**PUBLIC VERSION**

**NOTICE SEEKING CLEARANCE OF A BUSINESS ACQUISITION PURSUANT TO SECTION 66 OF THE COMMERCE ACT 1986**

17 March 2017

The Registrar
Business Acquisitions and Authorisations
Commerce Commission
PO Box 2351
WELLINGTON

Pursuant to s 66(1) of the Commerce Act 1986 notice is hereby given seeking **clearance** of a proposed business acquisition.

## 1. EXECUTIVE SUMMARY

1.1 Spark New Zealand Trading Limited ("**Spark**") seeks clearance to acquire, either directly or indirectly, up to 100% of the shares in TeamTalk Limited ("**TeamTalk**") (the "**Transaction**").

1.2 Spark intends to effect the Transaction by way of the takeover offer for TeamTalk, as notified to the NZX on 7 February 2017 and sent to TeamTalk shareholders on 9 March 2017, and / or such other process as may be appropriate to achieve an acquisition of up to 100% of the shares in TeamTalk.

1.3 The TeamTalk business is highly complementary to Spark - there is only very limited (*de minimis*) competitive overlap between the TeamTalk and Spark businesses in broadband, mobile, managed data services, and data centre services. The rest of TeamTalk's business is complementary to Spark.

1.4 Spark's rationale for the Transaction is part of its strategy to achieve greater control of the end-to-end experience for its customers, in particular through the acquisition of TeamTalk's CityLink local access fibre network assets in the Wellington CBD. Spark does not own assets that compete with those local access fibre network assets - Spark has no local access fibre networks in Wellington, nor in Auckland, where CityLink has another smaller local access fibre network. As such, the Transaction will enable Spark to have more control over its local access inputs and improve the economics over its inputs in the Wellington CBD, and provide an improved experience for its customers (including through more efficient provisioning, maintenance and restoration of service) in that area. This will enable it to better compete with other RSPs that either have their own local access fibre inputs in Wellington, such as Vodafone (and, to a limited extent, Vocus), or purchase local access fibre inputs from other providers, such as Chorus, Vector, and Vodafone.

1.5 Spark is also better placed than TeamTalk to continue to invest in, upgrade, and maintain those local access fibre assets. TeamTalk is a small operator whose financial performance has declined over the last few years with a number of profit downgrades. Re-investment in the network is required for a number of reasons, including the requirement to underground parts of the current aerial network when the Wellington trolley bus network is decommissioned (which Spark understands is expected to happen within the next year),[1] with that further investment estimated to cost at least several million dollars. Spark is therefore best positioned and incentivised to use those local access fibre network assets to:

(a) offer a better quality service to end consumers; and

(b) improve the performance of those local access fibre assets to better compete against Chorus, Vodafone, Vocus, and others, in the wholesale provision of fibre inputs in Wellington.

1.6 TeamTalk also needs to make further investments to transition its satellite ISP customers from IPStar to Optus, as well as needing to invest in a new digital radio network to replace its existing analogue network. Again, Spark is much better placed than TeamTalk to make those further investments to improve service and quality to customers.

1.7 Accordingly, the Transaction will achieve pro-competitive outcomes in the provision of fibre inputs / services as well as for other TeamTalk services, without resulting in any reduction of the number of owners of local access fibre network assets.

1.8 Spark is also confident that the Transaction does not give rise to any competition concerns in respect of any other part of TeamTalk's business. In particular, there is either no horizontal overlap, or *de minimis* horizontal overlap, between Spark and the various parts of TeamTalk's business:

[1] **[ ].**

(a) Spark is not a competitor to TeamTalk's mobile trunked radio business. Spark does not offer mobile trunked radio services, nor have its own mobile radio network.

(b) Spark does not currently have the internal capability to offer customers an equivalent service to TeamTalk's Araneo digital microwave radio ("**DMR**") business. There are a number of other providers of DMR in New Zealand (eg Chorus, Kordia, etc), and to the extent Spark currently offers DMR services it is by reselling services purchased from those other providers.

(c) Spark is not a competitor to TeamTalk's ExchangeNET peering exchange business, and ExchangeNET faces competition from other peering exchange providers – including New Zealand Internet Exchange Inc ("**NZIX**") and Megaport.

(d) TeamTalk's presence as a broadband / mobile RSP is *de minimis* - TeamTalk's Farmside, a RSP that targets rurally based customers, has only **[ ]** broadband customers, giving it a market share of **[ ]**, and **[ ]** MVNO mobile customers (through Vodafone) giving it mobile market share of **[ ]**.

(e) TeamTalk's presence in the provision of managed data services is *de minimis* – estimated at less than **[ ]** of such services (which themselves are only a sub-set of the broader retail business fixed-line services market), and there are number of other larger and more vigorous competing providers of such services, including Vodafone, Vocus, Kordia, Dimension Data, 2degrees, and others.

(f) TeamTalk's presence in the provision of data centre co-location services (through three small data centres) is ancillary to its core CityLink fibre network business. Its market share in the provision of such data centre services is *de minimis* – estimated at less than **[ ]**. There are number of other larger and more vigorous and competing providers of data centre services, including Datacom, IBM, Dimension Data, Vocus, Unisys, Vodafone, Data Vault, Hewlett Packard, Plan B, and many others. New Zealand customers also now have access to cloud-delivered services hosted in international data centres, such as Amazon Web Services' Sydney facility, Microsoft's Azure data centres in Australia and Singapore, and Google's data centre in Singapore (with Google due to open an Australian data centre later this year)[2] (amongst others).

(g) While CityLink offers a CBD-wide ad-funded / sponsored WiFi service in the Wellington CBD, Spark does not offer an equivalent CBD-wide service. To the extent Spark offers WiFi hot spots in the Wellington CBD, WiFi hotspots are a service offering that could be readily replicated by RSPs and other parties.

1.9 Furthermore, given Spark is better placed than TeamTalk to continue to reinvest in those businesses (as noted above), Spark's ownership of TeamTalk will enable those businesses, which are complementary to Spark's business, to offer a better quality service to end consumers and other RSPs who purchase services at wholesale.

1.10 Accordingly, the Transaction delivers a number of pro-competitive outcomes without any detrimental impact on competition in any market.

[2] Rohan Pearce "Google to bring its cloud platform to Australia" (30 September 2016) ComputerWorld. Accessible at: http://www.computerworld.com.au/article/607761/google-bring-its-cloud-platform-australia/.

## TRANSACTION AND PARTY DETAILS

## 2. THE APPLICANT

*Spark New Zealand Trading Limited*

2.1 This notice seeking clearance is given by Spark New Zealand Trading Limited:

Spark New Zealand Trading Limited
Level 7 Purple, Spark City
167 Victoria Street West
Auckland 1010, New Zealand
Telephone: 0800 287 463
Website: https://www.spark.co.nz/

2.2 The contact person for Spark is:

Sasha Daniels / John Wesley-Smith

Telephone: +64 9 357 4604 / +64 4 8029335
Fax: +64 9 377 2659
Email: sasha.daniels@spark.co.nz /
john.wesley-smith@spark.co.nz

2.3 All correspondence and notices in respect of the application should be directed at the first instance to:

Russell McVeagh
PO Box 8
Auckland 1140

Attention: Troy Pilkington / Hannah Loke
Telephone: 09 367 8133 / 09 367 8026
Email: troy.pilkington@russellmcveagh.com /
hannah.loke@russellmcveagh.com

2.4 Spark is ultimately a 100% owned subsidiary of Spark New Zealand Limited, and is the trading entity of Spark New Zealand Limited.

2.5 Spark understands that the Commission is familiar with its business. It is a New Zealand-wide communications provider, providing fixed telephone and broadband services, mobile services, and ICT services.

2.6 The organisational diagram of the Spark Group, as relevant to this application, is included in **Appendix One**.

## 3. THE VENDORS

*TeamTalk Limited*

3.1 The other party to the Transaction is TeamTalk.

3.2 Contact details for TeamTalk are:

PO Box 9345
Level 6, 25 Cambridge Terrace
Wellington

New Zealand
Freephone (NZ only): 0800 101 900
Phone: (04) 802 1470
Fax: (04) 802 1490
Website: http://www.teamtalk.co.nz/

3.3 The contact person for TeamTalk is:

Andrew Miller
CEO TeamTalk Group
amiller@teamtalk.co.nz
Mobile: 027 458 4525

3.4 TeamTalk is a small operator in the New Zealand telecommunications industry. It was founded in 1994 as a mobile radio service provider. TeamTalk's financial performance has declined over the last few years, with a number of profit downgrades, and it faces significant re-investment requirements across its businesses. Due to TeamTalk's debt position (last reported bank debt was $33.9m with a maturity date of September 2020), and small market capitalisation (approximately $12.8m prior to Spark issuing its Notice of Intention), its ability to fund this investment is constrained. This has been reflected in TeamTalk's decision not to pay a final dividend to shareholders in FY16 or an interim dividend in H1 FY17. TeamTalk shares have significantly underperformed relative to the New Zealand market over the last three years, with much lower total returns for investors than the NZX50 gross return index on a Total Shareholder Return ("**TSR**") basis.

3.5 Broadly speaking, there are five parts of TeamTalk's business, and none of those parts give rise to any material competitive overlap with Spark:

(a) **CityLink**: CityLink has local access fibre network assets in the Wellington and Auckland CBDs. CityLink's primary local access fibre network is located in Wellington, which is used to offer wholesale local access fibre to other RSPs. CityLink also has a small presence in the provision of managed data services to end users using that fibre network. CityLink operates a Wellington CBD-wide WiFi service and operates three small data centres for customer co-location in both Wellington and Auckland.

(b) **TeamTalk mobile radio**: TeamTalk provides mobile trunked radio to, for example, the Ambulance Service and taxi companies.

(c) **Araneo**: Araneo provides high-speed point-to-point DMR links in order to provide high-speed broadband connections to several hundred end-use locations. Araneo's customers are typically RSPs that are purchasing linking / mission critical wireless redundancy, or businesses with operations in remote locations that require redundancy (eg Landcorp).

(d) **Farmside**: Farmside is a small RSP that targets rurally based customers. It does not own its own network infrastructure, but provides services to customers via a mix of reselling Vodafone's RBI, reselling service on OPTUS's satellite service, or providing broadband using fixed line inputs from Chorus (predominantly ADSL). It is not a particularly growing or dynamic RSP, with **[ ]** in the last year, **[ ]** customer growth in FY2015, and only **[ ]** customer growth in FY2016. It has **[ ]** fixed customers (giving it a *de minimis* market share of 1%). It also provides mobile services via a MVNO arrangement with Vodafone. It has **[ ]** MVNO customers (giving it a *de minimis* market share of **[ ]**).

(e) **ExchangeNET**: ExchangeNET is a collection of Internet exchanges facilitating independent exchange of IP traffic between peer organisations. These exchanges are the Auckland Peering Exchange ("**APE**"), Hamilton Internet Exchange ("**HIX**"), Dunedin Peering Exchange ("**DPE**"), Wellington Internet Exchange ("**WIX**"), and Christchurch Internet Exchange ("**CHIX**").

3.6 The organisational diagram of the TeamTalk Group is included in **Appendix Two**.

## 4. THE TRANSACTION DETAILS

### Transaction structure

4.1 Spark seeks clearance to acquire, either directly or indirectly, up to 100% of the shares in TeamTalk.

4.2 Spark intends to effect the Transaction by way of the full takeover offer for TeamTalk, as notified to the NZX on 7 February 2017 and sent to TeamTalk shareholders on 9 March 2017, and / or such other process as may be appropriate to achieve an acquisition of up to 100% of the shares in TeamTalk.

4.3 A copy of Spark's takeover offer is enclosed with this application.

### Rationale

4.4 Spark's rationale for the Transaction is part of the strategy it announced in August 2016 to achieve ownership economics for local access fibre assets in the Auckland and Wellington CBDs.[3] That strategy is intended to enable Spark to have more control over its input costs and provide an improved experience for its business customers, in order to better compete with other RSPs that have their own local access fibre inputs, eg:

(a) Vodafone with its local access fibre assets in Auckland, Wellington, and Christchurch CBDs, and other parts of the country; and

(b) Vocus, which owns national, regional, and some local access fibre assets (originally built by FX networks);

as well enabling Spark to compete with Chorus and other fibre network asset owners at wholesale, to diversify its revenue base and maximise its return on investment, and enable further reinvestment, in those local access fibre network assets.

4.5 **[ ].**

4.6 The Transaction achieves Spark's objective in Wellington where TeamTalk's CityLink business has a sufficiently extensive local access fibre network in the Wellington CBD to generate economic efficiencies for Spark, by enabling Spark to provide business data services to end users in the Wellington CBD using these local access fibre network assets.

## 5. COPIES OF TRANSACTION DOCUMENTS

5.1 As noted above, a copy of Spark's takeover offer is enclosed with this application.

## 6. NOTIFICATION OF OTHER COMPETITION AGENCIES

6.1 This is a New Zealand specific transaction. No other competition agencies will be notified of the Transaction.

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[3] Dene Mackenzie "Spark CBD fibre ambition" (29 August 2016) Otago Daily Times. Accessible at: https://www.odt.co.nz/business/spark-cbd-fibre-ambition.

## 7. REQUESTED DETAILS

7.1 The Transaction results in only *de minimis* horizontal aggregation between Spark and TeamTalk in the provision of data centre, managed data, broadband, and mobile services. Spark understands that the Commission is already familiar with the key suppliers, competitors, and active trade associations in those markets.

7.2 However, to assist the Commission's assessment of its application, Spark provides the following details:

(a) Spark New Zealand Limited's 2016 Annual Report, which is available here: http://investors.sparknz.co.nz/FormBuilder/_Resource/_module/gXbeer80tkeL4nEaF-kwFA/doc/FY16_H2/2016_Annual_Report.pdf

(b) TeamTalk Limited's 2016 Annual Report, which is available here: http://www.teamtalkinvestor.co.nz/images/stories/Annual_Reports/TTk_AReport_2016_vfinal.pdf

(c) The names, and contact details, (to the extent known) of the key competitors and customers of TeamTalk's various business units – as set out in **Appendix Three**.

## 8. NO LESSENING OF COMPETITION

8.1 As set out above, Spark is confident that the Transaction does not give rise to any competition concerns.

8.2 In particular, there is either no horizontal overlap, or *de minimis* horizontal overlap, between Spark and the various parts of TeamTalk's business.

8.3 The reasons for Spark's view are set out further below.

**Fibre assets**

8.4 As noted above, TeamTalk's CityLink business owns a local access fibre network in the Wellington CBD and a smaller local access fibre network in the Auckland CBD, with TeamTalk's revenue from providing access to those networks estimated to be **[ ]** per annum (covering wholesale and retail revenues). Spark does not own any local access fibre network assets in either the Wellington CBD or Auckland CBD, or elsewhere in New Zealand.

8.5 In *Vector / UnitedNetworks Limited* the Commission defined a market for "wholesale data access market in the Auckland CBD" (ie a local geographic market),[4] where it stated that such "[c]onnections may be made by way of a number of media, such as standard copper lines, fibre optic lines, wireless radio or satellite links, or a mix of these technologies".[5]

8.6 Subsequently, in *Vodafone / TelstraClear* the Commission said that "[d]edicated data connections used to be provided over copper lines (leased lines) but now they are generally provided over fibre".[6]

8.7 In essence, there are two forms of wholesale network access that a local access fibre network owner can offer:

(a) *Layer 1 Dark Fibre Access*: Dark fibre services allow point-to-point connectivity between buildings. Each wholesale customer has sole use of his or her own strand of fibre and can use that to offer their chosen (Layer 2 or 3) services to downstream customers by selecting the technology to attach at either end of the fibre circuit. Wholesale customers “light” this fibre and provide Layer 2 Ethernet services over it by installing electronic equipment at each end of the fibre.

(b) *Layer 2 Data Access:* Ethernet services are high-bandwidth services provided over the local access fibre network, which wholesale customers can use to offer Ethernet (Layer 2 or 3) services to downstream customers.

8.8 A local access fibre network assets owner can offer wholesale access to either Layer 1 or Layer 2 services.

8.9 While Spark resells / wholesales Layer 2 services (typically sourced from Chorus), those wholesale inputs are readily available to other RSPs, and as Spark does not own any fixed local access fibre network infrastructure, the Transaction does not result in any horizontal aggregation in respect of the ownership of local access fibre network assets.

8.10 Furthermore, there are a number of alternative local access fibre networks in those areas:

(a) **Wellington CBD**: Chorus, Vodafone, Vocus, and Vector (Vector's network in Wellington is limited); and

(b) **Auckland CBD**: Chorus, Vodafone, Vector, and Vocus.

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[4] Decision No. 471 *Vector Limited / UnitedNetworks Limited* (23 August 2002) at [48].
[5] At [35].
[6] *Vodafone New Zealand Limited / TelstraClear Limited* [2012] NZCC 33 at [56].

8.11 In particular, Chorus and Vodafone have extensive local access fibre assets in both the Wellington and Auckland CBDs, where they each provide wholesale local access fibre inputs to RSPs.

8.12 Chorus and CityLink offer both wholesale Layer 1 dark fibre services and wholesale Layer 2 ethernet services, whereas Vodafone and Vocus are understood to currently only offer wholesale Layer 2 ethernet services (but could also offer Layer 1 dark fibre services if they so wished).

8.13 Spark's approximate estimate of the scale of current building connections of CityLink, Chorus, and Vodafone to commercial premises of the CBDs in Wellington and Auckland is as set out in Figure One below:

*Figure One: Estimates of current building connections in the Wellington and Auckland CBDs*

| | Wellington | Auckland |
|---|---|---|
| **CityLink** | ~511 buildings connected | ~90 buildings connected |
| **Chorus** | ~4,474 addresses connected in Wellington City (~2,300 buildings) | ~3,841 addresses connected in Auckland (CBD only) |
| **Vodafone** | ~492 buildings connected | ~1,667 buildings connected |

8.14 See further the network maps in **Confidential Appendix Four**, which provide a graphical illustration of the scale and extent of the overlapping local access fibre networks in each CBD area.

8.15 As the above demonstrates, CityLink's local access fibre network assets are significantly smaller than both Chorus and Vodafone's networks across the Wellington and Auckland CBDs.

8.16 Although Spark will remain reliant on third party owners of network infrastructure throughout the country, particularly Chorus, Spark's acquisition of the CityLink local access fibre network assets will give rise to a number of pro-competitive outcomes:

(a) Spark will gain greater control over its per unit input costs in the Wellington CBD, enabling it to achieve ownership-like economics over its local access fibre inputs. In order to make efficient use of the asset, Spark will also have a strong incentive to provide a competitive and compelling proposition to other RSPs in the Wellington local access market (and to a lesser extent in Auckland) in competition with firms like Chorus, Vodafone, and other wholesale local access providers.

(b) Spark expects that greater control of the network will enable it to provide an improved experience for its customers in those areas, including improved operational performances in provisioning, maintaining, and restoring service to the network. The Commission will be aware that customer service challenges that arise in a vertically disaggregated model have been frustrating for Spark in recent years. Greater control over the network serving its customers will enable it to better compete with other RSPs that either have their own local access fibre inputs (or unbundled copper access) in Wellington, such as Vodafone (and to a limited extent Vocus) and place increased competitive constraint on other wholesale providers to improve service performance.

(c) Spark is also better placed than TeamTalk to continue to invest in, upgrade, and maintain those local access fibre assets. The CityLink network requires significant capital re-investment in order to underground the lines when Wellington Council requires overhead fibres to be removed from tram poles in ~2018 (estimated at several million dollars). In addition, to expand the local access fibre network to

additional premises, and therefore enhance the utilisation of the fibre in the ground, would require further capital expenditure, as would the need to reinvest in the optics used in running the network (which need to be refreshed every ~5-7 years). Spark is better placed than TeamTalk to make those necessary ongoing investments, and therefore is better placed to use those fibre network assets to:

(i) offer a better quality service to end consumers; and

(ii) better compete against Chorus, Vodafone, Vocus, and others in the wholesale provision of local access fibre inputs.

8.17 Accordingly, the Transaction will achieve pro-competitive outcomes in the provision of fibre inputs / services, without resulting in any reduction of the number of owners of local access fibre network assets.

**Managed data services**

8.18 The downstream retail service that is offered over local access fibre network assets is Layer 3 managed data services. The Commission has previously considered that such managed data services fall within the New Zealand market for the supply of retail business fixed-line services[7] (ie that managed data services are a sub-set of such services).

8.19 CityLink has a *de minimis* presence in the provision of such managed data services, and is understood to only offer those services over its own local access fibre network assets in the Wellington and Auckland CBDs. Indeed, in the *Vocus/M2* clearance decision, the Commission did not even specifically identify TeamTalk as a competitor in that market. In that decision, the Commission identified the key competitors to be Vocus, Vodafone, and Spark, with the Commission noting there was "strong competition from [Vocus,] Vodafone and Spark … along with a number of smaller competitors".[8]

8.20 Spark agrees with the Commission's previous assessment that the New Zealand market for the supply of retail business fixed-line services is highly competitive, and that CityLink only has a *de minimis* presence in that market. With estimated annual managed data services revenues of **[ ]** per annum, Spark estimates that CityLink's share of the provision of managed data services in New Zealand would be less than **[ ]** (which, as noted above, is only a sub-set of the broader retail business fixed-line services market). Spark estimates that its own share of managed data services would be **[ ]**, with Vodafone having a share of **[ ]**, Vocus **[ ]**, Kordia **[ ]**, with a long tail of others **[ ]** including Dimension Data, 2degrees, and others.

8.21 In the context of a highly competitive market, including a number of well-known and well-resourced competitors, Spark is confident that the aggregation of TeamTalk's *de minimis* managed data services business will not have any material effect on competition in the New Zealand market for the supply of retail business fixed-line services.

**Wellington WiFi**

8.22 CityLink also offers a "free" CBD-wide WiFi service to consumers in the Wellington CBD, called "CBDFree" (which is an ad-funded service partially sponsored / subsidised by the Wellington City Council"),[9] as well as wholesale WiFi services that other operators / businesses can offer to consumers,[10] with TeamTalk's revenue from providing such WiFi services estimated to be **[ ]** per annum. Spark does not have an equivalent CBD-wide WiFi service.

8.23 While Spark offers WiFi hotspots in Wellington CBD around its payphone sites (as well as other parts of the country),[11] it would not require significant investment for other RSPs to offer

[7] *Vocus Communications Limited and M2 Group Limited* [2015] NZCC 33 at [33].
[8] At [46].
[9] CityLink "CBDFree". Accessible at: https://www.citylink.co.nz/services/broadband-my-hand/cbdfree.
[10] CityLink "Wholesale Wifi". Accessible at: https://www.citylink.co.nz/services/broadband-your-hand/wholesale-wifi.
[11] Spark customers are able to use 1GB per day of WiFi throughout the country wherever Spark WiFi is available.

an equivalent WiFi hotspot service to Spark. For example, any RSP could readily attach router equipment to an access point (eg a fixed phone connection point) in order to provide a WiFi service in the area around that access point. The geographic circumferences of that WiFi service would depend on the strength of the router used to offer that WiFi hotspot.

8.24 Accordingly, Spark is confident that the Transaction will not give rise to any competition issues in respect of this service.

**Data centre services**

8.25 TeamTalk's CityLink business owns and operates two small data centre co-location facilities in Wellington CBD, and one in Auckland CBD, which are ancillary to its main business and are operated under the SiteNet brand, as follows:[12]

(a) Lambton House, Wellington CBD, where it has 42 racks;

(b) Classic House, Thorndon, with 47 racks; and

(c) Telco House, Auckland, with 42 racks.

8.26 The SiteNet data centres enable customers to locate their IT equipment away from their primary business location. Data centres such as these have a number of common elements such as: 24/7 security; uninterrupted power supply; redundant connectivity; temperature control; the ability to manage installed servers; and are often carrier neutral (ie connected by multiple data network providers such as Citylink, Chorus, Vodafone, Vocus).[13]

8.27 Data centre service providers typically can provide space in their data centres in one of two ways (or often both), namely:

(a) *Co-location*: a model in which a customer rents out rack space in a service provider's data centre to house the customer's own hardware, servers and equipment. While the provider provides space, power, cooling, and physical security for the equipment, the customer is responsible for the maintenance of the server hardware and software; or

(b) *Infrastructure as a Service (or "**IaaS**")*: a model in which a customer outsources the equipment used to support operations, including storage, hardware, servers and networking components to a specialist service provider. The service provider owns the equipment and is responsible for housing, running and maintaining it in a specialist data centre, and charges a fee for use of its infrastructure.

8.28 As noted above, TeamTalk's SiteNet business is understood to only be active in offering co-location, ie simply offering rack space in its data centres.

8.29 The SiteNet data centres can be described as best suited to the IT needs of small to medium sized businesses with lower power requirements. Spark understands that TeamTalk does not necessarily own its data centres, nor is SiteNet necessarily the only tenant of these data centres. The Lambton House site, for example, is a building in which Vodafone's corporate offices are located and in which a number of third parties may also operate data centre services. The same applies to Telco House in Auckland.

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[12] See:

- "Co-location Centres" CityLink. Accessible at: https://www.citylink.co.nz/sites/default/files/documents/service/Other%20Co-location%20Centres.pdf
- "CityLink expands its SiteNet Co-location Capacity at Lambton House, Wellington CBD" CityLink. Accessible at: https://www.citylink.co.nz/sites/default/files/documents/service/Lambton%20House%20Co-location%20Centre.pdf.

[13] See for example "Colocation" Plan B. Accessible at: http://www.planb.co.nz/data-centres/colocation.

8.30 TeamTalk's revenue from providing its data centre co-location services is estimated to be **[ ]** per annum. Spark estimates that total data centre co-location revenue in New Zealand is ~$150m, giving TeamTalk a *de minimis* share of those revenues at **[ ]**.

8.31 Spark also offers data centre services, with 16 data centres in New Zealand, and offers those data centre services under the following brands:

(a) Spark Digital (with data centres in Auckland, Tauranga, Hamilton, Wellington, Christchurch, and Invercargill);

(b) Revera (with data centres in Upper Hutt, Tawa, Auckland, Christchurch, Hamilton);[14] and

(c) Computer Concepts Ltd (with data centres in Auckland, Christchurch, Nelson, as well as rented rack space in Dunedin).

8.32 Spark's revenue from data centre co-location across the Spark Digital, Revera, and Computer Concepts Ltd brands in the year to February 2017 was **[ ]**, giving Spark an estimated share of total New Zealand co-location revenues of **[ ]**.

8.33 Regulators overseas have adopted the approach of defining the relevant market as the nationwide market for data centre related services,[15] with the European Commission observing that data centre services is "a hypercompetitive market".[16] Similarly, the New Zealand data centre services market is highly competitive – with a large number of vigorous competitors, such as:

(a) Datacom (with data centres in Auckland, Hamilton, Wellington, Christchurch);[17]

(b) IBM (with data centres in Auckland and Wellington);[18]

(c) Dimension Data (with a data centre in Hamilton);

(d) Vocus (with 22 data centres sites across New Zealand and Australia including Auckland, Christchurch, Sydney, Newcastle, Melbourne, and Perth); [19]

(e) Unisys (with data centres in Auckland and Kapiti);

(f) Vodafone (with data centres in Auckland and Wellington);

(g) Compass's Data Vault (with data centres in Auckland and Hamilton);

(h) Hewlett Packard (with data centres in Auckland, Wellington, and Christchurch);

(i) Plan B (with centres in Mt Wellington (Auckland), Albany (Auckland), Hamilton, Wellington, and Christchurch); and

(j) a long tail of smaller operators.

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[14] Revera is on the All-of-Government IaaS panel.
[15] See for example:
- The European Commission: *Comp/M.7458 - IBM / INF* (15 December 2014) and *Comp/M.6921 -IBM Italia / Ubis* (19 June 2013); and
- The: South African Competition Tribunal: *Vodacom (Pty) Ltd v Storage Technology Services (Pty) Ltd* [2009]

[16] *Comp/M.6921 - IBM Italia / Ubis* (19 June 2013) at [36].
[17] Note: Datacom is on the All-of-Government IaaS panel.
[18] Note: IBM is on the All-of-Government IaaS panel.
[19] See: "Secure your data, save space and retain control" Vocus. Accessible at: http://www.vocus.co.nz/product/data-centres.

8.34 There has also been significant new data centre entry in recent years, including: Datacom's $30m data centre in Hamilton in 2013; Plan B's data centre in Wellington in 2014; Compass's data centre in Hamilton in 2015; and Catalyst IT's data centre in Porirua in 2015. Indeed, barriers to entry and expansion in this industry are continuing to decrease. An example of the low barriers to entry / expansion is IT Power, which has recently entered the New Zealand-market offering customers a 'data centre in a box' solution, which is a "fully portable data centre, housed within the world's most broadly adopted industry standard – the ISO shipping container".[20]

8.35 Furthermore:

(a) Of the five largest data storage infrastructure providers worldwide, namely Amazon Web Services, Google Cloud, Rackspace, Microsoft Azure and Hewlett-Packard,[21] only one, Hewlett-Packard, currently has data storage infrastructure in New Zealand. Any of these companies would also have the ability to readily enter the market with a New Zealand-based data centre should opportunities arise, and indeed many of them have data centres in Australia:

(i) Microsoft Azure has two data centres in Australia;[22]

(ii) Google is due to open an Australian data centre later this year;[23]

(iii) Amazon Web Services has three data centres in Sydney;[24]

(iv) Rackspace has two data centres in Sydney.[25]

(b) A number of these large international suppliers (to the extent they are not present in New Zealand) have established, or are establishing, a presence in Australia, and compete for New Zealand-customers from Australia. For example, Microsoft specifically markets its data centres in Australia to New Zealand customers.[26] There is increasing evidence of New Zealand customers switching from locally based data service providers to more remote or "cloud" based locations for their data servers, including overseas locations (and vice versa).[27]

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[20] Heather Wright "IT Power takes on containerised data centre market; resellers wanted" (7 October 2015) ChannelLife. Accessible at: https://channellife.co.nz/story/it-power-takes-containerised-data-centre-market-resellers-wanted/.

[21] "Microsoft Azure beats out Amazon Web Services in cloud service performance test" (22 February 2013) ITProPortal. Accessible at: http://www.itproportal.com/2013/02/22/microsoft-azure-beats-out-amazon-web-services-in-cloud-service-performance-test/.

[22] https://azure.microsoft.com/en-us/regions/

[23] http://www.computerworld.com.au/article/607761/google-bring-its-cloud-platform-australia/

[24] https://aws.amazon.com/about-aws/global-infrastructure/

[25] http://www.computerworld.com.au/article/574106/rackspace-adds-second-australian-data-centre/

[26] "New Microsoft data centres in Australia to offer NZ benefits" (media release, 28 October 2014) Microsoft New Zealand. Accessible at: http://www.scoop.co.nz/stories/BU1410/S00987/new-microsoft-data-centres-in-australia-to-offer-nz-benefits.htm.

[27] See for example:

- Chris Keall "Fishpond tops $100m, talks up Amazon hosting" (3 June 2013) National Business Review. Accessible at: http://www.nbr.co.nz/opinion/fishpond-tops-100m-talks-amazon-hosting.
- "Microsoft Azure the winning ticket for Kiwi startup iTICKET marking 10 years of growth and market disruption" (21 May 2015) Microsoft New Zealand. Accessible at: https://news.microsoft.com/en-nz/2015/05/21/microsoft-azure-the-winning-ticket-for-kiwi-startup-iticket-marking-10-years-of-growth-and-market-disruption/.
- Hamish Fletcher "IBM opens $80m data centre" (27 May 2011) The New Zealand Herald. Accessible at: http://www.nzherald.co.nz/business/news/article.cfm?c_id=3&objectid=10728378.
- "Partners" Webjet. Accessible at: http://www.webjet.com.au/about/partners/.
- Jason Verge "Vocus Acquires Perth Data Center in Western Australia For $11.7 Million" (14 August 2014) Data Center Knowledge. Accessible at: http://www.datacenterknowledge.com/archives/2014/08/14/vocus-acquires-perth-data-center-western-australia-11-7-million/.

(c) This is an industry where customers can, and do, self-supply their own data centre infrastructure requirements. There are numerous examples of this occurring in practice.[28]

8.36 In total, Spark estimates that there are more than **[ ]** racks offered by data centre providers in New Zealand. This demonstrates that CityLink is a *de minimis* competitor, with an estimated market share (by rack capacity) of **[ ]**. Spark estimates its own data centre share by rack capacity at **[ ]**, with Datacom at **[ ]**, IBM at **[ ]**, Dimension Data at **[ ]**, Vocus at **[ ]**, Unisys at **[ ]**, Compass's Data Vault at **[ ]**, Hewlett Packard at **[ ]**, and others at **[ ]**.

8.37 Furthermore, the areas where CityLink has its data centres, ie Wellington and Auckland, are highly competitive, with a number of other data centres in those areas – as set out in Figure Two below:

*Figure Two – Data centre providers in Auckland and Wellington*

| Data centres in Auckland | | Data centres in Wellington |
|---|---|---|
| • Datacom<br>• IBM<br>• Hewlett-Packard<br>• Unisys<br>• Vocus<br>• Unleash<br>• Plan B (Iconz)<br>• Jade<br>• Umbrellar | • Vodafone<br>• TheCloud Limited<br>• The Data Centre<br>• HD<br>• Data Vault / Compass<br>• Webdrive<br>• Waka Digital<br>• CommArc | • Datacom<br>• IBM<br>• Hewlett-Packard<br>• Unleash<br>• DTS<br>• Vodafone<br>• Catalyst IT<br>• On Networks (Knossos Networks)<br>• Plan B (Iconz) |

8.38 In the context of a highly competitive market featuring many vigorous and sophisticated competitors, including large, well-known multinational competitors and New Zealand competitors, Spark is confident that the aggregation of CityLink's ancillary, and *de minimis,* presence in data centres will not have any material effect on competition in any New Zealand data centre services market.

**Mobile Trunked Radio**

8.39 TeamTalk provides mobile trunked radio to, for example, the Ambulance Service and to taxi companies, with the Commission previously considering that such services fall within a national market for trunked mobile radio.[29] TeamTalk's annual mobile trunked radio revenue is understood to be **[ ]**.

8.40 Spark does not provide mobile radio services, nor own a digital mobile radio network; therefore, there is no overlap between Spark and TeamTalk in respect of those services.

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[28] See for example:
- Hamish Barwick "Supercomputer, second data centre fuels Uni. Of Auckland networking upgrade" (22 June 2012) ComputerWorld. Accessible at: http://www.computerworld.com.au/article/428385/supercomputer_second_data_centre_fuels_uni_auckland_networking_upgrade/.
- "Data Centre Server Hosting Services" University of Otago. Accessible at: http://www.otago.ac.nz/its/services/hosting/otago023564.html.
- Randal Jackson "Mainfreight bucks trend and consolidates to NZ" (3 July 2007) ComputerWorld. Accessible at: http://www.computerworld.co.nz/article/498404/mainfreight_bucks_trend_consolidates_nz/.
- "ANZ Opens $78 million Auckland datacentre" (13 April 2010) ComputerWorld. Accessible at: http://www.computerworld.co.nz/article/489911/anz_opens_78_million_auckland_datacentre/.
- "Infrastructure Hosting" Victoria University of Wellington. Accessible at: http://www.victoria.ac.nz/its/staff-services/application-services/infrastructure-hosting.

[29] Decision No. 393 *TeamTalk Limited and Telecom New Zealand Limited* (15 May 2000) at [101].

8.41 In addition to TeamTalk, Kordia also owns a digital mobile radio network (with services on that network currently supplied by TeamTalk under a contract with Kordia).

8.42 To the extent that there is fringe competition between mobile radio and cellular mobile for certain customer requirements, Vodafone, and 2degrees will also continue to compete against Spark.

8.43 In providing mobile radio services, TeamTalk does not own any spectrum management rights. Rather, TeamTalk has mobile radio licenses on a site-by-site basis. The frequency ranges that TeamTalk has (eg 400 to 470 MHz) are not used for cellular communications. Therefore, there is no overlap with Spark's mobile / wireless broadband spectrum holdings and TeamTalk's mobile radio spectrum licenses.

8.44 Furthermore, while (it appears) TeamTalk has licenses (but not management rights) to spectrum managed by the Crown in the 2300MHz and 2500/2600MHz range in six regional areas,[30] Spark is not aware of any services being provided by TeamTalk over this spectrum. Spark also understands that MBIE has provided these limited regional rights to TeamTalk, and other regional operators, to provide services as part of a shared "spectrum park" on condition they or a related entity do not also own national management rights in respect of the same frequency range. Therefore, as Spark already owns Management Rights in the 2500/2600MHz frequency spectrum, TeamTalk's licences to operate in the spectrum park will lapse if the Transaction proceeds.

8.45 Accordingly, Spark is confident that the Transaction will not give rise to any competition issues in respect of this service.

**Digital Microwave Radio**

8.46 TeamTalk's Araneo division provides high speed point-to-point Digital Microwave Radio ("**DMR**") links in order to provide high speed broadband connections to several hundred end user locations. Araneo's customers are typically RSPs that are purchasing linking / mission critical wireless redundancy, or businesses with operations in remote locations that require redundancy (eg Landcorp). TeamTalk's annual DMR revenue is understood to be **[ ]**.

8.47 A number of operators own DMR infrastructure to offer similar DMR services in competition with TeamTalk, such as Kordia, Chorus, and Vodafone, as well as smaller regional providers such as GisborneNet and Inspire. For example, Kordia supplies DMR services to the likes of Miraka Dairy.[31]

8.48 While Spark owns some DMR assets, those assets are used to provide backhaul services for itself (eg point-to-point last mile cell tower access), and Spark does not use its DMR assets to offer DMR services to third parties. To the extent Spark has customers that, as part of their overall service requirements, require DMR services, Spark will resell to those customers DMR services provided using third party infrastructure, such as Kordia or Citylink, as well as smaller providers in specific regions such GisborneNet and Inspire (Chorus would also be a potential option). As such, Spark is not currently a competitor to TeamTalk in the provision of self-supplied DMR services. **[ ]**.

8.49 Accordingly, Spark is confident that the Transaction will not give rise to any competition issues in respect of this service.

[30] Radio Spectrum Management "Search licenses". Accessible at: https://www.rsm.govt.nz/smart-web/smart/page/-smart/domain/licence/SelectLicencePage.wdk.
[31] Kordia "Miraka: Digital Microwave Radio (DMR) Technology Solution to Remote Plant Communications". Accessible at: https://www.kordia.co.nz/expertise/miraka.

**Broadband**

8.50 The Commission has previously defined a market for residential fixed-line broadband services.[32] As the Commission is aware, that market is highly competitive with 90+ RSPs, including Vodafone, 2degrees, Vocus, Trustpower, and many others.

8.51 TeamTalk's Farmside business has a *de minimis* presence in the broadband market. Farmside is a small RSP that targets rurally based customers (understood to be across New Zealand). Farmside does not own its own infrastructure, but provides services to retail customers using a range of inputs from the resale of Vodafone's RBI broadband service, a broadband service that uses inputs from OPTUS's satellite, and a retail service based on Chorus' Unbundled Bitstream Access service ("**UBA**") inputs. Farmside's annual revenue is reported to be $24m. Farmside is not a particularly growing or dynamic RSP, with EBITDA decreasing substantially in the last year, **[ ]** customer growth in FY2015, and only **[ ]** customer growth in FY2016. It has **[ ]** fixed customers. This gives it a *de minimis* market share of **[ ]**.

8.52 Estimated market shares in the broadband market are set out in Figure Three below.

*Figure Three - Market shares in fixed-line broadband by connections (000's) in 2016*

| Broadband provider | 000's | % |
|---|---|---|
| Spark | **[ ]** | **[ ]** |
| Vodafone | **[ ]** | **[ ]** |
| Vocus | **[ ]** | **[ ]** |
| 2degrees | **[ ]** | **[ ]** |
| Trustpower | **[ ]** | **[ ]** |
| Rest of Market | **[ ]** | **[ ]** |
| Total | **[ ]** | **[ ]** |

*Source: IDC*

8.53 In the context of a highly competitive market with 90+ competitors, and a number of well-known and growing competitors, Spark is confident that the aggregation of TeamTalk / Farmside's *de minimis*, and static, broadband market share will not have any material effect on competition in the broadband market in New Zealand.

8.54 **[ ]**.[33]

**Mobile**

8.55 The Commission has previously defined a market for mobile phone services.[34]

8.56 Farmside also provides mobile services via a MVNO arrangement with Vodafone. It has **[ ]** MVNO customers, giving it a *de minimis* market share of **[ ]**.

8.57 Estimated market shares in the mobile market are set out in Figures Four and Five below.

*Figure Four - Market shares in mobile services by revenue ($m) in 2016*[35]

| Mobile services provider | $m | % |
|---|---|---|
| Spark | **[ ]** | **[ ]** |
| Vodafone | **[ ]** | **[ ]** |

[32] *Vocus Communications Limited / M2 Group Limited* [2015] NZCC 33, and *Vodafone New Zealand Limited / TelstraClear Limited* [2012] NZCC 33.
[33] **[ ]**.
[34] *Vocus Communications Limited / M2 Group Limited* [2015] NZCC 33, and *Vodafone New Zealand Limited / TelstraClear Limited* [2012] NZCC 33.
[35] Total mobile revenue includes services, handset and roaming revenues.

| | | |
|---|---|---|
| 2degrees | [ ] | [ ] |
| Other/MVNO | [ ] | [ ] |
| **Total** | [ ] | [ ] |

*Source: IDC*

*Figure Five - Market shares in mobile services by connections (000's) in 2016*

| Mobile services provider | 000's | % |
|---|---|---|
| Spark | [ ] | [ ] |
| Vodafone | [ ] | [ ] |
| 2degrees | [ ] | [ ] |
| Other/MVNO | [ ] | [ ] |
| **Total** | [ ] | [ ] |

*Source: IDC*

8.58 Spark is confident that the aggregation of Farmside's *de minimis*, and static, mobile market share will not have any material effect on competition in the mobile market in New Zealand.

**Peering exchange services**

8.59 TeamTalk's ExchangeNET business owns several information exchanges facilitating independent exchange of IP traffic between peer organisations. These exchanges are the Auckland Peering Exchange ("**APE**"), Hamilton Internet Exchange ("**HIX**"), Dunedin Peering Exchange ("**DPE**"), Wellington Internet Exchange ("**WIX**"), and Christchurch Internet Exchange ("**CHIX**").

8.60 A peering exchange (also known as an "**IXP**") is equipment (approximately the same size as a standard computer server) typically located within a data centre, where customers' networks physically connect to one another to allow their customers to inter-connect (ie to the direct networking between generators and consumers of Internet traffic). The data centre in which a peering exchange is located will often be served by data connectivity from multiple providers, such as Chorus, Vocus, Vodafone, CityLink, and Vector, making it “carrier neutral”.

8.61 Peering is the mutual and usually settlement free exchange of Internet traffic between two networks. For example, ISP A will allow traffic from ISP B to pass through its network, usually without charging ISP B a fee, as long as ISP B in return allows ISP A's traffic to pass through its network (ie those two networks can reach other's consumers / generators of traffic by peering).[36] While the Commission has not previously reached a view on market definition in relation to peering exchanges in New Zealand, it has defined peering as "the interconnection of two separate internet networks, enabling the customers of each network to exchange traffic".[37]

8.62 Peering arrangements can be negotiated on a bilateral basis between two ISPs. Alternatively, peering can be achieved by ISPs each using a common peering exchange in order to exchange traffic at that common point (ie without the need for a dedicated link between those two ISPs, or a dedicated bilateral arrangement).

8.63 In addition to peering at exchanges and bilateral peering arrangements, Internet traffic interconnection is also achieved via IP transit arrangements. For example, an ISP could pay a fee to another (typically larger), ISP to cross or "transit" that ISP's network in order to interconnect with the rest of the Internet by accessing the interconnection points (either

[36] "ISP" is used as short-hand for networks / content owners / CDNs that need to interconnect.
[37] Commerce Commission "High speed broadband services demand side study – Issues paper 1 – technical issues" (19 December 2011) at 28.

peering or further transit arrangements) of that larger ISP. There are a number of transit providers in New Zealand, including Spark, Vodafone,[38] Vocus,[39] Vibe Communications,[40] ACS Data,[41] Kordia, Snap (2degrees), and Voyager,[42] and each of these typically offer both domestic and international IP transit services.

8.64 Another service, Spark Wholesale's "local peering" service, was previously offered at 29 locations throughout New Zealand. It is a form of bilateral access to Spark's broadband customers by an ISP within a designated coverage area. It is different to a peering exchange service (such as that provided by ExchangeNET) for a number of reasons. In particular, it does not provide a conduit for the multilateral exchange of information between various ISPs as it is simply another form of bilateral IP interconnection. Spark's local peering service enabled ISPs to interconnect with the Spark network and only exchange Internet traffic within that designated coverage area between the ISP's end users and Spark's broadband customers from that point of interconnect location. So, for example, if ISP A's customers located in Dunedin wished to exchange information with Spark broadband customers located in Dunedin they would do so at a Spark local point of interconnection in Dunedin. But ISP B could not interconnect with ISP A at the same Dunedin point. ISP A's customers located in Wellington could in turn exchange information with Spark's Wellington customers at the Wellington local point of interconnection. Spark currently has four customers (Vocus at 11 POIs, 2degrees (previously Snap) at 8 POIs, ACS at 2 POIs, and Kordia at 1 POI) on its local peering service and has grandfathered the service since 2015. While the exchange of local Internet traffic was priced on a bill and keep (un-tariffed) basis, a fee of $125 was charged reciprocally between the two parties for the point of interconnection.

8.65 It is common for ISPs to use a combination of peering at exchanges, bilateral peering, and IP transit arrangements depending on what is suitable in light of the particular circumstances, and particular counterparties, for their traffic requirements.

8.66 Internet traffic exchanged at peering exchanges represents only a very small subset of the total Internet traffic exchanged between, for example, ISPs. Spark estimates that less than 10% of total Internet traffic within New Zealand is interconnected at peering exchanges.

8.67 The following figures show the operation of peering arrangements in diagrammatic form.

[38] "International IP Transit" Vodafone. Accessible at: http://www.wholesale.vodafone.co.nz/internet-international.
[39] "IP Transit" Vocus Communications. Accessible at: http://www.vocus.co.nz/product/ip-transit.
[40] "Our network" Vibe Communications. Accessible at: http://www.vibecommunications.co.nz/our-network.
[41] "Our network" ACS Data. Accessible at: http://www.acsdata.co.nz/our-network.shtml
[42] "Topological Map of New Zealand Internet Service Providers" http://www.ispmap.co.nz/topmap.html.

*Figure Six – Diagram of the operation of peering exchange arrangements*[43]

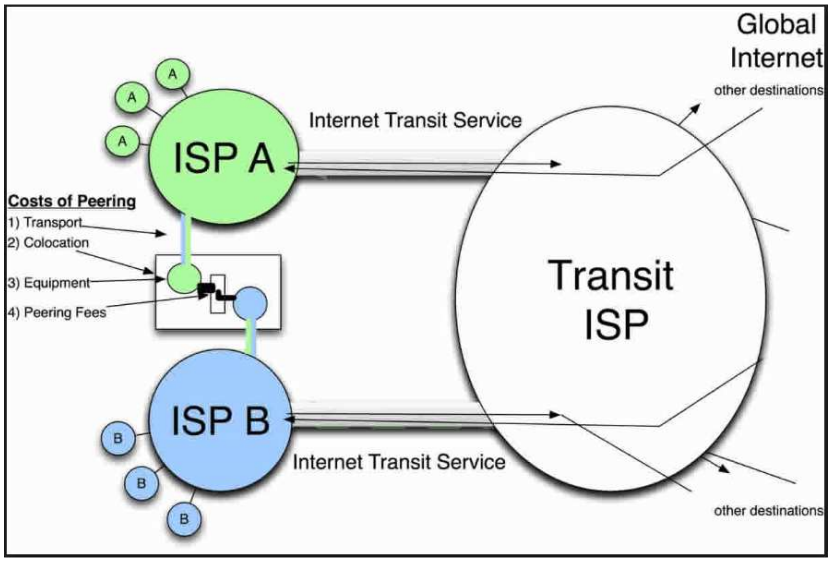
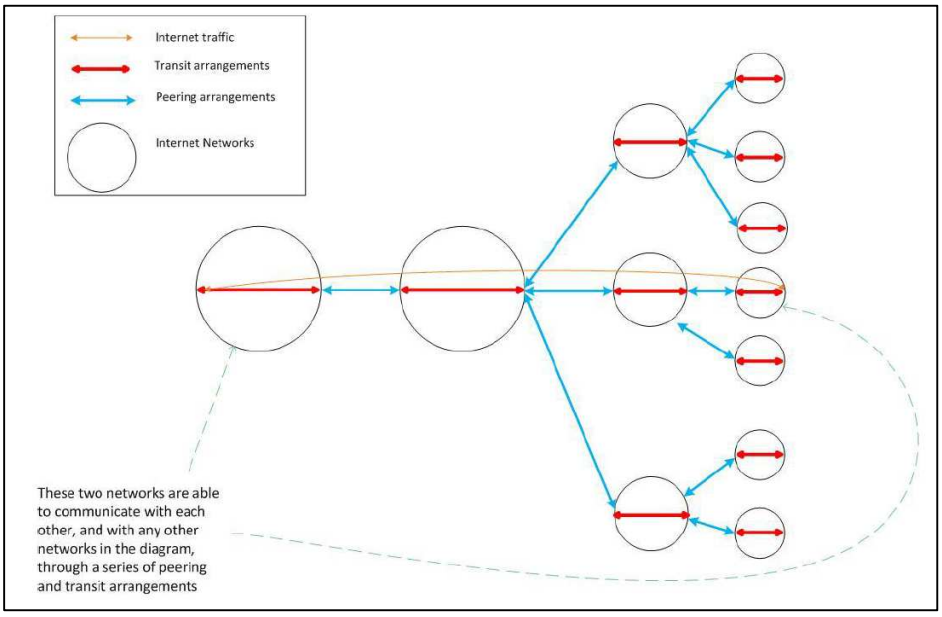
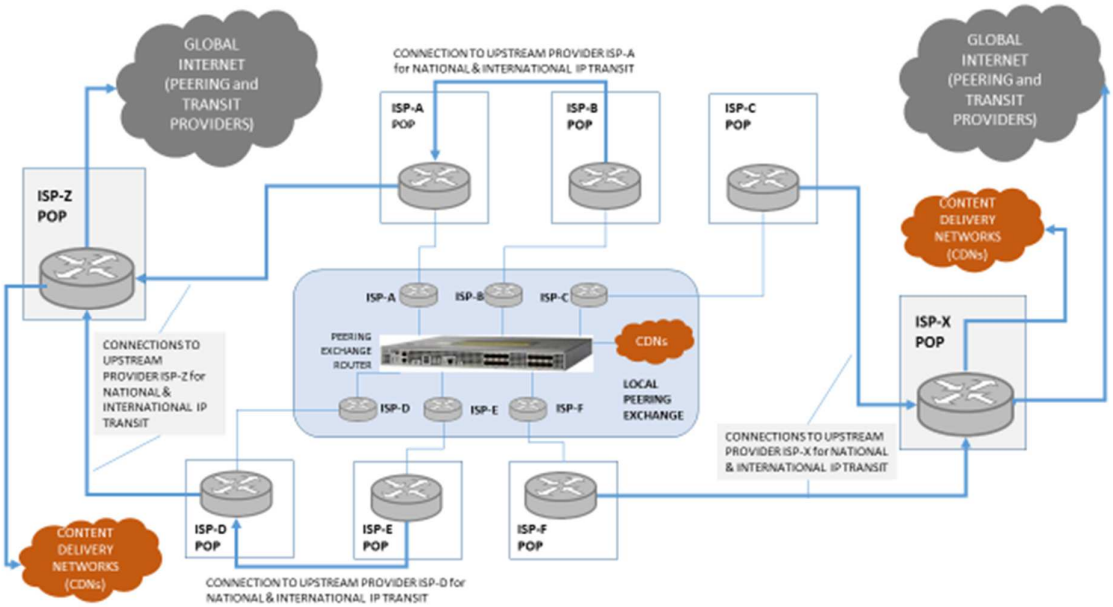



*Figure Seven – Explanation of peering and transit arrangements*[44]




[43] "What is an Internet Exchange Point?" Dr Peering International. Accessible at: http://drpeering.net/FAQ/What-is-an-Internet-Exchange-Point.php.
[44] Commerce Commission *High speed broadband services demand side study. Final Report* (29 June 2012).

*Figure Eight - Diagram illustrating peering and other connections between ISPs*




8.68 In the scheme of the Transaction, the peering exchange business operated by ExchangeNET is only a very small portion of the overall TeamTalk business. Spark estimates, **[ ]** that ExchangeNET provides a relatively small revenue stream of approximately **[ ]** per annum, **[ ]** per annum, and accounts for less than **[ ]** of the value of TeamTalk.

8.69 There are three main types of customers that exchange traffic (peer) at these information exchanges:[45]

(a) Internet service providers ("**ISPs**");

(b) Large enterprise and government customers who wish to exchange data traffic between their own departments, divisions, branches or operations ("**enterprise**"); and

(c) Content providers (such as Netflix or Akamai) which provide ISPs and enterprises that are located at the information exchange with access to their cached content on a content delivery network, to enable the customers of those ISPs to gain access to this content at faster speeds (than they would if they accessed the same content from overseas servers) ("**CDNs**").

8.70 Spark does not own any peering exchanges, so no horizontal aggregation will arise from the Transaction.

8.71 While other RSPs (ie ISPs) are customers of ExchangeNET's peering exchanges, Spark is also confident that the acquisition of peering exchanges will not give rise to any vertical issues. As set out in the Commission's Merger & Acquisition Guidelines, a transaction can only give rise to vertical concerns where:

(a) A firm has market power at an upstream level of the supply chain; and

(b) A firm has the ability to foreclose competitors from accessing services at that level of the supply chain by virtue of its market power; and

[45] As noted above, elsewhere in this application, "ISP" is used as short-hand for these various types of entities that need to interconnect.

(c) A firm has the incentive to foreclose competitors from accessing services at that level of the supply chain – ie that an increase in profits in a downstream market will exceed a loss in profits in that upstream market.

8.72 None of those conditions are met in this case.

*No market power – vigorous competitors, and no barriers to entry or expansion*

8.73 Firstly, ExchangeNET does not have any market power in the provision of Internet peering exchange services. There are no barriers to entry in establishing a new Internet peering exchange. As noted, a peering exchange is simply connection hardware that can be co-located within an existing data centre. Spark estimates that the capital cost to establish a regional peering exchange could be as low as ~$10,000 to $15,000, and those costs could be shared across multiple operators, deployed within 6-8 weeks, and hosted in one of any number of existing data centres in main centres in New Zealand. Indeed, today there are a large number of data centres including those operated by firms such as Chorus, Vector, Vocus, Vodafone, Spark, Dimension Data, and Datacom, as well as other carrier neutral data centre operators such as Auckland's Sky Tower and Data Centre @ 220 Queen Street.

8.74 Spark's estimates are reflected in independent industry commentary. For example:

(a) The Internet Society, a global independent organisation known for its leadership on Internet policy and technology standards and development, has stated that:[46]

> Generally, IXPs are not expensive to start. The cost of the equipment required to establish an IXP is usually minimal, making the establishment of an IXP an affordable local project. Under a sustainable funding and management model, ISPs and other network operators, which benefit from using IXPs, can often cover the initial start-up and monthly operating costs. When establishing an IXP, external assistance in the form of setup advice and training may be helpful, especially in the initial phase. There are organizations around the world that provide assistance to new and existing IXPs.

(b) The OECD has stated:[47]

> The amortisation period of the investment required to construct an IXP is typically between two and twenty days. For example, if the cost of Internet transit in a country is USD 300 per megabit per second per month, an IXP is constructed at a cost of USD 20 000 and it produces one gigabit of bandwidth at inception, it's creating USD 300 000 per month in value, and would have an amortization period of two days.
>
> Internet exchange points typically cost between USD 2 000 and USD 50 000 to construct, depending how elaborate the physical facilities are, and each participating Internet service provider can expect to invest about that much again in upgrades to their own facilities to make efficient use of it. A more expensive facility is not necessarily a better one, and nearly always offers a lower rate of return on investment. It is invariably a better investment to build more small exchanges in more locations, than fewer larger ones in fewer locations.

8.75 The fact that there are no barriers to entry is reflected by:

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[46] Internet Society "Policy Brief: Internet Exchange Points" (30 October 2015). Accessible at: http://www.internetsociety.org/policybriefs/ixps.

[47] Working Party on Communication Infrastructure and Services Policy *Internet Traffic Exchange: Market Developments and Policy Challenges* OECD (31 January 2013). Accessible at: http://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=DSTI/ICCP/CISP(2011)2/FINAL&docLanguage=En.

(a) ExchangeNET establishing peering exchanges in smaller centres, such as Dunedin (established in 2014).[48] ExchangeNET is understood to have only two customers at its peering exchange in Dunedin, which demonstrates that access to a large number of customers is not a requirement for entry.

(b) The establishment by Megaport of a peering exchange at The Data Centre in Auckland in November 2014.[49] Megaport was founded in 2013 with "the aim of becoming a global leader in the fast growing elastic interconnection services market".[50] It was listed on the ASX in 2015.

(c) New Zealand Internet Exchange Inc ("**NZIX**")[51] entering New Zealand as a new entrant in February 2016, with three facilities in Auckland (The Data Centre at 220 Queen Street, Vocus' Data Centre in Albany, and Chorus' Mayoral Drive exchange). NZIX's customers include 2degrees, Vocus, Compass, Trade Me, Uber, and many others. NZIX is a not-for-profit society, originally established with support from the Internet Association of Australia (operators of IX Australia), and has announced intentions to continue to grow its presence in New Zealand:[52]

> "Following the overwhelming success of the Auckland Internet Exchange (AKL-IX) trial conducted by the Internet Association of Australia (IAA), operators of IX Australia, we are pleased to announce the launch of the New Zealand Internet Exchange Incorporated (NZIX Inc)," said Chairman Davey Goode.
>
> "Through the support of the team at IAA we have developed a member governed, neutral peering exchange which will provide easier and more cost effective interconnects for the internet community of New Zealand."
>
> "Moving forward the NZIX Inc committee will take on overseeing the management and growth of the exchange with the ongoing support of IAA."
>
> "As a founding member of NZIX Inc we are committed to providing ongoing support to the exchange growth," said IAA President Tom Berryman. "The development of an independent and neutral peering exchange in New Zealand benefits the internet community in the region by introducing more peering options and services, as well as our existing membership and peering base at home in Australia."

8.76 Demonstrating that such new entry is credible and viable, Spark understands that a number of ExchangeNET customers have switched to NZIX and Megaport since they entered New Zealand. Those new exchanges are providing significant competitive constraint to ExchangeNET, and they have successfully attracted a significant percentage of New Zealand and international ISPs. A comparison between the customer numbers and throughput of ExchangeNET's APE (which was established in 1999) with Megaport and NZIX, demonstrates the speed with which these new entrants have been able to offer a compelling and comparable competitive alternative to ExchangeNet. For example:

(a) ExchangeNET's APE (established 1999) has 84 customers connected to its peering exchange, with peak throughput of 19 Gbps and average throughput of 11.2 Gbps;

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[48] "CityLink tech boost for Dunedin" CityLink (media release, 16 December 2014). Accessible at: http://www.scoop.co.nz/stories/BU1412/S00637/citylink-tech-boost-for-dunedin.htm.
[49] Megaport "Megaport is now live in New Zealand" (18 November 2014). Retrieved from: https://www.megaport.com/blog/megaport-is-now-live-in-new-zealand/.
[50] Megaport "Company Overview". Accessible at: https://www.megaport.com/investor/#company-overview.
[51] For the sake of clarity, we note that NZIX should not be confused with ExchangeNET's business which is also known as NZIX ExchangeNET, or NZIX CityLink (referred to as ExchangeNET in this application).
[52] "IAA supports the launch of NZ Internet Exchange Inc as foundation member" (media release, 17 March 2016).

(b) NZIX (established 2016) already has 47 parties connected to its peering exchange, with peak throughout of approximately 18 Gbps and average throughput of approximately 9.2 Gbps; and

(c) Megaport (established 2014) already has 28 parties connected to its peering exchange with peak data throughput of approximately 19 Gbps and average throughput of approximately ~8 Gbps.

8.77 Further details on the nature and extent of customers attracted to these new peering exchanges is set out in **Appendix Five**.

8.78 The fact these new entrants have successfully attracted a range of customers so rapidly also demonstrates that:

(a) There are no barriers to an information exchange expanding its capacity to take on additional customers. Spark understands that an information exchange owner could readily, and at little cost, add additional traffic capacity to its exchange by adding further ports, or upgrading the size and speed of ports, in order to facilitate additional customers or demand. In any event, based on current equipment technology and estimate usage, Spark would expect that Megaport and NZIX's exchanges are using only a small proportion of existing capacity.

(b) There are no barriers to customers switching. Indeed, if a competing information exchange is housed within close proximity to the first one (such as within the same CBD) the cost to redirect the connectivity component from one peering exchange to another is very low (around the equivalent of one month's port charge for the access circuit to be re-routed). For example, in Auckland and Wellington there are a large number of competing data centres in which information exchanges could be housed. It would accordingly be possible to establish a competing information exchange operating down the road and for ISPs to switch for as little as a one-off $350 charge from Chorus. All other costs for the ISP would remain roughly equal for the ISP or other customer.

8.79 As the Commission will appreciate, in circumstances where there are no barriers to entry, expansion, or customer switching, and there is recent in-market evidence of new competitors entering and winning customers, it is plainly evident that ExchangeNET could not be regarded as having any market power.

*No ability to foreclose*

8.80 The fact that ExchangeNET could not be regarded as having any market power also demonstrates that Spark would not have any ability to foreclose access to peering exchanges to other RSPs / ISPs. Any attempt to do so, for example by raising prices above competitive levels, would simply encourage:

(a) *Other competitors, such as Megaport or NZIX to expand their presence*. Indeed, while these recent entrants are yet to announce detailed plans of expansion we anticipate that expansion into Wellington and other centres is likely given their success to date. Such expansion would be even more likely to occur in the event of any price increase by ExchangeNET;

(b) *Customers to switch more business to Megaport or NZIX*. For example, Data Centre @ 220 Queen Street now houses the APE, Megaport and NZIX. There are a number of ISPs that have equipment interconnected to both the APE and the NZIX or both the NZIX and Megaport or all three in the same premise. It means that if one information exchange were to increase its price or provide a reduced service (in some way) it would be easy to divert more traffic to the other information exchange – especially given that it is already housed within the same building; and / or

(c) *Customers to sponsor further new entry or expansion*. Given the very low costs to establishing a new peering exchange, ISPs and enterprise customers individually and collectively possess sufficient countervailing power to sponsor new entry.

8.81 In these circumstances, Spark would have no ability to increase the price or degrade the quality of the information exchange / peering services offered by ExchangeNET. The prevalence of numerous data centres and numerous connectivity providers make it easy to establish alternative information exchanges and so competitive alternatives could be readily established.

*No incentive to foreclose*

8.82 Furthermore, even if Spark had the ability to foreclose access to peering exchange services (which it would not), it would not have any incentive to do so.

8.83 Firstly, any attempt to foreclose access to peering exchange would not have material impact on the downstream competitiveness of other RSPs given:

(a) They could readily, and at low cost, access or establish an alternative peering exchange facility (for the reasons set out above).

(b) In any event, any cost impacts on an RSP from a peering exchange price increase would be negligible on its downstream competitiveness in the retail broadband market.

Peering exchanges typically only charge in the range of $350 to $500 per month to RSPs to connect to the information exchange server. Other costs incurred by customers of peering exchanges are paid to other suppliers, eg for:

(i) fibre connectivity from its local data hub or POP to the information exchange (typically this can be served by a dark fibre connection from a provider like Chorus, CityLink, or Vodafone for around $350-$500 per month for a metro link);

(ii) data centre charges - including a hosting fee and an intra data centre fibre charge. While hosting fees set by carrier neutral data centres vary, the cable connectivity fee is typically in the range of $100 per month to connect traffic between ISPs / enterprise customers exchanging traffic with each other and the information exchange.[53]

As the Commission will appreciate, if a peering provider charges an ISP as little as $350 per month to exchange all of its customers' Internet traffic with other ISPs and content providers, then the ISP's costs per end user associated with peering are negligible. If we assume, for example, that a small ISP exchanging information with other ISPs in Auckland or Wellington has only 1,000 customers, then the cost to cover the port charge equates to less than 30c per customer per month. An ISP with more customers would have even lower costs per customer. As such, even a 50% increase in the price (which would trigger further entry and switching) would have a negligible effect on the costs of the ISP and, accordingly, a negligible effect on its ability to provide a competitive price and service in the retail broadband market.

(c) Any attempt by Spark to increase peering exchange prices above competitive levels would put significantly greater local access fibre revenues at risk. A price increase would not only cause customers to switch away from ExchangeNET's peering service, but it would likely result in a loss of access revenues due to damaging the relationships with those customers.

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[53] Spark understands that as a competitive point of difference the Data Centre @ 220 Queen Street does not charge for the fibre cable connection service on a monthly basis (it has a one-off charge of ~$100) and so has created an independent hub of choice for a number of providers to interconnect.

Spark understands that today TeamTalk may provide ISPs with a combination of connectivity (ie local fibre access) and peering services. The market for local access connectivity is highly competitive with local fibre companies (LFCs), Chorus, Vocus, Vector, Vodafone, and others providing connectivity into the data centres in which the peering exchanges are hosted.

Accordingly, any attempt by Spark to increase peering exchange prices by even 5 - 10% would not only trigger new peering entry and an uneconomic loss of peering revenue, but also likely result in a significant loss of access / connectivity revenue, which is likely to significantly exceed the peering revenue, and would outweigh any possible benefit from any peering price increase.

8.84 Accordingly, Spark is confident that its acquisition of ExchangeNET will not have any material effect on competition in any market in New Zealand. Further detail / calculations demonstrating the above is also set out at **Appendix Six**.

## CONFIDENTIALITY

### 9. Reasons for seeking confidentiality

9.1 Confidentiality is sought in respect of the information in this application that is contained in square brackets. Confidentiality is sought for the purposes of section 9(2)(b) of the Official Information Act 1982 on the grounds that:

(a) the information is commercially sensitive and valuable information which is confidential to the participants; and

(b) disclosure would be likely unreasonably to prejudice the commercial position of the participants, as the parties providing the information.

Spark requests that it be notified of any request made to the Commission under the Official Information Act 1982 for release of the confidential information. Spark also requests that the Commission seek and consider Spark's views as to whether the information remains confidential and commercially sensitive at the time responses to such requests are being considered.

9.2 The foregoing equally applies in respect of any additional information provided to the Commission that is expressed to be confidential.

**DECLARATION**

I, **Simon Moutter**, have prepared, or supervised the preparation, of this notice seeking clearance.

To the best of my knowledge, I confirm that:

- all the information specified by the Commission has been supplied;
- if the information has not been supplied, reasons have been included as to why the information has not been supplied;
- all information known to me that is relevant to the consideration of this notice has been supplied; and
- all information supplied is correct as at the date of this notice.

I undertake to advise the Commission immediately of any material change in circumstances relating to the notice.

I understand that it is an offence under the Commerce Act to attempt to deceive or knowingly mislead the Commission in respect of any matter before the Commission, including in these documents.

I am a director / officer of the company and am duly authorised to submit this notice.

**Simon Moutter, Managing Director of Spark New Zealand Ltd**

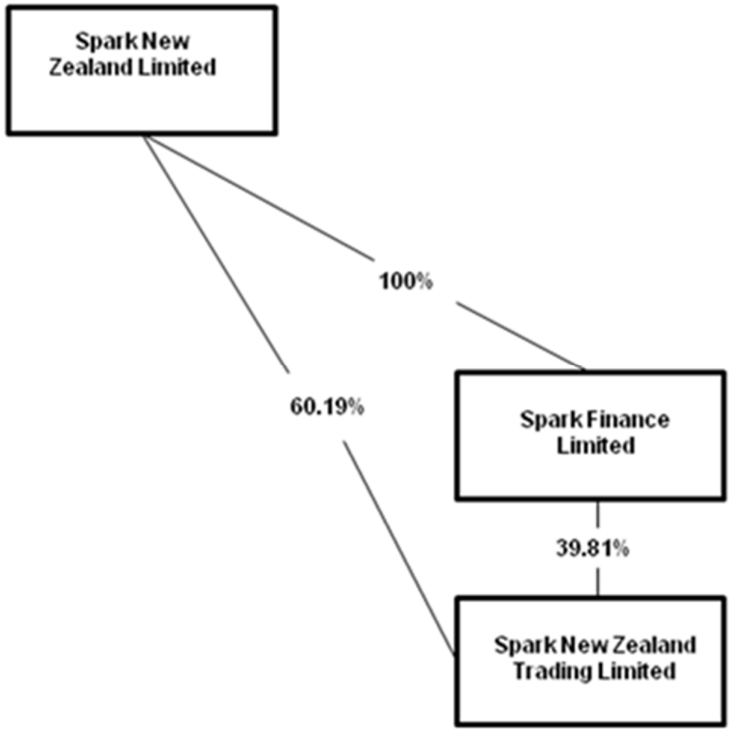
**Signature** **Date**

## APPENDIX ONE

## SPARK ORGANISATIONAL DIAGRAM

Spark New Zealand Trading Limited is ultimately 100% owned by Spark New Zealand Limited, which is listed on the New Zealand Stock Exchange.

The direct shareholdings in Spark New Zealand Trading Limited are shown below.

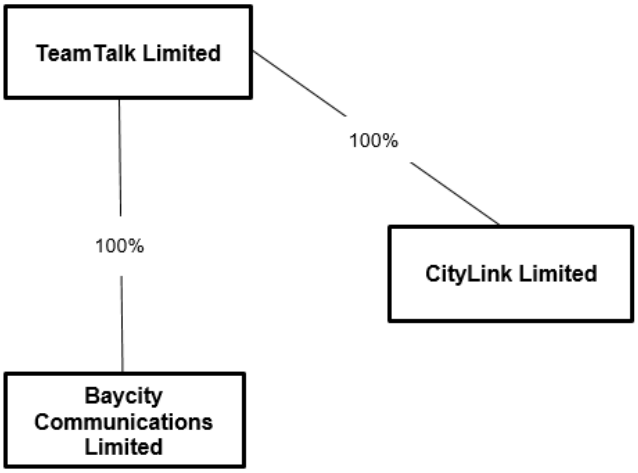


## APPENDIX TWO

## TEAMTALK ORGANISATIONAL DIAGRAM

TeamTalk Limited is listed on the New Zealand Stock Exchange (stock code: TTK).

TeamTalk Limited's direct shareholdings are shown below.



## APPENDIX THREE

## KEY SUPPLIERS, CUSTOMERS, INDUSTRY ASSOCIATIONS

| Name of entity | Contact details |
|---|---|
| **Fibre Network Asset Owners** | |
| Chorus | PO Box 632<br>Wellington 6140<br>Phone: (09) 300 1660<br>Email: info@chorus.co.nz<br>Website: https://www.chorus.co.nz/home |
| Northpower Fibre | 28 Mt Pleasant Road<br>Raumanga<br>Whangarei 0110<br>Phone: 0800 667 847<br>Website: http://northpowerfibre.co.nz/ |
| Ultrafast Fibre | 11 Ken Browne Drive<br>Te Rapa<br>Hamilton 3200<br>Phone: 0800 342 735<br>Website: http://www.ultrafastfibre.co.nz/ |
| Unison fibre | 1101 Omahu Road<br>Hastings<br>Hawke's Bay 4175<br>Phone: 0800 2 86476<br>Website: http://www.unison.co.nz/ |
| Vector Communications | 101 Carlton Gore Road<br>Newmarket<br>Auckland 1023<br>Phone: (09) 978 7788<br>Website: https://vector.co.nz/home |
| Vocus Communications | Vocus House, Level 4<br>25 Teed Street<br>Newmarket<br>Auckland 1023<br>Phone: 0800 862 876<br>Website: http://www.vocus.co.nz/ |
| Vodafone | 20 Viaduct Harbour Avenue,<br>Auckland 1010<br>Phone: (09) 355 2000<br>Website: http://www.vodafone.co.nz/ |
| **Data Centres** | |
| NorthCloud | PO Box 1322<br>Level 1, 113 Bank Street<br>Whangarei 0110<br>Freephone: 0800 700 130<br>Phone (09) 470 0100<br>Website: http://www.northcloud.co.nz/ |
| Datacom | 210 Federal Street<br>Auckland CBD<br>Phone: (09) 303 1480<br>Website: http://datacomgroup.eu/ |
| IBM | Level 4, 30 Gaunt Street<br>Wynyard Quarter<br>Auckland 1010<br>Freephone: 0800 801 800 |

| Name of entity | Contact details |
|---|---|
| | Phone: (04) 576 5999<br>Website: https://www.ibm.com/nz-en/?lnk=m |
| Hewlett-Packard | PO Box 3860<br>Level 5, 22 Viaduct Harbour<br>Auckland 1010<br>Freephone: 0508526015<br>Phone: (09) 9133697<br>Website: http://www8.hp.com/nz/en/home.html |
| Fujitsu | Level 12, 141 The Terrace<br>Wellington 6011<br>Phone: (04) 495 0700<br>Website: http://www.fujitsu.com/nz/ |
| Unisys | Level 12, Radio New Zealand House<br>155 The Terrace<br>Wellington 6011<br>Website: http://www.unisys.co.nz/ |
| Vocus | Level 4, 25 Teed Street<br>Newmarket<br>Auckland 1023<br>Freephone: 0800 862 876<br>Phone: (04) 498 9640<br>Website: http://www.vocus.co.nz/ |
| Orcon | PO Box 302362<br>Level 2, 1 The Strand<br>Takapuna<br>Auckland 0622<br>Freephone: 0800 13 14 15<br>Phone: (09) 444 4414<br>Website: https://www.orcon.net.nz/ |
| Unleash | Freephone: 0800 750 250<br>Phone: (03) 365 1273<br>Email: sales@unleash.co.nz<br>Website: http://www.unleash.co.nz/ |
| Iconz | 60 Airedale Street<br>Auckland 1010<br>Freephone: 0800 843 638<br>Phone: (09) 977 3500<br>Website: http://iconz.net/ |
| Jade | PO Box 20152<br>5 Sir Gil Simpson Drive<br>Christchurch 8053<br>Phone: (03) 365 2500<br>Email: info@jadeworld.com<br>Website: https://www.jadeworld.com/ |
| DTS | PO Box 40623<br>Upper Hutt 5140<br><br>Level 4, CBD Towers<br>84-90 Main Street<br>Upper Hutt 5018<br>Freephone: 0508 387 669<br>Phone: (04) 918 0160<br>Website: http://dtsanz.com/ |
| TheCloud Limited | Waikato Innovation Park<br>Tetra Pak Building<br>3 Melody Lane<br>Ruakura |

| Name of entity | Contact details |
|---|---|
| | Hamilton<br>Freephone: 0800 425 383<br>Email: info@thecloud.net.nz<br>Website: http://www.thecloud.net.nz/ |
| The Data Centre | PO Box 2502<br>Auckland 1140<br><br>First Floor<br>220 Queen Street<br>Auckland 1010<br><br>Phone: (09) 304 0737<br>Email: inquiries@datacentre.co.nz<br>Website: http://www.datacentre.co.nz/ |
| Catalyst IT | PO Box 11053, Manners Street<br><br>Level 6, Catalyst House<br>150 Willis Street<br>Wellington 6011<br><br>Phone: (04) 499 2267<br>Website: http://www.catalyst.net.nz/ |
| HD | 11c Piermark Drive<br>Rosedale<br>Auckland 0632<br>Phone: (09) 280 4135 / (04) 947 8139<br>Website: https://www.hd.net.nz/ |
| Data Vault (owned by Compass) | 162 Grafton Road<br>Auckland<br>Freephone: 0508 328 282<br>Website: http://www.datavault.net.nz/ |
| Plan B | 23 Arrenway Drive<br>Rosedale<br>Auckland 0632<br>Phone: (09) 916 6054<br>Email: info@planb.co.nz<br>Website: http://www.planb.co.nz/ |
| Net24 | PO Box 911190<br>Victoria Street West<br>Auckland 1142<br>Freephone: 0800 5000 24<br>Phone: (03) 962 9510<br>Website: https://www.net24.co.nz/ |
| Dimension Data | Dimension Data House, Level 1<br>99-105 Customhouse Quay<br>Wellington 6011<br>Phone: (04) 470 1650<br>Website: http://www2.dimensiondata.com/en-NZ |
| Advantage Computers Limited | 46 Grey Street<br>Palmerston North<br>Manawatu 4410<br>Phone: (06) 358 8999<br>Website: http://www.advantage.co.nz/ |
| Advanced Data Centres | PO Box 1522<br>Level 1, 35 Robert Street<br>Whangarei 0110<br>Freephone: 0800 002 632 |

| Name of entity | Contact details |
|---|---|
| | Phone: (09) 430 4440<br>Website: http://www.adcl.co.nz/ |
| Waka Digital | Unit 6/144 Third Avenue<br>The Avenues 3110<br>Tauranga<br>Phone: (07) 578 4991<br>Email: info@wakadigital.co.nz<br>Website: https://www.wakadigital.co.nz/ |
| Umbrellar | PO Box 302829<br>North Harbour<br>Auckland 0751<br><br>3/78 Apollo Drive<br>Rosedale<br>Auckland 0632<br>Freephone: 0800 344 493<br>Phone: (03) 961 9550<br>Website: https://www.umbrellar.nz/ |
| Oxygen IT | Unit 5, 31 Carlyle Street<br>Sydenham<br>Christchurch 8053<br>Freephone: 0800 699 436<br>Phone: (03) 365 9905<br>Website: http://oxygenit.nz/ |
| CommArc | Level 2, 12 O'Connell Street<br>Auckland 1010<br>Freephone: 0800 338 0414<br>Email: info@commarc.co.nz<br>Website: http://www.commarc.co.nz/ |
| Earthlight | Level 2, 31 Stafford Street<br>Dunedin 9016<br>Phone: (03) 477 5774<br>Email: office@earthlight.co.nz<br>Website: http://www.earthlight.co.nz/ |
| **Selection of RSP Competitors** | |
| 2 Degrees | PO Box 8355<br>Symonds Street<br>Auckland, 1150<br>New Zealand<br>Phone: 0800022022<br>Website: https://www.2degreesmobile.co.nz/ |
| Actrix | 86 Victoria St<br>Te Aro<br>Wellington 6011<br>Phone: 0800 228 749<br>Website: https://www.actrix.co.nz/ |
| Blue Reach | Level 10, SAP Tower<br>151 Queen Street<br>Auckland Central<br>Auckland 1010<br>Phone: 0800 258 344<br>Website: http://www.bluereach.co.nz/ |
| CallPlus | 110 Symonds St<br>Grafton<br>Auckland 1010<br>Phone: 0800 895 000<br>Website: https://www.callplus.co.nz |

| Name of entity | Contact details |
|---|---|
| Compass | 162 Grafton Rd<br>Grafton<br>Auckland 1140<br>Phone: (09) 965 2200<br>Website: https://compass.net.nz/ |
| Inspire | 325 Main Street<br>Palmerston North 4410<br>Phone: (06) 357 8559<br>Website: https://www.inspire.net.nz/ |
| Kordia | Level 3, 162 Victoria Street West<br>Auckland 1140<br>Phone: (09) 551 7000<br>Website: https://www.kordia.co.nz/ |
| Lightwire | PO Box 9361<br>Hamilton 3240<br>Phone: 0800 12 13 14<br>Website: https://www.lightwire.co.nz/ |
| Megatel | PO Box 305 292<br>Triton Plaza, Albany<br>North Shore City<br>New Zealand<br>Phone: (09) 912 1200<br>Website: www.megatel.co.nz |
| My Republic | PO Box 37540<br>Auckland<br>Phone: 0508 6934273<br>Website: https://myrepublic.net/nz |
| TeamTalk | PO Box 11619<br>Ellerslie<br>Phone: (09) 579 0646<br>Website: http://www.teamtalk.co.nz/home |
| Trustpower | Private Bag 12023<br>Tauranga Mail Centre<br>Tauranga 3143<br>Phone: 0800 87 87 87<br>Website: https://ask.trustpower.co.nz/ |
| Vibe Communication | Level 2, 155 Karangahape Road<br>Auckland<br>Phone: 09 222 0000<br>Website: www.vibecommunications.co.nz |
| Vodafone | 20 Viaduct Harbour Avenue<br>Auckland 1010<br>Phone: 09-355 2000<br>Website: www.vodafone.co.nz/ |
| Voyager | PO Box 137272<br>Parnell<br>Auckland 1151<br>Phone: (09) 444 4444<br>Website: https://voyager.nz/support/ |
| Wired Country | Glasgow Road<br>Pukekohe<br>Franklin<br>Auckland<br>Phone: 0800 800757<br>Website: http://www.wiredcountry.net.nz/ |
| **Industry Bodies** | |

| Name of entity | Contact details |
|---|---|
| NZ Telecommunications Forum | PO Box 302469<br>North Harbour<br>Auckland 0751<br>Phone: 09 475 0203<br>Website: http://www.tcf.org.nz/ |
| New Zealand Technology Industry Association | PO Box 302469<br>North Harbour<br>Auckland 0751<br>Phone: 09 475 0204<br>Email: info@nztech.org.nz<br>Website: http://www.nztech.org.nz/ |
| **Mobile trunked radio network owners** | |
| Kordia | Level 3, 162 Victoria Street<br>PO Box 2495<br>Auckland<br>Phone: 0800 567342 (0800 KORDIA)<br>Website: http://www.kordia.co.nz/ |
| **Digital Microwave Radio providers** | |
| Chorus | As above |
| Kordia | As above |
| Vodafone | As above |
| **Peering exchange providers** | |
| NZIX | c/- Botting Legal Limited<br>Level 6, 59-67 High Street<br>Auckland<br>Phone: (09) 888 9221<br>Email: info@akl-ix.nz<br>Website: https://ix.nz/ |
| Megaport | L4, 825 Ann Street<br>Fortitude Valley<br>Brisbane<br>Queensland<br>Australia<br>Phone: +61 7 3088 7400<br>Website: https://www.megaport.com/ |

## CONFIDENTIAL APPENDIX FOUR

## FIBRE NETWORK MAPS

These maps are included in a separate PowerPoint document.

## APPENDIX FIVE

## PEERING EXCHANGE CUSTOMERS

*Figure Nine – Number of customers at ExchangeNET's peering exchanges*[54]

| | **APE (Auckland)** | **HIX (Hamilton)** | **WIX (Wellington)** | **CHIX (Christchurch)** | **DPE (Dunedin)** |
|---|---|---|---|---|---|
| Number of organised to peer with the servers at that exchange | 84 | 2 | 89 | 12 | 12 |

*Figure Ten – The customer type of the new peering exchanges*

| | **APE** | **NZIX** | **Megaport** |
|---|---|---|---|
| Total connected | 84 | 47 | 28 |
| NZ ISPs | 34 | 25 | 14 |
| International ISPs | 3 | 3 | 1 |
| Enterprises | 43 | 15 | 9 |
| Content delivery networks | 4 | 4 | 4 |
| Peak data (Gbps) | 19 | 18 | 19 |
| Average data (Gbps) | 11.2 | 9.2 | ~8 |

[54] Based on public information available to Spark.

*Figure Eleven - ExchangeNET - APE Connected Parties*

| | | | |
|---|---|---|---|
| ABC IP | Gareth Morgan Investments | NZ Post | Telstra Network Services NZ Ltd |
| ACS Linuxnet | GlobiCom Limited | NZwireless | Trade Me |
| Actrix | HD NET LTD | PCH | Tui Gateway |
| AdvantageComputers | Hitech Solutions | PCH1 | UoA |
| Akamai | Horizon Pacific Group | PipeNetworks | Vector Communications |
| ATT Global | ICONZ | Plain | Vocus |
| AUT | ISC F Root | Plan-B | Vodafone IHUG |
| BayCity Communications Limited | jsr.com | REANNZ | Vorco |
| Blue Door Corporation Ltd | Kordia NZ | Revera | Voyager Internet |
| Brennan IT | Massey University | Rural Link | Web Drive |
| CallPlus | Maxnet | SafeNZ | WebSlice |
| Citylink Corp | MediaTribe Limited | SDS | Westpac |
| CloudFlare Inc | Michael Jager Research Port | Servers Australia | WirelessNation Ltd |
| Cloudplus | Microsoft | SiteHost | World Exchange |
| Compass | Mikipro Ltd | SMX | WorldNet |
| Datacom | MyRepublic NewZealand | Snap Internet Limited | Yellow Pages Group |
| DataLight Ltd | National Communications Corporation | Solarix | |
| DMZ Global | Netspace Services | Splice Networks Net NZ | |
| Equinox Limited | Network for Learning | Stratanet | |
| FeeniX Communications | New Era IT | Swizzle | |
| Flip Services | New Zealand Domain Name Registry | Symbio Networks | |
| Full Flavour | NOW New Zealand Limited | Telesmart Ltd | |
| FX Networks | NZ Lotteries | | |

*Figure Twelve- NZIX - AKL IX Connected Parties*

| | | |
|---|---|---|
| 2degrees (AS23655) | HD Net (AS24466) | Trade Me (AS9834) |
| 2Talk (AS55561) | Inspire (AS17705) | Uber (AS45230) |
| ACS Data (AS18119) | LanWorx (AS131291) | Vector |
| Actrix (AS9872) | Lightwire (AS45267) | Velocity (AS132268) |
| Akamai (AS20940) | Maxumdata (AS55785) | Vetta (AS132918) |
| BTG Networks (AS56028) | Microsoft (AS8075) | Vibe (AS45177) |
| Callplus (AS9790) | MikiPro (AS132347) | Virtutel (AS24516) |
| Cloudflare (AS13335) | Mothership (AS133096) | Vocus (AS4826) |
| Compass (AS9245) | NowNZ (AS9876) | Vorco (AS58666) |
| Concepts (AS4049) | NZ Technology (AS45280) | VostroNet (AS63920) |
| Connectivity IT (AS58511) | Omninet (AS132881) | WAIA (AS10084) |
| DTSanz (AS24183) | PlanB (AS132240) | WIC (AS38437) |
| Enhanced Solutions (AS133043) | Servers Australia (AS45672) | Wireless Nation (AS132449) |
| Fastcom (AS18015) | Sitehost (AS45179) | Webslice (AS132919) |
| FX Networks (AS9503) | Solarix (AS23838) | Wombat Servers (AS133480) |
| Full Flavour (AS132857) | Telesmart (AS133075) | Xtreme (AS18400) |

*Figure Thirteen - Megaport IX Connected Parties*

| | |
|---|---|
| PrimoWireless Ltd | Wanna Internet Limited |
| Vibe Communications | Akamai International B.V. |
| Hitech Solutions | Tangelo Services |
| Plan B Limited | Feenix Communications |
| Telesmart | 2talk Ltd |
| UberGroup | Servers Australia |
| Wireless Nation | DTS |
| Inspire Net Limited | Digital Island |
| Verizon Digital Media Services Inc | Automattic |
| New Zealand Technology Group | Microsoft |
| Networks | Field Solutions |
| Two Degrees New Zealand Limited | Kordia New Zealand |
| NOW NZ | Vetta Online Ltd |
| MyRepublic NZ | Netflix |

*Figure Fourteen - ExchangeNET - WIX Connected Parties*

| | | | | |
|---|---|---|---|---|
| 3CIX | DMZ Global | Juniper | NZ Post | The Laptop Company |
| ACS Linuxnet | Domainz | Katipo-CL | NZRS | Trade Me |
| Actrix | dotNZ Registry Service rPKI testing | Knossos Duxton | NZwireless | Tui Gateway |
| AdvantageComputers | DTS | Knossos Networks | Orcon Ltd | TVNZ |
| Asnet Technologies Ltd | Equinox Limited | Kordia NZ | Parliamentary Services | Unisys |
| ATP | Ermanz | LearningMedia | PCH | Unleash Computers |
| ATT Global | Fastcom | Massey University | Revera | Vibe Communications |
| Autonomica AB | FeeniX Communications | MetService | SafeNZ | Vodafone IHUG |
| BDT | Flatnet | MfE | SDN Controller | VUW |
| Breathe | Fronde | Michael Jager Research Port | SDS | VUW-CSW |
| Business Online | FX Networks | Microsoft | Snap Internet Limited | VUW MLAB |
| CallPlus | Gareth Morgan Investments | MinEdu | Solarix | WCN |
| Catalyst Avalon | ICONZ | Modica | Solnet Solutions | Wellington City Council |
| Catalyst IT | Inland Revenue Department | NatLib | Telesmart Ltd | Wellington Schools Loop Network |
| CDP Group | Inspire Net | Netspace Services | Te Puni Kokiri | World Exchange |
| Citylink Corp | Intergen | NIWA | Teritary Education Commission | Xtreme Networks |
| Datacom | Internet NZ | NOW New Zealand Limited | The Cloud | |

## APPENDIX SIX

## PEERING EXCHANGE – VERTICAL ARITHMETIC

The following formula illustrates some of the key costs a New Zealand ISP incurs to demonstrate, using vertical arithmetic, why Spark would have no incentive (even if it had the ability, which it would not) to foreclose other ISPs/RSPs from accessing ExchangeNET's peering exchanges:

**Ci= O+LI+A+P+T+B**

Where

**Ci** = the ISPs total costs

**O** = the ISPs own internal costs, including the costs of its own data servers, point of presence, staff costs, and so forth. These costs are spread across the ISPs entire customer base;

**L** = the "last mile" local access charge to connect the ISPs end user to the ISPs point of presence. This is usually the copper or fibre connection into an end-user's home or business plus backhaul to the ISPs POP from the local exchange. This is the largest cost item and starts at around $40 per bitstream connection per month + backhaul (which starts at $738 per month for a 50Mbps connection).[55]

**A** = the regional access charges it pays to LFCs, Chorus, etc to connect from its point of presence to the peering exchanges or other ISPs information hubs and out to the Internet in other countries. This includes local access, regional, national and international access connections.

**P** = the peering charge – this is payable to providers like ExchangeNET as discussed above. The peering charge is typically in the region of $350 and spread across all of the ISPs customers

**T** = the tie cable charge for connections within the data centre in which the peering / information exchange service is provided ($100) is spread across all customers.

**B**= the backhaul charges to connect to more distant information exchanges of other ISPs in New Zealand and internationally ($varies).

Assumptions

If we assume that total costs per customer connection are approximately $50-$55 + GST per month and a tier 2 or 3 ISP has a minimum of 1,000 retail customers it will be evident that the $0.285 relative cost of peering is an insignificant portion of its costs. For larger ISPs with 2,000 or 4,000 customers, the costs per customer for all components other than L decrease with scale.

It will be evident that if ExchangeNET were to increase the price of its peering service by 10% (which we consider would likely be sufficient to cause switching and new entry/expansion) it would have a *de minimis* effect on an ISP's overall costs per end user ($0.03 maximum for a small ISP) and accordingly have no effect on retail pricing. However, if it resulted in churn of either ExchangeNET's peering customers or its access service customers (or both) it would be economically detrimental to TeamTalk / Spark.

[55] See 2.1 of Schedule 2 to the UBA Backhaul Standard Terms determination. Available at http://www.comcom.govt.nz/regulated-industries/telecommunications/regulated-services/standard-terms-determinations/unbundled-bitstream-access-uba-services/uba-backhaul/.