low base

Percentage of fibre connections in total broadband subscriptions, June 2013

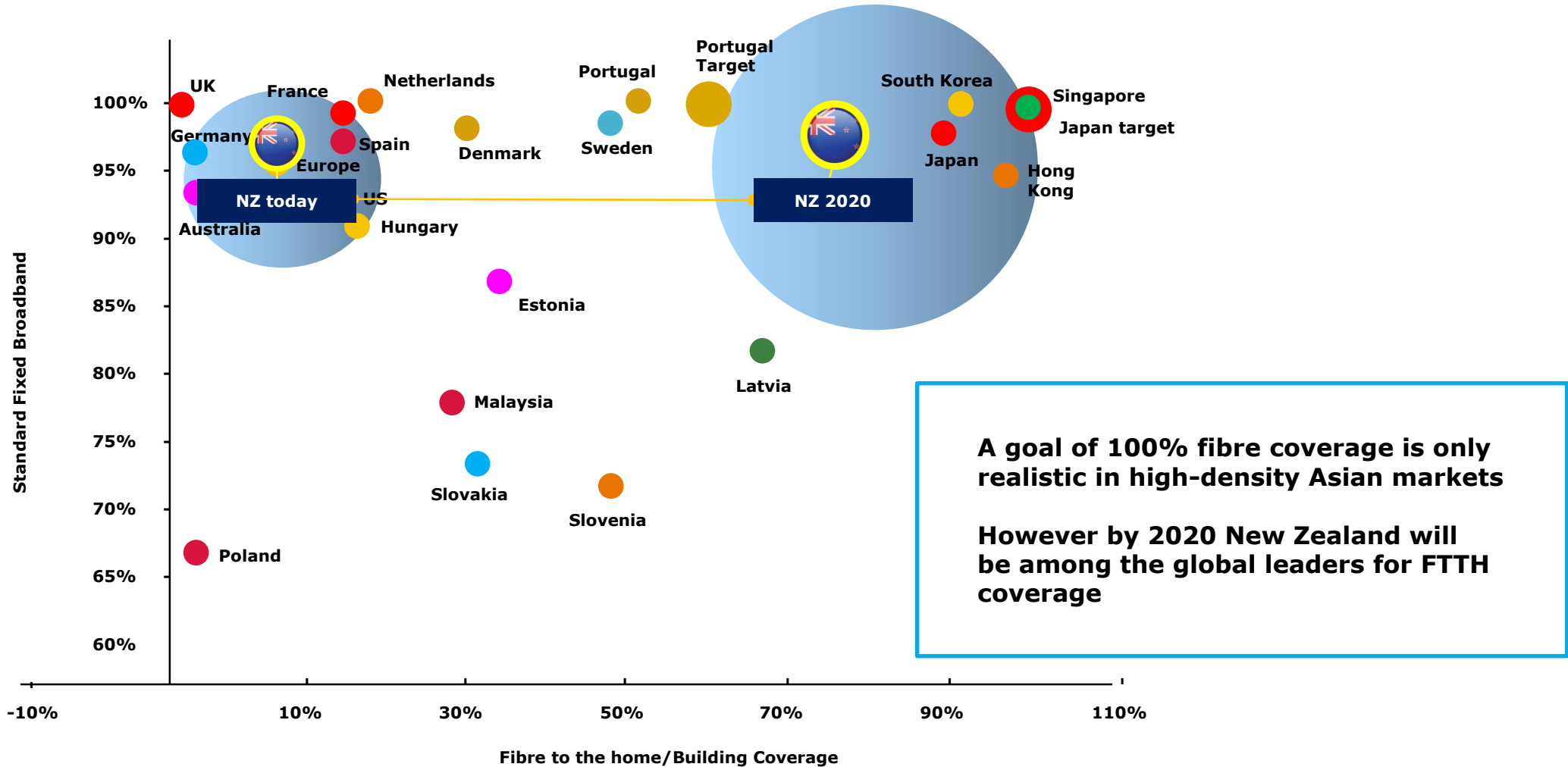


Annual growth of fibre connections, June 2012-2013



Developed markets with longstanding fibre programmes (~8 – 10 years)

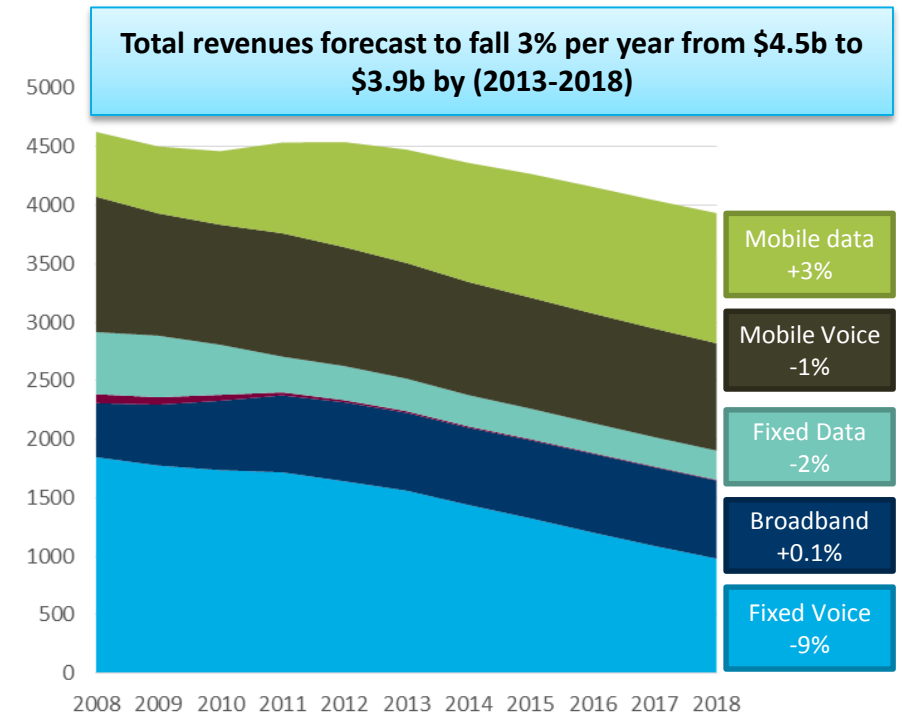
# Target of 75% coverage will put NZ into leadership quadrant



# Industry in transition

- > **Industry grappling with price/value propositions**
  - Cost management remains a focus
- > **But also see innovation activity**
  - 'ShowMeTV', cloud gaming, integrated WiFi, multicast TV
- > **Merger and aggregation activity for growth/scale**
  - Strong trend amongst smaller RSPs
- > **Chorus has ~100 customers – many niche providers**
  - New customers focussing on sector or region
- > **Some local providers are expanding for scale**
  - SNAP (Christchurch based) expanding from Christchurch to other markets
  - NOW (Hawkes Bay) expanding into lower North Island
- > **Activity from new types of provider**
  - Trustpower expanding nationally with voice, broadband, power, gas offer
  - MyRepublic – Singapore-based fibre-only entrant focussed on cost leadership

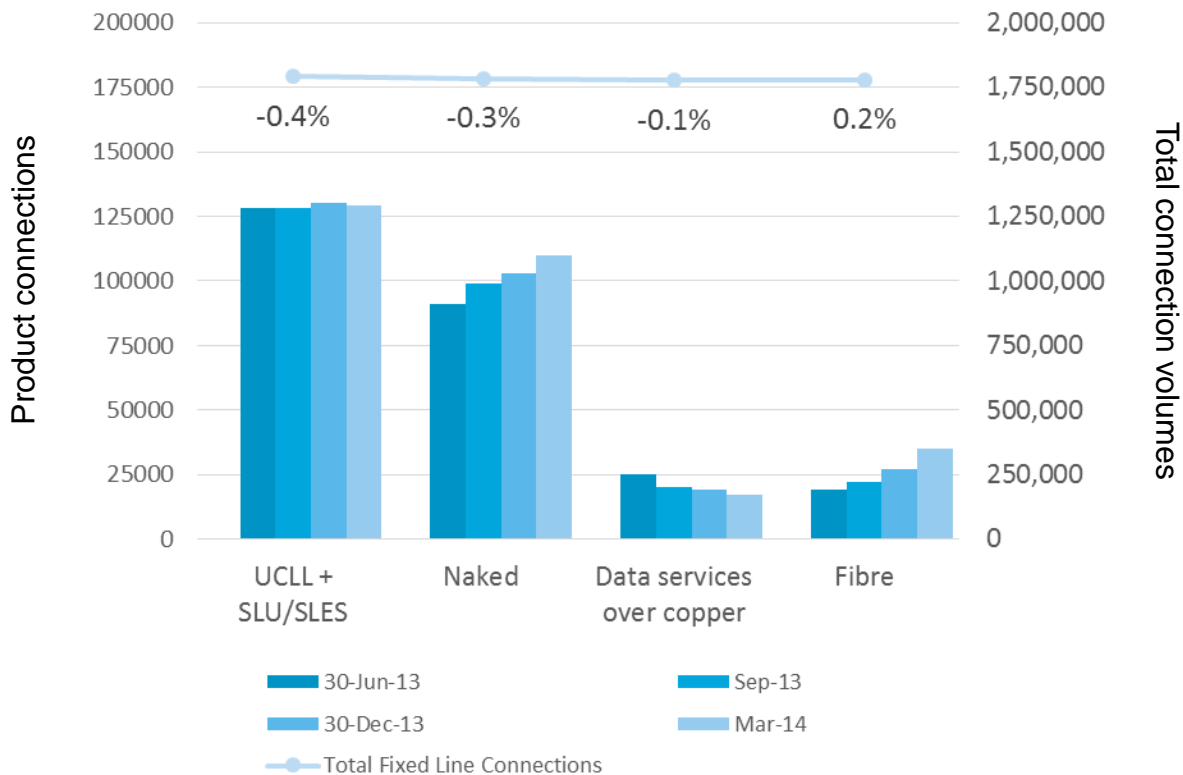
IDC New Zealand Telecommunications  
Forecasts March 2014



\*Dial up features only to 2013 (marked in red)

# Total connections holding steady

Chorus Total Fixed Line Connections Trends  
June 2013 to March 2014



> **Static overall** – grew marginally in the March quarter

- > Benign competitive impact to date
- > Rural Broadband Initiative providing additional coverage
- > Baseband voice bundled with fibre broadband

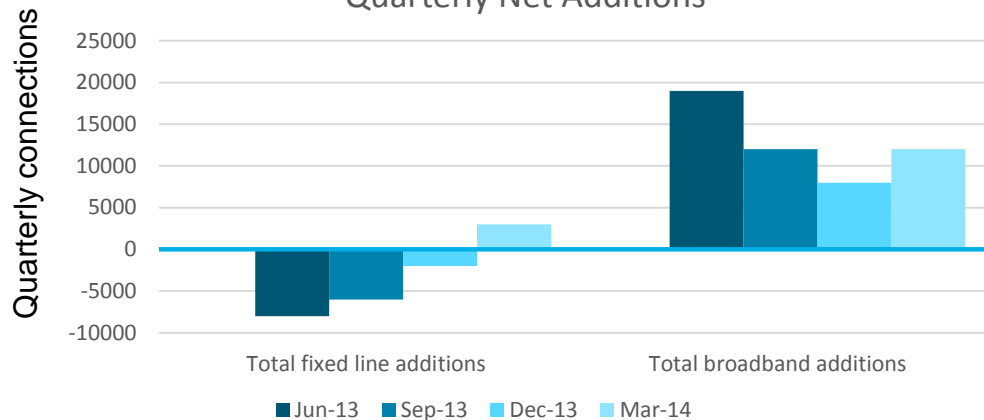
> **‘Clean up’** of secondary data lines

> **UCLL growth is flat overall**

	Jun-13	Sep-13	Dec-13	Mar-14	Quarterly average change
<b>Fixed line connections</b>					
Baseband copper	1,521,000	1,509,000	1,497,000	1,488,000	-1.2%
UCLL	122,000	123,000	125,000	125,000	0.5%
SLU/SLES	6,000	5,000	5,000	4,000	-7.2%
Naked Basic/Enhanced UBA and Naked VDSL	91,000	99,000	103,000	110,000	9.8%
Data services over copper	25,000	20,000	19,000	17,000	-9.6%
Fibre	19,000	22,000	27,000	35,000	27.2%
<b>Total fixed line connections</b>	<b>1,784,000</b>	<b>1,778,000</b>	<b>1,776,000</b>	<b>1,779,000</b>	<b>-0.2%</b>

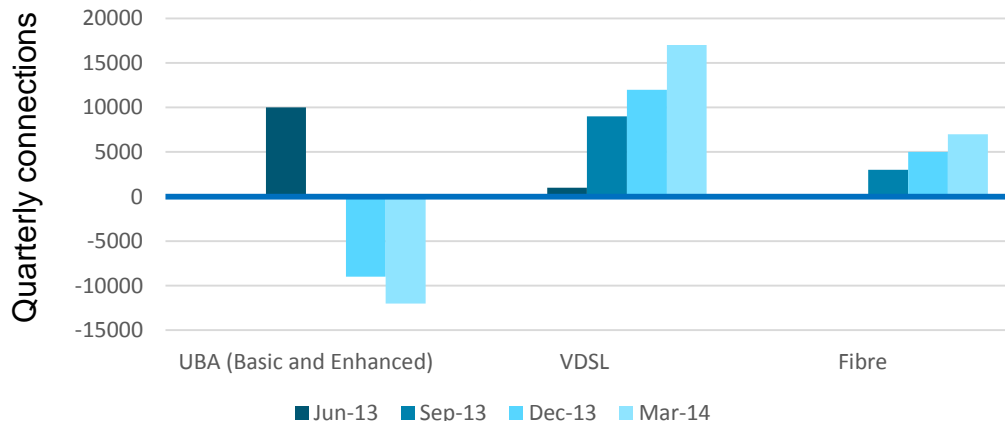
# Broadband growth continues

Total fixed & Broadband Connections  
Quarterly Net Additions



- > **Seasonal factors affected December broadband connections** – but growth resumed in March
- > **Basic UBA migration to Enhanced-UBA continues**
- > **Seeing a stronger shift from mass market UBA products to high-speed VDSL and fibre**
  - > VDSL growing from a low base: 13k adds in last quarter
  - > \*Fibre broadband: 7k adds

Migration to higher speed capability  
Quarterly Net Additions



	Jun-13	Sep-13	Dec-13	Mar-14	Quarterly average change
<b>Broadband Connections</b>					
Basic UBA	331,000	268,000	246,000	211,000	-13.9%
Naked Basic UBA	11,000	11,000	11,000	8,000	-10.1%
Enhanced UBA	680,000	737,000	747,000	767,000	4.1%
Naked Enhanced UBA	78,000	84,000	87,000	93,000	6.0%
VDSL	2,000	9,000	20,000	33,000	154.6%
Naked VDSL	2,000	4,000	5,000	9,000	65.1%
Fibre GPON (Bitstream 2 & 3, fibre subdivisions)	8,000	11,000	16,000	23,000	42.2%
<b>Total Broadband Connections</b>	<b>1,112,000</b>	<b>1,124,000</b>	<b>1,132,000</b>	<b>1,144,000</b>	<b>1.0%</b>

\* Fibre broadband excludes P2P fibre and business data circuits

# Appetite for better broadband is increasing

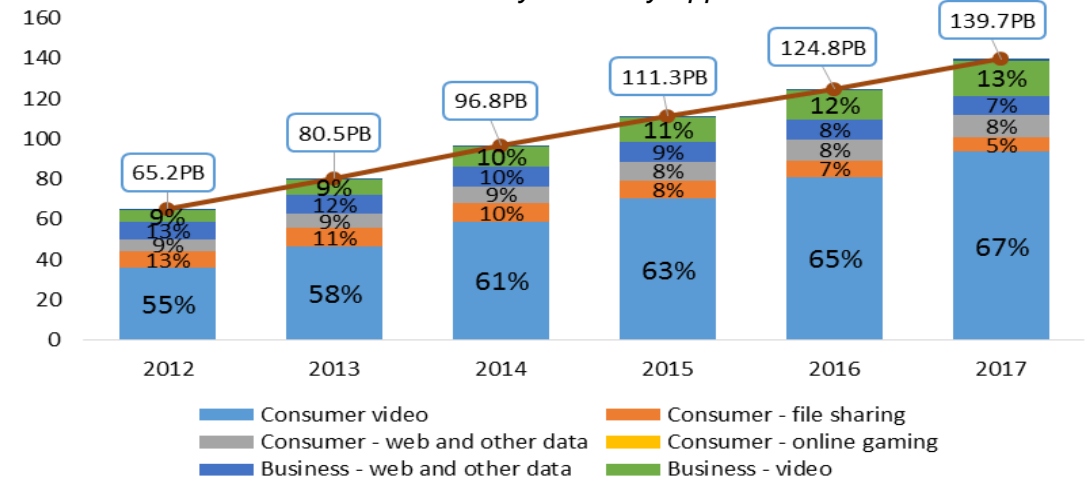
- > **Data caps become unlimited**
  - > In 2013, 79% of broadband lines offered more than 20GB
- > **RSP marketing focus is shifting to speed/capability**
- > **We have good high speed coverage**
  - > VDSL available for ~60% of Chorus copper lines
  - > By end of March, 228k premises had UFB build complete and 297k end users within reach.
- > **High speed services = 5% of Chorus broadband connections**
  - > VDSL = 3%; \*fibre 2%
- > **Bandwidth demand is growing exponentially**

\*Includes all Chorus fibre connections

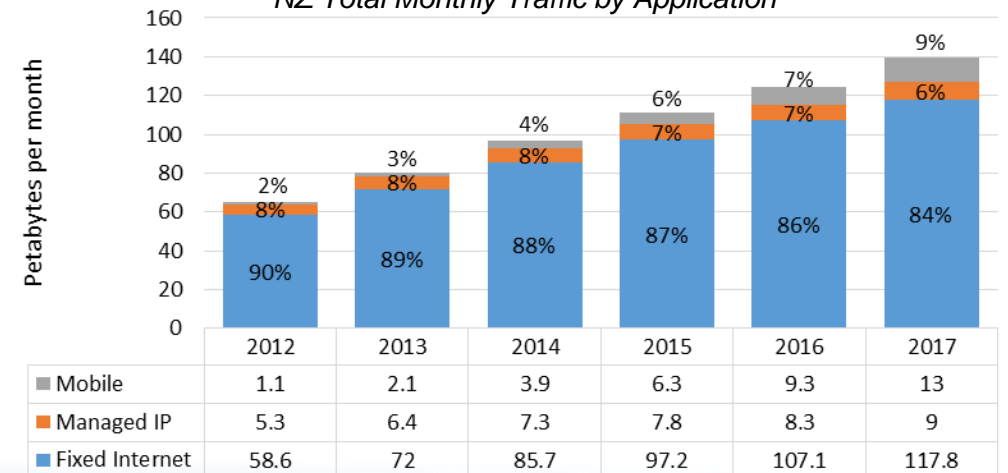
\*\* **New Zealand Cisco VNI Forecast Data** (<http://www.ciscovni.com/forecast-widget/index.html>)

Source: NZ Statistics 'ISP Survey 2013'

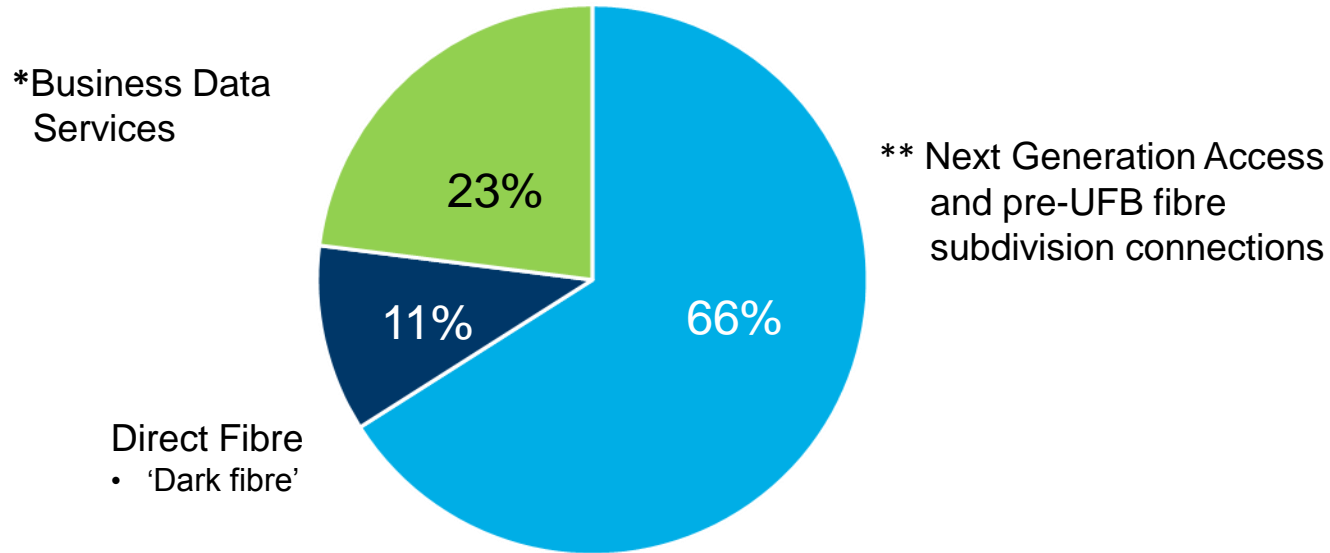
Cisco Visual Networking Forecasts  
NZ Total Monthly Traffic by Application



Cisco Visual Networking Forecasts  
NZ Total Monthly Traffic by Application



# NGA: Mass market GPON services dominate



## > 35,000 total fibre connections

> 18,300 fibre connections within UFB deployed footprint

## > Business data connections are stable

> Continue to see good growth in High Speed Network Services (HSNS)

> Businesses providing conservative in migrating from established products

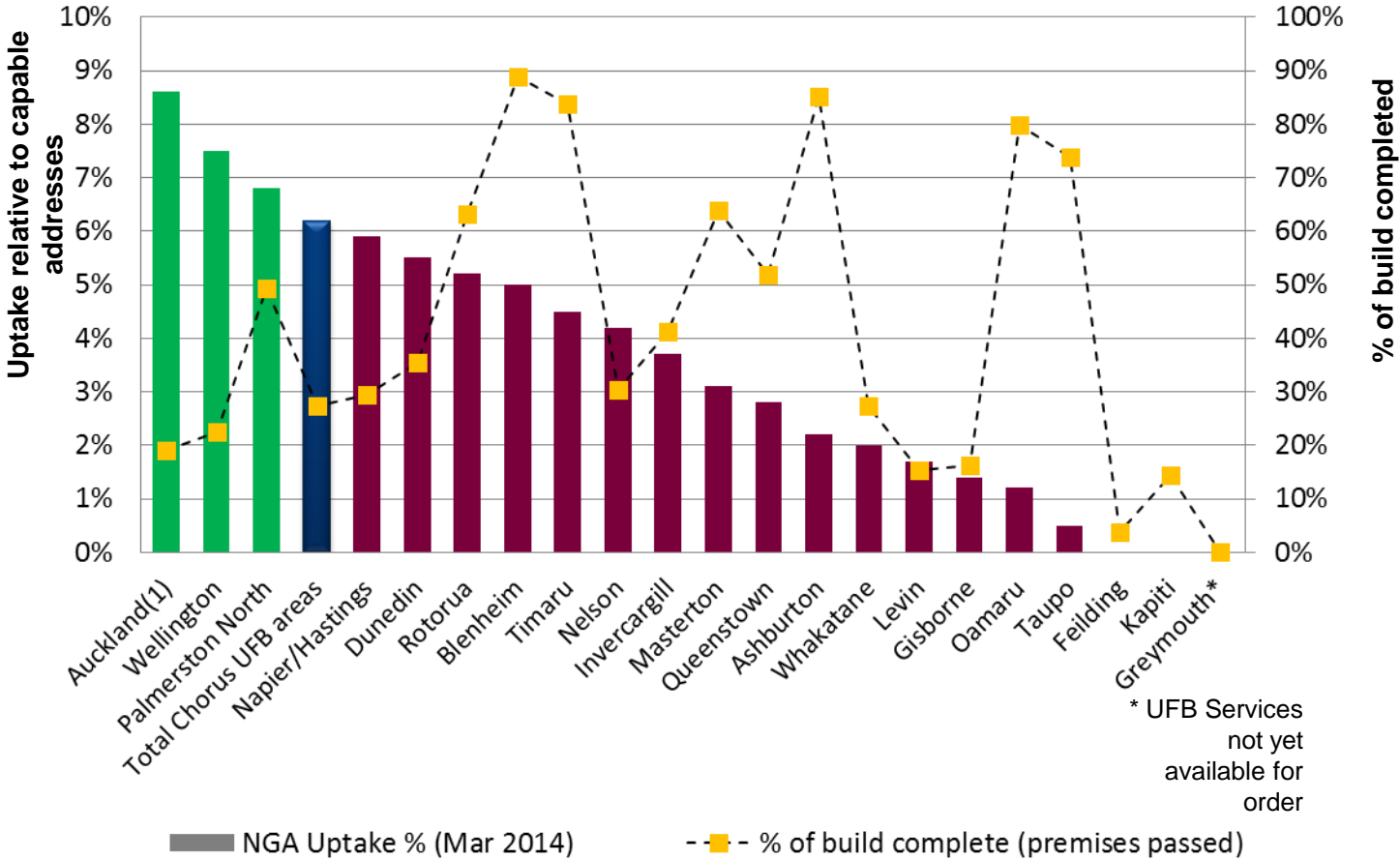
	30 June 2013	30 Sept 2013	31 Dec 2013	31 March 2014
Fibre connections within UFB complete area	6,300	9,200	13,100	18,300
<b>Total fibre connections (all NZ)</b>	19,000	22,000	27,000	35,000

\*Includes bandwidth fibre and high-speed network/bitstream 4 business services

\*\* Next Generation Access includes UFB Bitstream 2 & 3, education connections, BOF subscribers

# Regional uptake reflects activity of local RSPs

NGA Uptake Relative to End Users Available by UFB Candidate Area –  
March 2014



> **Local competition is still growing**

> There are between **2 and 14 RSPs** able to deliver **UFB** in all areas where deployment has started

> **UFB uptake reflects local activity of RSPs**

> Auckland and Wellington are highly competitive

> Palmerston North and Napier have active local RSPs

> **Also reflects regional demand**

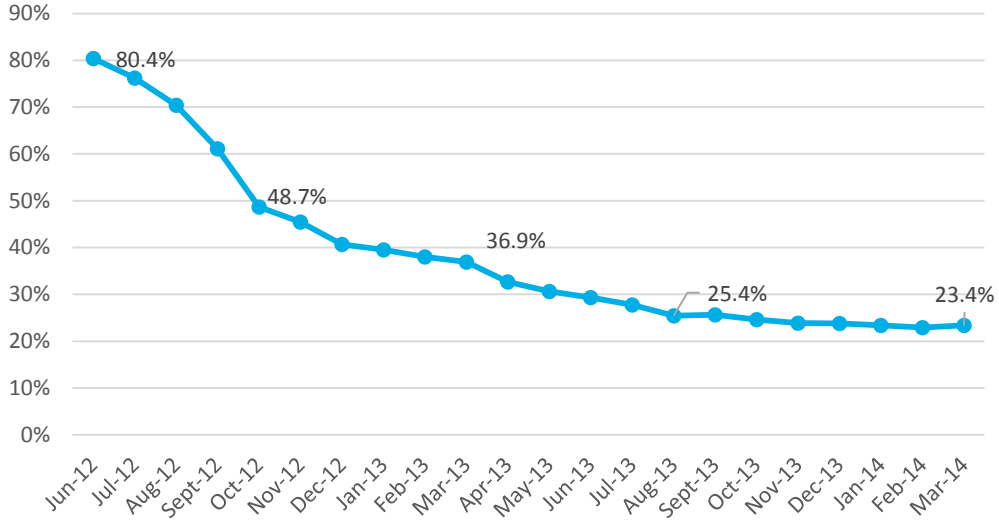
> Urban areas statistically have higher broadband penetration

> **Gigatown competition creating growing awareness and local demand potential**

1: Includes Auckland North, Auckland South, Pukekohe, Waiuku & Waiheke Island.

# Consumer fibre uptake is on low end plans

% of NGA fibre customers that are on 100Mbps+



- > **Percentage of users adopting 100Mbps plans is stabilising at ~23%**

- > RSP promotions are centred on 30Mbps

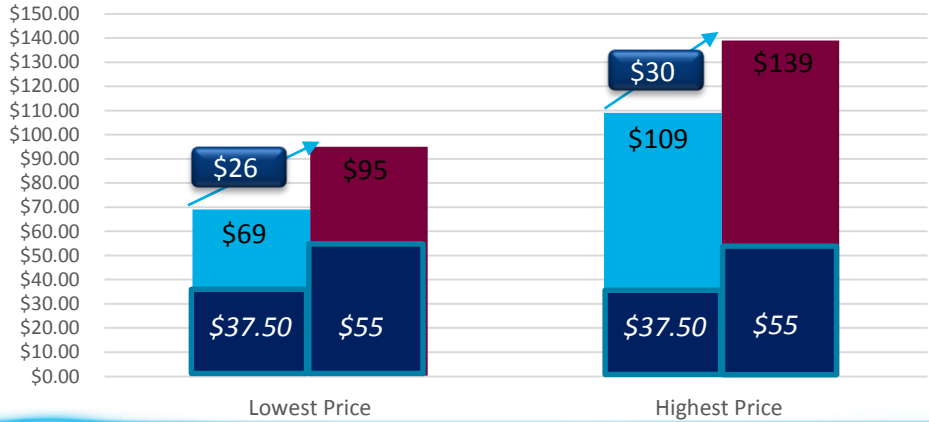
- > **Wholesale differential of \$17.50 translates to a retail price difference of ~\$30**

- > Significant price differential for consumers

- > Forces a very binary decision

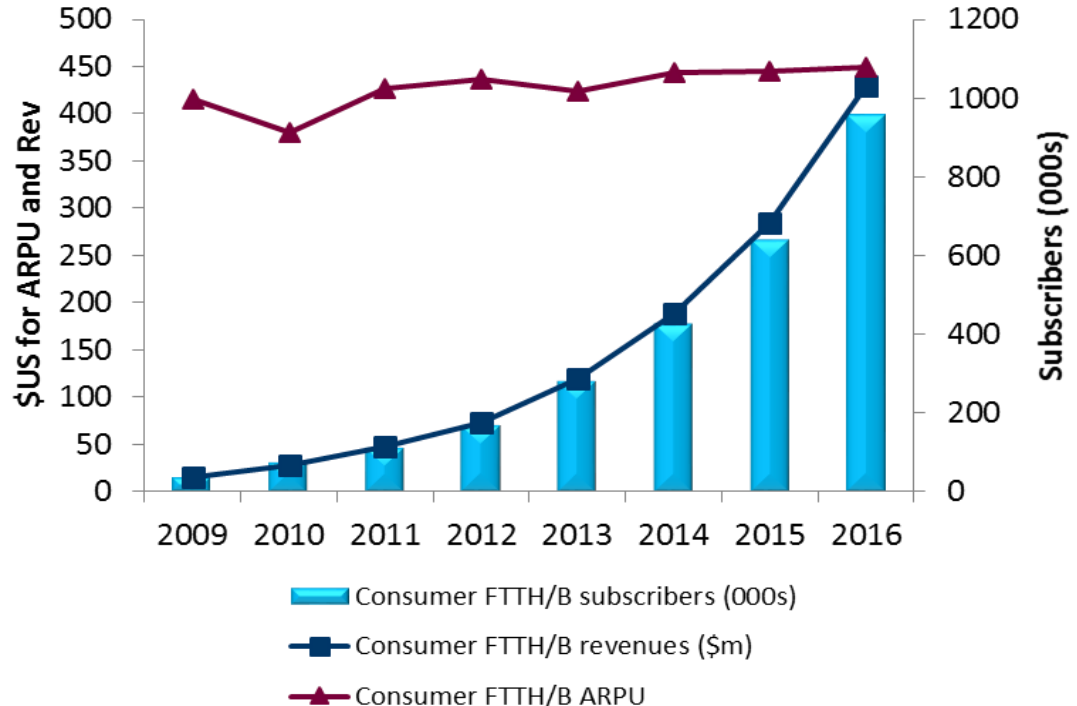
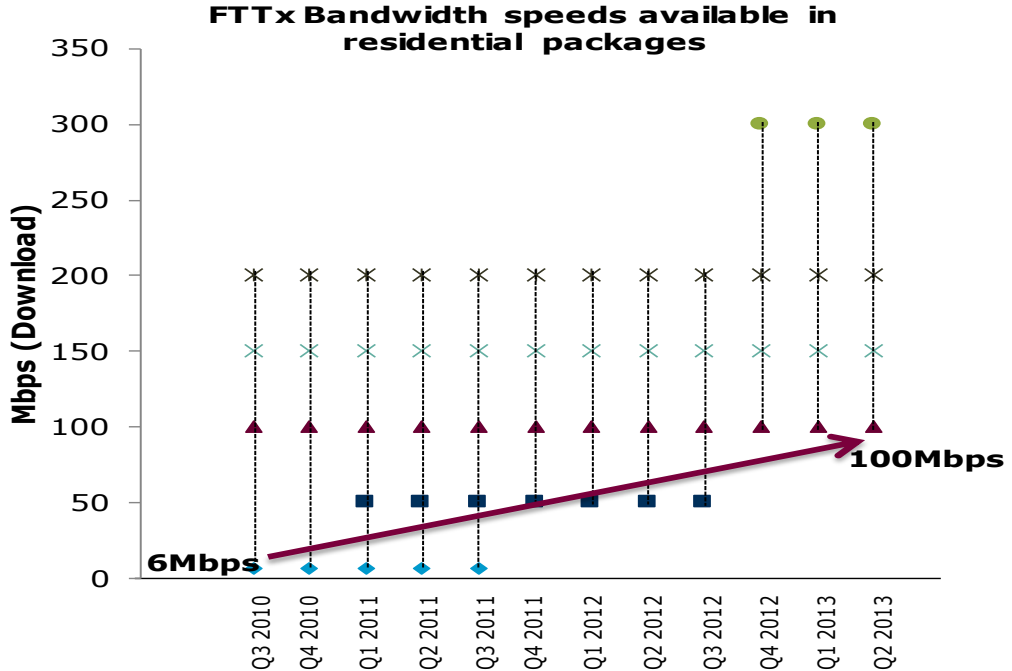
- > **New commercial fibre plans provide incremental options and support higher value uptake**

Fibre retail pricing



■ Chorus wholesale    
 ■ 30/10Mbps    
 ■ 100/50Mbps  
■ Retail Pricing

# NZ market aligning to international practices



**Note:** Tariffs collected from Singtel and Starhub. 1Gbps plans have been available since Q3 2010, however have been left off the chart to enable a view of the shift in entry level speeds

- > **In Q4 2013, a global review of 5,228 global broadband plans shows:**
  - > 96% were sold on speed or inherent capability; only 17% had an associated data cap
- > **Consumers in Singapore have at least four different downstream bandwidth options**
  - > Entry level speeds have increased from 6Mbps to 100Mbps but price relativities have been retained
- > **Singapore's revenues have increased with connections growth**

Source: Point Topic, Ovum

# Implications

## > **Underlying demand drivers are strong**

- End users want better broadband
- RSPs have mixed incentives and will focus on margin gain in addition to new opportunities
- Potential for higher ARPU through mixed commercial and regulatory portfolio

## > **Fibre represents a unique opportunity for RSPs to reinvent their portfolio**

- Move from price-based strategies to targeted, higher value propositions
- New entrants are attracted to open access fibre – represents a new type of service opportunity

## > **However transition may lead to more consolidation and disruption**

- Copper pricing uncertainty will continue to shape RSP focus
- Structural separation of the industry plus technology shifts is changing business models
- Acquisition and consolidation is occurring as RSPs seek to reposition and gain scale

## > **New Zealand has yet to fully recognise the potential of a national fibre platform**

- Focus to date is on infrastructure and technology
- Opportunity for industry and stakeholders to collectively engage on how to get better economic and social outcomes

**Any questions?**

