

# ANNUAL TELECOMMUNICATIONS MONITORING REPORT

2016



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# EXECUTIVE SUMMARY

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Over the 10 years since our first monitoring report, the use of the internet has become an essential part of most peoples' daily lives. It is now widely available at affordable prices in New Zealand.

The 2015 World Internet Project survey<sup>1</sup> found 91% of New Zealand adults were active internet users. A full 88% of respondents had an internet connection at home of some sort.

There are now around 5.8 million connected mobile devices in New Zealand. Even accounting for data-only devices, this means there is well over one mobile phone for every person in the country. We understand that around 95% of mobile phones sold are now smartphones with internet connectivity.

Mobile pricing has improved for typical bundles of services. A 'low user' bundle giving 50 minutes of calls and 100 MB of data a month is priced at \$13, which is 49% below the OECD average and 37% below Australia. A 'serious user' bundle giving 200 minutes of calls and 2 GB of data a month is priced at \$33, which is 31% below the OECD average and 3% above Australia.

Fixed-line internet connections are less pervasive than mobile, but around 74% of households have a fixed-line broadband connection. This maintains our connectivity ranking in the OECD and is well ahead of Australia. The UFB project has rolled fibre past 1.1 million homes and businesses with 368,000 connected as at 31 March 2017.

Fixed-line broadband prices have also come down. A broadband plan with a voice service and 100 GB of data, which is more than sufficient for the average household, is priced at \$65 a month. This is 8% below the OECD average and 7% above Australia. A 'premium' 100 Mbps fibre broadband service with unlimited data and a voice line is priced at \$90 a month which is 8% below the OECD average and 19% below the equivalent Australian offering.

Broadband speeds, more important for heavy users, have been increasing on average as UFB uptake has increased. Once connected to fibre, broadband consumers appear to get all the speed they need. The TrueNet<sup>2</sup> monitoring we fund is showing high speeds are being consistently delivered by most fibre retailers. The evening peak congestion previously seen in the delivery of ADSL broadband has largely declined to negligible levels.

Fixed-line data consumption is showing an average annual growth rate (CAGR) of 46%, with mobile data showing 79% growth. Chorus reported average data consumption across copper and fibre broadband connections had reached 151 GB per connection by April 2017. The average age of the population in a region and available broadband speed are strong determinants of data consumption.

Telecommunications consumers report a high level of problems. A New Zealand Consumer Protection survey undertaken in 2016 found telecommunications services had the highest number of problems, with nearly a third (31%) of consumers reporting a problem within the prior two years.<sup>3</sup> Although telecommunications services are complex and fast changing, we would like to see an improvement.

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1. [https://workresearch.aut.ac.nz/\\_data/assets/pdf\\_file/0003/71328/WIPNZ-Report-060515.pdf](https://workresearch.aut.ac.nz/_data/assets/pdf_file/0003/71328/WIPNZ-Report-060515.pdf)

2. <https://truenet.nz>

3. <https://www.consumerprotection.govt.nz/news-and-media/national-consumer-survey-2016/>

<b>NZ telecommunications snapshot statistics</b>	<b>2005/06</b>	<b>2006/07</b>	<b>2007/08</b>	<b>2008/09</b>	<b>2009/10</b>	<b>2010/11</b>	<b>2011/12</b>	<b>2012/13</b>	<b>2013/14</b>	<b>2014/15</b>	<b>2015/16</b>
<b>Total industry metrics</b>											
Total telecommunications retail revenue (\$bn)	4.92	4.9	4.92	4.93	4.96	5.03	5.25	5.21	5.17	5.11	5.22
Total telecommunications investment (\$bn)	0.92	1.07	1.18	1.69	1.55	1.24	1.27	1.58	1.69	1.77	1.59
Average monthly household telecommunications spend (\$) <sup>a</sup>		126	–	–	145	–	–	142	–	–	135
<b>Fixed-line metrics</b>											
Fixed lines (mil)	1.85	1.85	1.86	1.87	1.88	1.88	1.88	1.85	1.85	1.86	1.87
Total fixed broadband connections (mil) <sup>b</sup>	0.48	0.68	0.85	0.98	1.09	1.18	1.27	1.34	1.41	1.45	1.50
Fixed-line broadband connections per 100 pop	11.4	16.1	19.9	22.7	25.2	27.1	29	30.4	31.6	32	32.5
Average broadband speed – Akamai Q4 (Mbps)	–	–	2.7	3	3.4	3.7	4	5.3	7.3	9.3	12.9
Number of unbundled lines (000's)	–	–	3	37	67	98	116	129	127	123	107
Resold Spark phone lines (000's)	–	168	262	326	374	414	440	421	409	382	341
UFB (government sponsored fibre) lines (000's)	–	–	–	–	–	–	1	10	39	106	241
Chargeable fixed voice call minutes (bn)	7.29	6.91	6.71	6.67	6.25	6.12	5.71	5.47	5.13	4.66	4.34
Non-chargeable fixed voice call minutes (bn)	–	–	5.31	5.06	4.65	4.45	4.29	3.50	3.13	2.70	2.41
Total fixed-line retail revenues (\$bn)	2.99	2.93	2.93	2.88	2.89	2.89	2.86	2.77	2.68	2.58	2.53
Spark share of fixed-line retail revenues (%)	80	79	78	76	71	68	62	60	58	56	54
<b>Mobile metrics</b>											
Mobile connections (mil)	3.8	4.25	4.58	4.7	4.7 <sup>c</sup>	4.8	4.9	4.9	5.3	5.6	5.8
Active mobile connections per 100 population	92	102	108	109	108	110	111	110	118	121	123
Share mobile prepaid (%)	68.2	67.8	67.6	66.1	67.2	65.7	64.9	63.3	63.6	62.3	60.7
Mobile voice call minutes (bn)	2.76	3.17	3.66	4.24	4.44	4.40	4.42	4.77	5.30	6.63	8.16
SMS messages sent (bn)	–	–	–	11.4	12.8	13.6	13.9	13	12	12.1	11.3
Total mobile retail revenues (\$bn)	1.93	1.97	2.00	2.05	2.07	2.14	2.38	2.44	2.49	2.54	2.68

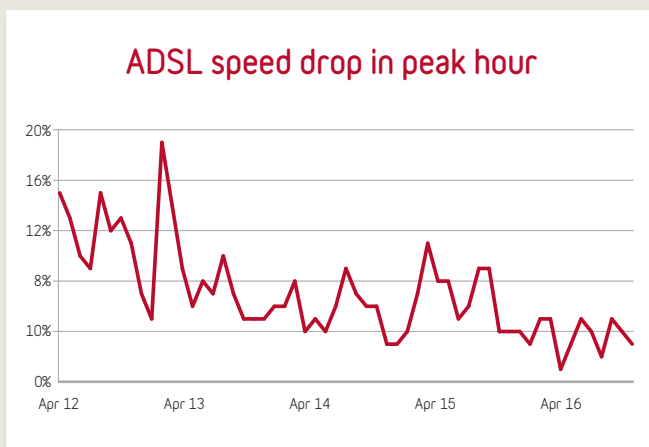
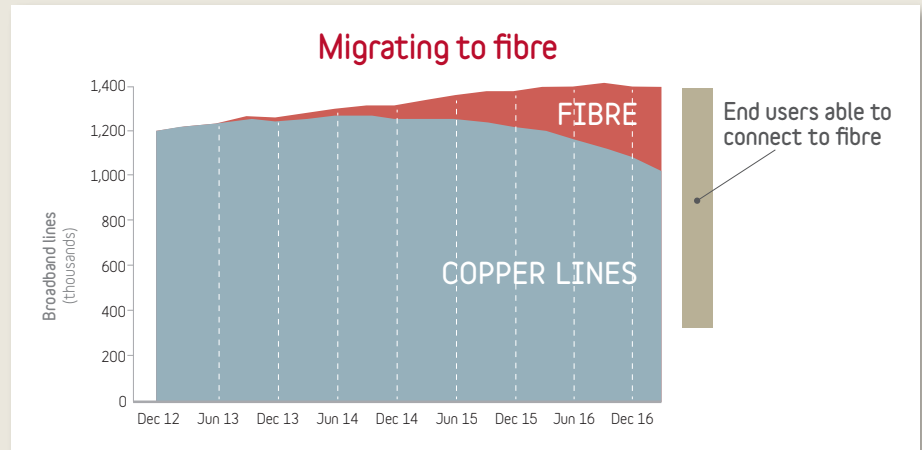
a. Data published every three years.

b. This measure includes non-cellular fixed wireless subscribers. The measure and the one below are as reported by the OECD.

c. From this year onwards, this is connections active in the last 90 days rather than six months as was previously used.

# Telecommunications Monitoring Report 2016

## Fixed



#### Entry level copper

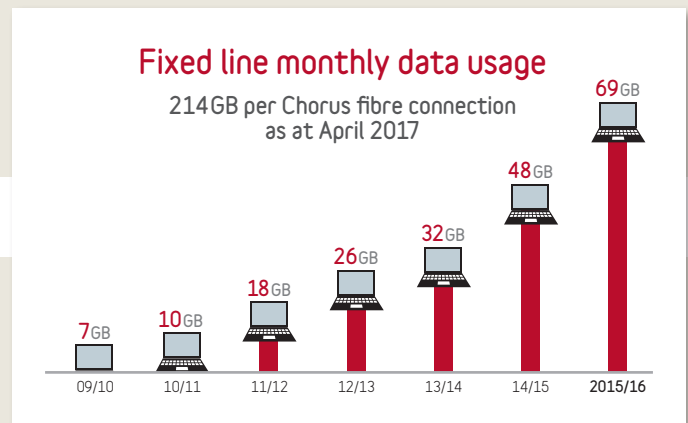
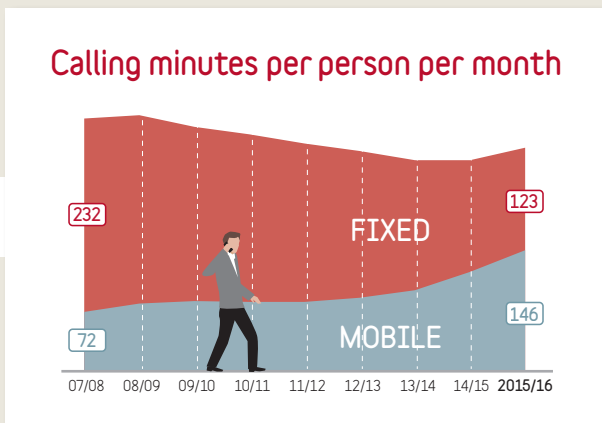
**BB+voice**  
\$65 per month  
10Mbps  
60GB

**8% below OECD average**  
7% above Australia

#### Premium fibre

**BB+voice**  
\$90 per month  
100Mbps  
500GB

**8% below OECD average**  
19% below Australia



## Mobile



#### Low user

**\$13 per month**  
30 calls  
100MB

**49% below OECD average**  
37% below Australia

#### Serious user

**\$33 per month**  
100 calls  
2GB

**31% below OECD average**  
3% above Australia

# INTRODUCTION

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## Purpose of this report

This is the Commerce Commission's tenth annual telecommunications market monitoring report. It examines the state of telecommunications markets in New Zealand and developments that occurred largely during 2016. The report also looks at longer term telecommunications trends.

This report is released under section 9A of the Telecommunications Act 2001, which requires us to monitor competition in, and the performance and development of, telecommunications markets. This monitoring is additional to that associated with specific determinations and information disclosure.

## Data sources

Since 2007, we have collected data from telecommunications operators to monitor and understand trends in the New Zealand telecommunications markets, and to inform the industry and the public about what we find.

The data in this report comes from various sources, but mainly a voluntary questionnaire sent to industry around September each year. It requests information we expect the companies to have from the financial year ending in June. The data from the industry questionnaire is for the 12 months to 30 June 2016 when it is a measure of volume like minutes. Where the data is a snapshot in time such as subscriber numbers, the date used is 30 June 2016. We refer to both types of data in this report as 2016 results. More recent industry data is also used where it is available, and the different time period noted.

For the Telecommunications Consumer chapter we mostly used data from other sources including data supplied by Chorus on average broadband speeds and data usage on its network. We also used data from Statistics New Zealand's triennial Household Economic Survey (HES). In addition, we had data from a study we commissioned on the extent to which regulated changes in wholesale charges for services provided by Chorus were passed through by retailers to residential consumers of fixed-line voice and broadband services (this will be reported on separately). The study used a sample of anonymised bills provided by the three largest fixed-line retailers: Spark, Vodafone, and Vocus. The bills provided information about the fixed-line services purchased and amounts paid.

Revenues and prices are expressed as nominal figures (not adjusted for inflation) unless otherwise indicated.

The data used is sometimes revised by the respondents or the Commission when it appears inaccurate, an error has been made, or it was an estimate. Consequently, some prior year figures used previously may have been revised.

The report cannot be as definitive as we would like this year because IT system changes at Spark meant that it was not able to accurately complete the questionnaire. We have therefore had to estimate many measures. All our measures of minutes and data should be treated as estimates, as should the mobile subscribers figure. We are confident of the overall trends because of the pattern seen with the other retailers, the prior year responses from Spark and publicly available data.

We thank all the respondents who submitted data and look forward to their continued cooperation. We welcome any comments or feedback on any aspect of this report.



# MARKET OVERVIEW

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This section gives an overview of telecommunications markets by making some observations about key developments as well as observing levels of investment, changes in subscribers, call volumes, and industry revenues.

## Fibre take-up continues to show very strong growth

The number of fibre connections continued to increase rapidly with UFB1 now 74% complete. As at 31 March 2017 there were 368,000 UFB fibre connections out of the 1.1 million households and businesses able to connect to UFB.

The retail price of a 50 Mbps broadband service delivered over fibre is generally the same as for the equivalent broadband service delivered over copper. A 100 Mbps fibre broadband service is usually priced at \$5 to \$10 per month more. A 'premium' 100 Mbps fibre broadband service with unlimited data and a voice line can be obtained for \$90 a month which is 8% below the OECD average and 19% below the equivalent Australian offering.

## Broadband speeds high and quality mostly improving

Once connected to fibre, broadband consumers appear to get all the speed they currently need which is helping to drive increased data consumption. The TrueNet<sup>4</sup> monitoring we fund is showing high speeds are being consistently delivered by most fibre retailers. The evening peak congestion seen in the copper network in the delivery of ADSL broadband has mostly declined to negligible levels.

## Telecommunications sector has more problems than any other

A New Zealand Consumer Protection survey undertaken in 2016 found almost nine out of ten consumers (87%) had purchased some kind of telecommunications service in the past two years. This included fixed-line services and mobile services. Nearly a third (31%) of all consumers reported having a problem with at least one of those services and 11% had problems with both. The telecommunications sector had more problems than any other.<sup>5</sup>

Although telecommunications services are complex and fast changing, we would like to see a reduction in the number of problems consumers are reporting.

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4. <https://truenet.nz>

5. <https://www.consumerprotection.govt.nz/news-and-media/national-consumer-survey-2016/>



## Fixed wireless broadband pushed as retail solution

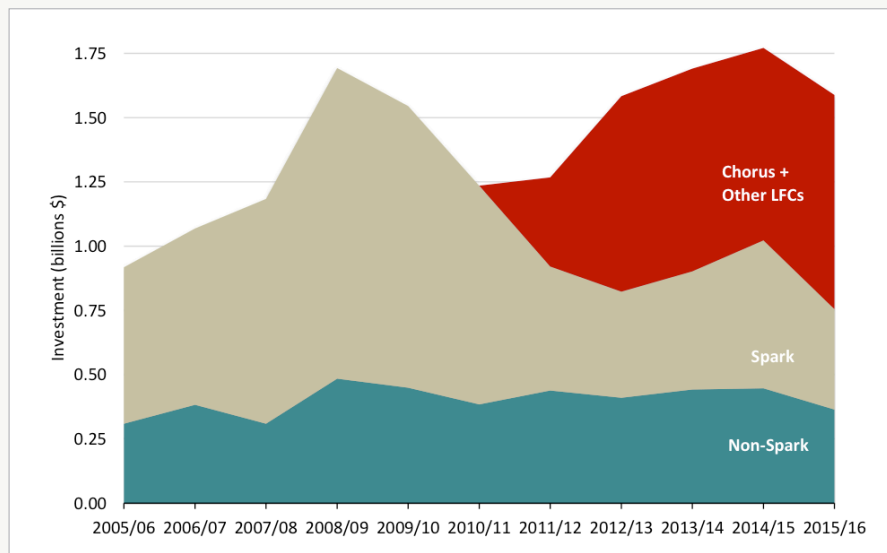
Following on from last year, when retailers started offering 4G fixed wireless broadband services<sup>6</sup> comparable in price and performance to ADSL copper broadband services, pricing and marketing of fixed wireless broadband services has become more aggressive and data allowances increased. Vodafone entered the market in December 2016 with services similar to Spark's except without the option of a voice service. Growth in fixed wireless subscribers has been very strong in the second half of 2016 as indicated by Spark announcing in its 2017 half year results (as at 31 December 2016) that it had over 40,000 fixed wireless broadband connections (including those under its Skinny brand).

## Smaller players gain ground

Both Trustpower and 2degrees ran strong marketing campaigns in 2016 and successfully gained a significant number of new fixed-line broadband customers. Public figures indicate Trustpower managed to reach a market share of 4% of broadband connections and 2degrees, 3%.

## Telecommunications investment remains strong

**Figure 1: Telecommunications investment**

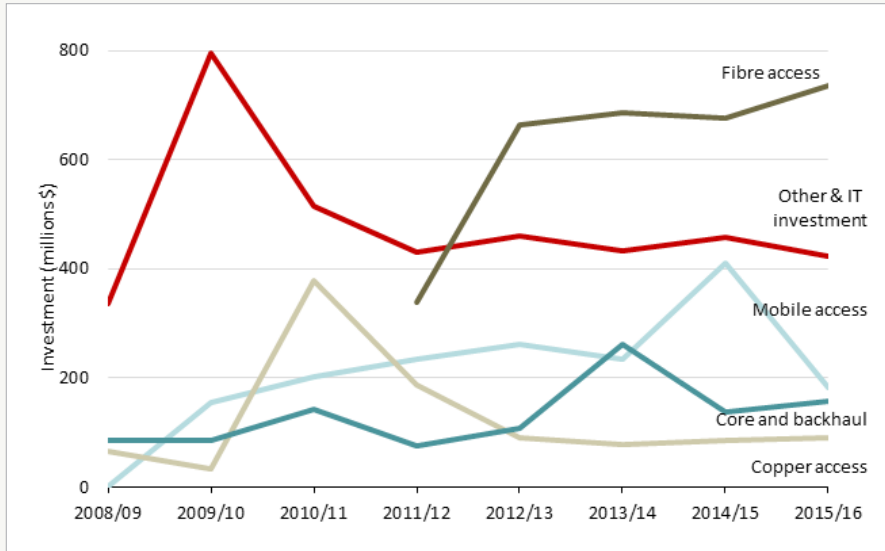


Telecommunications industry investment remained high at \$1.59 billion despite reducing from a record high of \$1.77 billion in 2015. Investment continued to be underpinned by the ongoing UFB fibre roll-out undertaken by Local Fibre Companies (LFCs), as shown in *Figure 1*.

6. We consider a fixed wireless broadband service to be a broadband service provided wirelessly to a modem in a premise. The modem is usually fixed because it is required to be plugged into a mains power supply. The modem may or may not have a fixed external aerial.

Figure 2 shows how the investment in the fibre roll-out dominates all the other industry investment, reaching \$746 million in 2016. Investment in mobile access had a substantial fall in 2016, it had been pushed up in the prior year by the purchase of 4G spectrum.

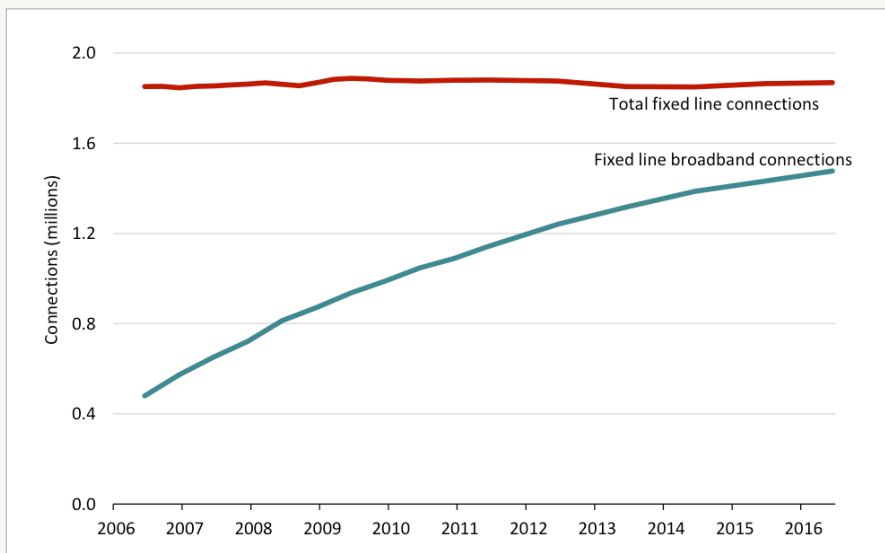
**Figure 2: Investment by component**



## Fixed broadband connections keep rising

The total number of fixed-line connections was much the same in 2016 as the prior year, as shown by Figure 3, while fixed-line broadband connections continued to grow, although slowly, to reach 1.48 million.<sup>7</sup>

**Figure 3: Fixed-line telephone and broadband connections**



The continued demand for fixed-line connections was likely underpinned by the strong uptake of fibre. Despite the ever increasing use of mobile devices, fibre gives consistent delivery of high-speed data which cannot currently be matched by mobile.

7. Excluding around 20,000 non-cellular fixed wireless and satellite connections.

The OECD compares the rate of broadband penetration between countries by measuring connections per 100 of population. As at 30 June 2016, New Zealand had 32.5 fixed broadband subscriptions per 100 of population compared with the OECD average of 29.8. This gave New Zealand a ranking of 14 out of 35 OECD countries, ahead of the US at 15 and Australia at 20. Last year the ranking was 14 out of 34 OECD countries.

**Figure 4: Total mobile and mobile broadband connections**

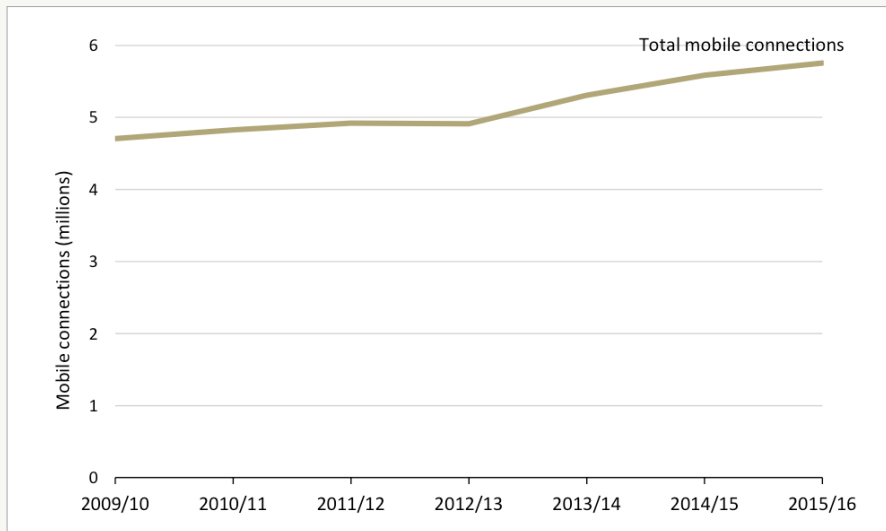


Figure 4 shows that the number of mobile connections continued to grow in 2016 to reach 5.8 million, up about 200,000 or 4% on the prior year. This gives a mobile penetration of 123 connections per 100 of population although the total includes 436,000 data-only mobile device connections such as tablets with a SIM card.



## Mobile calling overtakes fixed calling

**Figure 5: Fixed, mobile, and total calling minutes**

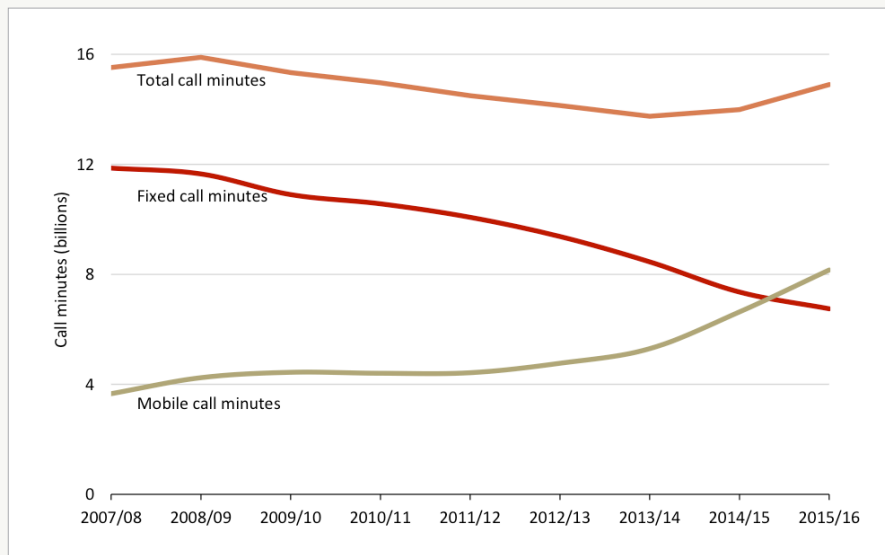


Figure 5 shows that mobile calling minutes continued to grow strongly in 2016 and, as predicted in last year's report, overtook fixed-line calling minutes. While fixed calling has continued to decline, the higher growth of mobile calling caused a rise in total calling minutes for the second year in a row. We attribute the growth in mobile calling to it now being inexpensive and often more convenient than fixed-line calling.

## Mobile revenues edge ahead of fixed

**Figure 6: Telecommunications retail revenues by service**

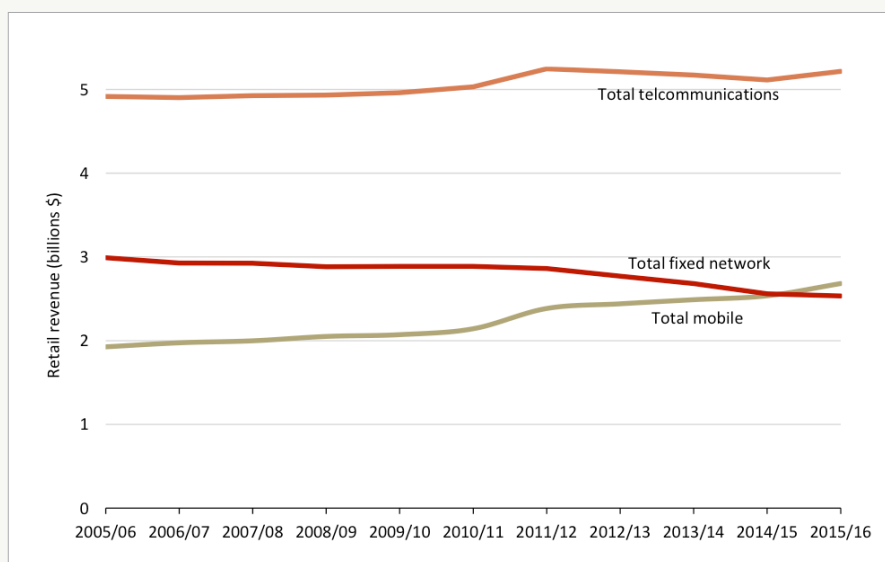


Figure 6 shows that mobile revenue continued the recent trend of modest rises to hit \$2.68 billion in 2016. The continued fall in fixed network revenue to \$2.53 billion meant mobile revenue also overtook fixed network revenue as previously predicted.

Total telecommunications industry retail revenue rose slightly (by 2%) in 2016 to reach \$5.22 billion.

# RETAIL FIXED-LINE MARKET

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This section examines the fixed-line market more closely. It starts with a general overview and then looks at the fixed-line voice market, followed by the fixed-line broadband market, and concludes with broadband quality.

## Market overview

Spark (formerly Telecom) continues to be the largest fixed-line retailer. It provides nationwide voice, broadband and data services for its own customers and also wholesale voice services for many of its competitors. It purchases UBA, baseband, fibre and other wholesale inputs from Chorus (and other LFCs in the case of fibre) in order to provide these services. The price of all these wholesale services is set directly or indirectly by the Commission or Crown Fibre Holdings (CFH) to ensure retail market access.

Spark is now providing some of its fixed network services by way of fixed wireless access over its 4G cellular network, which avoids the need to purchase wholesale inputs.

Vodafone is the second-biggest fixed-line retailer. It owns the hybrid fibre co-axial cable network that covers much of Wellington and Christchurch. The cable network consists of co-axial cable used to provide a cable TV and broadband service, and also conventional copper lines used to provide a phone service. The cable network has fibre to its feeder cabinets and much of it has been upgraded to the higher speed cable standard called DOCSIS 3.1. For marketing purposes Vodafone has labelled this part of the cable network 'Fibre-X'. Vodafone also makes extensive use of UCLL, UBA, fibre and Spark's wholesale voice service (for resale) to provide fixed-line retail services in other locations around New Zealand.

Some way behind Vodafone, but well ahead of the rest of the fixed-line retailers, is Vocus NZ, which sells most of its retail services under the brands of Slingshot, Flip, CallPlus, 2Talk and Orcon. It makes use of UCLL, UBA, baseband, fibre and Spark's wholesale voice services.

UCLL requires retailers to install their own infrastructure in exchanges to provide voice and broadband services, but gives them more control over the quality of service. However, no new exchanges have been unbundled for several years and with the migration of some customers to fibre, UCLL numbers have decreased significantly from their peak. Total unbundled lines were 123,000 as at 30 June 2015, but this had declined to 89,000 as at 31 December 2016.

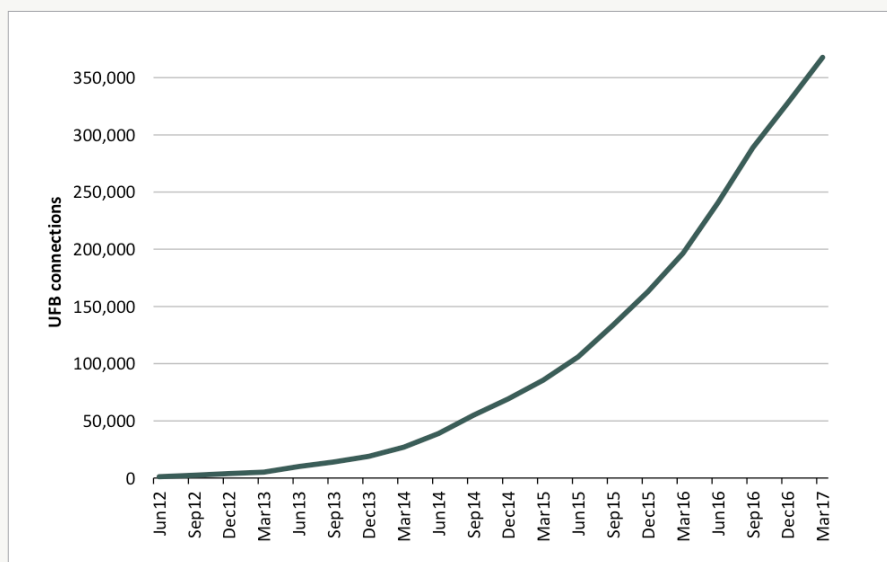
The alternative to unbundling on the copper network is for retailers to buy a wholesale UBA service from Chorus to provide broadband. This requires less investment in infrastructure but gives less control over the service. To provide voice in this situation, the retailer can buy a wholesale voice service from Spark or, where practical, buy a baseband service from Chorus and provide its own voice service. The other option is to deliver voice as data using VoIP via the UBA service, as Orcon can with its Genius service. Delivering voice using VoIP means the retailer can avoid the costs associated with supplying a conventional dedicated analogue voice service, but means supplying more expensive consumer premise equipment. Voice for fibre customers also has to be delivered as VoIP.

Some retailers use only UBA services to provide broadband over copper. These retailers include 2degrees, Trustpower, and Compass.<sup>8</sup>

A large number of end-users have a fibre access network running past their homes or businesses, with fibre progressively being rolled out by LFCs under the UFB programme. Fibre now passes more than 1.1 million homes and businesses, with UFB1 being 74% complete. The wholesalers of fibre are Chorus for most of the country; Northpower in Whangarei; Ultrafast Fibre led by WEL Networks in Hamilton, Tauranga, Tokoroa, New Plymouth, Hawera, and Whanganui; and Enable Networks in Christchurch.

Consumers have to purchase telecommunications services delivered by fibre from an independent retailer and not directly from Chorus or another LFC. Generally broadband retailers who use the copper network also sell broadband over fibre. There are some specialist fibre-only retailers, such as MyRepublic.

**Figure 7: UFB Connections**



Source: MBIE

Figure 7 shows that the number of consumers, including businesses, connecting to the UFB network to purchase fibre services has continued to increase rapidly, and reached 368,000 by 31 March 2017.

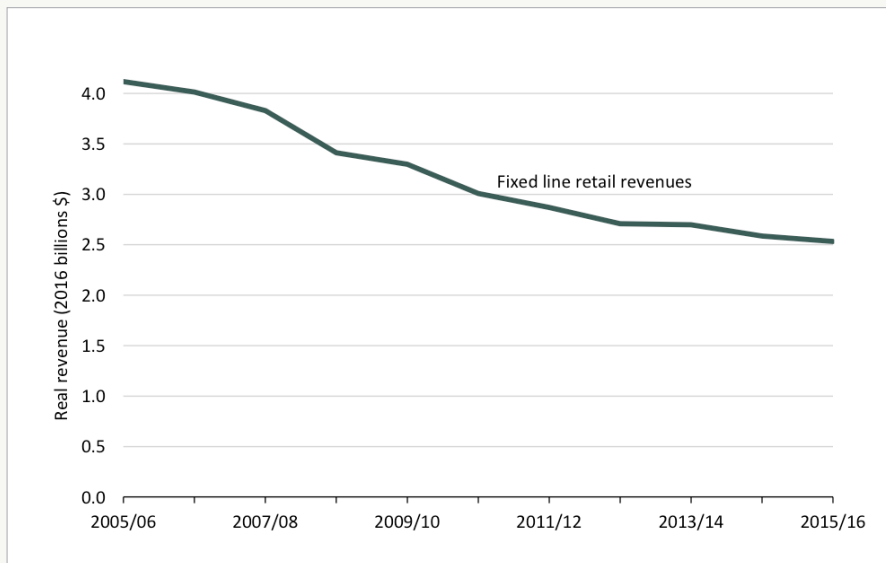
8. A number of other small telecommunications retailers also operate in New Zealand.

## Fall in calling and calling revenues continues

As was indicated in *Figure 5*, fixed-line calling volumes continue to decline. All types of fixed calling appeared to decline in 2016 with free residential local calling again continuing to decline the fastest.

We note in our Telecommunications Consumer chapter how the average amount consumers spend on 'toll calls' has decreased significantly in the last few years, to only \$8.80 per month in June 2016 according to our sample of fixed-line bills.

**Figure 8: Fixed line revenues in real terms**



Looking at total fixed-line retail revenues from all types of fixed-line services it can be seen from *Figure 8* that in real terms these revenues have been continuing to fall at least since we started to collect data in 2006, although the rate of decline appears to have slowed somewhat in recent years. This is consistent with other evidence about the falling cost of telecommunications services.



## Spark's retail and wholesale share continues to decline

As Spark lost market share in the number of fixed lines it retailed from the mid-2000s with increasing competition, it increased the number of voice lines wholesaled to its competitors who often bundled the voice service with broadband. This allowed Spark to continue to derive some revenue from a large proportion of lines.

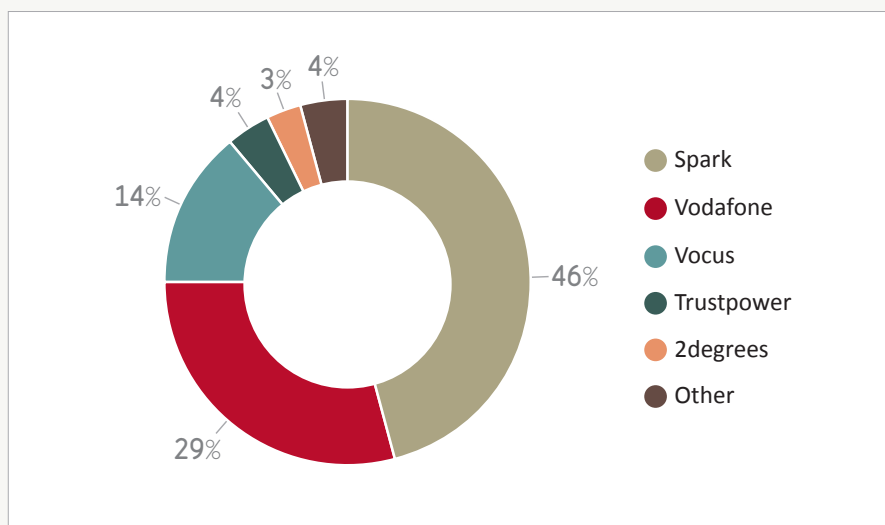
Only in recent years has the number of lines with a Spark resold voice service started to decline as Spark's competitors sold more naked DSL broadband and fibre services. Neither of those services are bundled with a traditional analogue voice service. Some competitors are also buying baseband services direct from Chorus to allow them to provide their own analogue voice service. The number of unbundled lines, where Spark's competitors provide their own broadband and voice service, has gone into decline. There is now little incentive for retailers to provide an unbundled line because the substantial rise in the UCLL price from December 2015 compared to the price of UBA reduced the cost advantage of unbundling. The ongoing UFB roll-out also means fibre is likely already available or available soon to most consumers.

Using 4G fixed wireless technology to supply broadband and voice services to users with moderate consumption is attractive to Spark and Vodafone. It is attractive because they don't have to purchase a fixed-line wholesale service in order to provide the retail broadband and/or voice service.

## Smaller players gain ground

The Commission has estimated the main retailers' fixed-network broadband market shares by number of connections using public investor reports. The fastest growth has come from the smallest two retailers with a significant number of customers – Trustpower and 2degrees. In 2016 they had an estimated 4% and 3% of the broadband market by connection respectively.

**Figure 9: Estimated broadband retailer market share by connections**

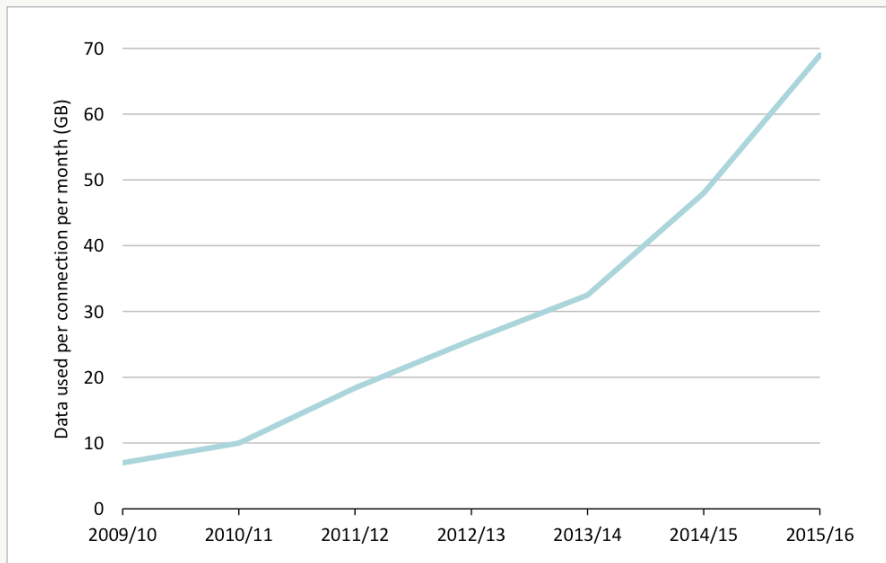


The two biggest fixed network retailers have around three-quarters of the broadband market measured by connections, with Vocus having a little over half of the remainder and double the combined share of Trustpower and 2degrees.



## Strong growth in broadband data use continues

**Figure 10: Fixed-line broadband data consumption**



The strong growth in the consumption of fixed-line broadband data continued in 2016, as shown by *Figure 10*. Our questionnaire responses indicated that the average amount of data used by each fixed-line broadband subscriber hit 69 GB per month<sup>9</sup> in 2016. This usage is significantly higher than the 48 GB recorded for 2015. The average growth in fixed-line data consumption over the period 2010 to 2016 (CAGR) was 46%.

## Broadband with voice again does better in price benchmarking

The vast majority of consumers of fixed-line telecommunications services still buy a bundle that includes a voice service and a broadband service.

To get an indication of how New Zealand fixed-line broadband prices compare to those overseas, we have compared the New Zealand price against an overseas average price for broadband and voice bundles for various levels of usage and speed.<sup>10</sup> As an increasing number of households are using their fixed-line connection for broadband only (known as a naked broadband service) we also compared the price of naked broadband services.

We have used the same benchmarking approach and similar baskets as were described in our report, 'International Price Comparison for Retail Fixed-line Telecommunications Services 2013'.<sup>11</sup> Given the entry level broadband plan offered by most retailers is now 80 GB to 100 GB and many consumers are on unlimited plans, we use baskets of 60 GB, 150 GB and 500 GB. The 500 GB basket is used as a proxy for unlimited plans. Given that the cable network now tends to offer similar speeds to fibre, we grouped fibre and cable together and benchmarked DSL plans separately.

We took the prices applying as at December 2016 but there have been no significant price changes since then that we are aware of.

9. This is an average for whole year to 30 June 2016 for all fixed-line connections is not comparable to the monthly broadband connections averages published by Chorus.

**Table 1: Results of fixed-line broadband + voice benchmarking**

Broadband + voice basket	NZ rank	Dec 2016 price (NZD PPP)			NZ % price var.	
		NZ	Australia	Average	Australia	'OECD' Average
60 GB 10 Mbps (DSL)	14/27	65	61	70	7%	-8%
150 GB 10 Mbps (DSL)	15/27	75	81	72	-7%	3%
500 GB 10 Mbps (DSL)	19/27	85	81	74	5%	15%
60 GB 30 Mbps fibre & cable	10/32	65	86	79	-24%	-17%
500 GB 100 Mbps fibre & cable	16/31	90	111	98	-19%	-8%

Source: Teligen

Fixed broadband pricing has improved in the last year with an entry-level copper broadband and voice service as indicated by the 60 GB basket now priced at \$65 a month, which is 8% below the international average, as can be seen in *Table 1*. A premium 100 Mbps fibre service with 500 GB of data and a voice line is priced at \$90 a month, which is also internationally competitive being also priced 8% below the international average. This fibre price is 19% below Australia where the National Broadband Network (NBN) pricing structure forces retailers to price all but the slowest fibre services relatively highly.

The prices of copper broadband bundles with larger amounts of data are above the average of the benchmarked set of countries, as can be seen in the *Table 1* results. In other countries these larger baskets are often filled by the same plans (with the same price) as the smaller baskets because broadband is priced by speed only, with all plans giving unlimited data.

**Table 2: Results of fixed-line naked broadband benchmarking**

Naked broadband basket	NZ rank	Dec 2016 price (NZD PPP)			NZ % price var.	
		NZ	Australia	Average	Australia	'OECD' Average
60 GB 10 Mbps (DSL)	14/34	60	61	67	-1%	-11%
150 GB 10 Mbps (DSL)	21/34	70	61	68	15%	3%
500 GB 10 Mbps (DSL)	24/34	80	71	69	16%	13%
60 GB 30 Mbps fibre & cable	22/36	60	66	56	-9%	8%
500 GB 100 Mbps fibre & cable	23/36	85	109	85	-16%	0%

Source: Teligen

*Table 2* shows that New Zealand's prices for naked broadband plans are less competitive internationally with most plans being priced above the international average. Again, the entry level copper broadband is an exception and well priced at 11% below the international average. Fibre broadband plans are again priced well compared to Australia.

10. The countries included in the average vary because not all have comparable plans. They are mostly OECD countries but some extra European countries are also included in the Teligen database <https://www.strategyanalytics.com/access-services/networks/tariffs---mobile-and-fixed/broadband/oecd-fixed-broadband/about#.WRahHGmGOBo>

11. <http://www.comcom.govt.nz/regulated-industries/telecommunications/monitoring-reports-and-studies/monitoring-reports/>

## Broadband prices for average users remain dispersed

To track New Zealand broadband prices over time, we have looked at broadband plus voice plans available from the three largest retailers that would have sufficient data to serve an average consumer. Data usage has grown over time but entry-level plans have also grown in size. The price of plans hasn't necessarily increased as data caps have increased.

**Figure 11: Wholesale and retail prices for average voice and broadband bundle**

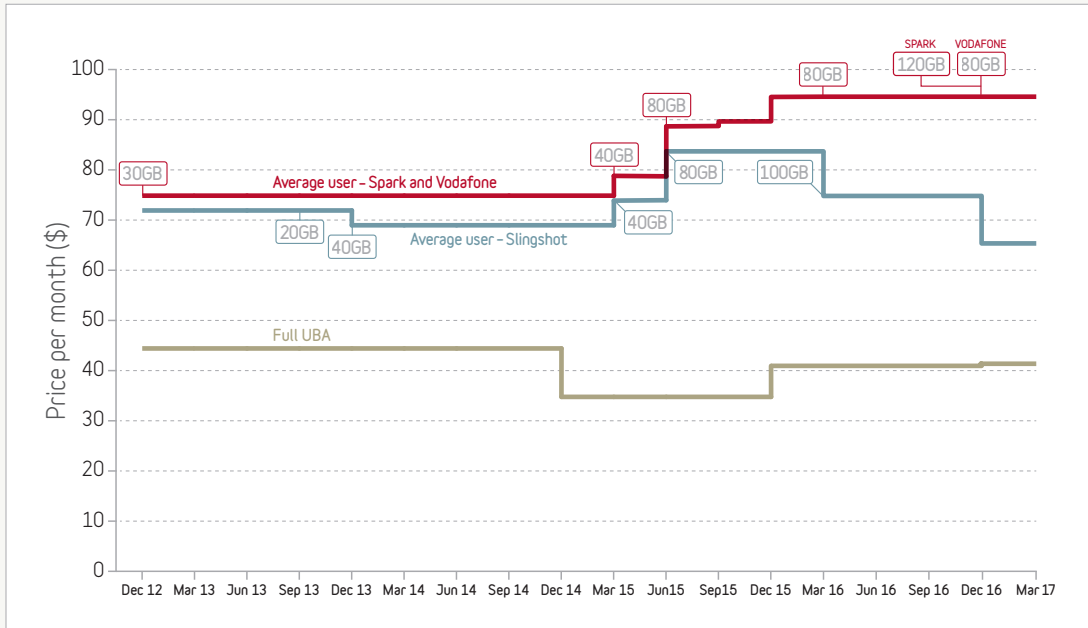


Figure 11 shows that in December 2016 the price for an average user of a fixed-line broadband and voice bundle supplied by Slingshot (the main consumer brand for Vocus) decreased to \$65 a month. That is \$4 a month lower than the price applying until early 2015 and about the same as the enduring reduction in the wholesale copper price.

The 'average user price' stayed the same, at \$95 per month, for Spark and Vodafone in 2016. Spark upped its data allowance to 120 GB because it introduced a new 60 GB plan that was priced at \$85 a month. However, with average data usage increasing to 69 GB in 2016, 60 GB was no longer sufficient for our average consumer.

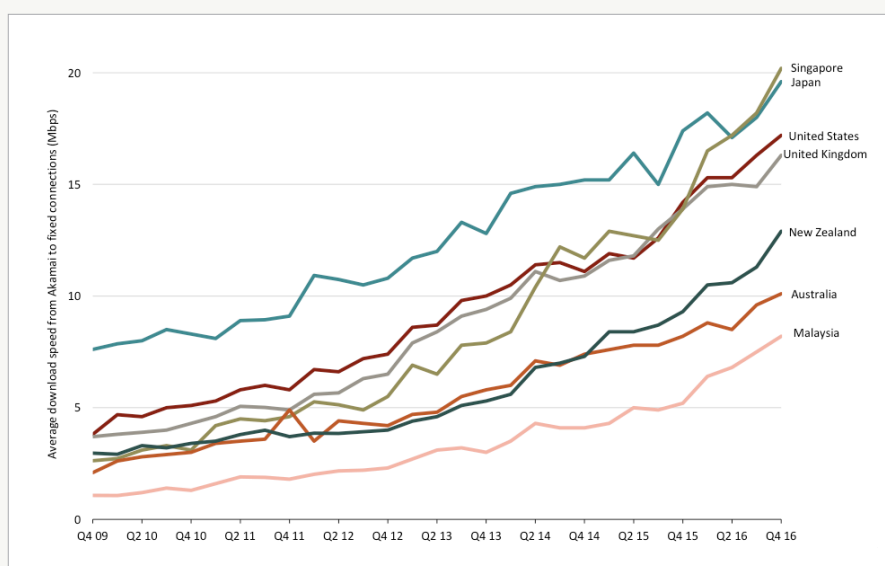
## Rise in average broadband speeds picks up pace

One indication of broadband quality is the average download speed being achieved by end-users. It is difficult to track this measure over time on a consistent basis, especially when the speed of plans being purchased and typical consumption is rising.

Data distribution company Akamai<sup>12</sup> provides data about average and peak throughput speeds achieved by internet users (from delivery of large content files such as operating system updates from a distributed system of servers typically located in the retailer's networks) in most countries around the world.<sup>13</sup> We note that the average speed measured by Akamai is less than the average speed test results from speed-test websites. Real-world broadband speeds are generally lower than those given by speed-test applications because such applications typically give the maximum possible speed achievable when downloading a large file. Networks also tend to be configured to maximise the results of speed-test applications.

The migration of consumers to higher-speed copper VDSL plans, higher-speed cable plans and high-speed fibre plans, where available, could be expected to push up average download speeds. Networks do have to be appropriately provisioned for higher speeds and the greater data consumption they allow, so they are not 'costless' improvements for retailers.

**Figure 12: Average download speeds by country**



Source: Akamai

New Zealand's average broadband download speed, as measured by Akamai<sup>14</sup> and shown in *Figure 12*, had another significant improvement to reach 12.9 Mbps in the fourth quarter of 2016. This speed was up from 9.3 Mbps in Q4 2015. New Zealand continued to widen its lead over Australia on the Akamai speed measure, but is mostly just holding its relative position against the other countries shown in *Figure 12*.

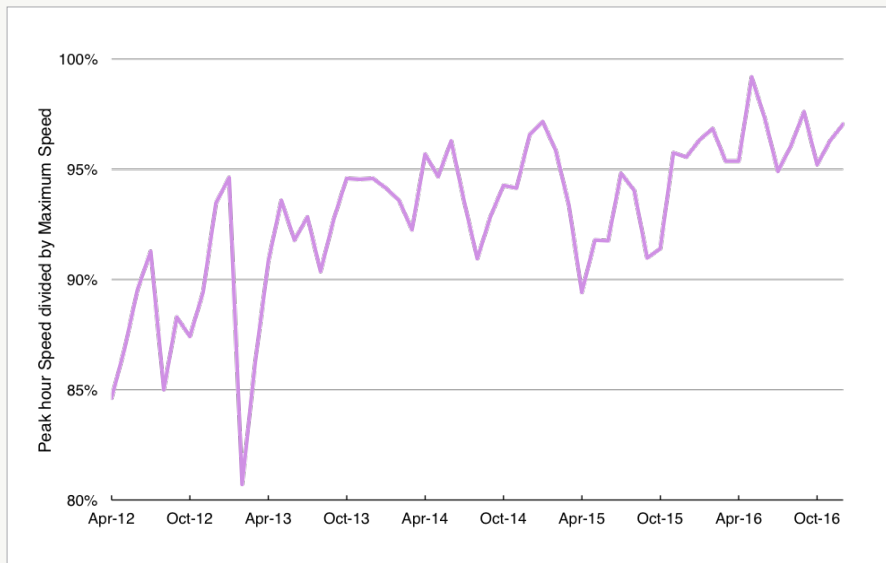
12. [www.akamai.com](http://www.akamai.com)

13. The testing carried out by Akamai has been described as 'in the network, third party testing'. Akamai measures speeds locally so speeds are not affected by international backhaul, and measured as delivering a real service unlikely to be influenced by specific ISPs or users. Akamai measures a significant number of individual downloads because it delivers data to virtually every internet connection in the country.

14. Akamai calls the measure it reports a 'connection speed', but it calculates that from the size of the files delivered and the amount of time it took to download those files.

Another measure of broadband quality is how much lower the peak hour speed is than the maximum speed for a sample of customers measured on a consistent basis. In heavily congested networks the peak hour speed can drop to under half the maximum speed. The testing TrueNet do for us shows a general trend since 2012 of less slow-down in speeds in the peak hour. The rapid increase in data consumption after March 2015 attributed to a rapid uptake of online streaming services appeared to cause a reversal of the positive trend for several months, as shown in *Figure 13*, but variability appeared to be lower than ever by late 2016. Broadband retailers may be provisioning their networks better to improve customer experience and to respond to the TrueNet monitoring.

**Figure 13: ADSL peak hour speed variability**



Source: TrueNet

*Figure 13* plots a weighted average of ADSL peak hour speed variability measured by TrueNet from its consumer probes. The measure for each ISP was weighted by its market share.



# RETAIL MOBILE MARKET

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This section examines the mobile market. It begins with an overview of the market and then looks at the mobile revenues, mobile voice traffic, and mobile data. It concludes with a comparison of New Zealand's mobile pricing compared to Australia and other OECD countries.

## Market overview

New Zealand has three mobile network operators: Spark, Vodafone, and 2degrees. The first two have been operating in New Zealand since the 1990s, while 2degrees only entered the market in 2009.

Vodafone and 2degrees continue to operate 2G GSM networks, although these are now mostly limited to providing machine-to-machine (M2M) connections such as smart electricity meters. M2M connections reached 1.34 million across all three operators in 2016, and were in addition to the 5.8 million conventional mobile connections.

All three mobile providers operate 3G and 4G networks that allow mobile broadband services to be provided in addition to voice and text messages. 4G can provide much higher data speeds to consumers, sometimes even better than can be achieved with fixed-line ADSL copper services, although not necessarily with the same consistency.

All three mobile operators have nationwide networks. Vodafone and Spark's networks reach around 98% of the population. Their 4G networks reach around 94% of the population, being widespread in urban and many rural areas. 2degrees has its own network infrastructure in all major towns and cities, reaching over 96% of the population. It has over 82% coverage for 4G. 2degrees relies on a national roaming agreement with Vodafone to provide coverage in areas where it doesn't have its own network.

The three mobile network operators are the only significant mobile retailers in New Zealand. While there are a handful of mobile virtual network operators (MVNOs) who rely on reselling services purchased from the mobile network operators, none have a significant number of customers. The total number of MVNO subscribers increased in 2016 but remained low at around 23,000. Warehouse mobile, which is an MVNO launched in late 2015, has a close relationship with 2degrees so its subscribers are included with 2degrees'.

Skinny is a separate brand of Spark's rather than an MVNO, so is counted in Spark mobile subscriptions. It started life as a 'youth' brand in early 2012, before a makeover in late 2013 to more successfully reposition itself as a budget brand. In September 2016, Skinny launched a further sub brand 'Skinny Direct' that is online only, with a focus on big data packages bought monthly. There are no top-ups in the traditional sense – the plan is purchased directly like purchasing on-account plan except that it is paid for in advance.

New Zealand continues to have a high proportion (by international standards) of mobile subscribers using prepaid plans at 61%, although it is slowly declining.

## Spark continues to gain market share from Vodafone

**Figure 14: Mobile market share trends**

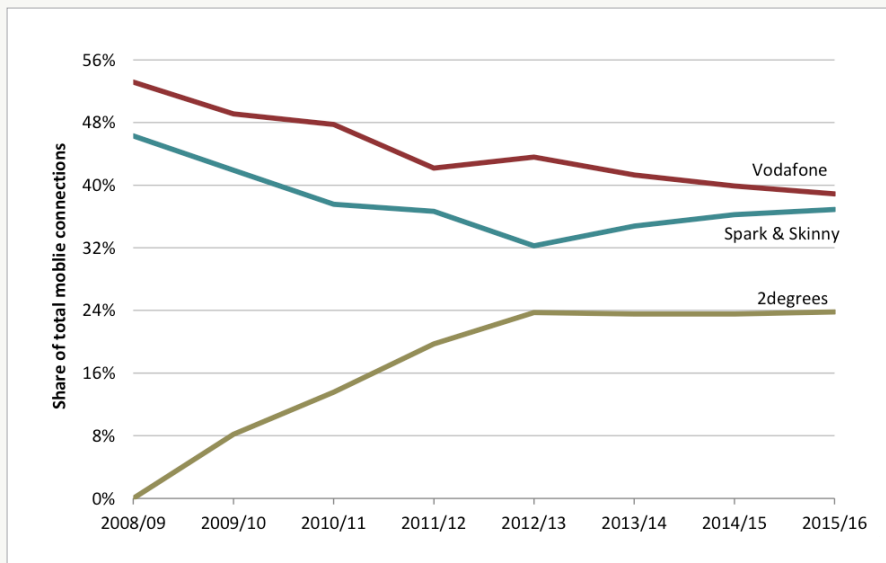
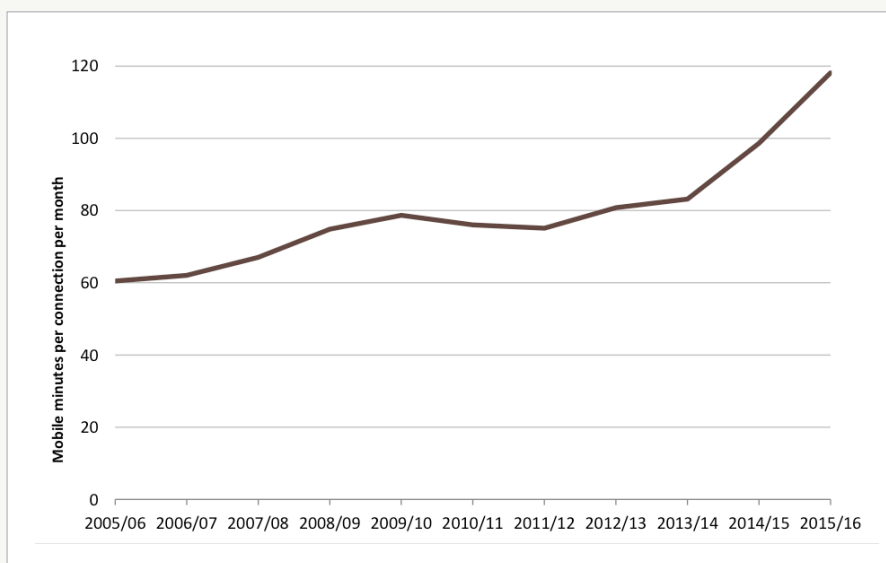


Figure 14 shows that in 2016 Spark, together with sub-brand Skinny, continued to slowly gain market share, as measured by connections, from Vodafone. 2degrees gained some new connections but not enough to materially lift its market share, which remains around 24%.

As we reported last year, 2degrees' share of total mobile revenues is less than its share of connections, given its smaller share of higher-value customers. However, 2degrees is continuing to make some progress in gaining more higher-value customers.

## Mobile voice minutes per connection continue to climb

**Figure 15: Retail mobile voice minutes per connection**



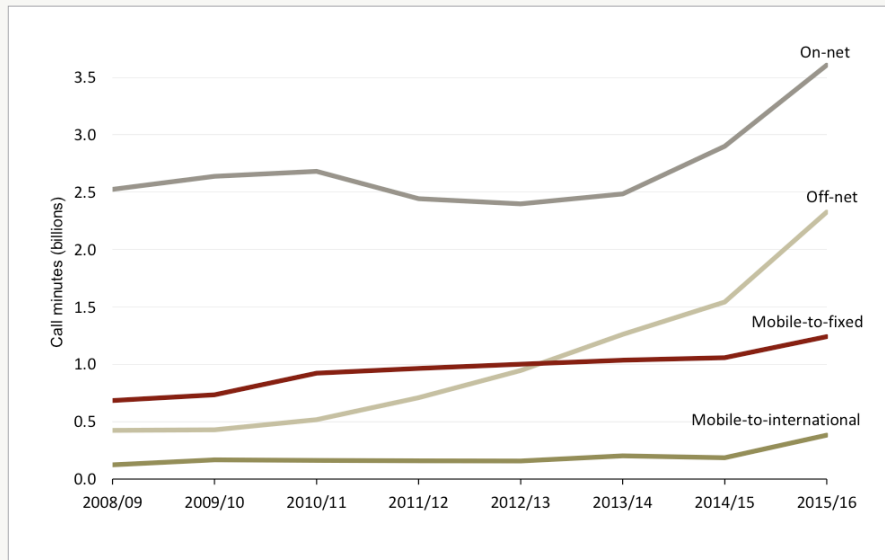
Mobile users continued to make more calls in 2016, with mobile minutes per connection in 2016 continuing to exhibit the same strong growth it did in 2015, as shown by Figure 15. Average mobile calling in New Zealand reached 118 minutes per connection per month. This compares with an average of 151 minutes per month per subscriber in the UK in 2015 as reported by Ofcom.

Consumers continued to use more mobile calls as a substitute for fixed-line calls, as was shown by falling fixed-line minutes in *Figure 5*. Mobile calling is often more convenient than fixed-line calling and many mobile plans have large buckets of calling minutes or even unlimited calling so the marginal cost of making an additional call is often zero.

The wholesale cost of terminating a phone call on a mobile network is called the mobile termination rate and is regulated in nearly all countries. Our last review of mobile termination rates came into effect on 5 May 2011, and the last regulated reduction prescribed in that determination was to 3.56cpm (excluding GST) on 1 April 2014. The ACCC last set the mobile termination rate in Australia at A1.7cpm for the period 1 January 2016 to 30 June 2019, and as at July 2016 the weighted average for Europe was 1.14 eurocents per minute.<sup>15</sup>

## All types of mobile calling growing

**Figure 16: Mobile call volumes by call type**

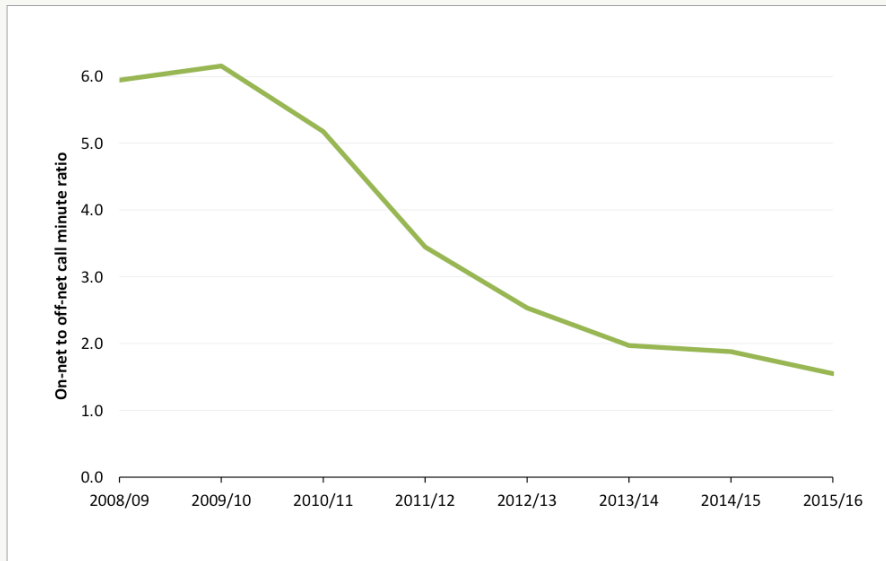


The growth in mobile calling has come mostly from increased calling between mobiles. This is growth in both off-net calling (calling between users on different mobile networks) and on-net calling (calling between users on the same mobile network). However, there has been growth in all types of mobile calling as can be seen in *Figure 16*.

15. [http://berec.europa.eu/eng/document\\_register/subject\\_matter/berec/reports/6603-termination-rates-at-european-level-july-2016](http://berec.europa.eu/eng/document_register/subject_matter/berec/reports/6603-termination-rates-at-european-level-july-2016)



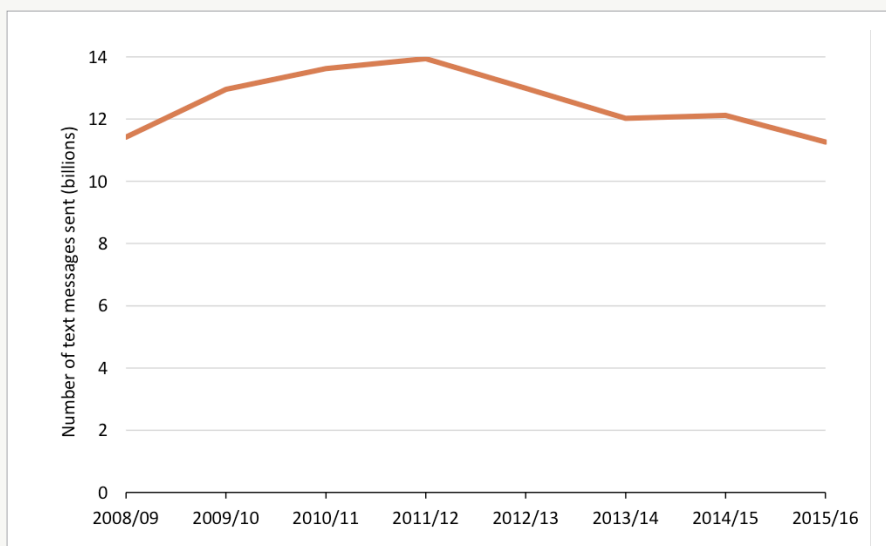
**Figure 17: On-net to off-net call minute ratio**



The ratio of on-net to off-net traffic has continued to decrease, as can be seen from *Figure 17*, to reach 1.6 in 2016. This means the increase in calling to phones that are not other mobiles on the same network has been greater than the increase in calling to mobiles on the same network, and this has been the case for every one of the last 6 years. This trend means mobile traffic is no longer dominated by closed calling circles and that makes it easier for smaller players to compete in the market.

## Texting resumes decline

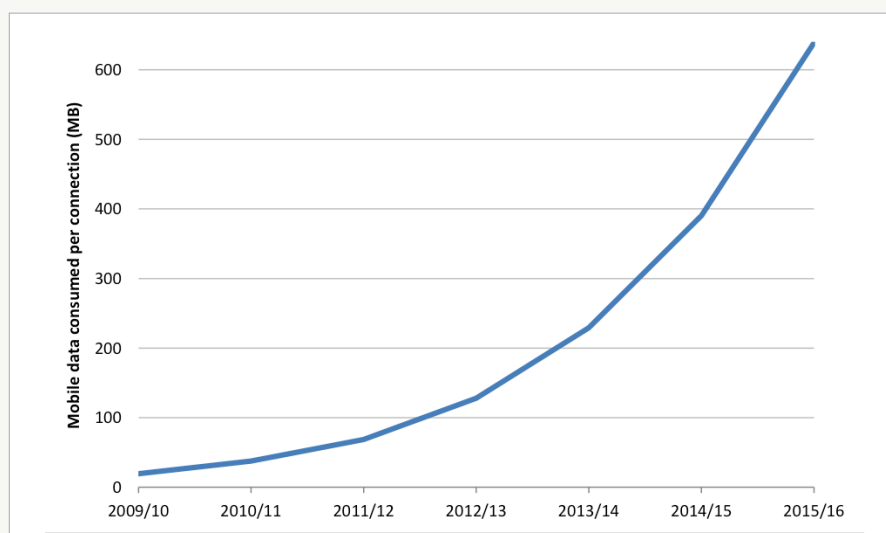
**Figure 18: Text volumes**



After stabilising in 2015 text message volumes appear to have resumed a downward trend in 2016, as shown in *Figure 18*. This was expected given the increasing popularity of various OTT messaging services like Facebook Messenger, iMessage and Viber.

## Mobile data consumption continues very strong growth

**Figure 19: Mobile data retail consumption**



As expected, the amount of mobile data consumed by retail customers grew very strongly in 2016 to reach 638 MB per connection, as shown in *Figure 19*. The average growth rate (CAGR) for mobile data over the time we have been measuring it is 79%.

The mobile data consumption shown in *Figure 19* still remains relatively small compared to fixed-line data consumption, although a lot of the data consumed on a mobile typically comes from WiFi served by a fixed-line connection and not shown above. Open Signal<sup>16</sup> reported in 2016 that New Zealand mobile users were spending 63% of their time connected to WiFi rather than cellular networks (third highest in the world), compared with 60% in the US, 53% in the UK and 51% in Australia.

We reported last year that more people access the internet on a smartphone than any other device. We understand that around 95% of mobile phones sold are now smartphones.

## New Zealand prices mostly below OECD average for mobile phone usage

Mobile phone users tend to buy a bundle with ‘buckets’ of minutes, texts and data that often never come close to being ‘emptied’. This makes it challenging to separately price these components on a consistent basis. To benchmark New Zealand mobile pricing we look at the cost of filling variously sized bundle ‘baskets’ compared to the cost overseas. Generally both prepay and on-account mobile plans are included. This benchmarking approach is described in more detail in our report, ‘International Price Comparison for Retail Mobile Telecommunications services 2013’.<sup>17</sup> For each basket described in Table 3 below, a mobile call is generally assumed to be a little under two minutes.

16. Open Signal take measurements from millions of smartphones around the world that have had the OpenSignal app installed – <https://opensignal.com/reports/2016/08/global-state-of-the-mobile-network#wifi>

17. <http://www.comcom.govt.nz/regulated-industries/telecommunications/monitoring-reports-and-studies/monitoring-reports/>

We have tried to use the most recent data available, which was February 2017 data for mobile phone services. The baskets used for the comparisons below are the standard OECD baskets with data added as specified. Generally the plans from the top two mobile operators in each country are used to populate the dataset. Skinny is not included for New Zealand.

**Table 3: Results of mobile phone services benchmarking**

Mobile phone services basket	NZ rank in OECD	February 2017 price (NZD PPP)			NZ % price var. from	
		NZ	Australia	OECD Average	Australia	OECD Average
400 messages GST included	1/36	8	32	23	-76%	-66%
30 calls + 100 MB GST included	5/36	13	21	26	-37%	-49%
100 calls + 500 MB GST included	8/36	21	32	36	-34%	-42%
100 calls + 2 GB GST included	15/36	33	32	47	3%	-31%
300 calls + 1 GB GST included	22/36	44	32	50	37%	-9%
900 calls + 2 GB GST included	23/36	60	32	61	89%	1%

Source: Teligen

Table 3 shows that New Zealand’s mobile prices were below average for most of the OECD baskets, with the smaller to medium baskets being significantly below average. The stand-out result, like last year, was the 400 messages basket, where New Zealand was the cheapest in the OECD with a price 66% below average and 76% below Australia. This basket was filled by Vodafone’s Pay & Go prepay plan that prices texts at 1 cent each and calls at 20cpm, costing less than \$8 to fill the basket’s 400 texts and 15 minutes of calling. We note, however, that this ‘texter’ basket, which is the only one in Table 3 that doesn’t include data, probably represents few consumers nowadays.

Teligen added a new 100 calls + 2 GB basket in 2016 which in New Zealand represents a ‘serious’ user. The basket has enough minutes for the average business user and more than enough data for the average residential on-account user. The New Zealand price was 31% below the OECD average and 3% above Australia.

In late 2016 Vodafone introduced its My Flex Prepay plan that gives customers the flexibility to significantly adjust the amount of data, minutes and texts in their prepay bundle and therefore the price. This plan was able to fill most of the OECD baskets more cheaply than any other Vodafone or Spark plan.

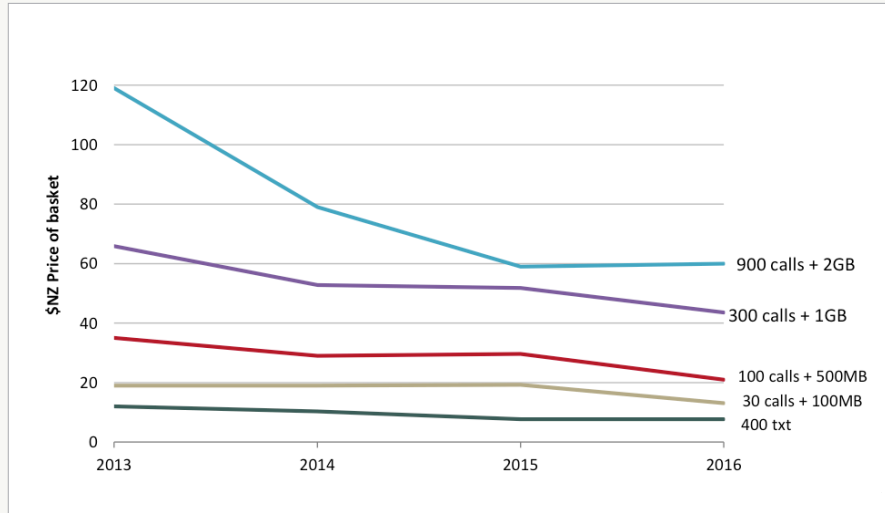
However, Vodafone New Zealand has also decreased its prepay billing cycle month from one month to 28 days for new customers. Teligen therefore had to adjust Vodafone prepay prices upwards by 7% because it assumes the standard billing cycle is 30 days.



## The price for most mobile baskets resumed falling

We now have four years of prices from benchmarking the same five mobile baskets. These results are plotted in *Figure 20* so we can see the trends.

**Figure 20: Trend in \$NZ price of filling OECD mobile baskets including data**



Source: Teligen

All the mobile baskets tracked in *Figure 20* had significant declines in price over the four years to 2016, although the 900 calls + 2 GB basket and 400 texts baskets didn't fall in price in the 2016 year.<sup>18</sup> The remaining baskets did fall in price in 2016 but those falls were attributable to the introduction of the Vodafone My Flex Prepay plan.

## Mobile broadband for data-only devices still expensive

We benchmarked the price of purchasing mobile broadband data by itself, typically for use with a portable device requiring an internet connection such as a laptop or tablet. We used the same baskets as used previously, which were 1.5 GB and 6 GB. These were assumed to be low to average use and high use for such devices, bearing in mind users may rely on WiFi to connect to the internet most of the time when using these devices. The plans for all three mobile network operators in New Zealand are included in this benchmark dataset.

We used to consider the 6 GB mobile broadband basket to be a possible substitute for a fixed-line broadband service. However, 6 GB is now a very small amount of data compared to average fixed-line usage.

The new 4G fixed-wireless broadband services discussed earlier use modems that are similar to fixed-line broadband modems and require mains power. Those fixed-wireless broadband services are not, therefore, comparable to mobile broadband services being compared here. We note Teligen have started including fixed-wireless broadband plans in their fixed-line broadband benchmarking but currently only several countries have plans in the dataset.

18. Actually year to early 2017, but for simplicity we have classified it as a 2016 result.

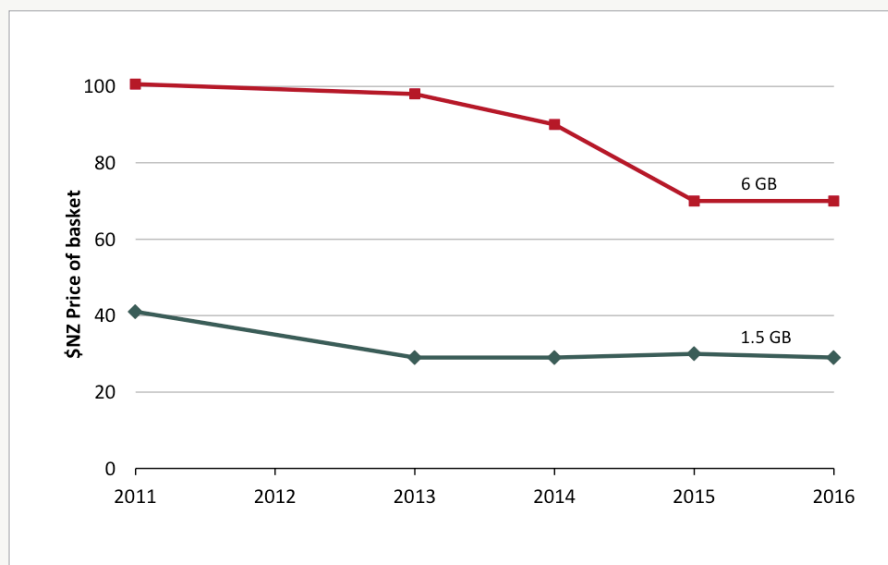
**Table 4: Results of mobile broadband benchmarking**

Mobile broadband basket	NZ rank	Dec 2016 price (NZD PPP)			NZ % price var. from	
		NZ	Australia	'OECD' Average	Australia	'OECD' Average
1.5 GB GST included	31/35	29	15	20	91%	46%
6 GB GST included	33/35	70	30	27	131%	164%

Source: Teligen

Table 4 shows the New Zealand mobile broadband price was significantly above the average for the benchmarked countries for the 1.5 GB basket, and even more so for the 6 GB basket.

**Figure 21: Trend in \$NZ price of filling mobile broadband baskets (eg, connected tablets)**



Source: Teligen

Figure 21 shows that the price of filling the 1.5 GB mobile broadband basket hasn't changed over the last three years, while the price of the 6 GB basket fell substantially in 2014 and 2015 but not at all in 2016. We note it could now be cheaper to use a mobile phone as a WiFi hotspot to serve a tablet or laptop than to purchase a separate mobile broadband service.



# THE TELECOMMUNICATIONS CONSUMER

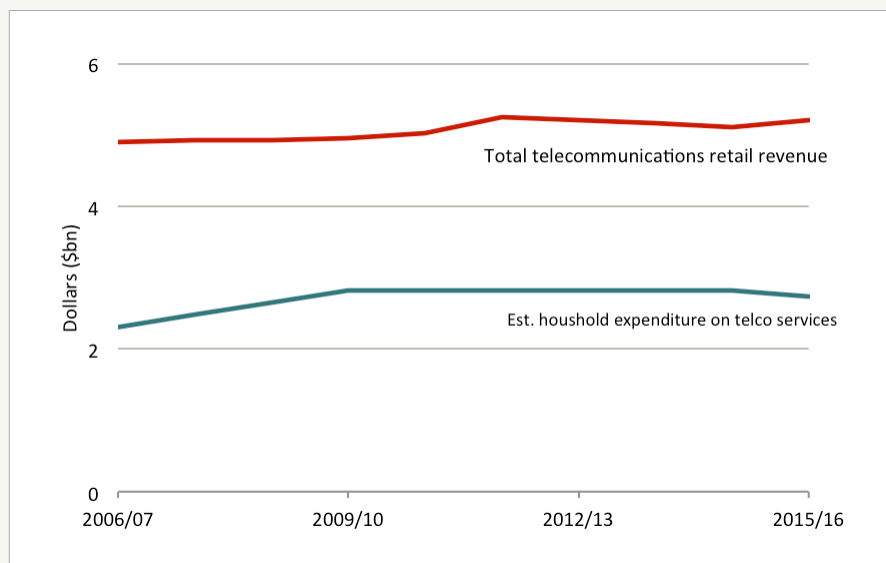
This section looks at the behaviour of telecommunications consumers by examining trends in household expenditure, the usage of telecommunications services, and the relationship with technological and demographic factors.

## Household expenditure on telecommunications services declines

Statistics New Zealand's Household Economic Survey (HES) collects information on household expenditure and income on a three-yearly basis. Data from the most recent survey for the year ended 30 June 2016 was released in December 2016.

In 2016 the estimated annual total household spend on telecommunications services was \$2.74 billion, down by 3% from \$2.82 billion in 2013.

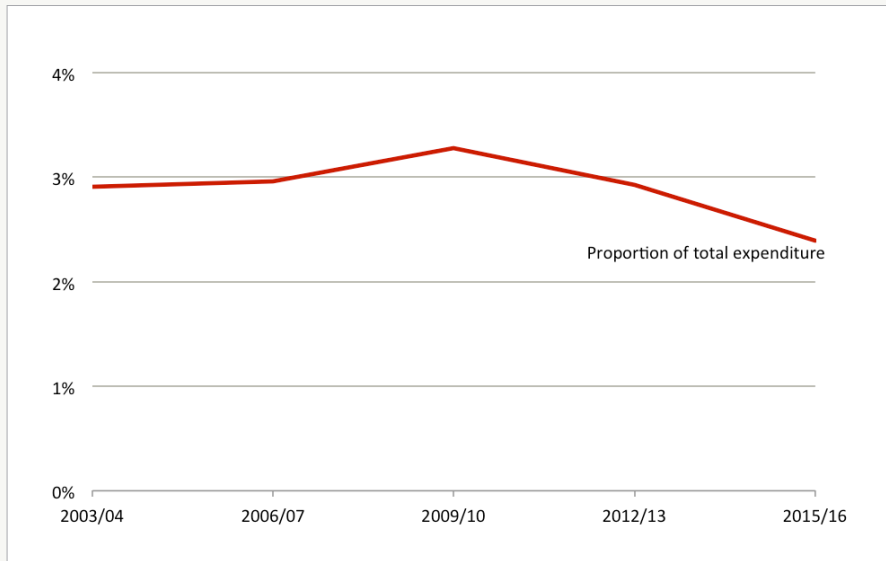
**Figure 22: Total telecommunications retail revenue and estimated household expenditure**



Source: Statistics New Zealand, Household economic survey

Figure 22 shows estimated household expenditure on telecommunications services, as measured by the HES, and total telecommunications industry retail revenue, as measured by our annual industry questionnaire. Between 2006 and 2016 household expenditure remained at approximately 50% of total industry retail revenue.

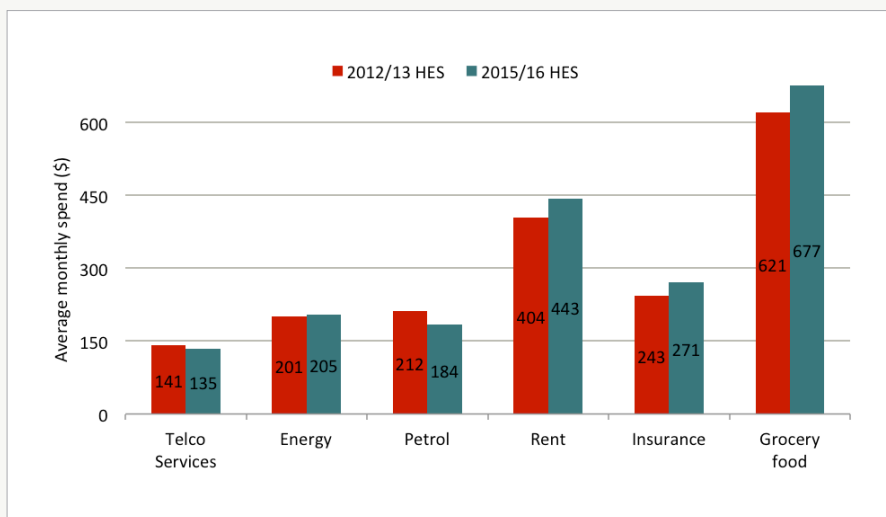
**Figure 23: Telecommunications expenditure as a proportion of total expenditure**



Source: Statistics New Zealand, Household economic survey

Figure 23 shows household expenditure on telecommunications services as a proportion of total household expenditure. In 2016, expenditure on telecommunications services was 2.4% of total estimated annual household expenditure. This compares with 2.9% in 2004. Telecommunications services expenditure as a proportion of total household expenditure peaked in 2010 at 3.3%.

**Figure 24: Average monthly household expenditure**



Source: Statistics New Zealand, Household economic survey

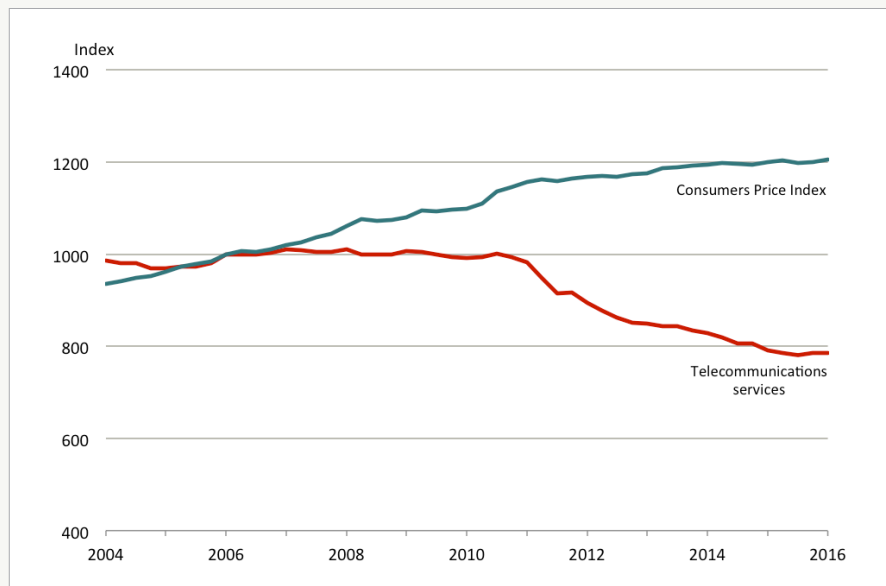
Figure 24 shows the average household spend on common household bills per month based on the most recent HES data. On average, households spent \$135 per month on telecommunications services in 2016. This compares with \$201 for household energy (such as electricity and gas), \$677 for grocery food and \$183 for petrol. The 2016 HES estimated that on average households spent a total of \$5,648 per month on goods and services.

Of these common household bills, only telecommunications services and petrol showed a decrease in expenditure between 2013 and 2016. However, unlike petrol, prices for telecommunications services are relatively stable over time.

## Quality adjusted prices for telecommunications services declining

Over the period June 2004 to June 2016 prices for telecommunication services, as measured for the purposes of the Consumers Price Index (CPI), fell by 21%. This compares with a 28% increase in the all groups CPI over the same period. *Figure 25* shows telecommunications services price index compared to the CPI.

**Figure 25: Telecommunications services price index compared to CPI**



Source: Statistics New Zealand, Consumers price index

The telecommunications services price index is a constant quality index. This means that better quality services and plans are reflected as price decreases. For example, customers shifting towards higher data caps, faster advertised speeds and improved bundles. Although, according to the HES, households are spending about the same on telecommunications services in 2016 compared with 2004 in real terms, these services decreased in price by 21% according to the telecommunications services price index. This indicates higher quality services are being purchased.

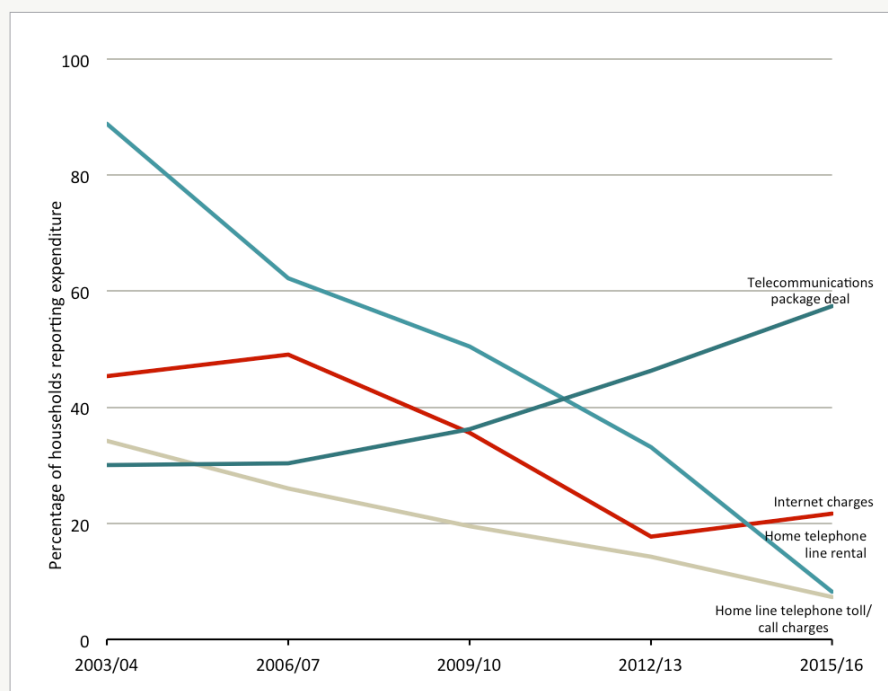
For example, as stated above, in 2010 the average fixed line data consumption per connection was below 10 GB, whereas in 2016 it was 69 GB.



## Households buying more bundles

Since 2004 there have been changes in the types of telecommunications services purchased by households. *Figure 26* shows the percentage of households reporting expenditure on different types of fixed-line telecommunications services.

**Figure 26: Types of telecommunications services purchased by households**



Source: Statistics New Zealand, Household economic survey

In 2004, nearly 90% of households reported purchasing phone line rental as a separate service. Some of these households would have been purchasing dial-up internet services separately or as part of a bundle. By 2016, the proportion of households purchasing phone line rental separately had dropped to only 8%.

There has been increased bundling of telecommunications services, the most common type being a bundle of phone line and broadband services. Bundling services together is more convenient for the consumer and lowers customer churn for retailers. *Figure 26* shows the increasing proportion of households purchasing fixed-line telecommunications services as a bundle of services for a single price, rather than separate services priced individually. In 2016, nearly 60% of households reported purchasing a bundle of telecommunications services compared to about 30% in 2004.

Retailers have been offering telecommunications bundles for discounted prices. These offers include broadband and voice services and often subscriber television (Sky) and other streaming video on-demand services (Netflix and Lightbox). Some retailers are also offering bundles of telecommunication services with other utility services, for example Trustpower offers discounts to households purchasing broadband together with electricity and gas.

## Study reveals household fixed-line spending insights

In 2016 the Commission initiated a pricing study on fixed-line telecommunications services that will be reported on separately. As part of this study, 77,900 anonymised invoices for residential fixed-line voice and broadband services from Spark, Vodafone and Vocus were analysed. These covered four and half years to June 2016. The bills reveal some useful information about how households purchase and use fixed-line telecommunications services.

In June 2016, the components of an average fixed-line bill were:

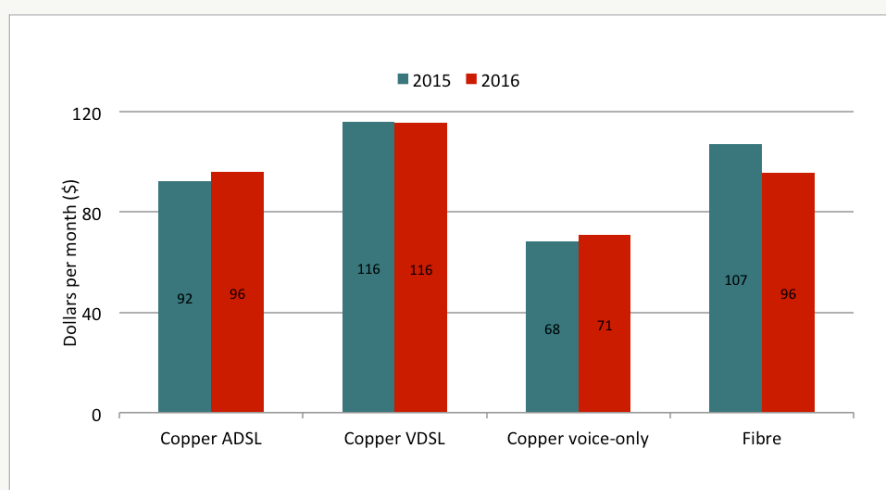
- \$82.90 fixed monthly fee
- plus \$8.80 for voice calls
- plus \$5.20 for other charges (including excess data and other services), and
- minus a \$13.20 bundle/loyalty discount for having multiple services with the same retailer (eg, fixed-line and mobile).

The average bill for broadband and voice bundles was \$86 in June 2016. This compares with \$87 for naked broadband plans. However, naked broadband plans typically appeal to consumers who want higher data caps, or unlimited data for a higher price. Broadband and voice calling bundles are priced higher than the equivalent naked broadband plan, but consumers on these plans tend to choose lower data caps.

The sample of bills data indicates that as at mid-2016, the average bill for copper ADSL and fibre customers was very similar, at around \$96 per month. Copper VDSL customers were paying around \$20 per month more, while copper voice-only customers paid about \$71 per month.

Figure 27 shows the average prices for the different technologies.

**Figure 27: Average broadband bill per month by technology**



Source: Commerce Commission, retail pass-through study

Figure 27 shows that between 2015 and 2016 the average total bill for fibre dropped by \$11 per month to the same level as copper ADSL. VDSL plans have been offered at higher prices than entry level fibre plans in the past, but more recently prices for new customers have become aligned.

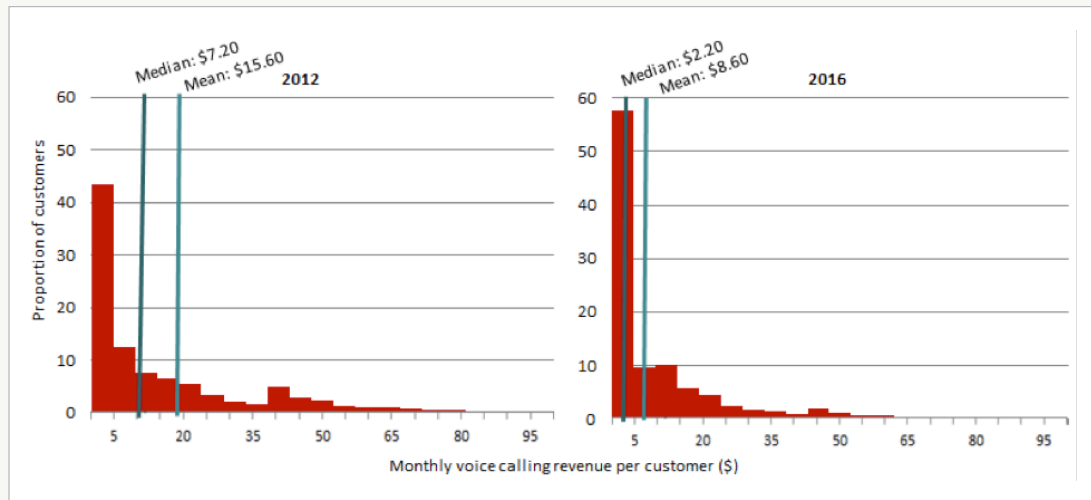
## Spending on voice calling declining over time

The average amount spent on voice calls (toll calls) has been steadily declining over time. The average monthly voice calling charge was \$19.40 in 2012, and dropped to \$8.80 by 2016. This likely reflects falling demand for fixed-line voice calling as seen in declining fixed-line call volumes.

The increasing number of households purchasing a naked broadband service will be using their mobiles for voice calls and maybe fixed-line OTT services such as Skype. As discussed in the Retail Mobile Market chapter, we consider fixed-line calling has been substituted for mobile calling and the use of OTT services.

By comparison, that average fixed monthly fee has been gradually increasing, reflecting a likely shift in demand from voice calling to broadband, as well as pricing changes. The shift in demand can be seen from the additional take-up of higher-end broadband plans. The other components of the average bill are relatively small and have remained essentially constant over time.

**Figure 28: Distribution of monthly voice calling spend per customer – 2012 and 2016**



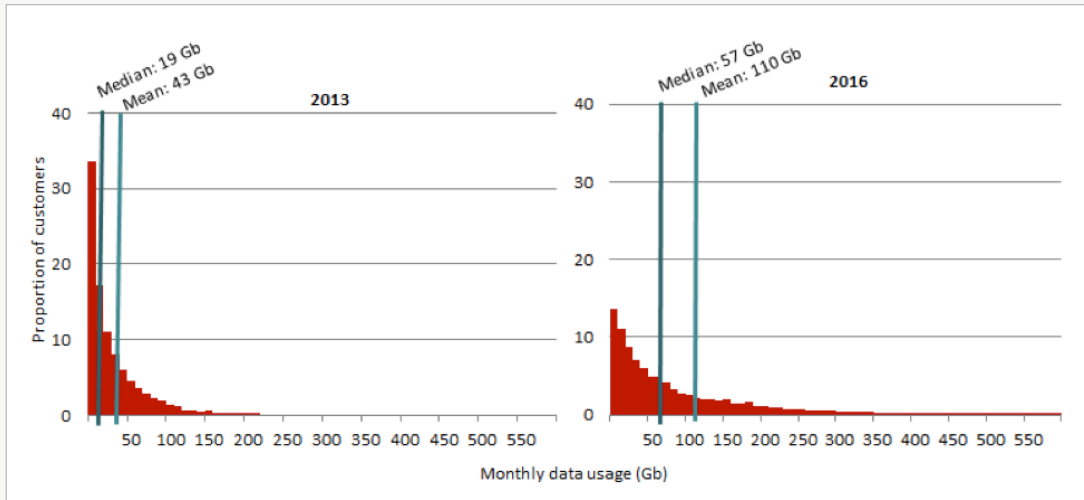
Source: Commerce Commission, retail pass-through study

Figure 28 shows the distribution of monthly voice calling revenue per customer in 2012 and 2016. Between 2012 and 2016 the distribution has moved closer to zero with the median dropping from \$7.20 (excluding GST) to \$2.20 per voice customer per month. In 2016, 83% of customers were spending less than \$20 per month for voice calling compared with 70% in 2012.

## Fixed-line data usage grows and spreads out

The fixed-line data usage shown below is likely skewed towards higher data users as most Spark bills were not included in the distribution because they did not have a data usage component attached. Spark customers are considered to be more conservative users of data.

**Figure 29: Distribution of monthly data usage by broadband customers – 2013 and 2016**



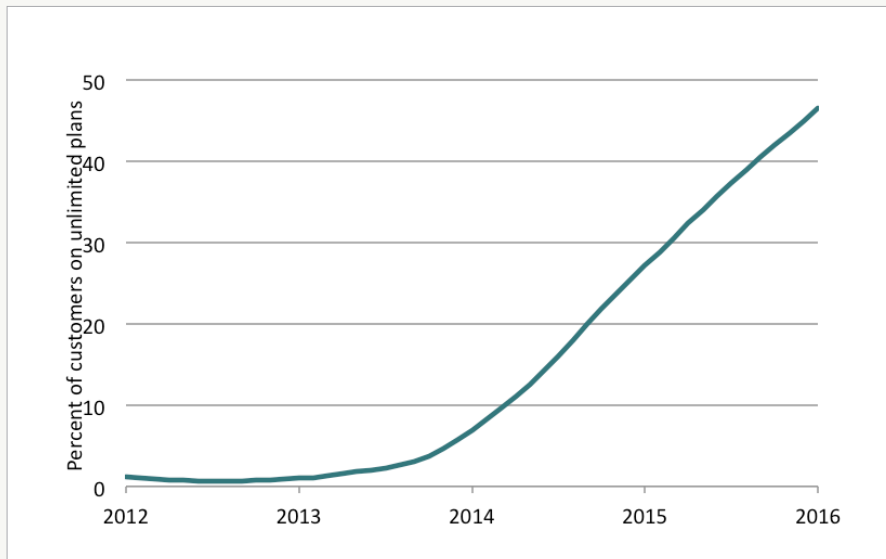
Source: Commerce Commission, retail pass-through study

Figure 29 shows the distribution of monthly broadband data usage in 2013 and 2016 based on the sample of bills where data use was able to be extracted. The distribution has spread out over time as data usage has increased. In 2013, 34% of customers used less than 10 GB of data per month compared with 14% in 2016. In 2013 only 1% of customers were using over 250 GB of data per month compared to almost 10% of customers in 2016.



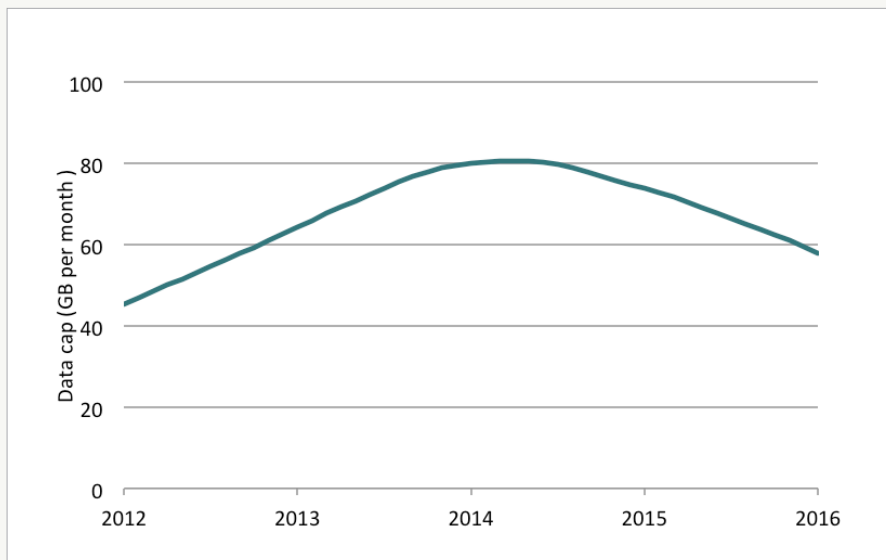
Unlimited data plans have become increasingly common since 2014, with almost half of broadband customers in the sample on unlimited plans as at mid-2016. *Figure 30* shows the percentage of broadband customers on unlimited data plans.

**Figure 30: Percentage of customers on unlimited data plans**



Source: Commerce Commission, retail pass-through study

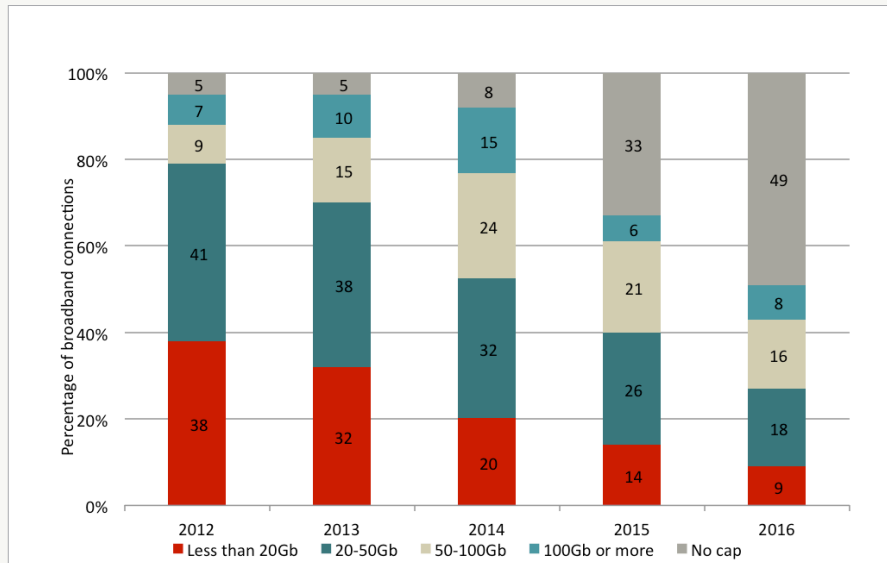
**Figure 31: Average monthly data cap**



Source: Commerce Commission, retail pass-through study

*Figure 31* shows the monthly average data cap for broadband customers who were not on unlimited data plans. This peaked at around 80 GB per month in late 2014. The subsequent decline reflects customers with higher than average data usage switching to unlimited plans, reducing the average cap among the remaining set of customers on capped plans.

**Figure 32: Broadband internet data caps**

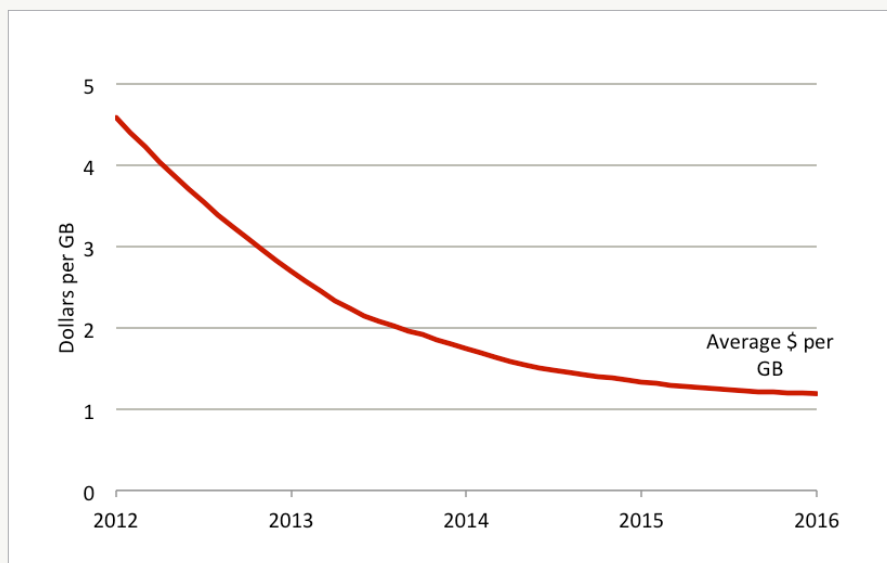


Source: Statistics New Zealand, Internet service provider survey

Statistics New Zealand’s Internet Service Provider (ISP) survey collects data on the monthly data caps for all broadband connections. *Figure 32* shows the percentage of total broadband customers on different data caps. It shows that there has been a shift since 2012 towards unlimited data plans. In 2012 almost 80% of broadband connections had data caps of 50 GB or less. In 2016 almost 50% of broadband connections had unlimited data, while of those customers on caps, the most common data cap was 20-50 GB per month.

Increases in customer data usage has resulted in the effective average price per gigabyte of data decreasing. *Figure 33* shows the average price per GB of data for a fixed-line service based on the total bill. The average price decreased from \$5.20 in 2012 to only \$1.20 in 2016.

**Figure 33: Average price per GB of data**



Source: Commerce Commission, retail pass-through study

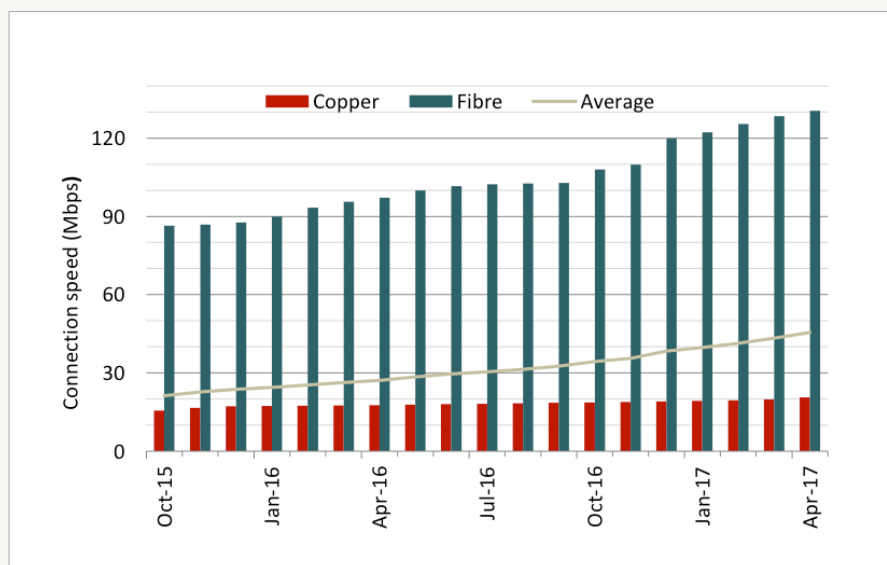
## Connection speed and data usage increasing over time

The connection speed measured by Chorus is the data transfer rate at which the customer premise equipment connects to Chorus' access network equipment.

- For copper broadband it is the xDSL sync rate between the modem and DSLAM
- For fibre it is the configured speed of the virtual circuit between the customer's premise and the cabinet.

This data shown below does not include connection speed and data usage on UFB networks where Chorus is not the wholesale provider.

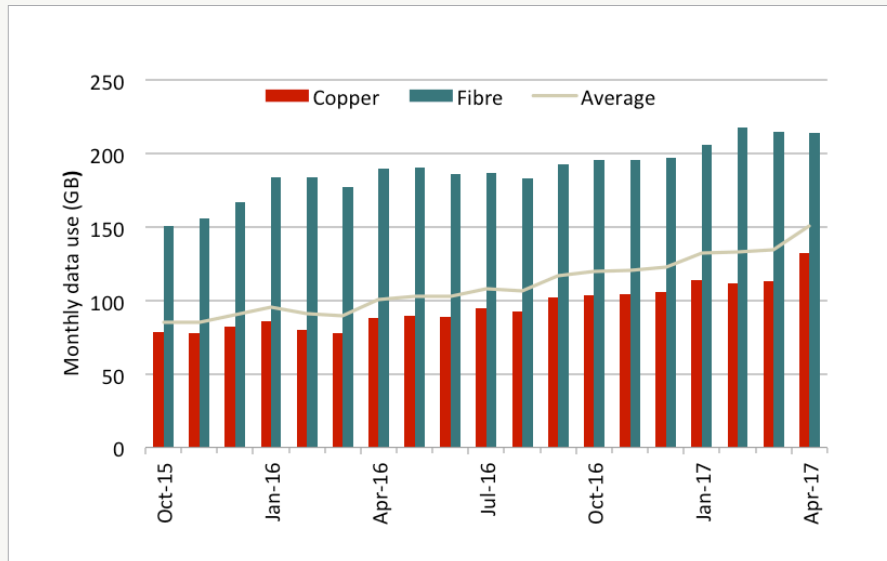
**Figure 34: Average connection speed by technology**



Source: Statistics New Zealand, Internet service provider survey

Figure 34 shows the New Zealand average connection speed for Chorus' copper and fibre networks. In April 2017 the average connection speed for fibre was 131 Mbps, over 6 times higher than the average connection speed for copper, 21 Mbps. Between October 2015 and April 2017 average connection speed for copper increased 33%, compared with 51% for fibre.

**Figure 35: Average monthly data usage by technology**



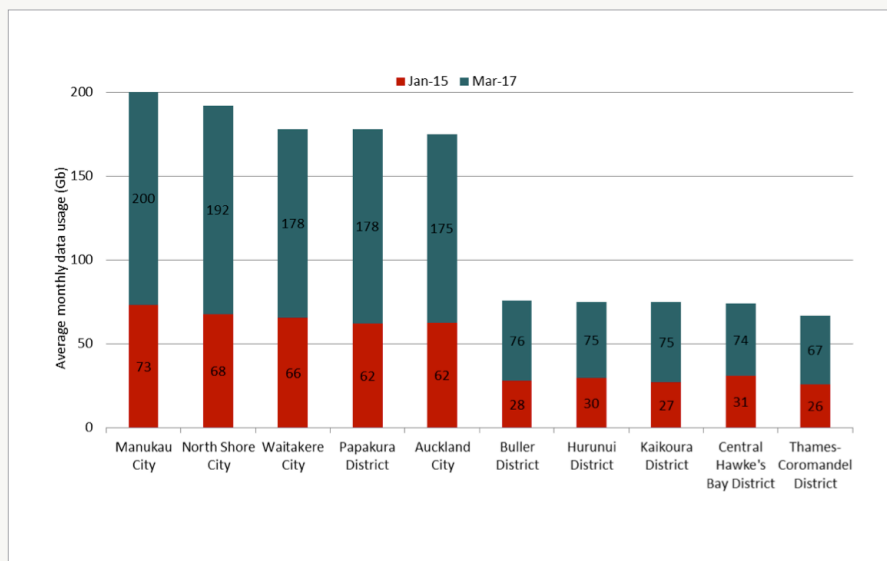
Source: Statistics New Zealand, Internet service provider survey

Figure 35 shows the New Zealand average monthly data usage on both Chorus’ copper and fibre broadband networks. In April 2017 the average monthly data usage on Chorus broadband network was 150 GB, with fibre at 214 GB and copper 132 GB. Between October 2015 and April 2017 average monthly data usage over copper increased 68%, compared with 42% for fibre.

## Rural urban split in data usage and connection speed

The Chorus data shows the highest data usage per month on Chorus’ broadband network tends to be concentrated in urban areas, with rural areas having lower data usage on average.

**Figure 36: Regions with highest and lowest average monthly data usage**



Source: Chorus

Figure 36 shows the top and bottom five regions for monthly data usage in January 2015 and March 2017. The top five regions are all urban areas in Auckland, whereas the bottom five regions were rural areas.



Manukau City had the highest monthly data usage in March 2017 at 200 GB, with other areas in the Auckland region close behind with over 175 GB per month.

The lowest monthly data usage in March 2017 was less than half of the average monthly data usage in these urban areas. For example, Thames-Coromandel district was 67 GB per month and Central Hawke’s Bay district 74 GB per month.

Between January 2015 and March 2017 the monthly data usage has grown in every region with a range of 130% to 260%. The fastest growth rates tend to align with areas where the UFB rollout has been taking place.

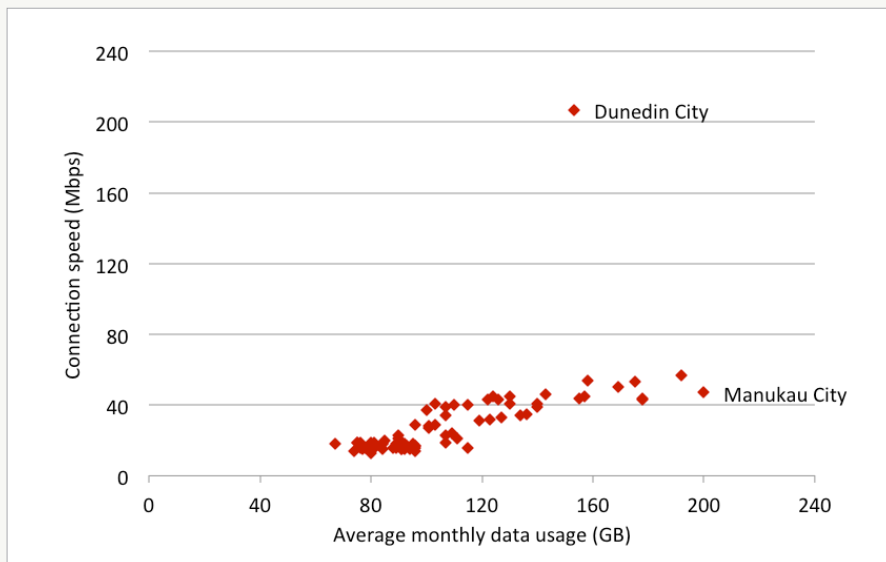
The pattern with connection speed was similar with higher connection speeds typically in urban areas and areas where there is higher uptake on Chorus’ UFB network. Dunedin City was an outlier with an average connection speed of 207 Mbps as a result of the Gigatown initiative. The next highest connection speed was in North Shore City at 57 Mbps.

The lowest connection speed was 13 Mbps in Waimate District, with other more rural areas at around 14-16 Mbps.

## Regional data usage driven by connection speed and population average age

Figure 37 shows the relationship between monthly data usage and connection speed for each region.

**Figure 37: Average monthly data usage and connection speed by region**

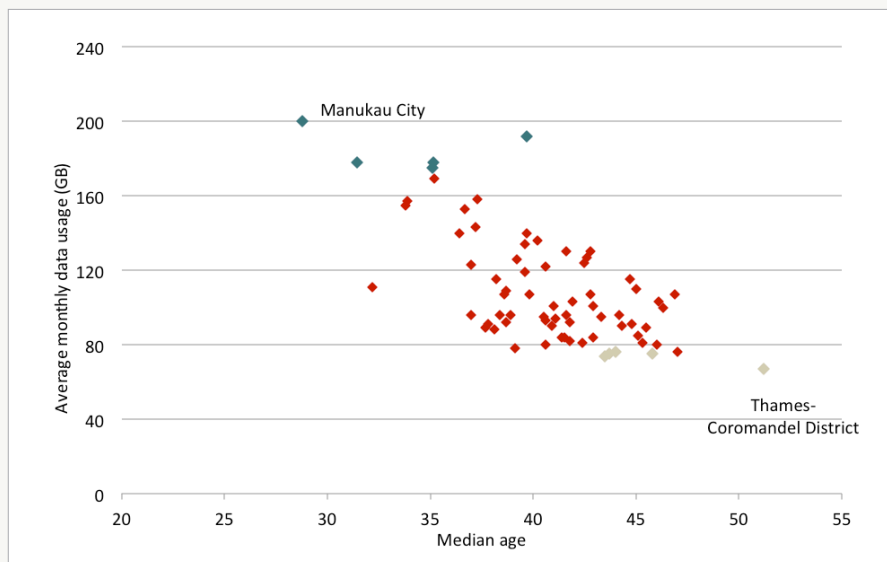


Source: Chorus

Figure 37 indicates that higher connection speeds leads to higher data usage, with those regions with higher connection speeds also tending to have higher data usage. However, while Dunedin City has the highest connection speed by far, it is not even in the top 5 regions for data usage. This indicates that although there is a generally a strong relationship between connection speed and data usage, there is a limit to how much use can be made of the additional connection speed.

Furthermore, while the difference in data usage by region appears to be a function of connection speed (and so related to the technology deployed in those areas) there are also other factors at play in driving data consumption. *Figure 38* shows the correlation between the average monthly data usage per region and the median age of the population for each region based on the 2013 census.

**Figure 38: Average monthly data usage and median age by region**



Source: Chorus & Statistics New Zealand, Census 2013

*Figure 38* indicates that regions with a younger population tend to use more data than regions with an older population. For example, Manukau City has the youngest median age in the country at 28.8 years and it is also the region with the highest monthly data usage at 155 GB per connection. This contrasts with the Thames-Coromandel District which has the oldest median age in the country at 51.2 years and the lowest monthly data usage at only 49 GB per month.

Regions with a lower median age also tend to have a higher average household size so will likely have more people using each connection. For example, Manukau City has an average household size of about 3.8 people. However, Manukau City is an outlier with next highest average household size being Papakura District with 3.3 people. By contrast, Thames-Coromandel District has an average household size of 2.2 people. The average household size for New Zealand based on the 2013 Census was 2.7 people. This means household size is generally not as dispersed as median age so median age is the better indicator of household data usage in a region.

## On-account mobile users have significantly higher usage of all mobile services

Based on responses to the 2016 industry questionnaire we can estimate the average monthly usage of text, voice minutes and data per subscriber for mobile connections and voice minutes and data usage for fixed line connections. *Table 5* shows the average usage per month for mobile and fixed-line customers in 2016.

**Table 5: Average usage per month per connection for 2016**

	Texts	Voice (Mins)	Data (GB)
Prepaid mobile	150	57	0.33
On-Account mobile	243	282	1.37
Business mobile	80	186	0.68
Fixed-line	N/A	301	69

Source: Commerce Commission, annual industry questionnaire

On average, consumers using on-account mobile plans send the highest number of text messages, use the most voice minutes and consume the most data compared to prepaid and business customers.

Between 2015 and 2016 the average data usage by on-account mobile customers increased by 90% from 0.72 GB per month to 1.37 GB per month. Over the same period the average data usage per month by prepaid and business customers increased by about 40%. The average number of text messages sent per month has been steadily decreasing for prepaid and business customers while the average for on-account customers has been increasing. In 2016, on-account mobile customers were getting close to using as many voice minutes per month as the average fixed-line connection.



# THE 2016 YEAR IN REVIEW

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The following is a month-by-month snapshot of some New Zealand, and occasional international, telecommunications market developments that occurred from January 2016 to March 2017.

## January 2016

- Spark's budget mobile brand Skinny formally launched its wireless broadband service that used the parent company's 4G network. The initial offer was the NZ\$55 per month 60 GB prepaid plan that was soft launched in December 2015. The service was available in selected 4G areas nationally with a speed higher than ADSL broadband but slower than fibre, according to the Skinny website.

## February 2016

- The price of most of Spark's fixed-line broadband plans increased by \$5 a month from 1 February 2016. Spark also increased the price of a residential phone line in Auckland, Wellington and Christchurch by \$3.50 a month to \$53.50. This brought the phone line price up to that applying in the rest of the country and eliminated a differential that had applied for many years. The \$53.50 price was close to the maximum Spark could charge given the TSO price-cap (allowing CPI adjustment).
- Vodafone Hutchison Australia announced it would be providing free roaming to New Zealand for 12 months. In an effort to attract more customers, the free roaming option sees Vodafone waive the usual AU\$5 a day fee for customers to use their normal monthly data, calls, and messages in New Zealand as part of a 'pilot' until 1 February 2017.
- 2degrees announced an exclusive partnership with new music platform TIDAL to offer students a monthly music-streaming service in conjunction with its \$19 Carryover Combo.
- M2 NZ completed its merger with Vocus NZ. Former M2 NZ head Mark Callander became Vocus Communications NZ Chief Executive, and former Vocus NZ head Maxine Elliott took charge of the Vocus NZ corporate, government and wholesale business.
- As part of its website refresh, Chorus launched its broadband checker tool that enables consumers to check the likely maximum speed available at an address with the copper and fibre connection types available at that address.
- Around this time Spark started offering a mobile 'add-on' that gave unlimited calling in New Zealand for \$20 a month (with the usual limitation for unreasonable usage).

## March 2016

- The price of Vodafone's fixed-line consumer broadband plans increased by \$5 a month from 1 March 2016.
- Spark kicked off a process to give a credit or upgrade to some customers for the net savings it made by the increase in wholesale copper prices not being backdated back to the date when the UBA price initially decreased to a benchmarked price. Spark had raised prices in February 2015 on the expectation the UBA price would be later increased and later backdated.

- Vocus consumer retail brands Slingshot and Orcon had a major restructuring of plans and prices offered to new customers. Data caps were increased significantly, bringing the entry-level data cap to 100 GB. The entry-level broadband and voice bundle price was decreased by \$5 a month, while fibre and naked broadband prices were increased by \$5 a month. This reduced the premium payable for a voice service to just \$5 a month.
- The first section of the Tasman Global Access (TGA) undersea cable between New Zealand and Australia started to be laid from the New Zealand landing point at Raglan. Telecommunications companies Spark, Vodafone and Telstra are investing approximately US\$70 million to build the TGA cable. Benefits of the new cable include improved redundancy and resiliency, and better connection with the five main international cable systems currently serving Australia. Alcatel-Lucent Submarine Networks, now part of Nokia, had been contracted to lay the first cable between Ngarunui Beach at Raglan and Narrabeen Beach in Australia.
- Global music-streaming provider Spotify extended its partnership with Spark for a further two years. Spotify indicated that New Zealand music fans had some of the highest engagement they had seen worldwide. Spark stated that in the prior 12 months, the number of customers using Spotify on their mobile devices had increased by around 125%. On an average day, over 90,000 customers were using Spotify on their mobile devices, with the highest number of customers using the service on a Monday and Friday.
- It was reported that in 2015, US market revenues from music-streaming services were, for the first time, the largest component of music industry revenues at 34.3%. This was just higher than revenues from digital downloads, which made up 34% of revenues. Streaming revenues were US\$2.4 billion, out of the total market for digital and physical music of US\$7.0 billion per annum.
- The Commission gave clearance for Spark to acquire the management rights to 70MHz of radio spectrum in the 2300MHz band from Woosh and Craig Wireless. Spark intended to use the spectrum to extend its fixed wireless product offerings. The Commission was satisfied that the acquisition would not have the effect or likely effect of substantially lessening competition in affected markets.
- The Commission released research from UMR on factors affecting competition in the business segment of the mobile market. UMR found that respondents believed the business mobile market was competitive compared to other industries. When selecting a mobile provider, respondents said reliable coverage, good customer service and price were the most important factors. The majority of respondents did not consider mobile costs to be significant and said switching was not overly difficult. Overall, there was no evidence of anti-competitive behaviour, structural, legal or systemic factors existing in the market to inhibit competition.

## April 2016

- Spark announced it would extend to towns and city fringes the network used to deliver its rural wireless broadband service. The Home Wireless Broadband service is designed to replace people's landline voice connection as well as their broadband connection. The price was \$80 a month for a phone and broadband bundle with a 40 GB cap, or \$90 with an 80 GB cap. There was also a naked 80 GB service for \$85.

- Spark completed a purchase of 70MHz of 2300MHz spectrum management rights from Canadian company Craig Wireless and its associated New Zealand subsidiary Woosh Wireless. The spectrum is for use in providing 4G fixed wireless broadband services.
- Internet of Things network provider Kotahi.Net which launched in Wellington in February expanded into Auckland, Napier and Dunedin. Ultimately, Mr Kumar wants to build a national wireless network. For now, data from Kotahi.Net base stations is sent to the internet via a number of methods, including a private network deal with 2degrees. Kotahi.Net's own base stations can transmit data to-and-from sensors over 3km in urban areas, and about 20km in rural areas. Each has a battery that should last five to 10 years.
- Spark has announced it would be giving all of its home broadband customers a free Lightbox subscription and up to 1 GB of free WiFi data per day, for the life their Spark plan. Spark Home, Mobile & Business CEO, Jason Paris said that while the online TV market was growing at a rapid pace there was still a large proportion of New Zealanders yet to make the switch to online TV. Home broadband customers can also register up to three devices for use in any of the one thousand Spark WiFi zones located across New Zealand.

## May 2016

- Spark and network partner Huawei switched on the first 4.5G mobile site in New Zealand at Spark's Hereford Street exchange in Christchurch. It reached speeds of over 1 Gbps in testing. While 1 Gbps is the 4.5G headline speed that's not what most users will see when they connect – they will get an increase of three to four times what they were previously getting. The key to 4.5G speeds is the technology's ability to use spectrum in different bands at the same time. The telecom industry calls this carrier aggregation. It also uses multiple antennae simultaneously to boost capacity. Huawei New Zealand CEO, Jason We, said beside boosting data speeds, a 4.5G cell site can service ten times as many users as a 4G site. The new technology has been deployed on a combination of 2300 MHz, 2600 MHz and 700 MHz spectrum. There were no phones or modems that supported the full range of 4.5G features. However, a number of devices including the Huawei P9, Samsung Galaxy S7 and iPhone 6s supported some of the 4.5G features. Customers with those devices could double their download speeds when they connected to the Hereford Street site.

The 2300 MHz spectrum can be configured with TDD (time-division duplexing) which means it can be optimised for downloading and will work well with video traffic. TDD is ideal for fixed wireless broadband services. The additional capacity will allow Spark to offer higher usage bundles at economic prices as the new network rolls out. Spark said spectrum had been the constraining asset.

- UFB uptake among New Zealand businesses has reached a tipping point enabling a rapid transformation of the local telecommunications industry according to Digital Island general manager Blair Stewart. He says that as the rate of UFB penetration among businesses grows, the market is seeing the introduction of more cloud technology. Stewart says the future business model for the telecommunications industry will be OTT services - where a telco delivers their services across all IP networks, as opposed to the carrier's own access network. He says one effect of this industry change will be of particular benefit to local SME's as the capital investment required to run a phone system is completely removed from the balance sheet by moving these services to the cloud.

- 2degrees more than doubled its casual charges for sending prepay text messages as part of a move to 'simplify' its prices. From 12 June 2016, 2degrees' prepay customers have to pay 20 cents for out-of-bundle texts, instead of 9c. Spark increased the price of text messages for new customers of its Skinny brand to 20c in October 2014. However, customers who joined before then still pay the old rate of 8c. Vodafone offers a "pay and go" prepay plan that provides texts at 1c, calls at 20c a minute and data at 20c a megabyte. However, that plan doesn't provide any of the fixed-price monthly bundles commonly offered on prepay plans.
- Roy Morgan research showed that over three in four New Zealanders have a smartphone (76%) and the majority of people carry this multi-media device in their pockets or purses. The reliance on the smartphone's inherent portability, multi-functionality and 24/7 internet-connectivity is driving consumers' desire (and expectation) to access everything 'on demand'.
- Roy Morgan also reported that 83% of Kiwis access one or more types of content 'on demand'. This included 57% who visit news or newspaper websites during the week; 52% who stream or download music, radio, TV or films; 50% who visit YouTube in an average four weeks; 24% who already have a Subscription Video On Demand service at home; and 12% who watch any of the free-to-air TV networks' shows via Catch-Up.
- Spark reported that farmers and the rural sector are consistently its highest users of 4G data. One farmer mentioned a fast reliable broadband service meant he could access internet banking and e-mail, monitor weather and get insights into his milk production and quality. He also said regularly getting speeds of 50 Mbps meant his children were seamlessly streaming videos, downloading music and staying in touch with their friends, which is hugely important for rural children.

## June 2016

- 2degrees reported a net loss of \$33.1 million for the 2015 calendar year, a 6% improvement on the prior year. Revenue was \$569.1 million and EBITDA \$78.5 million. The results included 8 months of Snap (the fixed-line operator it purchased) operations. Revenue appeared to be boosted by a change in the accounting treatment of handsets sales.
- Communications Minister Amy Adams announced the completion of the Rural Broadband Initiative (RBI) Phase 1 new tower programme, with 154 new cell towers built. The build meant nearly 300,000 rural families and businesses were able to access high speed 3G and 4G mobile broadband services.
- Slingshot added a \$15 one thousand minute fixed-to-mobile calling pack to its array of monthly add-ons able to be purchased by its fixed-line customers.
- Australian telecommunications carrier Optus has announced signing a deal with rural broadband company Farmside to provide those living in rural and remote sections of the east coast of New Zealand's South Island with internet connectivity via its satellite division.

- Spark announced its Connecting Farm concept that utilises the Internet of Things (IoT) to monitor and collate information that is generated by wireless rugged sensors and a variety of other sources like fences and gates. The service uses 4G wireless broadband for backhaul to trial a new low-power wireless area network (LPWAN).
- 2degrees launched Broadband for Business with its very first Broadband offering for SMEs. The prices were \$90 for 200 GB and \$110 for unlimited data, plus the ability to add a phone line, calling, or Fibre Speed Boost.
- The second NZ On Air report, Where Are The Audiences, was released and showed ongoing fundamental changes to viewing habits. Numbers for all types of online media viewing were up. The 'channel' with the second largest daily reach in NZ after TV One was a tie, between TV3 and YouTube. More 15–34 year olds stream online video each day than watch linear TV.
- The Ministry of Social Development reached an agreement with the mobile operators to zero rate usage on its websites to remove cost as a barrier for clients wanting to access its services using a smartphone. The service is called 'Cheap As Data' and allows clients access to online services at little or no cost from their mobile phone or digital device if they are on Spark, Vodafone, 2degrees or Skinny mobile networks. Cost has been removed wherever possible, but there are website add-ons that use a very small amount of user data. In most cases this will cost less than one cent per visit.

## July 2016

- Broadband provider Bigpipe released an app that gave users of its fixed-line broadband services the ability to prioritise what kind of traffic gets priority. Users can choose between Streaming, Browsing, Downloading, Communication, and Gaming modes. The app also shows what sort of traffic is being used at any given time.
- Chorus announced that 100 GB per month was the new average household data consumption on its network, growing by almost 100% since the beginning of 2015 and tenfold since 2011. This trend indicated broadband is increasingly an essential utility for households and that the evolution of the network, with increasing VDSL and fibre availability, is enabling users to do a lot more, faster.
- 2degrees announced the successful activation of its 100GbE interconnect to the Southern Cross Cable Network. 2degrees Chief Fixed Officer Mark Petrie said 2degrees was doubling its capacity year-on-year.

## August 2016

- Vodafone released a flexible pre-pay plan that included a data bonus for customers under 25. The accompanying marketing campaign, dubbed 'Vodafone Mates', brought together a suite of products, rewards and experiences designed for young New Zealanders.



- Communications Minister Amy Adams announced a new RBI agreement between the Government and Vodafone. Under the agreement, Vodafone's 313 rural 4G cell-towers (which provide mobile and broadband coverage) will now offer higher minimum speeds, lower latency, and higher minimum data caps for rural users. The new service specification for 4G based RBI services includes:
  - › Improved minimum speeds of 30/5 Mbps (up from 5/0.5 Mbps on 3G)
  - › Reduced latency of 100ms round trip (down from 2000ms on 3G)
  - › Increased minimum data caps of 80 GB on-peak and 50 GB off-peak (up from 30 GB and 50 GB on 3G).
- Skinny introduced a 100 GB fixed wireless broadband plan for \$65 a month.
- Spark announced it was looking to scale up its mass market wireless broadband offering, with plans to add at least 50,000 new connections in the next 12 months. Speaking at the company's full-year results announcement, Spark MD Simon Moutter said the new offerings would utilise the carrier's significant spectrum assets acquired over the past few years. The wireless broadband service, under its Skinny low-cost brand, was in beta mode with around 12,000 customers. However, Spark would move to a full market launch and promote the service as a substitution for fixed broadband in both rural and urban areas, particularly in the sub-NZ\$60 segment.
- UFB network companies Enable, Northpower Fibre and Hamilton-based Ultrafast Fibre announced they would start wholesaling ultrafast broadband plans with one gigabit download speeds and 500 megabit upload speeds from 1 October 2016. The three network companies - which are together building about 30 per cent of the UFB network - will charge about a \$20-a-month premium for the faster speed, over their 100Mb services. MyRepublic was the first to announce retail pricing at \$59.99 for the first six months and then \$119.99 for the remaining 18 months of a two-year contract. Spark expected to start testing a gigabit service in Christchurch over Enable's fibre network within a few weeks. A gigabit service from Chorus was expected to be 'not be far away'. Chorus was already wholesaling gigabit broadband - at no extra charge - to customers in Dunedin through its Gigatown initiative. Vodafone had also previously promised to start offering gigabit broadband on its separate cable networks in Wellington in 2016.
- Sydney-based Thinxtra and its rollout partner Kordia announced they had passed the halfway mark in their plans to establish a nationwide Internet of Things network in New Zealand. The opening of a new site in Hamilton had pushed the outdoor coverage of the network to 50% of New Zealand's population. The network is based on the Sigfox low-power wireless network standard. The network had set the record for the longest distance over which data has been transmitted on a Sigfox IoT network to date, with data sent 212km between a Kordia site in North Canterbury and another in Wellington.
- Skinny reduced the price of its 100 GB fixed wireless broadband from \$65 to \$52 a month.

## September 2016

- Spark blamed plan simplification and future proofing for raising the prices on most of its home broadband plans by \$5 per month. However, data allowances were increased with customers on a 40 GB plan getting an increase to 60 GB and those on an 80 GB plan getting an increase to 120 GB.
- Skinny launched a new sub brand Skinny Direct that is online only, with a focus on big data packages bought monthly. There are no top-ups in the traditional sense, and no balance. It's a one-click purchase and has been designed to beat prepay churn, according to General Manager Ross Parker.
- Kordia completed a major upgrade to its North Island fibre backhaul networks, with a multimillion dollar investment in Ciena Networks' DWDM optical solution taking Kordia's core infrastructure to a potential capacity of 9.6 terabits per second. Chief technology officer Aaron Olphert said the upgrade future-proofs the network in the face of spiralling demand. The go-live of the project has released an initial 100 gigabits per second of dedicated capacity between service nodes in Auckland, Hamilton, Tauranga, Napier, Palmerston North and Wellington. Olphert says the dark fibre connections between the main centres of the North Island will break out into additional towns as required in future, with the ability to add a further 95 sets of 100 gigabits per second allocations before the 9.6 terabit headroom is reached. Ten gigabit today is becoming the norm; in another 24 months we're expecting 100 gigabit connections to become standard and it will keep scaling from there, particularly as more Local Fibre Companies start rolling out 1 gigabit connections to residential users.
- Spark revamped its mobile offerings to give pay monthly customers up to 60% more mobile data, added new data heavy plans and included Spotify Premium (music streaming) and Lightbox (TV online) to most of its plans. The new plans included a \$99.99 open plan with 15 GB of data.
- Stuff Fibre launched with a 100 Mbps down and 20 Mbps up unlimited plan priced at \$89.50 a month, including a free modem and installation. Customers can boost their connection to the fastest available in their area – up to 1Gbit where that is available – for an additional flat monthly fee of \$25. Stuff Fibre chief executive Sam Morse said the company had developed an internet phone service, costing an extra \$10, that provides free nationwide calling and includes a smartphone app that lets customers make and receive NZ landline calls from anywhere in the world where they have an internet connection.
- Vodafone announced changes to its mobile data plans, offering 50% more data on On Account plans priced \$59.99 and above. Included in the changes was the introduction of a new open term plan giving customers 15 GB of data for \$99 a month.
- Vodafone was fined \$165,000 in the Auckland District Court after pleading guilty to making false price representations in breach of the Fair Trading Act. Vodafone had launched the Red Essentials plan at \$79 per month in August 2013 and subsequently reduced the price to \$69 in January 2014 in response to market competition. However, Vodafone's billing system did not accurately apply this \$10 discount to customers who signed up to the Red Essentials plan from its introduction through to December 2014, causing misleading invoices to be sent to approximately 15,000 customers.

- Spark announced its Spark Jump social programme to subsidise broadband for New Zealand children whose families cannot afford commercial home broadband services. Collaborating with community groups and government agencies, Spark will offer selected families a 30 GB no-frills broadband service for \$15 a month. To offer flexibility, Spark Jump is pre-paid, has no fixed-term and includes a modem while the service is in use. The service uses the Skinny 4G fixed wireless broadband platform and connects with the nearest cell tower.

## October 2016

- Gigabit broadband became available to most homes with Orcon, Bigpipe, MyRepublic and Stuff Fibre all starting to offer a 'gigabit' service. The term gigabit was later removed from the name of some services given the Commission had concerns that actual speeds could never reach a gigabit per second (using the wholesale services as originally specified).
- Australian Futurist Skeeve Stevens predicted an impending data armageddon dwarfing the so-called Netflix Effect with an incoming wave of virtual and augmented reality applications. Virtual reality is estimated to require four to five times the bandwidth of HDTV. Stevens predicted the new applications would also affect mobile networks and kill their backhaul.
- Chorus announced it had reached an agreement with the government to extend free non-standard installations until the end of 2019. This means nearly every home qualifies for a free UFB fibre install until the end of the rollout. At the start of the project, Chorus was going to charge for 'non-standard' UFB installs, such as those down right-of-ways or within apartment blocks. However, after discussions with Crown Fibre Holdings it agreed to put \$20 million aside to fund non-standard installations itself. The amount was later topped up to \$28 million in an agreement covering up to the end of 2016.
- Chorus says no additional funding needs to be allocated to cover the cost of extending the free non-standard installation period. It will either be covered by a regulator change to the so-called 'building blocks' model or, if that doesn't happen, a repayment holiday of up to two years on debt owed to the Crown, valued at up to \$60 million.
- Vodafone rebranded its 'beefed up' hybrid fibre-coaxial cable network as FibreX. It also announced new pricing and made a commitment to connect customers at eligible addresses within three working days or give a \$100 credit. Customers could sign up to a naked unlimited data 'FibreX Max' gigabit network plan for \$109.99 per month on a 24-month term. Alternatively, customers could opt for a naked unlimited data 'FibreX 200' – which offered up to 200 Mbps download speeds for \$79.99 per month on a 24 month term. Customers with a Vodafone On Account mobile plan receive a \$10 discount on either FibreX plan. Vodafone's FibreX network uses Huawei's next-generation DOCSIS 3.1 architecture which has boosted capacity across the network.
- The government announced that a Request for Proposals (RFP) had been issued to extend the Rural Broadband Initiative and provide mobile coverage to black spots on state highways and in tourist areas. The RFP was open to any telecommunications technology able to meet a set of user outcomes. Under the RBI Extension (RBI2), improved broadband will be delivered to communities unable to access broadband speeds of at least 20 Megabits per second.

For the Mobile Black Spot Fund (MBSF) there's a minimum requirement to provide 3G voice services, with 4G preferred in tourist areas. The RBI2 and MBSF programmes will deliver open access to government funded infrastructure (towers, cabinets), with exemptions from some obligations for regional operators. The programmes will contribute towards meeting the Government's aspirational targets for rural broadband – that by 2025, 99% of New Zealanders will have access to broadband peak speeds of at least 50 Mbps, and everyone will have at least 10 Mbps. The proposals should show an upgrade path in line with this vision.

## November 2016

- Warehouse mobile announced an offer of 1 GB of data for \$8 until Feb 2017.
- Spark announced the trial of a plan to accelerate fibre take-up through a 'street in a week' streamlined installation process between Spark and Ultrafast Fibre (the local company in Hamilton and some other North Island cities). The scheme involves upgrading all homes in the same street that want Spark fibre broadband, in just one week - with customers having the certainty of being able to select a specific day within that week for their fibre installation. The approach seeks to improve the current process where customers need to place their order with their service provider (such as Spark) and then go into the queue for the local fibre company to carry out the installation.
- Worldwide internet usage by mobile and tablet devices outpaced desktop computers for the first time in October 2016, according to independent web analytics company StatCounter. During the month, 51.3% of internet usage came from mobile and tablet devices, compared to 48.7% for desktop computers. The trend was fuelled by emerging markets, where mobile devices far outnumbered personal computers as the primary platform for internet access. Desktops still dominated web usage in mature markets such as the US (58%) and the UK (55.6%). Mobile dominated across Asia, where 62% of web access was conducted on mobile devices, as well as Africa (61%). One of the highest mobile usage markets was India, where 78% of all web usage came from mobile. In Oceania, 56% of web usage was from desktops, roughly the same as Australia (55%). New Zealanders meanwhile continued to rely on desktops with 63% using computers for web access.
- Vodafone launched My Flex Prepay that gives customers the flexibility to adjust the amount of data, minutes and texts in their prepay bundle and therefore the price. Using MyVodafone (the Vodafone mobile app), customers can easily change the individual amounts of TXT, minutes and data on their plan, or choose from pre-set favourite combos. Vodafone said it tested the water with Vodafone Mates, its first fully flexible Prepay plan launched in August.
- Construction officially commenced on the 14,000km Hawaiki submarine cable which will provide an alternative route from New Zealand to Australia, Hawaii and mainland United States. Officials attended the formal soil breaking ceremony at the landing station at Mangawhai Heads, Northland. The cable is due to be completed in mid-2018.
- New Zealand's first Digital Tier 3, Two Way Radio network, Push Wireless, launched in the Bay of Plenty as one part of its nationwide roll-out. The network integrates instant voice, GPS tracking and other management systems on a single platform.

## December 2016

- Vodafone launched its Home Wireless Broadband services that deliver fast broadband speeds to households over its 4G network. The pricing was \$74.99 per month for 60 GB of data and \$84.99 for 120 GB of data, with a \$10 discount for eligible mobile plans.
- Spark launched its Ultra Fast Fibre MAX plans. When used in optimal conditions, Ultra Fast Fibre MAX should provide speeds of between 700 Mbps and 900 Mbps download and 400 Mbps upload. Customers can purchase a bundled broadband and home phone Fibre MAX plan with unlimited data for \$149.99 a month – or a broadband only Fibre MAX plan with unlimited data for \$139.99 a month.
- BNZ announced it was the first bank in New Zealand to launch Android Pay, available to customers with an NFC-enabled Android smartphone, the BNZ banking app and a Visa debit card. After the earlier Semble payment service fell over, BNZ had been left without a mobile wallet. The app allows users to pay retailers by holding their phones to an EFTPOS terminal which accepts contactless payments. Approximately 16,000 merchants have this capability. Transactions for more than \$80 need PIN approval.
- In celebration of its fifth birthday as a standalone company Chorus announced a free upgrade for the 85,000 residential fibre broadband customers on its entry-level 30 Mbps plan, increasing it to 50 Mbps. It was expected the migration would be completed early in 2017. Fibre broadband customers will not need to do anything to take advantage of the free upgrade. Chorus will work with the retailers behind-the-scenes at the network layer to manage the transition. Existing fibre-compatible modems already support the new plan speeds.
- Amazon's video-streaming service became available in New Zealand. The cost was US\$2.99 (NZ\$4.14) per month for the first six months after which it reverted to the regular price of US\$5.99 (NZ\$8.29). Prime Video is home to popular shows such as Jeremy Clarkson's The Grand Tour and comedy Transparent. Subscribers can also download all movies and TV shows for offline viewing on mobile devices, a feature Netflix also recently introduced.
- Warehouse mobile further sweetened its special 1 GB data offer by halving the price to \$4. It was to be available until the end of February 2017. This offer was later extended and then the data pack price became \$4 for 500 MB.
- The Commission decided to continue to regulate number portability for both local and mobile telephone numbers for another five years. The regulation limits the gap in service and the price the telecommunications companies pay each other for the switchover. Users supported continued controls and the industry was comfortable with the existing number portability regulations.
- The Commission recommended reconsidering the need to regulate Spark's wholesale voice services in two years. Retailers buy Spark's wholesale voice services to sell in a bundle with broadband. Our investigation found that Spark was facing increasingly effective competition to its wholesale voice services. However, the ability of retailers to switch quickly to alternatives was still constrained.

- OpenSignal reported that for May to July 2016 its sample taken from users who downloaded its app shows New Zealand mobile users spending 63% of their time connected to WiFi rather than cellular networks (third highest in the world), compared with 60% in the US, 53% in the UK and 51% in Australia. The report mentions that time on WiFi doesn't represent the amount of data usage – but data usage on WiFi might well be higher because users are likely to feel less constrained when connected to WiFi. OpenSignal also reported that overall average mobile speed for NZ was 19.34 Mbps and 12th in their list of countries, just behind Taiwan on 19.46 Mbps while Australia was 4th with 25.01 Mbps and South Korea way out in front on 41.34 Mbps.

## January 2017

- Skinny announced an unlimited data version of its fixed wireless broadband service. The Unlimited Broadband plan was available for \$58 per month for the first year and \$88 per month for the second year, when customers signed up for 24-months. Alternatively, with no term it was \$68 per month, with a \$99 modem and \$49 connection fee. Skinny also introduced a \$40 plan with 40 GB of data, allowing New Zealanders to be online for a small monthly outlay.
- The government announced UFB would be extended to provide up to 85% of the population with access to fibre by the end of 2024 for a cost of \$300 million. Phase two of the UFB build is covered by contracts between Crown Fibre Holdings and four partner companies: Northpower, Ultrafast Fibre, Chorus and Enable. These will see fibre rolled out to 151 more towns plus 43 suburban fringe areas around the larger centres which were covered by the first phase of the programme. In total, the roll-out will provide around 423,000 additional people with access to fibre.

## February 2017

- Spark formed a partnership with network company Unison for the installation of fibre for residential and small business customers in the Napier, Hastings, Taupo and Rotorua regions through Unison's fibre optic network subsidiary UnisonFibre. According to Spark, the network reached nearly 13,000 homes and businesses, and offers fibre network capabilities equivalent to those available via the UFB network in other parts of New Zealand. The network was built to serve larger businesses with fibre connectivity and largely overlaps the UFB network, but serves some extra homes and small businesses that did not have access to UFB.
- The US Federal Communications Commission cancelled an investigation by the previous administration into the practice of zero-rating. The new FCC, under new Republican chairman Ajit Pai, announced it would no longer run investigations into US operators including AT&T, Verizon, Comcast and TMobile over the practice of offering free mobile data to access content that is paid for by the content providers. Pai said the free-data plans had proven to be popular among consumers, particularly low-income Americans, and had enhanced competition in the wireless marketplace.

- Former Telstra COO Kate McKenzie took the reins at Chorus. The CEO transition coincided with Chorus reporting a doubling of its net profit after tax to NZ\$66 million for the first half of FY17 – up from NZ\$33 million for the corresponding half in FY16. Despite the growing earnings, the number of connections across Chorus’ network continued to decline, with total fixed line connections decreasing by 49,000 to 1,678,000 as at 31 December 2016, and broadband connections decreasing by 12,000 to 1,214,000. Chorus said the decline largely reflected local fibre companies continuing to gain market share in their UFB areas, as well as a marketing push from vertically integrated retailers seeking to convert their customer base to their own wireless broadband networks. There was also the seasonal effect of summer holidays.
- Spark announced a year-long marketing partnership with Netflix, offering any customers who sign up to a 24-month unlimited data broadband plan a year’s free access to the standard plan that usually costs \$14.99 a month (HD and access from two screens). Alternatively, the \$178.88 can be put towards another Netflix plan like 10 months access to Netflix top plan, which offers 4K (ultra HD) and access from up to 4 screens.
- Telstra, 21st Century Fox’s Fox Innovation Lab and Ericsson have revealed a pilot of what they say is an industry first: a content delivery offering that pre-loads personalised premium movies straight onto consumer devices, without affecting device performance or eating into users’ data allowances. Unveiled at Mobile World Congress in Barcelona, the system will use LTE-Broadcast concurrent one-to-many technology to push content to devices which should mean limited impact on overall network traffic and little to no additional infrastructure cost. Trial participants will receive notifications when the system pushes them movies matching their interests, and they can immediately purchase or rent the content. Because the data has already been preloaded to their devices, the idea is that there’s no need for network connectivity at the point of purchase, and no risk of buffering.
- The Commission declined to grant clearance for the proposed merger of Sky Network Television and Vodafone New Zealand. At the time of writing the decision was under appeal.
- The government released further details of its proposed approach to regulating fixed line communications services from 2020, and sought feedback. It is proposed that the new regulations introducing a ‘utility-style’ regime will focus primarily on New Zealand’s fibre network. In areas where UFB or other fibre is available, it is proposed to deregulate the copper network from 2020 and remove the TSO obligation. In areas where UFB or other fibre is not available, the TSO obligation will be retained and Chorus will be required to continue supplying copper services at prices capped at 2019 levels.

## March 2017

- Some 50,000 Slingshot customers will be offered power to go along with their broadband this month as the company branches into new territory. Vocus, which owns Slingshot, Flip and Orcon purchased a small power company, Switch Utilities, in December last year, so it could offer customers internet and energy on the same bill. The aim is to test that everything is working as planned, assess the uptake and then extend the offer nationwide. Pricing structures were still being finalised but Vocus said they'd have to give customers a reason to take up the offer.
- According to Roy Morgan research, by the end of 2016 an estimated 1,066,000 New Zealanders aged 14+ subscribed to Netflix – up 56% compared with 684,000 in December 2015. However, the number of subscribers with Lightbox more than doubled over the period, from 285,000 to 630,000. The New Zealand market has also seen an upswing in the number of people with multiple services. Altogether 1.4 million New Zealanders (37%) have one or more of the four main SVOD services in the home, up from 900,000 at the close of 2015.
- The Commission released the final decision in its review of the non-price features of UBA. The main change is that a standard has been added that requires Chorus to keep its UBA service free of congestion as traffic usage grows. Around 19,000 lines in Chorus' remote legacy networks have been exempted from the new service standards until it is clear how much the service to these consumers will be upgraded through the second phase of the RBI.





## List of defined terms and abbreviations

<b>ACCC</b>	Australian Competition and Consumer Commission
<b>ADSL</b>	Asymmetric Digital Subscriber Line – a type of DSL
<b>App</b>	Application – an app is a standardised piece of software that runs on a computing platform. The term ‘app’ originally referred only to applications for mobile devices and tablets, but is now also used when referring to a wide range of devices including desktop computers
<b>ARPU</b>	Average revenue per month per user/subscriber
<b>Baseband</b>	A generic term covering the low-frequency copper wholesale services used to carry analogue voice over Chorus’ access network
<b>CPI</b>	Consumers Price Index – provides information on the price change of goods and services purchased by private New Zealand households
<b>CAGR</b>	Compound annual growth rate – used to describe the average annual growth rate of something over a period of time
<b>DSL</b>	Digital Subscriber Line – method of transmitting high-speed data and, if necessary, voice simultaneously over a copper phone line
<b>FPP</b>	Final Pricing Principle – the process of setting the final price for a regulated service by use of cost modelling
<b>GB</b>	Gigabyte. 1 gigabyte = 1024 megabytes
<b>GSM</b>	Global System for Mobile communications – a widely used digital second-generation mobile phone standard
<b>GST</b>	Goods and Services Tax
<b>HES</b>	Household economic survey – a three-yearly survey run by Statistics New Zealand that collects information on household expenditure and income, as well as a range of demographic information.
<b>HHI</b>	Herfindahl-Hirschman Index – a commonly accepted measure of market concentration. It is calculated by squaring the market share of each firm competing in a market, and then summing the resulting numbers. The index is lower with more participants and higher with more disparate market shares
<b>IPP</b>	Initial Pricing Principle – the process of setting the initial price for a regulated service by using benchmarking
<b>IoT</b>	Internet-of-Things – the network of physical and virtual objects accessed through the internet
<b>IP</b>	Internet Protocol – a method that computers use to communicate over the internet
<b>ISP</b>	Internet Services Provider. Most ISPs have now morphed into retailers of a full suite of telecommunications services
<b>LFC</b>	Local Fibre Company. These are the four companies contracted with government agency Crown Fibre Holdings to deploy Ultra-Fast Broadband to 75% of the population by rolling out fibre optic access networks
<b>LTE</b>	Long Term Evolution – a name given to the fourth generation of mobile technology that can provide high-speed mobile broadband
<b>MB</b>	Megabyte – a multiple of the unit byte for measuring the quantity of digital information
<b>Mbps</b>	Megabits per second – used to measure data transfer speeds of high bandwidth connections, such as fibre, ethernet and cable modems
<b>MTAS</b>	Mobile Termination Access Services – the standard terms determination where the Commission has determined the price and non-price terms for the services that provide for the termination on a cellular mobile telephone network of voice calls and SMS messages

<b>MVNO</b>	Mobile virtual network operator – an operator that provides mobile phone services but does not generally have its own licensed frequency allocation of radio spectrum or much of the infrastructure required to provide mobile telephone service. It therefore relies on buying services from an operator with a full mobile network. The amount of control it has over the services it offers will vary according to the nature of its agreement
<b>Naked broadband</b>	A fixed-line broadband service provided without a traditional analogue voice service also being provided over the same line
<b>NBN</b>	National Broadband Network is the Australian national wholesale open-access data network being rolled out and operated government owned NBN Co Limited
<b>Ofcom</b>	Office of Communications – the regulatory and competition authority for broadcasting, telecommunications and postal industries in the UK.
<b>OECD</b>	Organisation for Economic Co-operation and Development
<b>OTT</b>	Over-the-top – refers to content and applications provided from a third party and delivered to an end-user device, leaving the retailer responsible only for transporting IP packets
<b>PPP</b>	Purchasing Power Parity – an exchange rate designed to equalise standard-of-living differences between countries, and generally accepted as an appropriate conversion method for non-tradable goods and services
<b>RBI</b>	Rural Broadband Initiative – an initiative where the government partners with private sector telecommunications operators to upgrade or extend telecommunications networks in rural areas
<b>SMS</b>	Short Message Service – commonly known as a text messaging, is a service for sending short messages between mobile devices
<b>SVOD</b>	Subscription (or streaming) video on demand – refers to services which allow users to watch video content such as movies when they choose to, by streaming the content to a device usually via a broadband connection. If it is a subscription service then it will give the user unlimited access to a range of programs for a flat monthly fee.
<b>TCF</b>	New Zealand Telecommunications Forum (formerly Telecommunications Carriers’ Forum)
<b>TSO</b>	Telecommunications Service Obligation – an obligation to provide a residential telephone service and very basic data service at an historic price that can be raised at the same rate as inflation.
<b>UBA</b>	Unbundled Bitstream Access – a regulated wholesale service that gives access to a full-speed DSL broadband service on copper lines on Chorus’ access network
<b>UCLL</b>	Unbundled Copper Local Loop – a Chorus copper line that connects a phone user to the local exchange that can be accessed by retail telecommunications providers to provide a voice and broadband service.
<b>UFB</b>	Ultra-Fast Broadband – the name given to the Government’s initiative to roll out a fibre-to-the-premise access network to give households and businesses access to very high-speed broadband
<b>UMTS</b>	Universal Mobile Telecommunications System (UMTS) – the 3G successor to the 2G GSM standard, which allows voice telephony, mobile internet access, fixed wireless internet access, video calls and mobile TV
<b>VoIP</b>	Voice over Internet Protocol – a way to send voice calls over a data connection such as a broadband connection
<b>VDSL</b>	Very High Bitrate (high-speed) DSL
<b>WiFi</b>	Wireless Fidelity Standard – a series of standards for a popular technology that allows electronic devices to exchange data wirelessly (using radio waves), including allowing mobile devices to connect to high-speed internet connections. The distance over which a WiFi connection will operate can vary from 20 metres indoors to tens of kilometres outdoors
<b>WIP</b>	World Internet Project New Zealand 2015 survey. This is a biennial survey that contributes to a larger international collaborative project, which compares the social, political and economic impact of the internet and other new technologies in more than 30 countries



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