

Study of mobile telecommunications markets in New Zealand

Submission to Commerce Commission

PUBLIC VERSION

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ABOUT VOCUS

- Vocus New Zealand is the third largest fixed line operator employing over 800 staff In New
 Zealand. Our retail operation includes a number of challenger brands Slingshot, Orcon, Flip,
 CallPlus and 2Talk. We are also an active wholesaler of services including access, voice and
 broadband over both fibre and copper.
- Vocus has made significant investments in New Zealand. We are the largest copper unbundler with a presence in over 200 exchanges throughout New Zealand. In addition we operate 4,200km fibre optic network transits between virtually all major towns and cities, and connects directly into all major peering exchanges.
- Our customers in New Zealand range from government agencies, integrators, large corporate, SME and residential households. We are committed to New Zealand's fibre future.
- 4. Vocus is committed to New Zealand and is one of the few large NZ telecommunications companies to base all its customer service call centres here in New Zealand rather than outsourcing its customer service operations overseas.
- Vocus Group is one of the fastest growing telecommunications companies in Australasia and a major provider of voice, broadband, domestic and international connectivity and data centers throughout New Zealand and Australia.
- 6. Thank you for the opportunity to make this submission. If you would like any further information about the topics in this submission or have any queries about the submission, please contact:

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SUMMARY

- Vocus welcomes the opportunity to make this submission on the Commission's Study of mobile telecommunications markets in New Zealand.
- 8. Vocus, through its retail brands, Slingshot and Orcon, has a proven track record of being able to build significant customer numbers in retail markets where there are workable underlying wholesale markets. Our fixed line business has grown significantly over the last two decades and our recent entry into the power market, whereby we have established almost 16,000 connections in 18 months, has made us one of the fastest growing power retailers.
- 9. In stark contrast our mobile customer base after a decade is no larger than our power customer base, despite being a more synergistic market, and is not growing.
- 10. As the Commission recognises mobile services are increasingly becoming the critical component of telecommunications in a world where convergence is rapidly occurring; driven by the CPE market and consumer demand for simplification.
- The New Zealand mobile market for over a decade has been largely the same and is typified by: -
 - (i) a high concentration of customers (99%) being held by Mobile Network Operators (MNO's) with little threat from MVNO competition
 - (ii) Only 3 MNO's, in contrast to the norm in the OECD; even in countries with lower populations than NZ). All the New Zealand MNO's are large fixed line retailers. There is little competition for MVNO business, Vodafone's refusal to provide 4G to MVNO's and perceptions of 2 Degrees in the business market significantly impacts competition for MVNO business.
 - (iii) Spectrum in the main being held by 3 national operators with large spectrum holdings compared to overseas.
- 12. This is in stark contrast to developments in the NZ fixed market with regulated Local Fibre monopolies, with open access deeds and retail exclusions, and competition from new retail entrants as a result of a competitive wholesale market.
- 13. Furthermore the 3 MNO's dominance of the mobile market risks impacting competition in the fixed line market. In addition the lack of a vibrant wholesale mobile market represents a potentially serious inhibitor to the success of 5G & the development of IoT.
- 14. As the Commission identifies the type of mobile network is evolving: -
 - (i) Global 5G developments in software capability will facilitate all sorts of different sharing arrangements for spectrum and infrastructure. Advanced mobile network multi-tenancy approaches such as network slicing are evolving and network sharing is a fundamental feature of evolving 5G systems. The current situation of 3 MNO's means that there will be little incentive for the 3 operators to take advantage of these or make facilities available to MVNO's in fact the reverse is true.

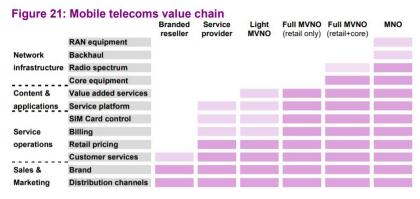
- (ii) The game is changing with the potential of 5G and CPE developments, seamlessly takes advantage of multiple network types (Wi-Fi, mobile, fixed) to encourage new entrants into the market, with different innovative approaches and services. Far from discouraging investment the creation of wholesale competition will encourage investment from incumbents.
- 15. In New Zealand MVNO's are held on a 'tight leash' by MNO's and MVNO's, with little opportunity to innovate, are left with price as the main lever. However, as examples in the submission highlight, they find themselves constantly out of the market and in a never ending game of catch-up with MNO's retail services. MNO's retail arms approve wholesale offers and trial launches are used to ensure MVNO's cannot be disruptive and slip off the MNO's 'leash'.
- 16. Vocus' concern is that whilst 5G and IoT is evolving the Commission does not have the luxury of being reactive, waiting for these developments to become established and reactively addressing competition and innovation issues. IoT will likely happen quicker than many think and if New Zealand does not take measures to establish a vibrant wholesale market NOW, well ahead of IoT becoming established, NZ risks being a slow adopter of new capability to the detriment of businesses and consumers.
- 17. A continuation of the current failure of the MVNO market will be an inhibitor on the ability of :-
 - (i) MVNO's to enter the market and focus on niches, partner with specific industry segments and address a diverse set of customer demands that will occur in an IoT world.
 - (ii) Thin MVNO's to justify the investment to build customer bases in order to move up the value chain and look to become "full' MVNO's investing in more mobile network elements in order to innovate & differentiate services
 - (iii) New entrant network operators, such as Blue Reach, to invest and build regional or different types networks which could be wholesaled to established MVNO's (given that 99% of consumers are locked in with MNO's)
- 18. Vocus' would like to see the Commission make changes now and regulate MVNO services in order that MVNO's have a real opportunity to get established and gain some scale. A framework for regulation of mobile services needs to be established, without regulation wholesale MVNO services nothing is likely to change in the next 5-10 years.
- 19. Mobile interconnection regulation also needs to be reviewed. With an increasing blurring of mobile and fixed calls there are risks of distortion between mobile and fixed operators due to the artificially high mobile origination and termination rates. Mobile interconnection needs to be forward looking, cost based and consistent with the approach taken to fixed line regulation. Vocus' would like to see the Commission review mobile termination, origination and SMS rates as well as clarify the definition of what is a 'mobile' call.

MVNO BASED ENTRY

Q14. Why do MVNOs account for a small share of subscribers and revenue in New Zealand?

Q17. Are MVNOs able to negotiate competitive wholesale access arrangements with MNOs? What are the key constraints facing MVNOs in New Zealand, and how do they differ from other countries?

- 20. There is little or no scope for innovation with 'light' MVNO agreements, effectively Mobile Network Operators (MNO's) in NZ tightly control the MVNO's capability and structure of their retail services. MNO's control the range of wholesale services either delaying (e.g. pre-pay services were withheld from Vocus for several years) or denying access to technology capabilities (e.g. Vodafone have withheld 4G from MVNO's and handsets are often not made available).
- No MVNO's in NZ would fall in the 'Full MVNO" category on OFCOM's categorisation of the market [Ofcom Strategic Review of Digital Communications Discussion document 2016, page 27]



Source: Ofcom

- 22. As a result price is one of the few 'levers' that MVNO's have to play with. MNO's exert tight control over the wholesale offers with MNO retail arms approving offers prior to launch and trials (sometimes called proof of concepts or promotional offers) used to ensure MVNO's are not too disruptive in the market when they finally get access to services, often long after MNO's retail arms have made the service available.
- 23. Current MVNO arrangements are neither a true 'cost based' thick MVNO nor a robust retail minus model with a proactive 'benchmark' to current retail market rates. The reality is MVNO's have little or no negotiating leverage, the threat of regulation is likely the only motivation for MNO's leaving MVNO's with slim pickings.

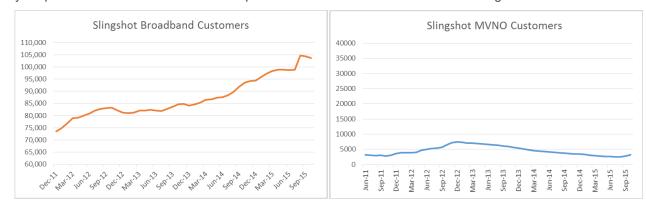
MVNO NEGOTIATION: AN EXHAUSTING GAME OF 'CATCH-UP'!

24. Each year Vocus' agreements go through constant cycles of renegotiation as a result of the market moving and delays in getting access to new offers and services long after the MNO's retail arms have launched them. The light MVNO's are predominantly 'loose' retail minus models whereby, after a negotiation cycle every 4-6 months or so, pricing is revised to

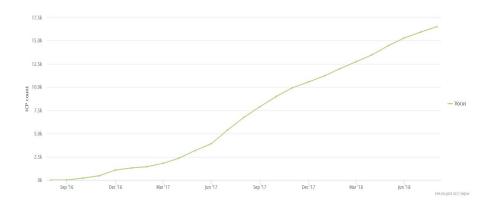
- provide a limited window of time where the MVNO can be competitive and make a return. The cycle then repeats.
- 25. This game of 'catchup' negotiation ensures that MVNO's are "competing with one arm tied behind their backs"
- 26. Unlike the regulated retail-minus models that existed early in the development of the fixed line wholesale market there is no mechanisms or proactive measures to ensure that:-
 - (i) new mobile retail variants or components (e.g. unlimited plans, carry-over data, etc.) are made available before the MNO's retail arm goes to market
 - (ii) Wholesale price adjustments are automatically made, coinciding with the MNO's retail arm revising their pricing. In the business market deals constantly have to go through a special deal process to have any chance of competing.
- 27. Where a unit price, such as a price per Mb, is negotiated it in no way reflects cost. The artificial unit price is such that medium to heavy users of the service are generally not viable to the MVNO.
- 28. The MNO also has the ability to heavily influence MVNOs retail product 'offers' & pricing, particularly during 'trial launches' of services as outlined in para 43-49.

THE ISSUES CAUSING MVNO FAILURE HAVE BEEN HIGHLIGHTED ON MULTIPLE OCCASIONS OVER MANY YEARS

- 29. Appendix A is a presentation titled 'MVNO Failure Discussion points' given by Vocus to the Commission, and MBIE, in November 2015 which highlighted current issues and included slides from prior presentations to the Commission in March 2015 and June 2014 highlighting the issues that were inhibiting Vocus.
- 30. The presentation graphs (Slide 3) Slingshot's growth in broadband customers during the 4 year period from December 2011 to September 2015 and contrast it to its MVNO growth.



- 31. During the period in which Slingshot grew its broadband customer base by 41% its mobile customer base reduced by 12%
- 32. Contrast Vocus' pedestrian growth in MVNO customers after more than a decade to our growth in the Power market, where wholesale is regulated, in just 18 months.



- 33. The 2015 presentation then highlights that 'the problems have been around for a while' (Slide 4) and extracts a slide from an earlier mid 2014 Commission presentation which highlighted the issue of: -
 - (i) MNO's bundling fixed and mobile services and offering a \$30 discount on the fixed service [CI
 - (ii) An example of a popular Skinny \$16 retail mobile plan that would cost Slingshot \$45 to match under the wholesale prices at that time.
- 34. The presentation then includes an extract (Slide 5) from an earlier (March 2015) presentation to the Commission. This compares some of the more popular plans from the 3 MNO's and concludes that with Slingshots wholesale price we would make a loss before any contribution to sales and servicing costs:-
 - (i) To match the Spark 2.5Gb plan Slingshot would make a -14% margin
 - (ii) To match the Vodafone 3.5Gb plan Slingshot would make a -5% margin
 - (iii) To match 2 Degrees 0.75Gb plan Slingshot would make a -14% margin
- 35. The presentation (slides 8-10) goes on to look at several, then current (November 2015), issues.
 - (i) Looking at the low to mid-priced handset market 54% of handsets were priced at a lower RRP (Recommended Retail Price) by Spark retail than Slingshot's wholesale price and in addition 8% of handsets (including popular models) were not even made available by Spark.
 - (ii) Wholesale data overage rates of 10c per MB meant Vocus were unable to compete with Spark's 'Shared Business' Plans. To match the Spark offer would have resulted in a negative 412% margin with no account of sales, servicing costs, handset subsidies and other costs.
 - This was not just our MVNO that was impacted, Digital Island also had a similar issue whereby they were effectively, like us paying a wholesale rate five times the effective retail market rate [.]CI
 - (iii) Vocus understands that Digital Island still operate as an MVNO, albeit owned by the MNO, following the acquisition of Digital Island by Spark. Vocus suggest that the

- Commerce Commission review their MVNO arrangements to ensure other MVNO's are on a level playing field and to identify any changes that have been made to arrangements post acquisition in order to make them more competitive.
- (iv) The presentation then highlights (Slide 9) that Vocus' wholesale deal also meant it was unable to compete with Vodafone's published website pricing (noting that many businesses receive better pricing than the published rates) making a negative margin before any other costs were factored in.

NO ONE ISSUE IN THE SPOTLIGHT FOR LONG BUT ISSUES ARE EVER PRESENT, EVER CHANGING

- 36. The above issues from 2014-5 are not isolated instances but part of an on-going pattern. The issues are constant but ever changing avoiding any one issue being in the 'spotlight' for too long. The following are some examples.
- 37. **Handset:** In October 2017 when the iPhone X launched there were none made available to MVNO's giving Spark retail an advantage particularly in the small business sector. It was over a month after launch before we were given access to the device.
- 38. Roaming: In the Business market we came under increasing pressure with respect to Data Roaming charges being well out of the market. In September 2015 we wrote to Spark highlighting over half a million dollars' worth of mobile revenue (almost half in roaming charges) from seven at risk large accounts that were at risk [Note: that excludes the fixed revenue]. The email outlined that:-

[

] CI

39. Mobile Data: Following the introduction of 'unlimited' plans by Spark and 2 degrees Vocus were out of the market again. In October 2017 Spark Wholesale reactively offered, on a trial basis, a maximum of []Cl connections, despite having launched their own retail plans with no restrictions. The trial, making it a promotional offer that can be withdrawn, means Vocus had no comfort that development investment would be recovered. The Terms and conditions of the trial stated

[".]CI

AND ITS NO DIFFERENT TODAY

- 40. **Example 1- Retail data costs:** By way of example consider a comparison of Vocus' current MVNO to Skinny's recent retail offer. This demonstrates the on-going issue.
 - (i) Skinny's highest data plan is a 30GB plan with carryover data, for \$57.39 (excl GST)
 - (ii) Vocus 'loose' retail minus wholesale arrangement means our wholesale costs ensure negative margins if we are to compete with Skinny. The nearest plan we had access to

was a 22Gb plan (based on a previous iteration of Spark retail plans) WITH NO CARRYOVER data which cost us at wholesale [ICI GST excl.

Skinny revised their offer on 1st July 2018, over <u>3 months ago</u>. Vocus has yet again gone through a 3-4 month cycle of requesting a review of the wholesale pricing, having discussions with Spark wholesale, waiting for Spark retail to approve any offer and finally getting an approved wholesale plan that allows us to compete, until the next round of 'catch up'.

- 41. **Example 2 Data cost in Business market:** In the business market Vocus frequently come across Spark business hub pricing below Vocus wholesale rate.
 - (i) We recently (July 18) came across a retail customer on a shared plan who consumed 40GB of data among 12 sharers and was paying \$[]Cl per GB
 - (ii) In contrast our wholesale shared data pricing was a price of \$[]CI per GB when the customer signed up for 300GB
 - (iii) Overall Vocus consumes []CI terabytes of mobile data each month. It is hard to compete in the mobile market as an MVNO consuming that much data if a small business consuming 40GB of data can get better rates than us through a Spark Business Hub. Vocus suggests that the Commerce Commission review the retail rates offered to corporates by MNO's and compare them to the currently available MVNO rates.
- 42. **Example 3 Handsets:** MVNO's have been unable to grow to the point where they have sufficient scale to be able to access rebate and subsidy offers from hand-set providers. This leads to a substantial price differential between what an MVNO customer can offer and what one of the 3 network owners can offer, this is particularly damaging during new device launches and is felt strongly in the small to medium business market.
 - (i) As an example the current generation Samsung Note 9 device has a cost price of \$1564 (inc GST) it is currently being sold by Spark with for \$1699 (inc GST) with a \$300 credit, Vodafone for \$1699 (inc GST) with a \$200 credit, and 2Degrees for \$1699 (inc GST) with a bonus 43" 4K Samsung TV valued at \$1148 (TV price sourced from JBHIFI 0/10/18).
 - (ii) Even with our scale Vocus still has found it, on numerous occasions, more cost effective to purchase handsets from a 'high street retailer' like any consumer rather than take the wholesale price.

RELUCTANT WHOLESALER USES 'TRIAL' LAUNCHES TO INFLUENCE RETAIL OFFERS

43. All Spark's new wholesale pricing and plans require retail approval before being offered to MVNO's. As highlighted above new features or technology are almost always launched to market by the MNO's retail arm before reactively, following a request, being made available, (or not in some cases), to MVNO's. Even when made available the 'new' wholesale features are often positioned as a trial, or proof of concept, with limitations on volumes and the prospect of withdrawal within a few months. The use of a trial, by a reluctant MNO wholesaler,

- has also allowed the Spark to exert control on the retail services offered by the MVNO and ensure nothing is too disruptive to the mobile market.
- 44. By way of example after several years of trying to get access to a wholesale pre-pay service Spark, in mid-2015, finally agreed to a trial launch. At the end of the trial Spark would determine if the wholesale service would continue.
- 45. Slingshot intended to go to market with an aggressive offer to ensure a successful launch and build some much needed scale. The offer Slingshot intended to launch with was:-

[

]CI

- 46. This was the reverse of the approach that Vodafone and Spark have taken to cross-subsidising their fixed broadband offer from their mobile service for example they offered "\$95 for unlimited broadband, get a \$10 discount if you are also a mobile customer"
- 47. Spark, through a variety of means, effectively constrained Slingshot from making the offer with concerns it devalued mobile and was too disruptive.
- 48.] **COI**
- 49. In order to get Sparks approval to a launch the offer was watered down to a \$99 bundled price, rather than a free mobile component, for unlimited broadband, a mobile plan (with 500M and 100min calling) and a homeline. Effectively a \$10 discount in value similar to the market offer from the others.

TRIAL LAUNCHES THE DEFAULT APPROACH TO ANYTHING 'NEW TO WHOLESALE'

- 50. This is not an isolated instance. A trial launch is the default approach to any "new to Wholesale' (albeit post retail launch) service. Long after the MNO's retail arms had launched wholesale 'unlimited' data plans were initially trialled with a limit for Vocus of [] CI services as outlined above (para 39).
- 51. Another example of a trial approach was an agreement to trial of Wireless Broadband early in 2018. The agreement allowed for a trial of a service limited to []CI services. Vocus decided not to continue with the trial.

THREE MNO'S INHIBITS THE DEVELOPMENT OF A WHOLESALE MARKET

- 52. Blue Reach's submission to the Commission on the Vodafone-Sky merger [Link Economics report for Blue Reach November 2016] highlights the issue faced in NZ with only three MNO's (all of whom are fixed line operators). Link Economics highlighted that: -
 - (i) "Internationally the presence of a fourth mobile network operator (MNO) is common half of all OECD countries have four or more MNOs. This is not limited to those countries with a large population size. For example, of the 10 lowest population OECD countries (which includes New Zealand), four have four or more mobile networks: Finland, Iceland, Luxembourg, Slovenia.

- (ii) Regulators, competition authorities and policy makers internationally have expressed strong support for the presence of four or more mobile networks. For example, a recent working paper by the OECD found that:
 - "... in markets introducing new players or maintaining at least four operators, investments in new network infrastructure increase and are pulled forward by existing operators, to defend against challengers."
- (iii) The European Commission (EC) has recently shown a preference for maintaining competition between four mobile networks, effectively blocking two mergers from four to three mobile networks due to concerns that this would lessen competition, and requiring in a third merger that four-player competition continue in some other form.
 - In particular in April 2015, the EC opened an investigation into the proposed merger of TeliaSonera and the Danish telecommunications activities of Telenor. The EC had concerns that this would reduce the incentives on the merged entity and its competitors to compete aggressively. The companies abandoned the merger, indicating that they were not able to agree with the EC on conditions to create a new mobile entrant.
 - In May 2016 the EC blocked the acquisition in the UK of O2 by Hutchison. Its key concerns were that the acquisition would have reduced customer choice, led to higher prices, harmed innovation in the mobile sector **and reduced MVNO competition.**
 - In September 2016, the EC approved the Italian merger of Vimpelcom's WIND mobile network and Hutchison's H3G mobile business, subject to the condition of divestment of sufficient assets to enable a new operator, French telco Iliad, to compete in the Italian mobile sector as a fourth network.35
 - The initial EC media release on this 1 September merger clearance outlines three overlapping reasons for ensuring Italy had four MNOs, not three, noting that "These three competition concerns were very serious":
 - the 4 to 3 transaction would have reduced the incentives of the MNOs to compete, likely leading to reduced choice and lower quality mobile services, and higher retail prices;
 - the transaction would have reduced the number of MNOs willing to host MVNOs;
 - the transaction made it easier and more likely that the remaining three operators would coordinate their behaviour in the market, likely leading to further price increases for consumers. That is, that there would be coordinated effects." [Link Economics report for Blue Reach November 2016 pages 25-27 emphasis added]

- 53. In fact Vodafone's refusal to make 4G available to MVNO's discounts them as a serious MVNO provider, in Vocus' opinion. It was this refusal that resulted in Vocus moving its MVNO business to Spark.
- 54. Furthermore 2 Degrees is less attractive as an MVNO due to its perception in the market as the Commission noted in its 2015 business market study.
- 55. As a result there is limited competition between the MNO's to compete for MVNO business and little incentive to offer deals which would enable an MVNO to gain scale.

IN ABSENCE OF A REGULATORY 'CATALYST' WHOLESALE COMPETITION UNLIKELY TO EVOLVE

- Q13. Please describe how you see wholesale competition evolving over the next 2-5 years.
- 56. Little has changed in New Zealand mobile market competitive landscape in the last decade, with no MVNO managing to build scale and impact the market. One of the main MVNO's, Digital Island, was acquired by Spark. Sometimes the past is the best indicator of the future. Wholesale competition or a new MNO entrant, let alone a fourth national mobile network operator, is unlikely to evolve in the absence of a regulatory change.
- 57. As outlined above [para 52] European regulators have expressed concerns with the level of competition that exists with only 3 MNO's and the impact on the wholesale market.
- 58. New Zealand continues to only have 3 MNO's, all integrated fixed-mobile operators. It is hard to see a significant national new entrant opening up the wholesale market within 5 years under the current regulatory regime for roaming, spectrum allocation and co-location particularly when no MVNO has any scale and 3 MNO's have 99% of the customer base.
- 59. What is concerning about the current scenario in New Zealand is that with the advent of 5G and the internet of things (IoT) there will be a pressing need for a wholesale market to develop with MVNO's able to build some scale in order to:-
 - (i) address a diverse set of customer demands across a wide range of industries and
 - (ii) invest in acquisition in order to build the scale to develop into 'full' MVNO's with access to spectrum & infrastructure in order to innovate and take advantage of global developments that allow greater network sharing
- 60. However NZ can't afford to wait for these global developments to occur a wholesale market needs to develop start well ahead of the anticipated services taking off if NZ is to keep pace with global innovations.

WHY IS A VIBRANT MOBILE WHOLESALE MARKET IMPORTANT FOR IOT?

61. As Vocus have previously submitted (Submission on 'Terms of Reference' November 2017) the internet of things (IoT) will open up unprecedented opportunities to a wide range of endusers and industries including manufacturing, energy, transportation, agriculture and

healthcare. In turn this will spawn many small innovative, entrepreneurial companies looking to develop products and services to consumers that will be underpinned by access to mobile capability.

62. Vodafone Australia IoT head Leticia Jennings told the inaugural IoT Australia Summit in Sydney that the large number of companies requiring help making an IoT business case had given partnerships a particularly important role.

"What we're realising is that the majority of customers out there, 50% of them, say that they have a start-up or new idea but they need help with the business plan," she said. "They really want to get into IoT but they don't know how. So, what we're finding globally is that they need that help, they need that partnership, they need the experience." [COMMUNICATIONS DAY 9 November 2017]

- 63. Typically the large MNO's are not good at meeting the needs of small innovative businesses who cover a wide range of industries. In fact the lack of ability of large network operators to service niches is exactly the environment in which small fixed line telco's emerged in NZ:-
 - (i) using regulated wholesale services,
 - (ii) focusing on niches in the market a role which the incumbent telecommunications companies lacked the focus and specialist skills to perform.
 - (iii) aggregating demand for services to ensure a viable input cost for downstream service providers or end users
- 64. The first VoIP providers, for example, were all the small service providers, such as CallPlus, WorldX, Orcon, and Digital Island, who innovated & offered equipment and capability to downstream providers. In the case of innovations such as VoIP the services were available by these small operators almost a decade earlier than the large network operators made them available.
- 65. In addition to being key to innovation the wholesale market was also important to ensure affordability for the smaller new entrant service providers as they built scale. Small, established telco's also acted as aggregators of demand and were able to provide services to downstream providers at a lower cost than they could access directly themselves from the network operator. CallPlus, for example, was an active wholesaler to the majority of the other smaller telco's such as Compass, Voyager, Orcon and others.
- 66. Furthermore successful MVNO's are also important to new entrant network operators in that their customer bases potentially reduces one of the barriers to the entry of new network operators who need to be able to fill their networks. Clearly any new network operator, such as Blue Reach, is not going to have access to the customers of the three existing MNO's which currently accounts for 99% of the market.

MNO ACCESS OBLIGATIONS REQUIRED TO STIMULATE WHOLESALE MARKET

Q18. Where MVNOs have entered the market and expanded in other countries, to what extent has such entry been the result of commercial agreements, or based on regulated MVNO access or other conditions imposed

by regulatory or competition authorities (such as conditions of mergers and/or obligations on spectrum licences)?

Q19. To what extent has the emergence of MVNOs overseas resulted in improved outcomes for consumers in those countries? What effect has MVNO entry had in other countries on pricing, choice, and investment?

- 67. OFCOM recognised the benefits that a vibrant MVNO market can bring and the fact that European regulators have imposed MVNO access obligations to help ameliorate the negative impact on competition of going from 4 to 3 MNO's:-
 - "1.44 We have also welcomed the benefits that Mobile Virtual Network Operators (MVNOs) can bring to consumers. These providers offer retail mobile services without owning all the mobile infrastructure themselves, so provide enhanced retail competition, albeit without the same ability to differentiate services that comes with control of a network. There are currently 21 full MVNOs and numerous light MVNOs, some of whom have direct commercial relationships with their host MNOs and some of whom use a Mobile virtual network enabler to gain MNO access. So far, we have not found it necessary to impose access obligations on network operators to achieve this level of retail competition, although we note that individual mobile operators' attitudes to MVNOs have changed over time.
 - 1.45 However, this approach is being challenged by a recent wave of mobile mergers in Europe. Mergers have been cleared in Austria, Germany and Ireland. All have seen the number of operators reduce from four to three and all use MVNO access obligations to compensate for the contraction in end-to-end competition. This contrasts with the US, where the proposed four-to-three merger of Sprint and TMobile in 2014 was blocked by the competition authorities." [OFCOM "Strategic Review of Digital Communications" discussion document 16 July 2015]
- 68. OFCOM then went on to note that MVNO's have a positive impact on prices:-
 - "1.47 The mergers in Austria and Ireland have led to comment about the impact on prices. There is evidence of some significant price increases, at least for certain customer segments. For example, Three Ireland has recently raised prices for its Bill Pay SIMonly customers by 25%. In Austria, RTR's19 analysis of users' bills shows that prices paid have risen more than 30% between late 2013 and the end of last year, although the recent entry of a new MVNO may bring some downward pressure."

OFCOM FOUND NO EVIDENCE COMPETITION AND INVESTMENT IN TENSION?

69. MNO's often promote the view that MVNO's simply drop prices limiting the ability of MNO's to invest in infrastructure. OFCOM looked at this issue in its "Strategic Review of Digital Communications" discussion document referencing studies by WIK and Frontier Economics and concluded "We have not to date seen any compelling evidence that competition and investment are in tension in the UK" [para 9.86 – 9.89 emphasis added].

- "9.86 Some commentators have argued that consolidation is required as "excessive" competition in the mobile sector can damage incentives to invest because firms are unable to generate sufficient economic returns. For example, HSBC suggest that a four-to-three mobile merger will increase concentration and profit margins, and this will boost investment by MNOs to the long-run benefit of consumers.
- 9.87 Because a multitude of different factors drive investment, it is difficult to find convincing econometric evidence which identifies a simple, causal link between competition and investment. In order to assess whether there is any empirical evidence for this view we commissioned WIK to undertake a quantitative empirical study examining the relationships between competition, investment and consumer outcomes (published alongside this Discussion Document).
- 9.88 This WIK study finds that there is no general relationship between competition and investment that can be expected to hold across all markets. The WIK findings are supported by a similar econometric study undertaken by Frontier Economics which found no empirical link between the level of market concentration and investment in various international mobile markets.
- 9.89 We believe that market structure and competitive intensity combine with many factors in influencing levels of investment. We have not to date seen any compelling evidence that competition and investment are in tension in the UK, but are interested in alternative views and evidence on this point." ." [OFCOM "Strategic Review of Digital Communications" discussion document 16 July 2015]

TECHNOLOGY CHANGE WILL REQUIRE A NEW REGULATORY APPROACH

- Q21. To what extent, and in what ways, do the current spectrum holdings constrain competition in the supply of retail or wholesale mobile services in New Zealand?
- Q22. What evidence is there on whether or not national roaming, co-location regulation have promoted the efficient expansion of 3G and 4G coverage in New Zealand?
- Q37. How and in what ways could the current regulation of mobile services deter some 5G investment?
- Q38. How well do regulated mobile services as currently framed in Schedule 1, both specified and designated (and associated STDs for designated services), support (a) efficient investment in 5G infrastructure (b) efficient sharing of 5G infrastructure? Are there any ways in which this could be improved?
- Q39. What are the likely incentives for infrastructure owners to expand sharing arrangements and to provide access to their network infrastructure assets to third parties?
- Q40. What are your views on the viability of three or more separate 5G networks, and what alternative models do you consider as potentially viable?

- 70. A fresh approach is required if New Zealand wants to avoid 3 separate 5G networks, an inefficient way to build, ultimately funded by consumers. Vocus submitted previously [Terms of Reference' November 2017 para 26-27] that:-
 - "26. The rapidly evolving changes in technology means that: -
 - The distinction between networks (fixed, mobile, Wi-Fi etc.) are blurring as CPE seamlessly takes advantage of multiple network type.
 - The type of network build is evolving small cell high density urban networks will be required to meet demand, advanced mobile network multi-tenancy approaches such as network slicing are evolving and network sharing is a fundamental feature of evolving 5G systems.
 - 27. To date spectrum allocation, failed co-location (RBI with its 'government funding carrot' being the exception) and national build requirements in roaming contracts have been major barriers to entry. Technology changes are driving a need to change."
- 71. It seems clear that left to their own devices there is little or no incentive to share networks and incumbent MNO's have behaved rationally and actively avoided it, as 2 Degrees have frequently highlighted in the past.
- 72. Network sharing in NZ has only worked because of government intervention. The Rural Connectivity Group's shared network only occurred because of government pressure and, more importantly, funding of \$150 million from the industry, via the Telecommunications development Levy (TDL).
- 73. For the efficient build of 5G networks in future the situation needs to change, however if 3 MNO's continue to dominate mobile retail, spectrum and infrastructure that seems unlikely in the absence of regulatory intervention. Regulatory intervention should occur, it should not take the carrot of subsidies, paid for by the wider industry and ultimately consumers, for an efficient approach to building the network to prevail.
- 74. A new approach to regulation is also required to make entry to the market easier. It is unlikely that a new national new entrant would enter the market, new entry is more likely to occur regionally, initially through operators such as Blue Reach, taking a different approach and taking advantage of new technologies. However in order for new entrants to participate they will need access to:-
 - (i) Regional Spectrum
 - (ii) National roaming or be able to partner with MVNO's who would need access to viable roaming arrangements as they move to 'full' MVNOs.
 - (iii) Customer bases that they can leverage which would require MVNO's to develop as 99% of customers are locked up by 3 MNO's.
- 75. The current regime has focused on national network competition, with roaming arrangements which make it difficult for a new entrant to get a toe-hold by building pocket networks. In Vocus' view this needs to change and companies such as Blue Reach should be encouraged.

76. However that is not to say that regulation of MVNO services is not critical to ensure MVNO's can grow., similar to fixed fibre, consideration would need to be given to allow a degree of unbundling of the network or regulated network slicing in order to allow full MVNO's to develop

WHAT NEEDS TO BE DONE TO ADDRESS MVNO MARKET FAILURE

- 77. The question is what needs to be done to break the mutual self-reinforcing interest of MNO's to ensure MVNO activity remains at marginal levels. Wholesale mobile services, MVNO's, should be regulated under the Telecommunications Act to ensure that MVNO's can become established, have a growth path available and are incented to invest and innovate to achieve growth.
- 78. The Commission needs to begin to build a framework that creates pathway to allow MVNO to move to a 'full MVNO' becoming effectively a network operator without spectrum
- 79. To help inform decisions and identify the extent of the issues Vocus suggests the Commission uses its investigative powers to:-
 - (i) Review arrangements between MNO and MNO's own MVNO's. Digital Island still operates as an MVNO (albeit now owned by the MNO Spark). On what basis are MVNO services provided to Digital Island and is this consistent with other MVNO's? On what basis are Skinny services provided by Spark –arguably this should be a transparent MVNO wholesale arrangement to ensure a level playing field.
 - (ii) Review existing retail pricing in the business market to better understand the extent to which corporate rates provided by MNO's are significantly lower than MVNO receive
- 80. In terms of regulation as a minimum 'entry level' there should be requirement on MNO's to make available retail-minus wholesale MVNO's with:-
 - (i) Viable wholesale margin (this could be derived from a benchmark against overseas MVNO's as well as current arrangements in NZ)
 - (ii) Obligation on the MNO to provide access to new features (e.g. carry-over data, unlimited, failover service) and plans prior to MNO retail arms launching the product.
 - (iii) Obligation to provide access to new technologies such as 4G, 5G etc
 - (iv) No restrictions on new wholesale services, such as limited volumes or proof of concepts, where no similar restrictions are applied to MNO's retail operations.
 - (v) Automatic price & plan adjustments applied:-
 - If the MNO's retail arm varies plans and pricing an automatic adjustment to pricing & plan of wholesale plans.

- In the business market pricing of individual customers with lower volumes than MVNO should automatically trigger a price réduction in the MVNO's wholesale price.
- 81. In addition to a 'retail minus' construct MVNO's should be able to:-
 - (i) access a regulated cost based unit price per Mb for data or purchase a 'bucket' of data with which to create its own plans. This may even extend to buying bandwidth capacity on the network. Similarly buckets of services such as voice and SMS should be available.
 - (ii) MVNO's should have the option of undertaking their own roaming arrangements or getting a realistic share of roaming margins.
 - (iii) An MVNO should be able to display its own brand on the handset.
 - (iv) MVNO's should be able to supply their own SIMs and use their own mobile network codes, these protect MVNOs to some degree them from being captive to an MNO.
- 82. The regulatory regime should also encompass MVNO's being able to place their own platforms in the network allowing and consideration given to a form of unbundling to allow them to evolve into 'Full' MVNOs.
- 83. Spectrum allocation and managent rules, as noted below, should encourage MVNO's, conditions around hosting MVNO's or making a portion of network bandwidth available to MVNOs should be considered as a condition of Spectrum.

The establishment of a regulatory framework to deal with mobile and the creation of true MVNO competition well ahead of the move to IoT and 5G will help ensure that the Commission is better able to cope with the multiple issues such a significant change will undoubtedly generate.

SPECTRUM ALLOCATION AND MANAGEMENT INCREASINGLY IMPORTANT

- 84. Vocus submitted previously that:-
 - "35. With the rise of the Internet of Things there will be smaller players seeking spectrum sharing and use of unlicensed bands. Their needs should be met by the spectrum allocation policies.
 - 36. As the ACCC noted in its recent Communications Sector Market Study:-

"Spectrum allocation and management is increasingly important for communications markets. The value of spectrum lies in the economic and social benefits it supports, rather than in any revenue return to the Budget. The Government's proposed new radio communications regulatory framework does not explicitly recognise the impact of spectrum allocation and assignment on competition and efficiency in downstream retail markets." [Communications Sector Market Study Oct 2017 p.186]

- 37. The use of spectrum caps may be considered and the appropriateness of highest bidder approach reviewed given the incentive for incumbents to spectrum block. Our two largest telco's have significant spectrum holdings when compared to overseas markets.
- 38. New players in the wireless sector will not necessarily be national carriers seeking dedicated spectrum. Regional allocations & shared spectrum may be appropriate.

- 39. National Build requirements should be removed from roaming agreements & alternative types of roaming considered. "[Submission on 'Terms of Reference' November 2017 para 35 -39]
- 85. Given the criticality of spectrum as a key driver for competition and the adverse impact on competition that a concentration in the hands of a few companies creates Vocus would like to see the Commerce Commission more involved in this area to ensure that competition is encouraged by spectrum allocation. MVNO conditions may also be appropriate, as has occurred in other jurisdictions, whereby bandwidth is set aside for MVNO's

MARKET SEGMENTS

- Q1. How, and to what extent, do competitive conditions for mobile services vary by customer segment in New Zealand?
- Q2. In the on account business segment, what evidence is there that the issues identified our business study have changed since 2015? Specifically;
 - Q2.1 what are the most important features of a mobile service for business consumers?
 - Q2.2 how have business consumer perceptions towards 2degrees changed since 2015?
- 86. Firstly, as mentioned previously, it should be noted that Vodafone's refusal to make 4G available to MVNO's discounts them as a serious MVNO provider. Vocus took the decision, despite the complexity and risk, to switch to Spark as a provider as a direct result of Vodafone's action.
- 87. However in the business market 2 degrees are not perceived as a credible MNO for that sector. In Vocus' experience this remains the case, regardless of 2 Degrees actual performance. Generally we observe 2 degrees pricing 5-10% lower on mobile business plans than Vodafone or Spark but despite this they are not getting much traction.
- 88. The result is a limitation to the options for MVNO's in New Zealand in terms of a provider. There is limited competition between the MNO's to compete for MVNO business and little incentive to offer deals which would enable an MVNO to gain scale.

BUNDLING OF MOBILE WITH SERVICES

- Q3. How, and to what extent, have consumers benefited from bundling of mobile services (the discount vs the increased complexity of switching provider)?
- Q4. What are the constraints on non MNO fixed line broadband providers' ability to compete by supplying their own bundles, such as bundling of fixed line broadband and electricity by Trustpower and Vocus?
- 89. The Commission correctly notes (para 130 Study of Mobile Telecommunications markets in NZ Aug 18) that "the ability of non-MNO's to compete in the supply of fixed services could depend on wholesale access to mobile services".
- 90. The Commission suggests that around 20% of MNO's fixed line services are associated with a corresponding bundled mobile service and the fixed line service discounted. The Commission then concludes the ability to foreclose on non MNO's may be limited.

- 91. Vocus regards 20% as significant and would encourage the Commission to look at the trend and consider the fact that mobile-fixed convergence will likely rapidly accelerate. The future will not look like the past. Analysys-Mason's report for Trustpower (Analysys-Mason Trustpower submission on terms of reference Nov 30th 2017 para 2.2.2) highlights the prevalence of fixed-mobile bundles in Europe in 2016, notably France, Spain and Portugal, this has likely increased since that time.
- 92. MNO's can constrain the ability of MVNO's to create their own bundle of services. For example paragraphs 43-49 outline how Spark were able to influence Slingshots launch into the pre-pay market, []CI.
- 93. MNO's do not always give access to services to be able to duplicate bundles, or when they do it is nearly always months after their own retail launch as examples outlined in this submission highlight.
- 94. To the extent that the bundled offers cannot be replicated, or competed with, they can potentially prevent competitors from acquiring customers and have the effect of lessening competition. This has lead regulators in some countries to intervene. For example, as explained by the OECD:

"Communication regulators may also need to monitor competition for bundles, as they do for stand-alone services, to ensure that competition is not diminished by the use of bundling ... In a number of countries, dominant fixed operators of those with significant market power (SMP) are precluded from bundling unreasonably, or are required to offer stand-alone services (e.g., incumbent operators in Austria, Belgium, Germany, Greece, Ireland, Italy, Korea, Slovak Republic, Slovenia and Switzerland)." OECD Electronic Communications Outlook (p. 181)

Pricing and Usage

- Q5. What are the reasons for high retail prices for higher volume bundles of mobile services in New Zealand compared to other countries?
- Q6. What are the reasons for high retail prices for standalone mobile data services in New Zealand compared to other countries?
- Q7. How are mobile data usage trends expected to evolve in the next few years, and how might that affect suppliers of mobile services?
- 95. As outlined above MNO's have been careful to ensure that MVNOs are not competitive in the higher usage data segment.
 - (i) Para 35 highlights how historically MVNO's were unable to compete with Sparks Shared plans and 'Data Stretch' service due to wholesale price of data making them uncompetitive.
 - (ii) Para 39 demonstrates the cautious approach of a trial launch of 'unlimited' wholesale data plans constraining an MVNO to a mere [] **CI** services demonstrates the issue. If an MVNO came out with a disruptive offer the trial would likely be stopped.

- (iii) MNO's generally price so that the narrowest retail-minus margin is available on the unlimited plans.
- 96. In the absence of any disruptive offers from MVNOs there is little incentive for MNO's, all of whom are integrated fixed wireless operators to compete down high prices of larger data plans despite the increasing demand for more data.
- 97. Analysys-Mason in their submission on behalf of Trustpower highlight some of the new type of arrangements overseas that have enabled MVNO to compete as usage increases including capacity based arrangements that allow MVNO's to compete.

"access can be on a variety of commercial terms: either on the basis of some per-minute or per-MB rate, or capacity-based (either a large committed volume or a percentage of the total network capacity over time).

On the per-unit deals, unless these are structured such that unit wholesale prices decrease in line with mobile operator unit costs, then an MVNO with such a wholesale deal will become less and less competitive as network capacity and data demand increases, and network unit costs decrease.

On the other hand, capacity-based arrangements can be for a constant fraction of the capacity (which will increase over time in line with demand) and can also enable the MVNO to compete over a wider range of retail propositions, including very large bundles (which represent a margin risk if the wholesale deal is per-unit)."

MVNO access has also been imposed by competition authorities as a remedy in some recent inmarket mobile mergers in the EU. These remedies often use capacity-based MVNO arrangements. [Analysys-Mason Trustpower submission on terms of reference Nov 30th 2017 – para 2.4.2 emphasis added].

MOBILE INTERCONNECTION

- Q25. What are your views on the current regulation of mobile interconnection services?
- Q26. Does the current regulated MTAS, including the pricing principles, remain appropriate?
- 98. With 3 MNO's, that are also large fixed line operators, and increasing fixed-mobile convergence it is important that mobile interconnection rates are not artificially high in order to avoid competitive distortions between fixed only and mobile operators.
- 99. Artificially high mobile interconnect rates can create an incentive for mobile operators to classify calls to a mobile device as mobile, even though they are predominantly carried over fixed infrastructure – for example VoWIFI. (Voice over Wi-Fi) or mobile offload.
- 100. Mobile interconnection rates in NZ remain high despite reducing costs.
- 101. Mobile origination rates of between 8 to 9 cents per minute are excessively high as a result of avoiding regulation. There has been no reduction in these rates for years. They represent a significant cost for many businesses to the extent that some businesses have in the past not allowed mobile calls to their 0800 numbers. That is not in the best interest of consumers.
- 102. As Vocus have previously submitted Mobile termination rates have been held at 3.56c per minute following the conclusion of the 2011 regulated glide path. In contrast in 2015 the

- **ACCC** more than halved Australian mobile termination rates to 1.7 cents from 3.6 cents noting that the cost of switching 3G calls was lower than 2G and that they expected further reductions from VoLTE (Voice over LTE).
- 103. With an increasing blurring of mobile and fixed calls both fixed and mobile interconnection rates need to be forward looking and cost based. Vocus' would like to see the Commission review mobile termination, origination and SMS rates as well as clarify the definition of what is a 'mobile' call.

e-SIM

- Q46. What impacts are e-SIMs likely to have on consumer switching costs?
- Q47. How will MNOs support the use of e-SIMs in mobile devices?
- 104. e-SIMs will become more prevalent and could make it more straightforward for consumers to switch as long as the e-SIM is supported by multiple network operators and MVNO's.
- 105. It will also be the case that in an IoT environment changing a SIM may be impractical for devices that are deployed in difficult to reach locations and for certain devices that need to be very small, or water-tight (e.g. connected watches) In these cases an embedded e-SIM is the solution.
- 106. As Vocus have previously submitted the example cited in the ACCC's 'Communication's Sector Market Study' Oct 2017 is a good example of the type of market failure that will likely occur if no intervention, or threat of intervention, is present: -

"Case Study: e-SIMs

Traditional removable SIM cards are being replaced by dynamic reprogrammable e-SIMs embedded in wireless devices.

We consider that e-SIMs have the potential to greatly promote competition in the IoT sector (and the broader mobile sector) by facilitating consumer switching. However, we are concerned that restrictions associated with the e-SIM model are impeding the ability of MVNOs to compete with the mobile network operators, and reducing consumer choice.

107. As ACCAN has noted:

"there are clear competition issues, with the e-SIM and Apple SIM models. In Australia, consumers can only select a plan with Optus, Vodafone and Telstra. Consumers cannot sign up for a service with any MVNOs."

By way of example, we understand that Apple is offering connectivity to its Apple Watch 3 exclusively through the mobile network operators and that MVNOs are currently unable to provide services for this and other Apple e-SIM devices". [ACCC's 'Communications' Sector Market Study Oct 2017 p.182]

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108. Vocus' view is that regulation of e-Sim will be necessary to ensure a level playing field. In the





'MVNO Failure' Discussion points

Nov 2015

Market Failure Self Evident...



 Almost a decade after first MVNO signed MVNO lines less than 0.5% of the market

- Mere 21,614 connections
- Contrast to Europe

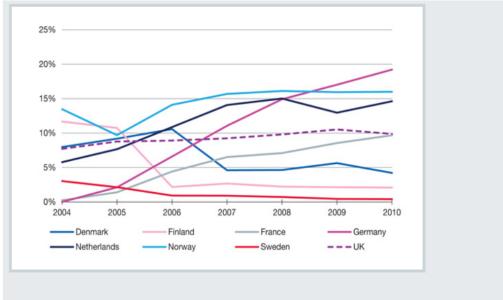


Figure 1: MVNO market share of subscribers by country [Source: Analysys Mason, Telecoms Market Matrix, Q4 2010]







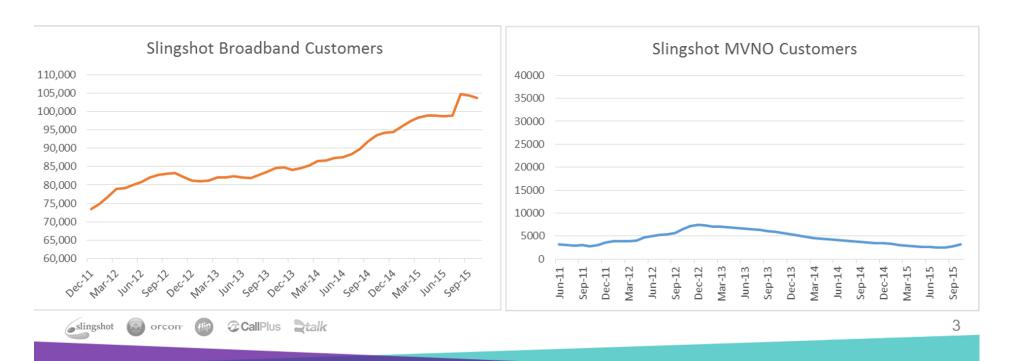




Even successful retailers are failing....



- Aggressive retailer like Slingshot successful in fixed line grew 41% since Dec 11
- Unable to grow MVNO decline 12% in the same period.



Problems been around for a while

June 2014 Comcom presentation.....





Its tough out there...

- · Increasingly competitive market with fixed and mobile bundling
 - Vodafone & Telecom exert price squeeze thru 'fixed-mobile' offers
 - MVNO commercials make competing impossible
 - Likely see MVNO customers reducing across the market as a result



Mobile...

What are mobile retailers doing in the market:

- 2Degress share everything + \$19 mobile plan
- Skinny \$16 mobile plan
- Telecom \$19 plan
- Vodafone \$19 plan

Skinny Monthly pricing



To match the <u>Skinny minutes/text/data at the \$16 price</u> point would cost in excess of <u>\$45 based</u> on current MVNO inputs – a loss of <u>\$29/mth</u>

What are MVNO doing?

- Losing market share and going backwards
- Market failure with MVNOs currently

And, then there is LTE and fixed/mobile convergence offers









Comcom & MBIE presentation – March 2015



And again early 2015

Fixed - Mobile Convergence

Highly unlikely see a 4th nationwide new entrant mobile operator (MNO)

- · Significantly more likely that new competition will come from the fixed line operators moving into fixed-mobile services
- If fixed operators can't innovate and develop mobile & fixed services then a consolidation and diminishing of fixed line competition........impacting UFB

A competitive wholesale MVNO market is needed to create competition at 'Services' level

NZ MVNO's unable to match network operators

Retail Mo	bile Offe	rs					
	Data	Minutes	Texts	Price	Price ex GST	Slinghsot Wholesale cost	Cointribution % pre-costs
Spark	2.5GB	Unlimited	Unlimited	\$49	\$42.61	\$ 51.00	-16%
Vodafone	3.5GB	Unlimited	Unlimited	\$69	\$60.00	\$ 63.39	-5%
Skinny	0.75GB	300	Unlimited	\$26	\$22.61	\$ 26.22	-14%

Slingshot wholesale cost to match popular retail offers - before any contribution to marketing, service etc











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MVNO's failing



- MNO's exert 'significant influence' on retail offers and pricing
- CallPlus took the difficult step of moving from Vodafone to Spark over lack of access to 4G under the MVNO
- To keep tight control MNO's create iteration after iteration of wholesale plans:
 - MVNO arrangements fall in no-mans land between a true 'cost based' thick MVNO and a retail minus with a 'benchmark' to current market
 - Now have separate retail & business MVNO's typified by multiple iterations and an endless cycle of negotiations
 - Access Provider heavily influences retail product 'offers' & pricing
 - Business deals constantly having to be 'special dealed' on case by case











6

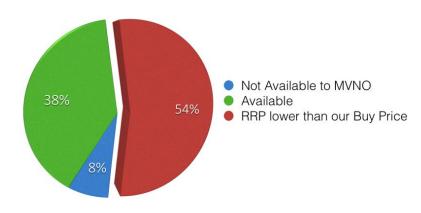
Business MVNO....Wholesale higher RRP



By way of example M2's MVNO's handset pricing is higher than the RRP Spark sets for handsets through retail outlets and retail has no requirement for the consumers to commit to adding a service or being on the network.



Spark Retail - 13 Low End devices (Sub \$300)









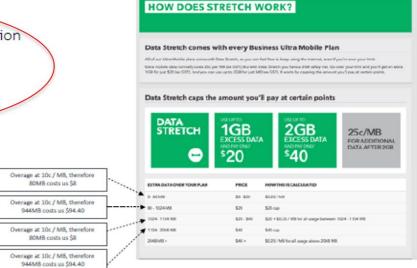


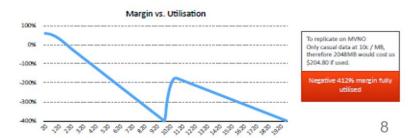


Business MVNO – Data Overage



- Impossible to compete with this overage proposition when our current overage rate is 10c/MB
- Negative 412% margin when fully utilised









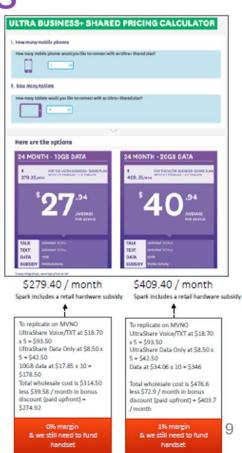




- Just match these recently published Spark shared plans,
 CallPlus Business needs to:
 - Suffer 0% margin
- · Fund a hardware subsidy (cross subsidise)
- Try to replicate a market-acceptable data overage model at VERY negative margin.
- We expect that negotiated, and larger business opportunities would attract even deeper discounts from Spark Retail

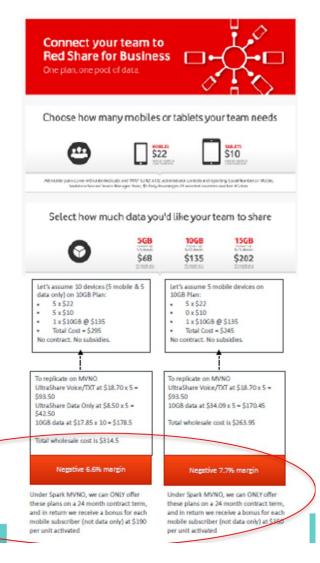
Retail Business get a better deal than Wholesale MVNO's





Business MVNO

Similarly unable to compete with Vodafone offersAnd this is only their website listed price













Is 3 MNO's sufficient to ensure competition?



- Arguably the most critical competition decision for 2020
 - In EU and Asia regulators would have serious concerns and very much a 'hot topic'
- Without regulation or the threat of regulation MVNOs will continue to fail
- Schedule 3 is not an effective tool
- Other such as Trustpower are concerned.
- Consumer Groups and ourselves asking for a 12 month review by the Commerce Commission to ascertain if there are issues in NZ market & monitor overseas developments











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What's the Commissions view?



- Review of the Act document at least recognises the lack of MVNO lines in NZ
- What would we need to demonstrate to get Commissions attention?
- Do the Commission see schedule 3 as a workable solution?
- What options available?











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APPENDIX B: [

]COI