

MARKET ANALYSIS

New Zealand Telecommunications Market 2008–2012 Forecast and Analysis

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IDC OPINION

New Zealand's broadband market is poised on the brink of strong growth, with broadband connections increasing 79% to 1.5 million subscribers by 2012, according to IDC's New Zealand telecommunications forecasts.

New Zealand's broadband penetration, based on connections per 100 inhabitants, will double to over 34 from 16.5 in June 07, driven by strong growth in copper-based xDSL technologies. This will improve our OECD broadband penetration to where leading broadband markets are today, but we do not estimate it will significantly improve our ranking given continued growth and saturation in leading markets over the next five years.

From 2008, the market will be dynamic, more customer focused, but also extremely volatile. The nature of competitive investment, the effectiveness of the new regulatory framework, and the full impact of Telecom's operational separation and next-generation network (NGN) strategy creates complex interrelationships and the potential for very diverse outcomes.

IDC is assuming steady rather than stellar competitive growth. We anticipate the emergence of new full-service competitors that provide a bundle of voice, broadband and mobile services eroding telecom's market share, but Telecom will continue to be the most powerful market player unless there is a truly disruptive change through acquisition or consolidation amongst the market leaders. Competitive infrastructure through unbundled copper local loop (UCLL) will be limited to central city sites and urban areas, although we anticipate new forms of industry collaboration and public/private partnership (PPP) funding models that will drive municipal fibre and rural investment.

IDC forecasts include:

- Total broadband revenue growth of 58% to NZ\$782 million, of which NZ\$577 million will be xDSL technologies, driven by the top line increase in subscriber numbers.
- Steady decline in New Zealand's traditional public switched telephone network (PSTN) voice market, with an annual reduction of 5–7% in PSTN lines, and a 21% decline in total calling revenue, to NZ\$1.323 billion by 2012. This will be driven by growth in voice over broadband or 'IP' services (VoIP), migration to next-generation technologies and mobile substitution.
- Total mobile penetration – which shows the number of active connections across the population - increasing to 111% over the forecast period. Total subscriber numbers will grow 14% to 4.9 million active connections. There will be significant

growth in wideband code division multiple access (WCDMA) services in operation, more commonly known as third generation mobile (3G). This will lead to an increase in 3G connections from 3% of today's total market share to 55% by 2012, driven strongly in the latter part by Telecom's migration from its legacy CDMA network prior to potential closure. However, the battle for mobile power will remain firmly between Telecom and Vodafone, with new entrants and mobile virtual network operators (MVNOs) carving niche roles.

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IN THIS STUDY

Methodology

IDC employs a combination of primary and secondary research in analysing, sizing, and forecasting the New Zealand telecommunications market. Interviews were conducted with key service providers, government sources, and other key interest groups within the telecommunications ecosystem. Secondary research sources include financial statements, published statistics and Commerce Commission monitoring reports, OECD data, international IDC forecasts and methodology, and published news. All information has been collated, reconciled, and cross-checked for consistency.

This study is IDC's first integrated market analysis and forecast for New Zealand's Internet, voice, and mobile markets over the next five years. It provides IDC's analysis of the current and future drivers and barriers for the New Zealand market, incorporating international trends, macro-economic factors, the competitive environment, technologies, and services. These underpin our detailed market development scenario and forecast assumptions.

SITUATION OVERVIEW

The New Zealand Market Today

2007 represented a watershed for New Zealand's telecommunications industry. If 2006 was the year of developing the competitive blueprint for the industry, 2007 was the year of site preparation and groundwork. It was a year when the industry's inward focus and regulatory lobbying lead took precedence over new investment and services. 2008 will mark early execution.

IDC believes there were four key changes in 2007 that will shape the sector going forward:

- ☒ **The introduction of Unbundled Copper Local Loop (UCLL) competition.** There is considerable hype around UCLL, from would be investors - and also considerable debate about the impact of Telecom's extensive fibre-to-the-node (FTTN) plans and whether it would marginalize that investment. Telecom reached an agreement with the Commerce Commission not to re-engineer its traditional PSTN voice network, and instead invest \$NZ1.4 billion in broadband upgrades and fibre-to-the-cabinet, although much of this capital was already pre-committed. The net result is that high-speed broadband will be available on up to 80% of New Zealand lines, incorporating towns of just 500 lines or more. The scale of this rollout is much wider than many international FTTN initiatives. Focus is shifting now to competitive access to fibre-fed cabinets (sub-loop unbundling); however, viable cabinet investment will be a challenge for competitors, leading to a greater reliance on wholesale bitstream access.

- ☒ **Broadband became an economic and political problem.** Fibre investment debate underwent a subtle but significant shift, from being an industry-specific problem to a shared economic issue. Explicit recognition that world-class telecommunications is central to New Zealand's growth and export future has led to a new language of cooperation between the industry, investors, and

government on required shared fibre network investment. Whilst the government has the ability to drive infrastructure development for economic and public good at a lower cost of capital, it must also balance its approach with one that will not inadvertently distort market outcomes.

☒ **The regulator became industry grounds man, umpire, and even goalkeeper.**

The NZ regulatory, the Commerce Commission, enacted the government's far-reaching regulatory framework, not only bringing New Zealand into line with international markets but also breaking new ground. The three-way separation of Telecom, the mandating of standalone broadband connections (Naked DSL), and competitive access to Telecom's new fibre cabinets (sub-loop unbundling) has put New Zealand on a regulatory cutting edge. A downside is that some alternative carriers are relying on the regulator, not just for fair terms of access but also for their business case: 2008 will be the litmus test of both the new determinations and competitive outcomes.

☒ **The industry consolidated for full service scale.** Telecom recast itself as a "cooperative competitor." Vodafone acquired and integrated the Internet Service Provider (ISP) ihug, network provider Kordia acquired the service provider Orcon, and four ISPs signed wholesale deals to offer mobile service. Prospective mobile entrant, NZ Communications, moved on its mobile network plans; CallPlus trialled the new wireless technology, WiMAX. TelstraClear was notable for its absence from this competitive jockeying.

The challenge now lies in execution. The success or otherwise of operational separation and the new regulatory regime will be critical. If the separation of Telecom fails to deliver strong full-service competition; if it means Telecom's resources, market power, and scale allow it to capitalise on FTTN and new next-generation services at the expense of other carriers, despite best regulatory efforts, then we risk status quo. If, however, we can recast (again) the competitive and regulatory model to one of infrastructure sharing where needed, competitive investment where viable, and fair, open network access where necessary then compete fiercely on services, we have a potential model for sustainable growth.

International context

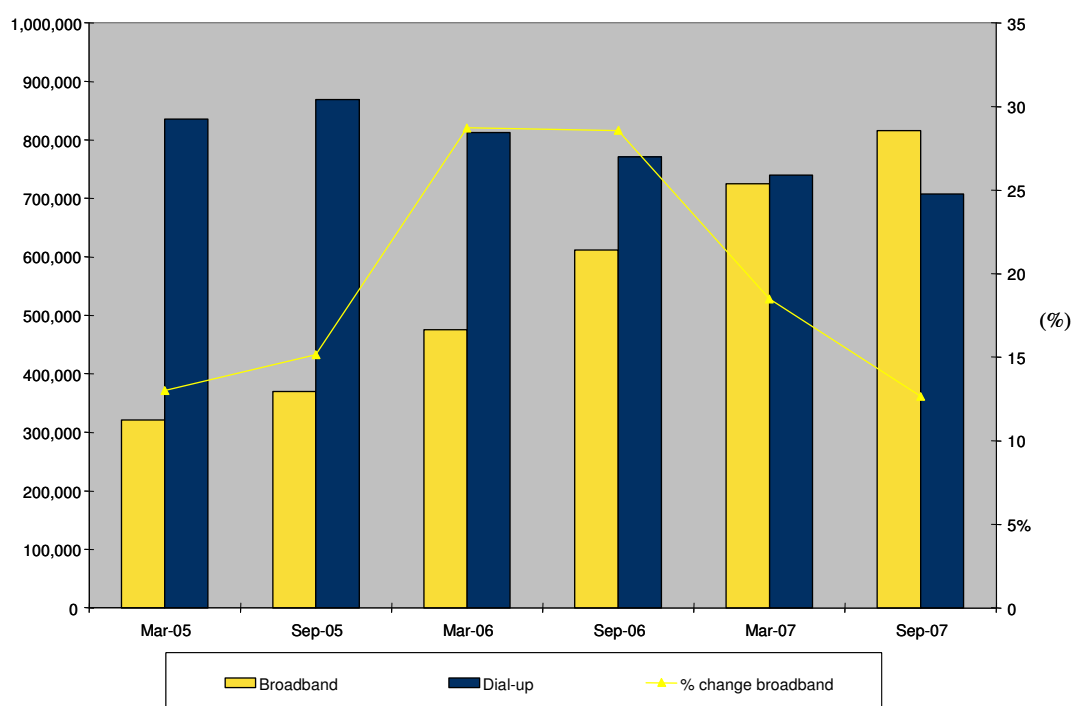
Broadband: Running Hard to Bring Up the Rear

The New Zealand government's goal for New Zealand is to be in the top quartile of OECD broadband markets by 2015. This is a significant challenge: New Zealand is currently ranked 20 out of the top 30 OECD markets and lags global leaders on a number of metrics.

New Zealand had a reported total of 816,239 broadband connections including cellular datacards by September 2007, only marginally ahead of dial-up subscribers, which comprise 46% of all Internet connections. Whilst the annual 2007 growth rate was strong at 39%, this is half the 65% growth posted over 2006, and growth slowed to just 13% in the six months to September 2007, as shown in Figure 1.

FIGURE 1

New Zealand Internet Connections, 2005–2007

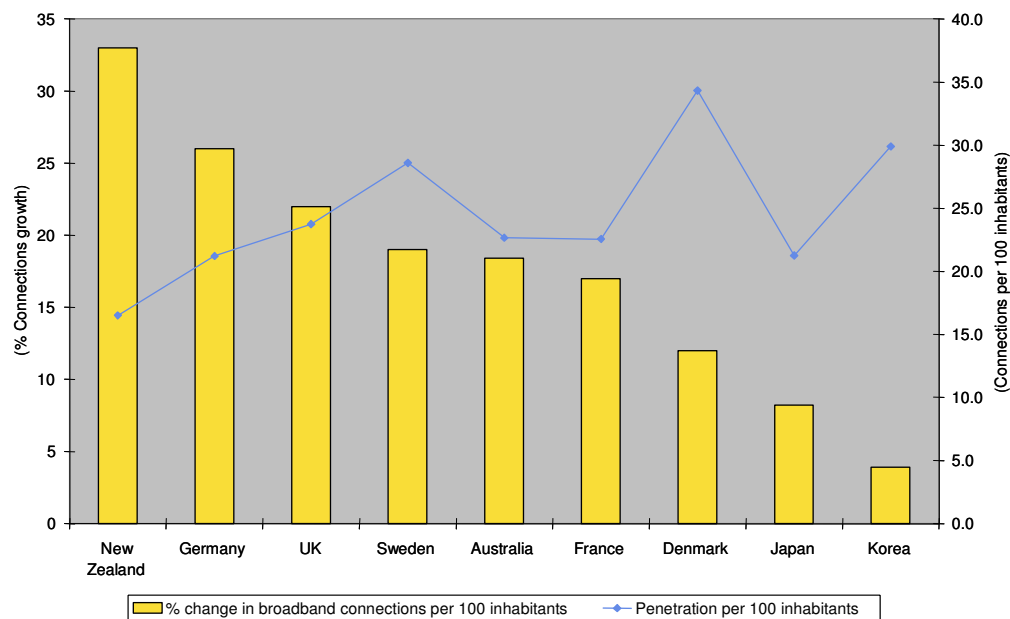


Sources: IDC, 2007, NZ Department of Statistics

When benchmarked against leading broadband markets, New Zealand's estimated 39% growth for FY07 is higher than more saturated broadband countries but from a lower base. Penetration remains low, limited to 16.5 broadband connections per 100 inhabitants at the end of the September quarter, well behind the OECD average of 18.8 across 30 countries and the 21–34 penetration rate in other developed broadband markets.

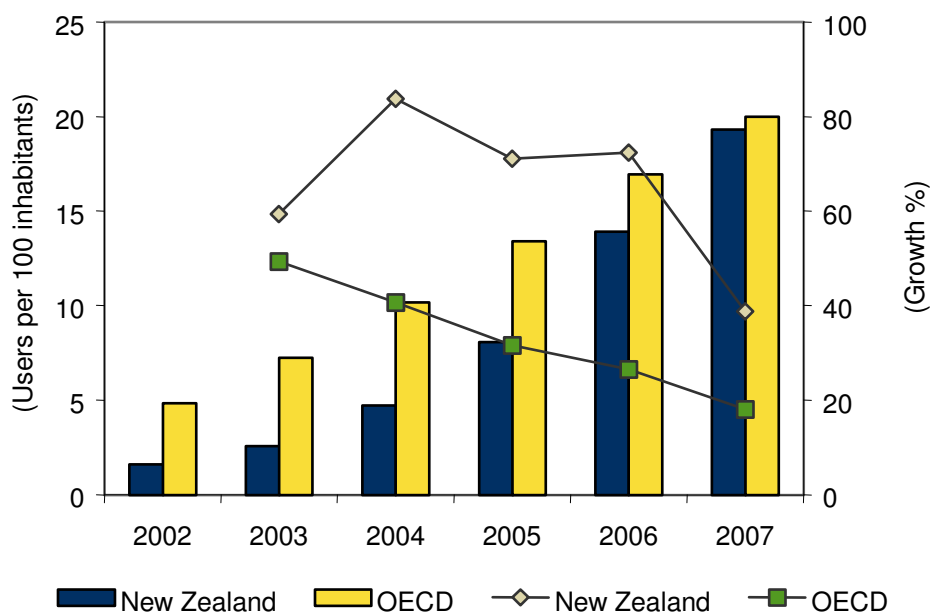
FIGURE 2

Broadband Growth and Penetration in Developed Broadband Markets



Sources: IDC Western European Broadband forecasts, IDC Asia/Pacific Broadband Forecasts, OECD Broadband Statistics

Since 2003, New Zealand has demonstrated a consistently higher rate of broadband penetration growth than the OECD average but from a lower base (see Figure 3). As outlined in the forecast section of this study, IDC predicts New Zealand will move ahead of the OECD average broadband penetration rate in late 2008 or early 2009. This will improve our broadband penetration to where leading markets are today by 2012, but we do not estimate it will significantly improve our ranking given continued growth and saturation in leading markets over the next five years.

FIGURE 3**New Zealand Versus OECD Broadband Penetration**

Note: 4Q07 data is estimated, as OECD figures for 4Q07 had not been released at the time of release of this document.

Source: IDC, 2007

The Throttle on Speed

The world's leading broadband markets currently offer broadband speeds from 12Mbps in Norway and Australia to 44Mbps in France and Korea and 94Mbps in Japan. Whilst New Zealand broadband speeds have increased from 2Mbps to less than 10Mbps with the introduction of unbundled wholesale bitstream products, these are largely theoretical. Most Internet Service Providers (ISPs) will only promise customers with "maximum download speeds available." This is due to contention (the number of users being served by an exchange) and long average local loop lengths of 2km and up to 4km, which limit availability, speed, and performance. Over the next four years, network upgrades and cabinetisation will deliver better high-speed coverage and improve delivery to a minimum of 10Mbps and up to 20Mbps by 2012 — but this will only match the current capability of top ten OECD performers, rather than delivering leadership.

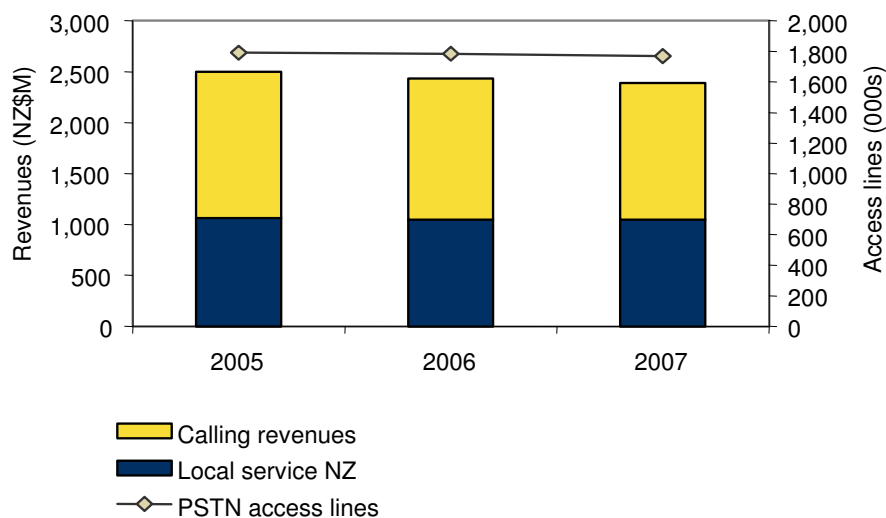
Voice Services: An Emerging Battleground

In 2007, Telecom had a first real taste of competition in the residential home phone market. ISPs began to offer local homephone as well as toll calling services as part of a customer landgrab, despite extremely tight margins limiting lower price offers on fixed monthly charges. By June 2007, wholesale residential telephone connections had increased 73.5% to 118,000, but represented only 11% of the total connections. Whilst there are a number of voice over IP or broadband (VoIP) services available, IDC estimates connections are approximately 25,000, with few adopted as primary replacement lines for the traditional fixed voice network.

As Figure 4 shows, Telecom's continued strength in traditional telephony means there has been only marginal 4% erosion in the total PSTN connections and a 2% reduction in calling revenues in the year to June 2007.

FIGURE 4

New Zealand PSTN Access Lines and Revenues, 2005–2007



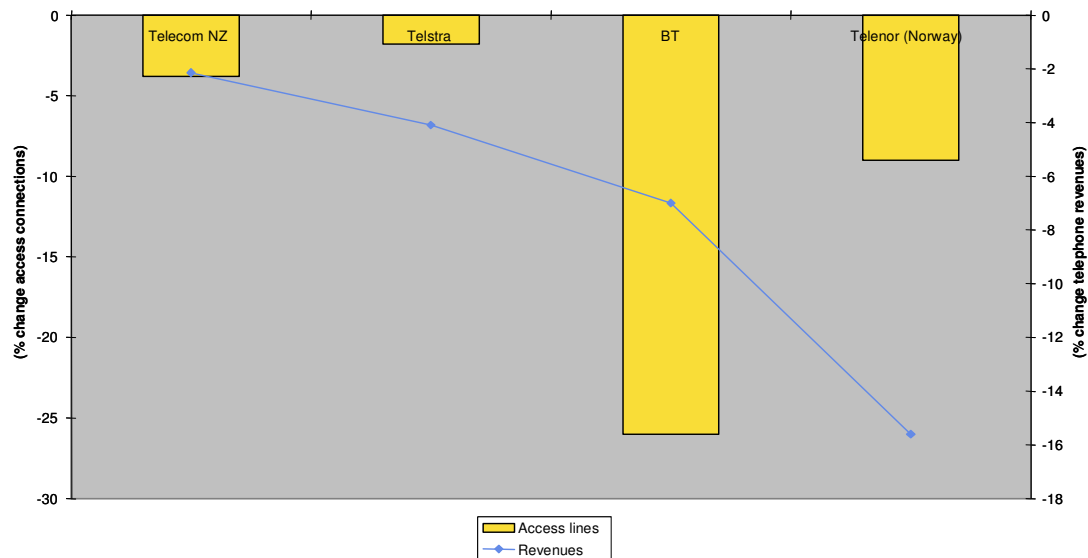
Source: Telecom New Zealand Annual Report 2007

This shows the degree of Telecom's reliance on traditional voice income as a high margin cash resource. Telecom's 2007 fixed telephony revenues comprised 42% of Telecom's total operating revenues. By comparison, fixed telephony comprised 30% of Telstra's service revenues in Australia, 33% of BT's in the United Kingdom, and just 20% of Telenor's revenues in Norway where broadband penetration is very high and Naked DSL is available.

The potential for erosion is shown in Figure 5, which compares changes in access lines and revenues between Telecom and other international incumbents. Telstra Australia managed to stabilise its rate of decline in the number of PSTN telephone access lines over 2007. However, BT in the United Kingdom and Telenor in Norway posted declines of 9% and 26%, whilst calling revenues declined from between 4% for Telstra to 16% for Telenor. Emerging competition as a result of UCLL, , Naked DSL (broadband without a homephone), and aggressive mobile pricing will erode Telecom's position: indeed in 3Q07, Telecom attributed a 15% decline in revenues and lower volumes to fierce toll competition and mobile substitution.

FIGURE 5

Percentage Change in PSTN Access Lines and Revenues, 2006–2007



Source: Published company financial data

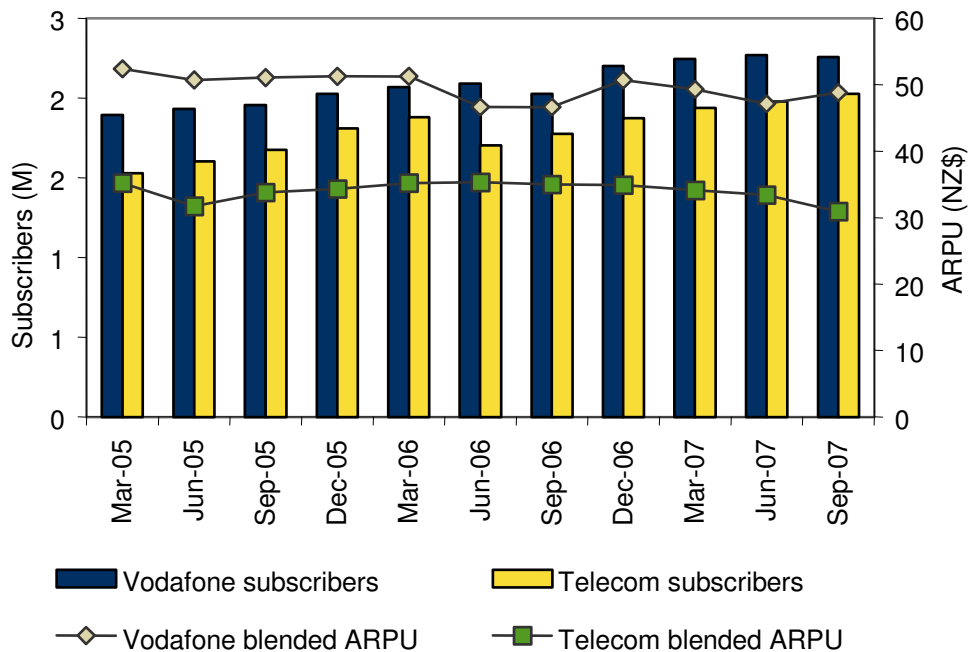
Mobile Market – Saturated but Costly

New Zealand’s mobile market is saturated, with 104% penetration per 100 inhabitants. This ranks it at tenth worldwide, alongside Finland, Norway, and Iceland, compared with the average OECD penetration of 80%. This is continuing to grow as new data products drive connections. Three quarters of subscribers are on prepay connections.

However, as a duopoly between Vodafone (53% market share, September 2007) and Telecom (47% share), the mobile market has yet to see the cut-price commoditisation of voice and text experienced in other more competitive markets. By international standards, pricing remains very high. New Zealand ranked 27th and 28th out of 30 OECD countries with some plans twice the cost of the OECD average and the cheapest plans being unattractively restrictive. Consumers are, however, being offered increasing choice through discounted friends and family deals, discounted weekend/weeknight calls and text bundles, which has led to a slow decline in ARPU. This has been offset more recently by migration from prepay to higher-value postpay packages and mobile plus broadband bundles, as shown in Figure 6.

FIGURE 6

Mobile Subscriber Growth and Blended ARPU



Source: Published company financial data

Whilst 3G deployment is relatively well advanced, migration nevertheless remains slow. Vodafone says it can offer 57% 3G (WCDMA) coverage of New Zealand population in main centres and, in 2007, began a slow upgrade to the High-Speed Download Packet Access (HSDPA) evolution. Telecom completed its upgrade to the next generation of CDMA technology, known as Enhanced Version – Data Only (EV-DO) Rev A, offering 80% coverage of main population centres. Yet, IDC estimates 3G connections (WCDMA and EV-DO) are just 5.3% of the total services in operation, inhibited by handset and data price plans.

Macroeconomic Factors

Regulatory Initiatives

The ink on New Zealand's new regulatory framework is now drying, with the core determinations under the 2006 Telecommunications Act largely completed. Many of the initiatives — such as local loop unbundling and unbundled bitstream access — simply bought NZ into line with international markets. However, three initiatives were groundbreaking:

- ☒ **Operational separation.** New Zealand is only the second country in the world, after the United Kingdom, to operationally separate the incumbent. The NZ model goes deeper than that of BT by separating Telecom into three, rather than two, units — network access, now rebranded "Chorus," wholesale and retail.
- ☒ **Sub-loop unbundling.** Developed markets have mandated sub-loop unbundling — or competitive access to new fibre assets — but regulators are grappling with

how it should be enacted. New Zealand will be one of the first markets making a determination on pricing and terms in 2008.

- ☒ **Naked DSL.** Naked DSL allows customers to "cut the traditional telephony cord" with Telecom, replacing it with either VoIP or mobile. Whilst it is common in competitive cable markets where telco operators are forced to offer standalone broadband to compete, few countries have made it a price-regulated product. The opportunity is for competitors to win all of the customers' fixed business, maximising margins through VoIP.

The mobile market is still under scrutiny by the Commerce Commission as to whether current self-regulation or a tougher legal determination is required to give competitor's the ability to roam on competitor's networks, co-locate equipment on existing cell sites, or compete as mobile virtual network operators (MVNOs), wholesaling mobile services on regulated terms.

Table 1 below looks at the opportunities and challenges posed by key regulatory initiatives.

TABLE 1		
New regulation: Opportunities and challenges		
Description	Opportunities	Challenges
<p><u>Operational separation:</u> Splits Telecom into three units: network access, wholesale, retail. Requires Telecom to provide equivalence of inputs (EOI) to access seekers. Date of separation is March 31, 2008, although full equivalence will take four years.</p>	<ul style="list-style-type: none"> • Provides transparency and equivalent competitive access to key bottleneck assets — same terms, prices, and conditions as Telecom retail. • Provides a step towards an "open access" model. Encourages services-based competition. 	<ul style="list-style-type: none"> • Terms and pricing condition may provide minimal margin for competitive growth, and discourage new investment. • Increases reliance on Telecom's network capability. • Already highly contentious: risks ongoing regulatory and legal challenges.
<p><u>UCLL:</u> A form of regulated access to the "last mile" where competitors install their own equipment into the incumbent's exchanges and effectively lease the copper line to the home, in order to provide high-speed broadband, voice, and content.</p>	<ul style="list-style-type: none"> • Provides a first step on a "ladder of investment" — allows competitors to invest in line with subscriber growth. • Improves margins and allows competitors to win whole of customer business: less reliance on incumbent. • Encourages competitive choice and lower prices for end users. 	<ul style="list-style-type: none"> • Focus is on densely populated urban areas and high-value segments only. • Can lead to price wars: competitors compete away margins and struggle to acquire scale for investment returns. • UCLL investment superceded by fibre to the cabinet, kerb, or home.

TABLE 1

New regulation: Opportunities and challenges

Description	Opportunities	Challenges
<p><u>Unbundled bitstream Access (UBA)</u>: Refers to a wholesale broadband service provided from the end user to the first data switch or equivalent facility. It allows service providers to deliver a range of own-branded broadband services to end users. Basic UBA supports connectivity applications whilst enhanced UBA supports real-time services such as VoIP and video.</p>	<ul style="list-style-type: none"> • A wholesale service that allows carriers to build their customer base to justify deploying their own network assets. Complements ULL investment. • Provides options for unconstrained, carrier-grade real-time services allowing competitive differentiation. 	<ul style="list-style-type: none"> • Service Providers dependent on quality and capability of incumbent's network • Reliant on the incumbent's provisioning • Margins dependent on regulated pricing
<p><u>Naked DSL</u>: Refers to the separation of the Digital Subscriber Line from the PSTN. Allows a broadband connection to be sold without an attached NZ\$40/month home phone service. Offered over Unbundled Bitstream products.</p>	<ul style="list-style-type: none"> • Allows carriers to win whole of customer business by offering broadband with a voice-over-IP or mobile connection to replace the traditional telephone line. • A step on investment ladder: provides carriers with a wholesale option that (almost) replicates the services that can be offered via unbundling. • Allows for service innovation and new type of service bundles, including IPTV, mobile, VoIP and converged services. 	<ul style="list-style-type: none"> • Wholesale pricing must provide sufficient margin for competitive carriers to compete with broadband/PSTN bundles • Competitive carriers require robust VoIP solutions to replace the PSTN as the primary home phone connection • Wholesale services must be unconstrained and offer real-time voice capability.
<p><u>Sub-loop unbundling</u>: Refers to the regulating of competitive access to fibre-fed cabinets or nodes closer to the end user, shortening the copper loop. Includes co-location of competitive equipment in the cabinet and backhaul from the cabinet to a handover point in the network.</p>	<ul style="list-style-type: none"> • FTTN potentially strands competitor's DSLAMs in the telecom exchange, which is bypassed by new fibre links; sub-loop unbundling ensures fair access. • Allows competitors to access the speed and capability of fibre-fed cabinets without the cost of full network deployment • Provides competitive choice to consumers 	<ul style="list-style-type: none"> • Business case for sub-loop unbundling unviable for many competitors, inhibited by high cost of fibre backhaul, smaller addressable market and technical issues on co-location • Risks re-monopolisation of the network; shifts focus back to enhanced wholesale bitstream services from the cabinet. • Will require a new regulatory approach to encourage competition

Source: IDC, 2008

Capital and Labour Constraints: Can We Deliver on Time?

The *Internet Service Providers Survey* in 2007 identified two challenges — finding and retaining skilled staff, and access to local funding.

New Zealand has a shallow local capital market, which impacts a new entrant's access to capital, local research and development (R&D), new services development, and capital-intensive infrastructure build. Reliance on international investment raises the cost of capital, and creates challenges for new entrants that will struggle to build the scale and services to justify the business case for international investment.

New Zealand continues to face a severe shortage of skilled IT and engineering professionals, which risks delaying critical infrastructure and IT development and increasing capital development costs. In 2007, Telecom said it would require 700 new IT professionals to implement operational separation; at the time, it already had 200 IT vacancies. It requires additional skills for the reconstruction and migration of Telecom's IT platforms and services to Next Generation IP, plus demand for 300 engineers to deploy fibre cabinets, plus radio engineers for Telecom's new WCDMA network. Telecom has the scale to compete for labour and outsource internationally: competitive carriers embarking on their own infrastructure investment, however, lack the resources to attract staff or the ability to carry increased project costs or development delays. There is a risk the skills shortage reaches a crisis point that impacts investment plans and project timelines.

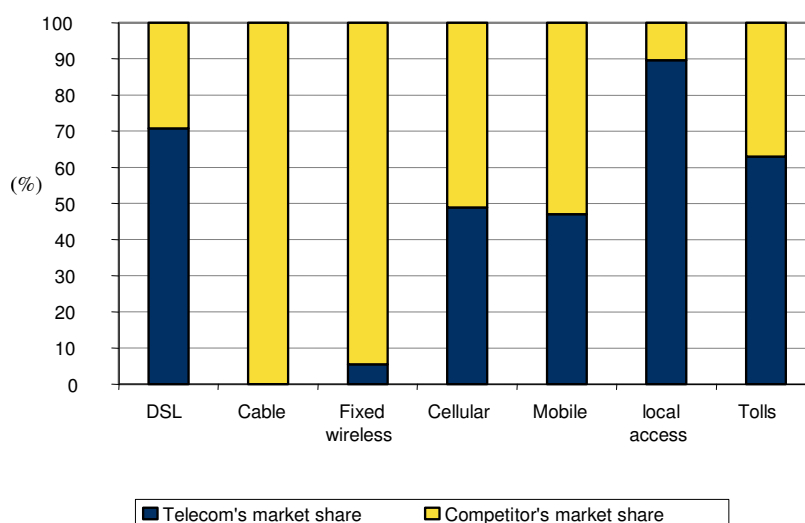
New Zealand's Competitive Landscape

The Landgrab Is on

New Zealand's Telecoms market is increasingly competitive but Telecom has retained its sumo strength in key sectors as shown in Figures 7 and 8 below. It controls 71% of the DSL broadband market and 92% of the local access telephony market, although is marginally behind Vodafone in the mobile market. This means it has 60.5% of the total telecom market revenues, well ahead of the number 2 player Vodafone (including ihug) with 23%.

FIGURE 7

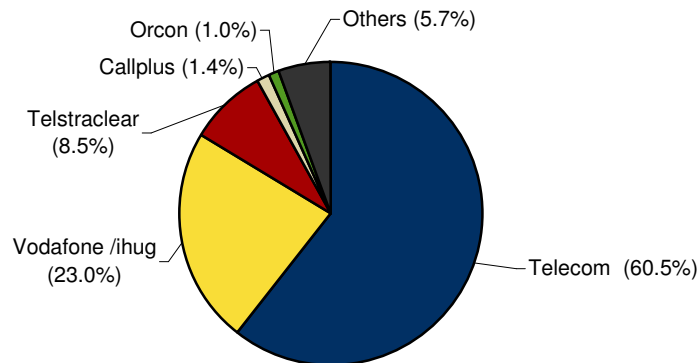
New Zealand Market Share Splits, September 2007



Source: Published data, IDC estimates

FIGURE 8

Telco Market Revenue Share



Total value = NZ\$1,497M

Source: IDC, 2007

The Market Restructures for Full-Service Competition

Telecom has traditionally enjoyed three competitive advantages. It has yet to face true full-service competition; the number 2 fixed player, TelstraClear has cable and metropolitan fibre assets but only resells mobile; Vodafone has mobile leadership but only recently gained a fixed presence through its ISP ihug.

Fixed competition is fragmented. Fifty seven ISPs collectively command just 29% broadband market share. With migration from profitable dial-up to broadband a marginal or even loss-making proposition, 45% of the ISP subscriber base remains dial-up customers. This means those ISPs aggressively seeking customer scale to justify investment in the local loop have a loss leadership strategy today.

Mobile is a two horse race: Vodafone is a powerful competitor but, like Telecom, Vodafone has little incentive to disrupt the market with price wars.

However, this is changing: the managed competitive maneuvering is increasingly becoming a "mosh pit" frenzy — with more than a few contenders being squeezed.

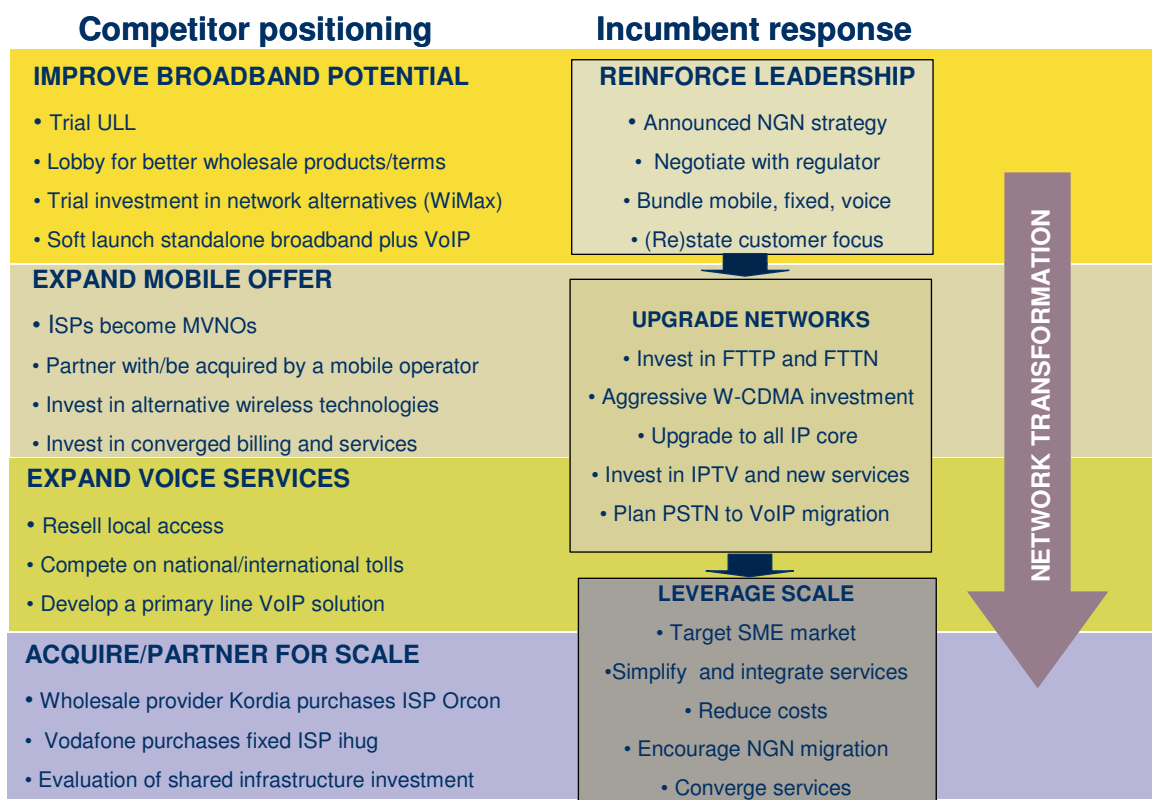
- Vodafone has moved into the fixed market, and is aggressively offering bundled broadband, mobile, and voice deals to buy market share.
- The ISP Orcon is leveraging new network capability following its purchase by wholesale infrastructure company, Kordia.
- Alliances and partnerships are being made for IPTV, Mobile TV, music, and news delivery.
- Callplus soft-launched the first standalone broadband deal (Naked DSL) that offers VoIP as a primary line to replace Telecom's PSTN service.

- ☒ The mobile new entrant, NZ Wireless, has signed national roaming terms with Vodafone, allowing network build to begin in main centres.
- ☒ ISPs have signed wholesale MVNO agreements with Vodafone. This is a step beyond reselling: MVNOs sell under their own brands, set tariffs, provide handsets, and manage distribution.
- ☒ TelstraClear has become a Telecom MVNO, launching new business services in January 2008.
- ☒ ISPs have signed wholesale MVNO agreements with Vodafone. This is a step beyond mobile reselling: MVNOs sell under their own mobile brands, set tariffs, provide handsets, and manage distribution.
- ☒ CallPlus and Woosh are both planning national WiMAX networks.
- ☒ Telecom has responded with an aggressive NGN strategy with FTTN deployment, migration to a new IP core, and a new WCDMA/GSM/EDGE network.

Figure 9 shows how competitors are repositioning for full-service competition and Telecom's response.

FIGURE 9

Competitor's Market Positioning and Telecom's Response



Source: IDC, 2007

Competitive Platforms: Access or Services?

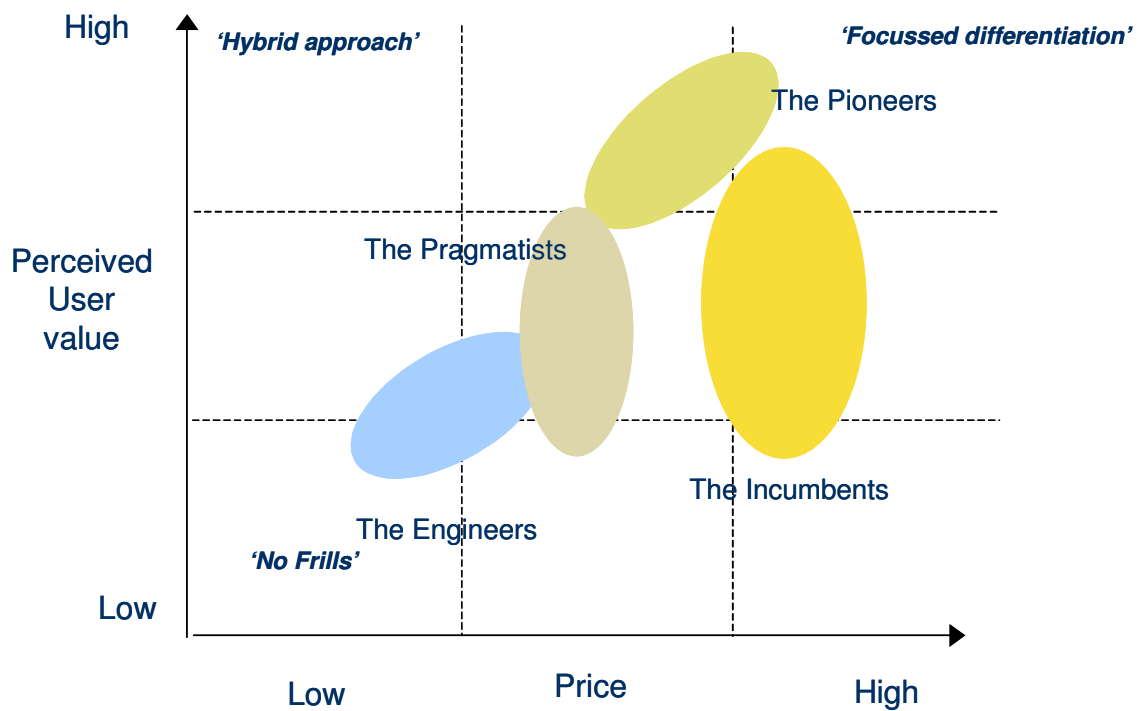
As all the players jockey for early position in the new competitive race, it is clear distinct lines are being drawn.

- ☒ **The incumbent.** Possesses market share, entrenched customer base, and network scale; never a price leader, rarely an innovator but a quick market follower. Applies to Telecom but also Vodafone in mobile.
- ☒ **The engineers.** ISPs and operators for whom the end game remains about controlling infrastructure and access. Whilst this includes infrastructure operators with a wholesale model, it also includes ISPs that see local loop unbundling as a competition prerequisite. By putting their own DSLAM equipment into the exchange, competitors can improve margins and control services delivery. Whilst this provides scope for innovation, there is a risk that infrastructure capital costs inhibit investment in marketing and services, making competition all about price.
- ☒ **The pragmatists.** ISPs that see little need for network investment, believing that differentiation will come from services. They will selectively invest or wholesale access according to their needs: their primary concern is access equality. However, these players must be at the true cutting edge of service delivery to remain ahead of competition and maintain price margins.
- ☒ **The pioneers.** A title many apply to themselves, but few deserve. The pioneers are looking for the gaps: trialing or deploying totally new networks, services, or technologies. Woosh, for example, was a global pioneer in TD-CDMA technology. This is a very high risk, high cost, but potentially high reward sector: for a start-up it can put them, literally, at the bleeding edge.

Figure 10 shows how these different player groups are currently positioned in the market. This provides a qualitative assessment on how they are positioned to meet customer requirements on two measures — perceived value and affordability. This is based on customer feedback, primary research and scoring average prices against services capability.

FIGURE 10

Positioning of Competitor Groups in New Zealand



Source: IDC, 2007

Services Development

New Zealand's New-Wave Services: Are We Ready?

As network investment improves capability, a predictable volume of hype is emerging over new services and products, particularly VoIP, IPTV, music, and integrated IT solutions. However, IT services capability today is limited to Telecom through Gen-I and TelstraClear through Sytec. Additionally, as Figure 11 shows, the industry's capability to provide compelling mass-market services (shown below the double line) is limited.

FIGURE 11

New Zealand Telecom Services Capability

Services Capability	Sector	Telecom	TCL	Vodafone/ ihug	Orcon/ Kordia	Callplus/ Slingshot	Worldx Change	Woosh
Markets	Consumer							
	Business							
Access	DSL		+	+	+	+	+	
	Dial-Up		+	+	+	+	+	
	FtTP							
	Fixed Wireless							
	Leased Lines				+			
	Frame Relay				+			
	IP-VPN							
	Mobile		+	+	+			
	Naked DSL				+	+	+	
Voice	Local access		+	+	+	+	+	
	Tolls		+	+	+			
	Primary VoIP							
	Fixed-Mobile convergence							
Content	Portal							
	IPTV							
	Mobile TV							
	Music							
	News							

Key: Established Limited In trial Potential or planned No known plans

Note: Key: + = wholesale-based service

Source: IDC, 2007

The well-established markets are Internet access, business broadband, traditional local access, and toll markets.

In telephony, a few ISPs, such as Callplus, WorldxChange, and Compass have a strong history in calling cards, toll solutions, and VoIP. This means they have a go-to-market, tested VoIP product that can be positioned as a primary phone line. By contrast, even Telecom is still developing its solution, and partnered with WorldxChange for VoIP in its rollout of fibre to new subdivisions.

Rich entertainment services are fledgling. Orcon and CallPlus are trialing streaming music and video on demand (VOD). However, only TelstraClear has an established cable television offering, and this is effectively reselling Sky. Telecom, by contrast, continues to struggle with the IPTV business case. A primary barrier is the limited range of local content: New Zealanders are accustomed to buying, consuming, and sharing international content over which local providers have little access or control.

Vodafone is aggressive in mobile content through Vodafone Live! with over 700,000 music singles, mobile TV, games, and content under license. Vodafone offers SKY over mobile and is claiming 50% of the music download market in NZ, with sales of single music tracks for December 2007 reaching 106,000. However, migrating this into an online full-service offering in NZ is fraught with licensing and digital rights challenges.

Table 2 below outlines the risks and opportunities for Telecom carriers in delivering new mass-market services.

TABLE 2			
New Services Development: Risks and Opportunities			
Service	Description	Opportunity	Challenge
IPTV	IPTV is the delivery of digital television using Internet protocol over a broadband network to a PC or set-top box and TV. Requires 4Mbps up to 24Mbps dependent on whether content is high definition, point to multi-point, or delivered on demand.	<p>The bundling of IPTV with a broadband/telephone subscription increases monthly ARPU.</p> <p>It is a means of attracting new customers not otherwise willing to buy broadband.</p> <p>Upsells and retains existing customers on contract</p>	<p>Competing with existing powerful pay TV and content providers that control content rights</p> <p>Obtaining high-quality content and rights that will attract users</p> <p>Business case: cost of acquisition, managing revenue shares and margins</p>
VoIP	The routing of voice calls over the Internet or any other IP-based network. The voice data flows over a general-purpose packet-switched network, instead of traditional circuit-switched network. Primary line VoIP refers to the full replacement of a traditional homeline: secondary-line VoIP is the use of VoIP for long distance or toll calls.	<p>Essential to the unbundling business case: bypasses PSTN origination charges paid to incumbent</p> <p>Introduces price competition and makes broadband bundles more compelling</p> <p>Allows competitors to deliver their own voice services and win the whole of customer business</p>	<p>QoS: Primary line VoIP must match the quality, reliability, and service expectations of PSTN.</p> <p>Numbering and regulatory issues</p> <p>Consumer education: VoIP does not perform in a power outage or provide location details for emergency services.</p> <p>Cost of new VoIP CPE</p>
Mobile TV	Mobile TV over cellular networks provides VOD, traditional/linear and live TV programming to mobile handsets on a pay-per-use or subscription model. Content can be delivered on demand or stored and viewed later. Delivery is via two-way cellular network or through a dedicated broadcast network.	<p>Showcases 3G capability — encourages usage and engagement with mobile video services</p> <p>Provides incremental monthly revenues</p> <p>Encourages 3G Migration — a tool to attract/retain subscribers</p> <p>Integrates/complements IPTV or online services</p>	<p>Spectral frequency, signal strength, cell architecture, and handset battery life affect experience</p> <p>Requires 3G or enabled devices</p> <p>Access to content, business model, and ARPU challenging</p> <p>Substitution via non-network delivery (download via PC)</p>
Converged services	Refers to the integration of new and existing services to allow seamless delivery	Delivers choice, control, and flexibility to end users	Different platforms, devices, and capabilities make delivery and management

TABLE 2**New Services Development: Risks and Opportunities**

Service	Description	Opportunity	Challenge
	across a range of devices and platforms – i.e., PC, laptop, mobile handset, TV, telephony.	Upsells and maximises potential and capability of next-generation IP networks Drives ARPU and wins whole of customer business, based on an integrated full-service offering	extremely complex Requires entirely new provisioning, DRM, billing, and caching capability Business case and cost to consumer challenging

Source: IDC, 2008

Technology***The Broadband Soup***

New Zealand's current broadband road map is rather like spaghetti junction: multiple network technologies, with varying capabilities at different stages of development, are being evaluated and hyped as the "next big thing." The reality is that each will have a role in the "broadband soup," many complementary rather than disruptive. New fixed technologies are being introduced as part of FTTN or FTTP deployment, in parallel with new wireless broadband networks. Technologies being evaluated include:

- ☒ **Fibre.** Gigabit passive optical networks (GPON) is an advanced point-to-multi-point fibre-to the premises network architecture in which optical splitters allow a single optical fibre to service multiple premises or a metro Ethernet. Metro Ethernet is an access network based on the Ethernet standard, which utilises fibre to connect subscribers and businesses.
- ☒ **xDSL.** Asymmetric digital subscriber line (ADSL) is a data communications technology that enables faster data transmission over copper telephone lines. ADSL 2+ enhances the ADSL capability, although performance is dependent on the distance the signal has to travel over copper. Widely deployed in developed markets. VDSL and VDSL2 are the more advanced DSL standards, delivering up to four times the data rates but over very short distances.
- ☒ **WiMAX.** WiMAX is a technology that provides wireless data over long distances. It can offer fixed point-to-point links, nomadic, or full mobile cellular-type access. It is based on the IEEE 802.16 standard. Fixed WiMAX (802.16d) does not offer mobility; however, Mobile WiMAX (802.16e) allows for handover between cell sites for both fixed and mobile services.
- ☒ **High-Speed Packet Access (HSPA).** HSPA is a family of mobile protocols that better utilise radio bandwidth and improve data performance. Based on the Universal Mobile Telecommunications System (UMTS) standard, HSPA is an upgrade to today's third-generation (3G) WCDMA networks.
- ☒ **Long-Term Evolution (LTE).** The LTE project is not a standard but will evolve the 3G UMTS standard towards the "4th Generation" (4G). It aims to improve

efficiency, lower cost, and maximise spectrum. Shifts cellular to a fully-integrated IP wireless broadband network, with voice and other services such as high-definition TV (HDTV) built on top. Prototypes under trial will not become commercially available until after 2010.

Table 3 provides a snapshot of the capabilities of each of these new technologies.

TABLE 3				
Technologies and Capabilities				
Technology	Data rates	Mobility	Performance	Status in NZ
ADSL	>8Mbps over 3km	Fixed	Good coverage: consistent performance up to 3km	98% New Zealand coverage
ADSL2+	>24Mbps over 1km >10–20Mbps from 1–2km	Fixed	Performance declines rapidly over copper lines 1.5km or more.	Tried late 2007; deployed in cabinets and exchanges 2008–2010.
VDSL2	>100Mbps over >900m >20–50Mbps from 1–2km	Fixed	Performance declines rapidly beyond 900m to 1km. Used with fibre to the building (FTTB).	No known planned deployment over next two years.
GPON (fibre)	>100–2500Mbps	Fixed	Used in FBB or FTT with VDSL2	Limited to new business/residential developments
Fixed WiMAX (802.16d)	>Up to 70km LOS; up to 10km NLOS	Fixed	Price and performance affected by range: higher bit rate over shorter distance	WiMAX trial in Whangarei. Planned for last mile, infill, and regional/rural coverage
Mobile WiMAX (802.16e)	>14–40Mbps	Nomadic or mobile	Good coverage, range, and throughput characteristics. Performance affected by spectral frequency, line of sight, number of subscribers per cell site.	New technology; international trials to mid-2008. It has vendor support. Callplus and Woosh evaluating national rollout in 2.3GHz band
WCDMA	Download >384Kbs	Full mobility	Nine spectrum bands: lower frequencies (i.e., 900MHz) provide better coverage and fewer cell sites.	57% coverage in main centres: Telecom launching new WCDMA network 2008 ; Vodafone considering regional UMTS900 deployment
EV-DO Rev A	Download: >3Mbps Upload: >1.8Mbps	Full mobility	Good coverage characteristics. Based on	80% of New Zealand users — main and regional centres.

TABLE 3**Technologies and Capabilities**

Technology	Data rates	Mobility	Performance	Status in NZ
	Average: 800kbs/300Kbs		marginalised CDMA technology	Rev-A datacard or modem only
HSPA	Download >3.2–7.2Mbps Uplink 384Kbs to 5.76Mbps Average 800kbs–1.9Mbps	Full mobility	Multiple HSPA variation and network architecture impact throughput. Requires fibre backhaul.	Limited deployment in NZ main centres. "Vodem" and datacards only. Backhaul a limitation.
HSPA +	Download >28–42Mbps Uplink: 11.5Mbps Average: TBC	Full mobility	Introduces simpler, "flatter" IP architecture — basestation performs as an IP router.	Telecom and Vodafone plan HSPA + in main centres.
LTE	Download >100Mbps Upload >50Mbps for every 20MHz spectrum	Full mobility	Designed to simplify the network architecture to an all IP system, capable of delivering wireless broadband. Not compatible with WiMAX.	It will not be introduced into New Zealand until established and commercially available.

Sources: Vendors, WiMAX Forum, GSM Association, Operator data, 2008

Squeezing the Most out of Copper

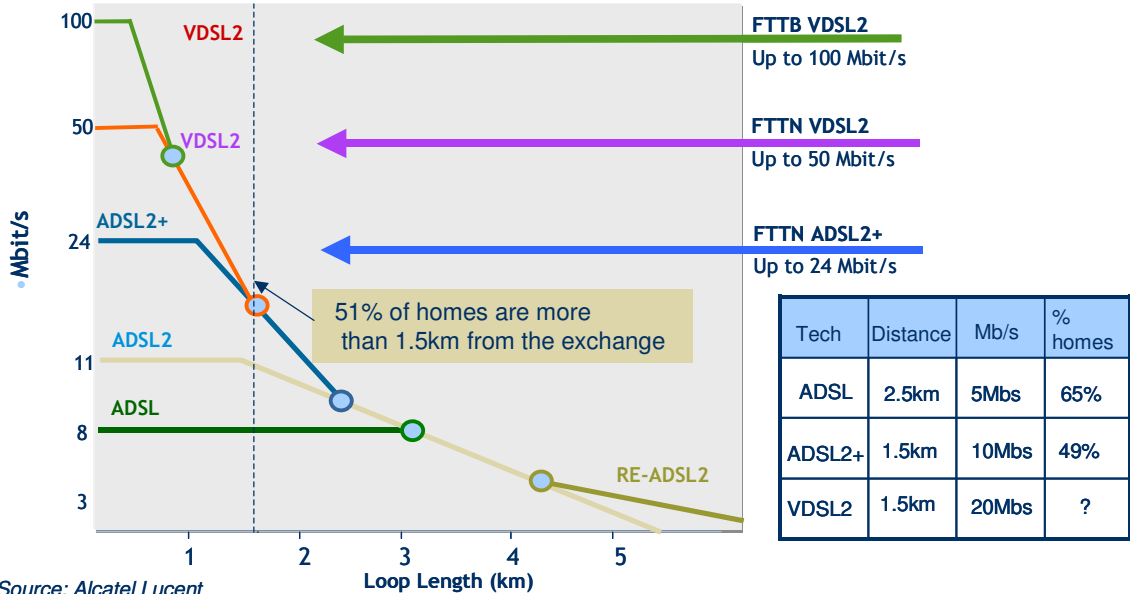
Today, New Zealand is trying to race on the OECD's broadband circuit with a Fiat Bambina: we simply lack the horsepower to meet the need for speed.

New Zealand ISPs today market "maximum speed possible" in their broadband plans, simply because realistic broadband throughput is subject to huge variation. Each customer's experience will depend on the quality of network copper, distance traveled, interference, backhaul, and number of homes served from one exchange.

A particular problem is the distance between the DSLAM equipment and the home — the further the signal travels, the weaker and more susceptible to interference it becomes. In New Zealand, 51% of connections are 1.5km or more from the exchange — this is a distance beyond which broadband speeds rapidly decline. Turbo-charging the copper with the latest DSL technologies will not overcome the challenges of distance, as Figure 12 shows.

FIGURE 12

Impact of Distance on xDSL Technology and Capability



Source: Alcatel Lucent

Source: IDC, 2007

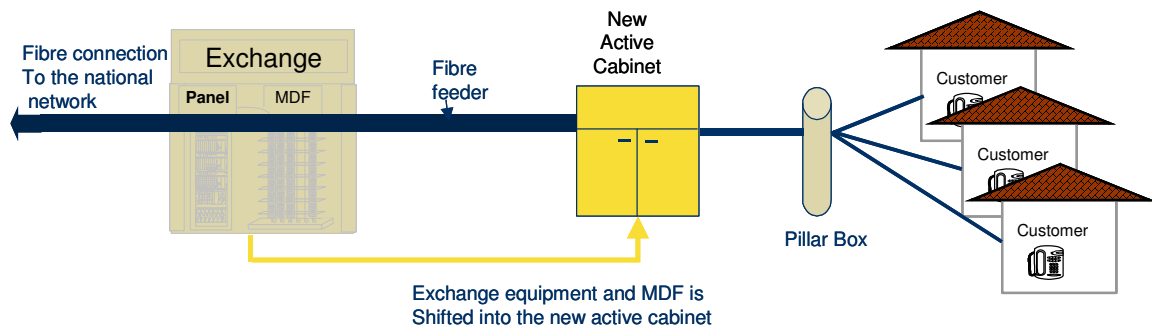
This is a major — if rarely discussed — issue facing New Zealand ISPs planning to put their own ADSL2+ equipment into the Telecom exchanges as part of unbundling the local loop. Through UCLL, competitive carriers want to differentiate with better speed, services, and margins. However, the tyranny of distance means some customers would receive a great broadband boost, others would see moderate improvement, and others receive no benefit at all.

Short-Circuiting the Copper Loop

Hence, the need for fibre. Telecom proposes cabinetising copper lines that are 2.6km or more in length, which should benefit customers worst affected. However, it will still leave New Zealand with relatively long copper loop lengths compared with the upper quartile of OECD countries. In Europe, FTTN will elevate current short loops to megaspeeds of 50Mbps and 100Mbps over distances of up to 1.5km. Figure 13 shows how cabinetisation will work.

FIGURE 13

Cabinetisation Plan



Source: IDC, Alcatel Lucent, 2008

Not all of the current exchange lines will be cabinetised: an estimated 40–60% of homes and businesses will still be served from the exchange. This, however, creates a much smaller market for competitors to target through ULL.

Some ISPs are calling on Telecom to run a "dual" line from both the cabinet and the exchange, effectively giving customers two options. It would, for example, allow ISPs to still provide homephone services from the exchange even if the broadband is provided from the cabinet. However, this runs into serious technical problems — two DSLAMs at different distances on the line create significant signal interference. This is a highly technical debate, with potential workaround solutions, but many would reduce the service to the end user by reducing power or signal transmission.

Next-Generation Networks: Creating Lasagna out of Spaghetti

Discussion of Telecom's Next Generation Network (NGN) evolution is usually confined to network upgrades. However, NGN is not just high-speed broadband: it describes the process of taking the spaghetti-like structure of networks, platforms, and services such as PSTN voice, xDSL, and frame relay (FR) that have evolved, and integrating them into a simplified IP network. A key change is that there is a more defined separation between the transport (connectivity) portion of the network, and the services that run on top. It allows new services to be defined without needing to reconfigure the transport layer. It reduces costs and allows truly converged services.

Telecom plans to have the majority of its customers on "Next-Generation Telecom" (NGT) by 2012. The core business outcomes will be:

- ☒ **Reduced costs and improve margins.** Telecom says NGT will improve efficiency and reduce costs of provisioning, billing support, delivery, and network support.
- ☒ **A simpler structure for operational separation.** It removes the cost and complexity to Telecom of reengineering legacy systems to allow third-party access.
- ☒ **Reduction in the number of products offered.** Telecom's highly customised approach to product development has led to a large and complex product set,

which in turn drives costs, increases time to market, and creates complex billing. NGN will allow a much narrower, more standardized set of products. For example, Telstra in Australia had 1350 IT legacy systems in 2005: by 2010, it plans for 300.

- ☒ **Simpler price structures.** NGT will provide greater billing flexibility across products and use of subscription-based billing.
- ☒ **More efficient marketing and service options.** NGT will make increasing use of online channels. Customers will be able to order products online, fulfill orders, with customer self-provisioning. Billing and bill analysis will be provided.
- ☒ **Improve IT services capability.** The all-IP structure allows for better integration of systems management and customer experience

This has a range of competitive implications. It has the potential to make Telecom retail a far more effective and powerful competitor than it is today. It creates a raft of new interconnect and service provisioning issues for competitive carriers, which have yet to be resolved.

3G Versus WiMAX

Wireless broadband is squaring off into a battle between the smart upstart with heavyweight backers — WiMAX — and the cellular establishment — 3G (UMTS). At present, WiMAX is heavily hyped, positioned as competitor to both cellular and fixed broadband technologies. However, both Telecom and Vodafone have entrenched market power and a long-term 3G road map that will squeeze WiMAX ambitions in New Zealand.

The New Zealand Government's auction of 2.3GHz and 2.5GHz wireless spectrum was specifically to encourage up to six new wireless — or WiMAX — networks. Most equipment available now is in 3.5Ghz: but 2.3GHz networks are being adopted in Asia, led by Korea. At present, both the ISP CallPlus and the wireless broadband operator Woosh are evaluating a mobile WiMAX rollout.

However, WiMAX's technical capability will not, of itself, deliver success. True mobility requires coverage and coherence in the network. It requires deep pockets and the ability to deliver economies of scale in network build, equipment acquisition and deliver in a timely manner. Price and market positioning will also be critical: WiMAX technology can be both a complement and competitor to existing networks.

A WiMAX network will not be commercially delivered in New Zealand until 2010 on current plans. By that stage, IDC estimates Telecom will have evolved HSPA in main centres. Vodafone has already upgraded to the current HSDPA standard in key areas and is reportedly planning to extend its 3G coverage nationally, using the 900MHz spectrum. Both unbundling and FTTN will be well-advanced in central and regional cities.

IDC therefore believes that, based on current market conditions and time to market, the opportunity for WiMAX is primarily:

- ☒ Providing alternative broadband access in rural or regional areas. This may be on a 'hotspot' coverage model
- ☒ Providing last-mile coverage, where required, as a replacement for copper

- International business roaming
- Ensuring business continuity and backup
- Providing infill coverage and backhaul

FUTURE OUTLOOK

Market Development Scenario and Forecast

Four key factors will affect the New Zealand telecommunications market going forward:

- ☒ The nature and scale of new competitive investment and innovation, given the challenges of population scale and geography, access to capital and Telecom's own investment plans
- ☒ The role of government in driving ICT growth, in particular broadband development
- ☒ The effectiveness of the new regulatory framework, including the operational separation of Telecom, in delivering a sustainable and strong competitive environment
- ☒ The impact of Telecom's NGN strategy

Scenario One: Competitive Status Quo

Telecom continues to dominate the market, despite regulatory change, with competitors unable to gain the traction or scale to become a true competitive force. This is effectively a status quo scenario, which would lead to further regulatory change and active government intervention.

Scenario Two: Proliferation then Consolidation

Regulatory change leads to a proliferation of new service providers (SPs), followed by rapid consolidation and, in some cases, failure. In this scenario, competitors use unbundling to target the densely populated small business and residential sectors, but struggle to compete on services. The outcome is broadband price wars. This drives broadband penetration and growth, but at the expense of sustainable competition, leading to an inevitable shakeout. For example, in the United Kingdom, when competition opened up, 200 SPs came into the fixed-line market. It led to 300% oversupply of customers in high-demand areas, but did not improve customer service programmes. We believe this risk in New Zealand is reduced by the challenges of generating competitive scale, and the introduction of FTTN which leads to a more conservative UCLL business case.

Scenario Three: Strong Broadband Growth, Steady Competition

This is IDC's preferred forecast scenario. It assumes steady rather than stellar competitive growth, but strong growth in broadband driven by a mix of competitive, political, and demand drivers. We anticipate the emergence of new full-service competitors eroding Telecom's market share, but Telecom will continue to be the most powerful market player unless there is a truly disruptive change through acquisition or consolidation amongst the market leaders. Competitive infrastructure through UCLL will be limited to central city sites, although we anticipate new forms of infrastructure sharing and private/public partnership models. This will drive a degree of municipal fibre and rural investment. Capital and scale constraints mean

competition will be heavily dependent on new wholesale service products, particularly enhanced bitstream services and Naked DSL – although this will depend on the regulated price set by the Commerce Commission. This will limit the potential for outright price wars, shifting the focus to improving and innovating on service. This will improve our international position, but not deliver the required OECD leadership, particularly on the metrics of speed and capability.

Forecast and Assumptions

The New Zealand telco market is susceptible to a wide range of economic, technological, competitive, and regulatory developments and forces that impact the industry. Table 4 outlines the key assumptions that IDC believes will shape the industry over the next five years.

TABLE 4

Key Assumptions for the New Zealand Telco Market, 2008–2012

Market Force	IDC Assumption	Impact	Accelerator/ Inhibitor/ Neutral	Certainty of Assumption
Macroeconomics				
Population growth	Statistics New Zealand estimates (assuming medium fertility, mortality, and migrations) the population will grow by 3.4% to reach 4.37 million by 2011.	Low. An additional 145,000 people in New Zealand will provide an additional customers base over the next four years.	↑	★★★★☆
Tightening economic conditions	Demand for affordable, high-speed broadband and rich content will be tempered by rising cost of living, inflationary pressures. This will increase price sensitivity, driving demand for low-cost telecoms services and expectations of "more for less."	Medium. Pent-up demand for broadband is a key driver for long-term growth, but in a price-sensitive market, the challenge is balancing affordable access with improved services. Carrier's need for ROI limits potential for a price war.	↓	★★★★☆☆
Shallow capital markets	NZ has a shallow local capital market, limiting local R&D, new services development, and capital-intensive infrastructure build. This increases reliance on international investment capital.	High. Raises cost of capital and creates challenges for new entrants to deliver economies of scale and the ROI required to justify the business case. Drives demand for government support/sponsorship.	↓	★★★★☆☆
ICT skills crisis	A significant shortfall in ICT and engineering skills for operational separation and new network leads to an increased risk of cost escalation and deployment delays.	High. ICT labour pool becomes highly competitive: smaller companies that lack resources and scale may struggle to get projects off the ground on time.	↓	★★★★☆☆

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Key Assumptions for the New Zealand Telco Market, 2008–2012

Market Force	IDC Assumption	Impact	Accelerator/ Inhibitor/ Neutral	Certainty of Assumption
Market characteristics				
Growth in broadband demand	There is significant pent-up demand for improved, affordable broadband throughput and capacity, based on both increasing consumer usage and the need for improved business productivity. Public debate and awareness is very high.	High. There is significant frustration amongst consumers and small and medium-sized businesses expressed about the quality and speed delivered via today's broadband services. High level of public awareness and increasing usage will drive broadband growth if attractive price points are reached.	↑	★★★★☆
Barriers to entry remain high	Size of market, access to capital, economies of scale, and entrenched competition create significant barriers to entry. This leads to continued high reliance on Telecom's fixed network, whilst the mobile duopoly will experience new competition but only marginal loss of market share.	Medium. Currently, there are few incentives for new competitors to enter the market. However, the government is making a strong effort to reduce barriers to entry and there is room for further industry consolidation/alliances to create powerful second and third players.	↓	★★★★★
Drive to IP-based NGN	Telecom is accelerating its NGN strategy — estimated completion date is 2012.	High. Will simplify Telecom's network, allowing it to bring services to market faster, at lower cost, and deliver truly converged services.	↑	★★★★☆
Regulatory environment				
Regulation drives competition but dictates business case	Enactment of the Telecommunication Act 2006 will help drive new competition. There will be growth in UCLL, but Telecom's FTTN plans will shift focus to wholesale bitstream products, Naked DSL and sub-loop unbundling.	High. Competitive growth is heavily dependent on the regulated pricing and terms set by the regulator, the success of operational separation and ongoing regulatory treatment.	↑	★★★★☆
Operational separation levels competitive playing field	Separation increases transparency and levels the playing field for access seekers, limiting discrimination. However, separation will not "break up" Telecom: the incumbent can use its scale and next-generation services capability to remain a powerful competitor.	High. Equivalence of service will take four years to be fully implemented. Whilst it will stimulate competition, we anticipate a consolidation of market power, with Telecom remaining a market leader. Only three or four competitors have the scale and services capability to truly compete.	↑	★★★★☆

TABLE 4

Key Assumptions for the New Zealand Telco Market, 2008–2012

Market Force	IDC Assumption	Impact	Accelerator/ Inhibitor/ Neutral	Certainty of Assumption
Local loop unbundling encourages limited competition	Final UCLL conditions have been determined on a de-averaged basis. This will focus investment to urban CBD areas in main city centres. Scale of build will be inhibited by Telecom's FTTN plans, reducing the size of addressable UCLL market by – on some estimates - up to 60%.	Medium. UCLL will drive a customer "landgrab" by competitive carriers to gain scale, driving more choice, new services, and fixed/mobile bundles. However, Telecom's FTTN plans will ringfence UCLL investment to large first and second tier players, focusing on high-value residential and SMB markets.	↑	★★★★☆
Unconstrained UBS/Naked DSL critical for competitive growth	Unbundled bitstream and Naked DSL will be a critical service option for carriers to grow without investing in ULL. First-to-market competitors will offer broadband access plus VoIP telephony bundles at a discount of up to 30%. However, not all SPs have the capability to offer VoIP as a PSTN replacement. Over time, focus will shift to a richer services mix through bitstream services from the cabinet.	Medium. UBS removes substantial quality/latency and speed impediments. Having standalone broadband options and low-cost VoIP services will help drive adoption by consumers and SMBs although the regulated price remains relatively high. However, network and backhaul limitations will continue to impede service deliver in the midterm.	↑	★★★★☆
Number portability increases churn	Local and cellular number portability was introduced in April 2007. Number portability is an important component in creating competition, especially in light of ULL coming into play, MVNO agreements, and the possibility of a new mobile operator.	Medium. This will have a greater impact over the midterm. Telecom's new WCDMA network will make porting simpler, and competitive pressures will make it an important part of attracting and retaining subscribers.	↔	★★★★☆
Tougher approach to mobile co-location and roaming	IDC anticipates the Commerce Commission will either regulate or increase pressure to ensure commercial mobile wholesale prices, co-location, and roaming on terms that guarantee new mobile competition.	Medium. Co-location and roaming are critical for new network deployment, whilst the competitive impact of MVNOs will depend on wholesale terms. New entrants will encourage price competition but struggle to truly disrupt the current duopoly and pricing models.	↑	★★★★☆

TABLE 4

Key Assumptions for the New Zealand Telco Market, 2008–2012

Market Force	IDC Assumption	Impact	Accelerator/ Inhibitor/ Neutral	Certainty of Assumption
Market segment: Internet and broadband networks				
Strong broadband growth	Broadband penetration will grow strongly throughout the forecast period, gaining momentum through 2009–2010, driven by demand, improved services, and competition. Total revenues will increase with subscriber growth, but average revenues per user (ARPU) will come under pressure, with an initially slow but accelerating decline over the forecast period.	High. The growth phase will bring us into line with overseas developed markets over the forecast period.	↑	★★★★☆
Dial-up declines but does not disappear	Dial-up will decline sharply, as subscribers migrate to broadband, but then stabilize through the forecast period.	High. Broadband creates new ARPU potential. However, dial-up remains a high margin business for ISPs, which means it will continue to subsidise broadband migration in the short to medium term.	↑	★★★★★
Cable modem sees slowing growth	TelstraClear's cable network will continue to see take-up but the rate of total growth will slow and begin to decline as saturation occurs.	Medium. Telecom's cabinetisation programme and competing technologies will drive fierce cable competition in key city centres.	↔	★★★★☆☆
xDSL dominates	xDSL will continue to reflect very strong growth throughout the forecast period, driven by FTTN, unbundling and wholesale services.	High. Whilst fibre alternatives will grow over the forecast period, xDSL will dominate for the foreseeable future.	↑	★★★★☆
Metro Ethernet, a high-value niche	IDC estimates an increase in population of 145,000 would require approximately 40,000 new housing developments, of which over half will have fibre to the kerb or premises in urban areas. Cabinetisation will drive new business ethernet connections.	Medium. The cost of fibre deployment, estimated at between NZ\$1,500 and NZ\$2,000/home means it will be restricted to new high value developments. Business ethernet growth will be tempered by competition by DSL-based offerings.	↑	★★★★☆☆
WiMAX features from late 2009	Current proprietary fixed wireless networks will continue to see modest growth. We will see ongoing metro WiFi	Low. Although proprietary FWA will record slight growth over the next few years, the focus is on WiMAX, which is an	↑	★★★★☆☆

TABLE 4

Key Assumptions for the New Zealand Telco Market, 2008–2012

Market Force	IDC Assumption	Impact	Accelerator/ Inhibitor/ Neutral	Certainty of Assumption
	deployment in main centres. Several ISPs will pilot WiMAX-based technologies throughout the forecast period, but a commercial offering will not enter the market until late 2009 or early 2010, at which point fixed wireless access (FWA) will reflect increased subscriber up-take.	immature technology and will not have a significant impact on the market within the forecast period. Growth in FWA technology in 2010 and 2011 will reflect the first commercial WiMAX offering in New Zealand.		
Others	Uptake of technologies categorised under "other," including satellite, will begin to decline from 2009 onwards as cheaper/mass-market substitutes are offered.	Low. A number of technologies, such as satellite, will become increasingly specialized in usage or specific to regional/rural geographies, as mass market alternatives grow for generic broadband delivery.	↔	★★★★☆
Market segment: voice connections				
Moderate decline in PSTN connections	Overall, PSTN lines will see a steady decline throughout the forecast period, primarily through loss of second lines, mobile, and VoIP substitution. Wholesale PSTN connections will, however, continue to grow. Telecom will begin to drive primary line VoIP services towards the end of the forecast period over its NGN.	High. Loss of high-margin PSTN revenues will significantly affect Telecom's revenues and profitability. It has a number of milestones agreed with the regulator for the switch off of the PSTN in 2020 – this will drive Telecom to develop its own VoIP and next-generation revenues. End users will benefit from lower-cost voice calls and increased choice.	↑	★★★★☆
VoIP-originated residential market takes time to win traction	VoIP will see steady growth from 2008 onwards, but it will be from a low base. Primary line VoIP will not begin to gain traction until the end of the forecast period.	Medium. VoIP is essential to the ISPs business case and a key feature of upselling broadband bundles. However, it will take time to achieve mass-market acceptance. Few SPs will be able to offer a robust primary-line VoIP solution in the short term.	↑	★★★★☆

TABLE 4

Key Assumptions for the New Zealand Telco Market, 2008–2012

Market Force	IDC Assumption	Impact	Accelerator/ Inhibitor/ Neutral	Certainty of Assumption
Voice prices under significant pressure	Local, toll, and broadband bundles will be discounted between 20% and 30% in order to win customers and upsell to other service offerings. VoIP revenues will grow in line with subscribers, but at a discounted price point to the PSTN.	High. Voice is critical to the competitive business case but is becoming commoditised.	↑	★★★★☆
Market segment: mobile access networks				
GSM/GPRS/EDGE	GSM/GPRS will grow through 2008 and early 2009, but begin to decline through more aggressive 3G competition between Vodafone and Telecom. Telecom will migrate CDMA customers to W-CDMA. However, continued demand for basic voice/text and coverage limits rate of decline.	High. GSM will continue to provide mass-market coverage.	↑	★★★★☆
CDMA/EVDO and evolved	Although Telecom will continue to run the CDMA network until at least 2012, accelerating migration towards WCDMA will begin from early 2009. This technology will continue to be well utilised in the next two years, noting very good coverage in New Zealand.	Medium. Although the CDMA network will continue to operate over the forecast period, IDC anticipates it will be shut down shortly after, given the expense and complexity of running two networks. All subscribers will be migrated to the GSM and WCDMA networks	↑	★★★★☆
WCDMA and evolved	WCDMA technology will experience strong growth. Vodafone will continue to build out its 3G capabilities and begin to more aggressively drive migration in both business and residential markets. Telecom will initially target WCDMA and HSPA to capture the whole of business market in 2009 but begin a mass-market	High. Both operators will have considerable WCDMA coverage by the end of the forecast period and drive uptake on this technology. Cellular data speeds will increase and prices gradually decline.	↑	★★★★☆

TABLE 4**Key Assumptions for the New Zealand Telco Market, 2008–2012**

Market Force	IDC Assumption	Impact	Accelerator/ Inhibitor/ Neutral	Certainty of Assumption
	drive in late 2009.			

Legend: ★☆☆☆☆ very low, ★★☆☆☆☆ low, ★★★☆☆ moderate, ★★★★☆ high, ★★★★★ very high

Source: IDC, 2007

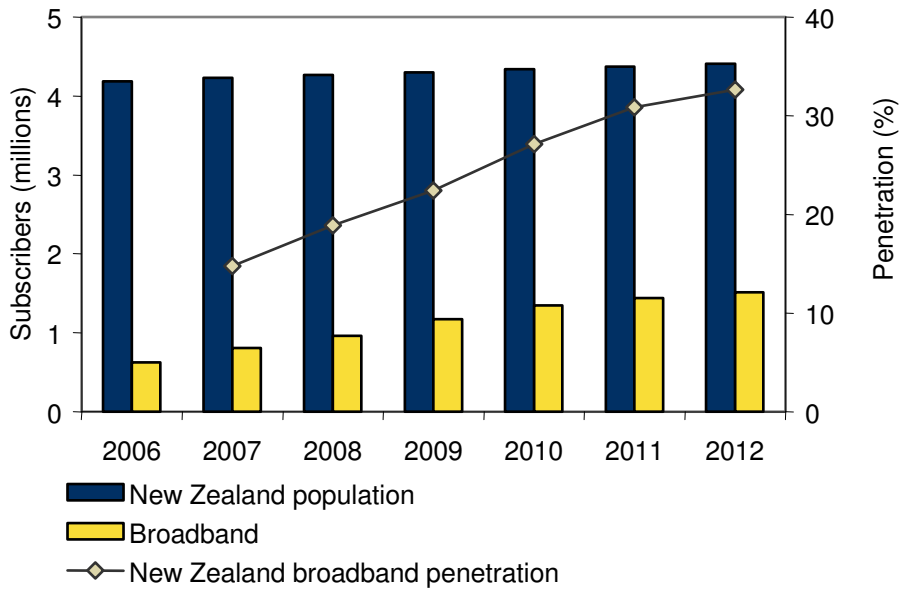
Broadband Forecasts: Strong Growth but Pressure on ARPU

IDC predicts aggressive broadband growth across the forecast period, increasing 85.8% to 1.509 million subscribers by 2012. Whilst we anticipate only a steady growth in competition, facilitated by consolidation, we nevertheless believe there is pent-up demand for high-speed services and better broadband capability in both the business and residential markets. This, coupled with strong political and economic incentives, will lead to strong subscriber growth from late 2008 and through 2009 and beyond, although the rate of growth will slow thereafter.

New Zealand currently ranks 20 out of 30 OECD countries in terms of broadband penetration, with 16.5 subscribers per 100 inhabitants against the OECD average of 18.8 subscribers. By 2012, however, we anticipate penetration of 34% (assuming current population growth), which will put us alongside the current penetration of the more highly-penetrated international markets. It is difficult to know at what point saturation will occur: this will vary by each market. However, by 2012, we anticipate there will be a significant cluster of broadband markets featuring 30%+ penetration.

FIGURE 14

New Zealand Broadband Penetration

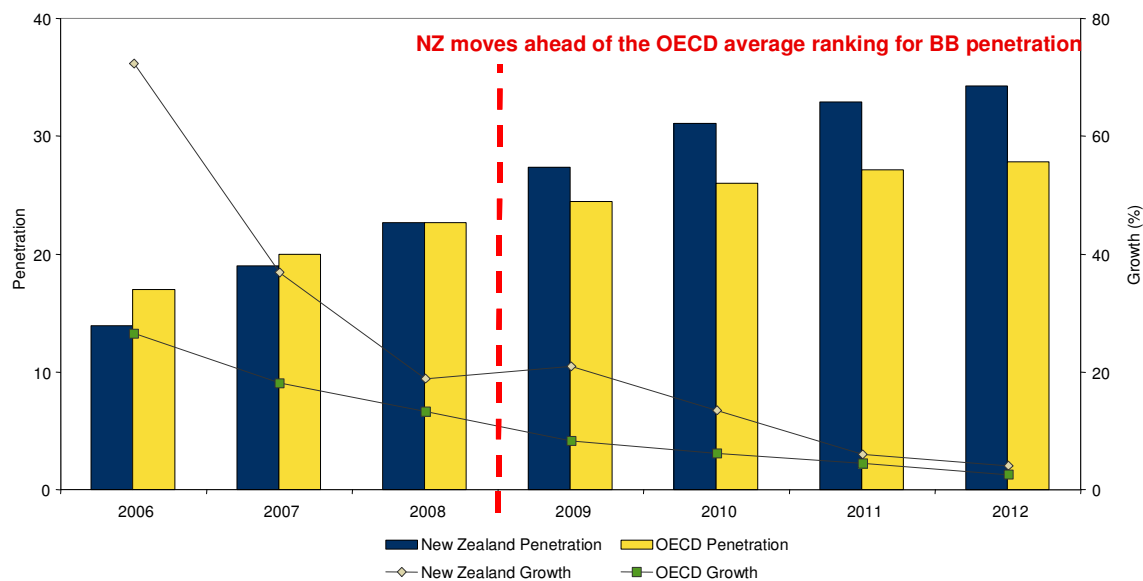


Sources: OECD, IDC, 2007

This will put New Zealand's broadband penetration ahead of the OECD average by 2009. New Zealand's broadband growth has exceeded the OECD average every quarter since 2Q02. We assume the averaged OECD growth rate will continue its steady decline of the past four years driven by increasing broadband maturity in its key markets, whilst New Zealand's slowing growth rate will experience an upturn in late 2008–2009 before resuming its decline.

FIGURE 15

Broadband Penetration Forecast: NZ Versus OECD Average



Source: IDC, 2007

Whilst New Zealand will improve its OECD ranking in penetration, we believe it will continue to be challenged on download speeds in comparison to the most advanced markets. FTTN plus ADSL2+ in New Zealand will deliver a maximum of 20Mbps to 49% of the population by 2012, with development continuing to be constrained by long local loops. An upgrade to VDSL will lift speeds to, on average, 50Mbps, but the user's experience will continue to be constrained by loop length, home wiring and other environmental factors. By contrast, a number of Europe carriers are planning FTTN, fibre to the basement in combination with VDSL or a full fibre link, capitalizing on urban population density and multi-tenanted apartment architecture. Whilst this will be limited in terms of coverage, it will lift speed from a minimum of 20–50Mbps or 100Mbps in many developed markets within the forecast time frame.

Technology Development

Growth in broadband will be driven by a 90% increase in xDSL, subscriber numbers, primarily ADSL and ADSL2+ but with VDSL emerging in the forecast period. Correspondingly, dial-up customers will more than halve to 250,000, but the rate of decline will slow. A proportion of the population will continue to use dial-up Internet services largely due to poor service options in rural and remote areas, and price constraints.

TelstraClear's cable modem network will continue to experience topline growth until the end of 2008 before experiencing a subtle decline as Telecom's FTTN build and other network developments begin to challenge TelstraClear's cable dominance in Wellington and Christchurch. This assumes TelstraClear continues to retain a residential presence, but does not expand its cable footprint.

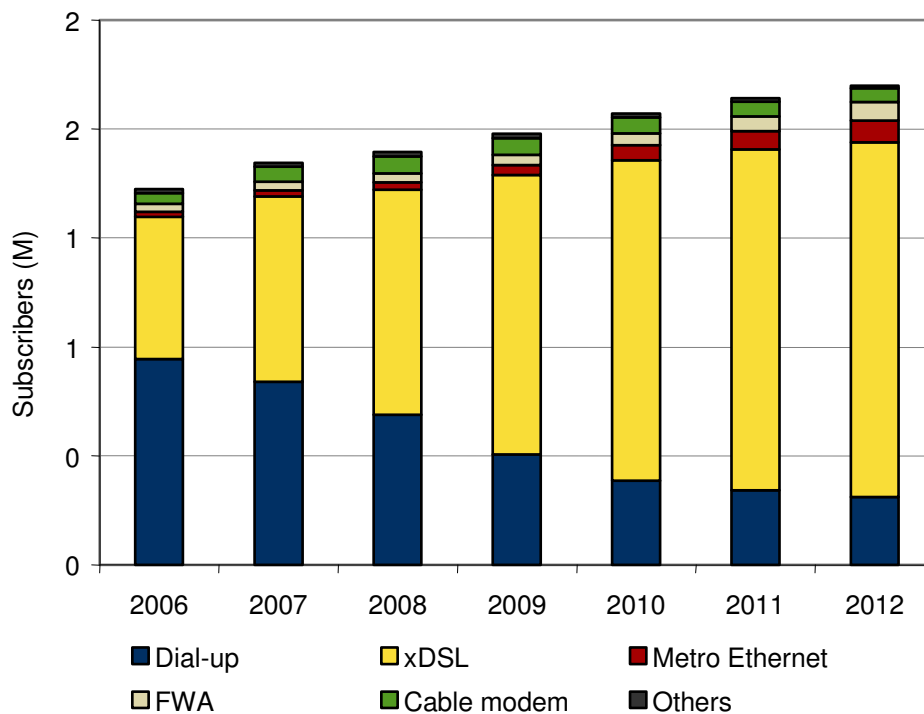
Fibre to the home (FTTH) today is fledgling, with Telecom running a pilot FTTP project serving 400 customers in Auckland. FTTH using metro Ethernet or other fibre technologies will be limited to Greenfield sites and new business parks. Cabinetisation will, however, drive new Ethernet connections for the business market, although this will be a hotly contested market for DSL-based connections. As a consequence, metro Ethernet connections will triple over the forecast period to 80,000 but from a low base.

FWA encompasses today's current wireless technologies, including TD-CDMA (Woosh), WiFi and LMVD, and also fixed and mobile WiMAX looking forward. For all the hype over wireless broadband, we expect modest growth on proprietary networks in the short term. We will see gradual growth in metro WiFi offerings, but take-up will depend on price points and easy access/billing options.

WiMAX offerings will be in trial from late 2008 to 2009, but there will no be commercial deployment until 2010 or later. Take-up will be squeezed by parallel development in the 3G HSPA cellular technologies and FTTN. WiMAX will initially be constrained by coverage restrictions, but will grow steadily as a complement to xDSL, providing backhaul and infill coverage, and an alternative regional/rural technology. Whilst it will see good growth over the forecast period, growth in the overall market size means it will only comprise 4% of connections by 2012.

FIGURE 16

Internet Connection Technology Type



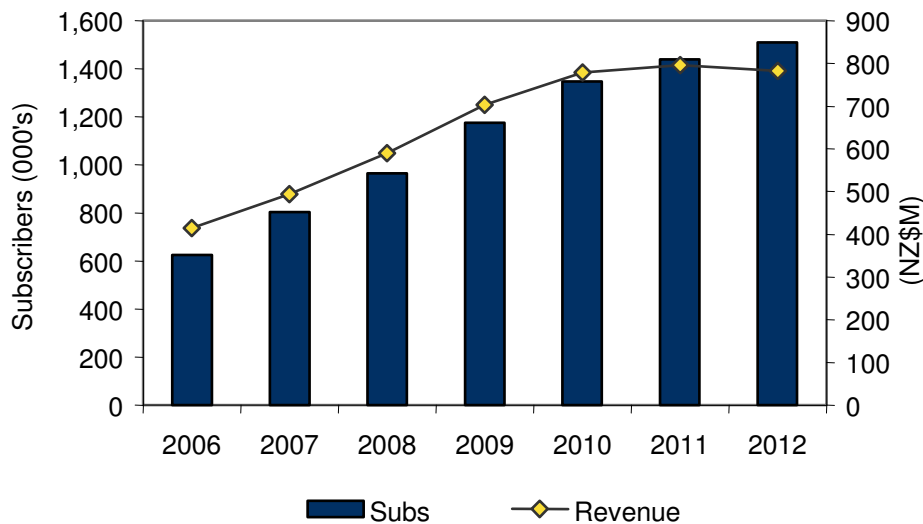
Source: IDC, 2007

Revenue Growth Driven by New Subscribers

IDC forecasts total broadband revenue growth of 58% to NZ\$782 million, of which NZ\$577 million will be xDSL, driven by the top-line increase in subscriber numbers. This will, however, stabilise and decline towards the end of the forecast period to reflect slowing growth and falling ARPU, as shown in Figure 17.

FIGURE 17

New Zealand Broadband Subscriber and Revenue Growth



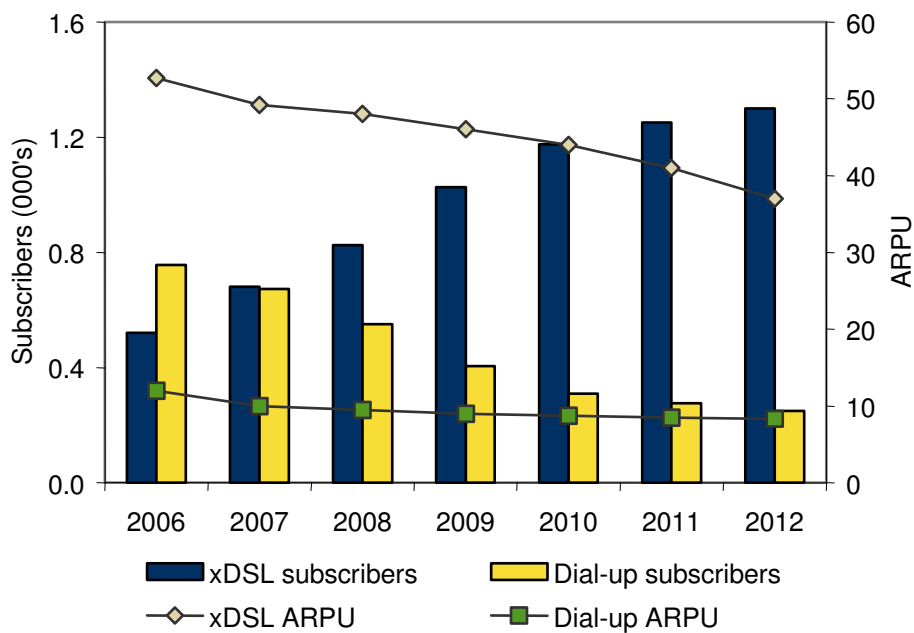
Source: IDC, 2007

ARPU will show incremental improvement before declining. New tiers of high-speed, and better value price plans will support average ARPU initially. However, competition, particularly at the entry level, will lead to overall decline as broadband access is discounted to win new customers, as shown in Figure 18.

A stabilising factor for ARPU will be the industry's need to recoup investment and the regulated cost inputs for wholesale access. We do not anticipate a price war, as few carriers will have the margins or resources to sustain this. However, we anticipate competitors will drive discounted broadband and voice bundles to gain scale. Carriers will also look to upsell and generate incremental ARPU from new video, music, gaming, and other content services. We anticipate xDSL access prices will decline 25% by 2012 to meet customer demand for more affordable broadband services.

FIGURE 18

New Zealand Internet Subscribers Versus ARPU



Source: IDC, 2007

Fixed Telephony Forecasts: A Long, Slow Decline

IDC predicts a steady 5–7% year-over-year (YoY) decline in the total number of PSTN lines as alternative calling options enter the market. Growth in Naked DSL and unbundling will lead to VoIP being offered as a replacement homeline in broadband bundles. However this will depend upon the pricing of naked DSL set by the regulator, and the availability of robust VoIP solutions to service providers.

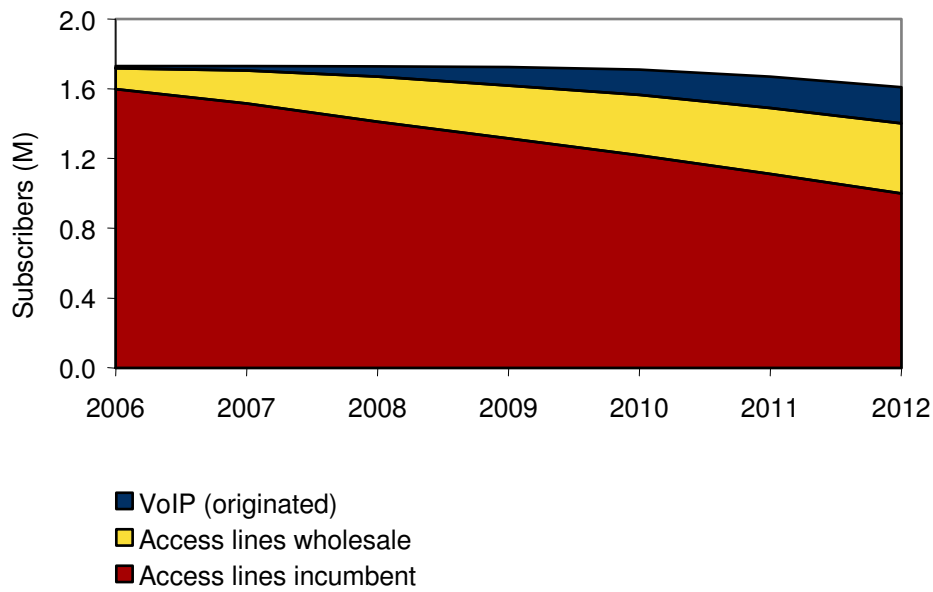
Primary consumer VoIP connections will grow relatively slowly in the short to midterm, reaching 105,000 connections by 2009 rising to 205,000 by 2012. This is due to the limited VoIP capability of many service providers, cost of new CPE and customer inertia in the face of aggressive call discounting. We anticipate VoIP will be used as a secondary line, and restricted to more technologically-savvy users initially before gaining mass-market traction. In the second half of the forecast period, Telecom will cease to defend PSTN revenues and begin to migrate users to its own next-generation VoIP services.

We will also see migration towards mobile only users, particularly if a true homezone offering enters the market. However, this will be inhibited by the legacy of free local fixed calls and the comparatively high price of mobile calling.

Telecom will also face loss of retail market share: competitors will continue to wholesale and resell voice services from Telecom, albeit at low or no margin.

FIGURE 19

Access Lines and Calling Service Type

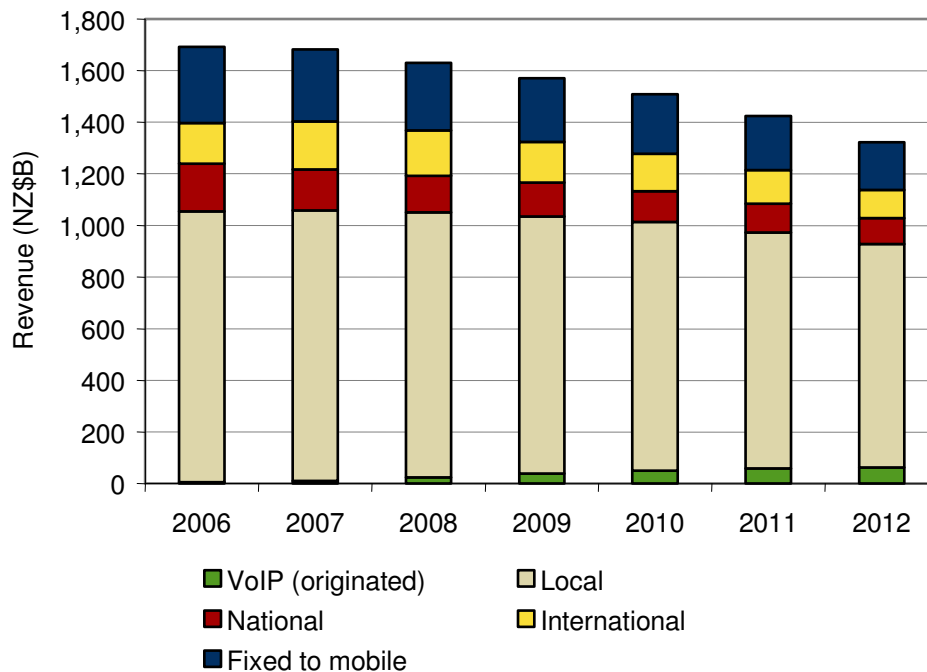


Source: IDC, 2007

This will lead to a 21% decline in total calling revenue, from NZ\$1.68 billion in 2007 to NZ\$1.32 billion in 2012. Long distance will be highly competitive, and local access revenues will be driven down by line loss and competition. Consumer VoIP revenues have been calculated based on a primary line local access connection. These will grow in line with subscriber numbers and call volumes, but discounted price points will inhibit top-line revenues.

FIGURE 20

Calling Type Revenue



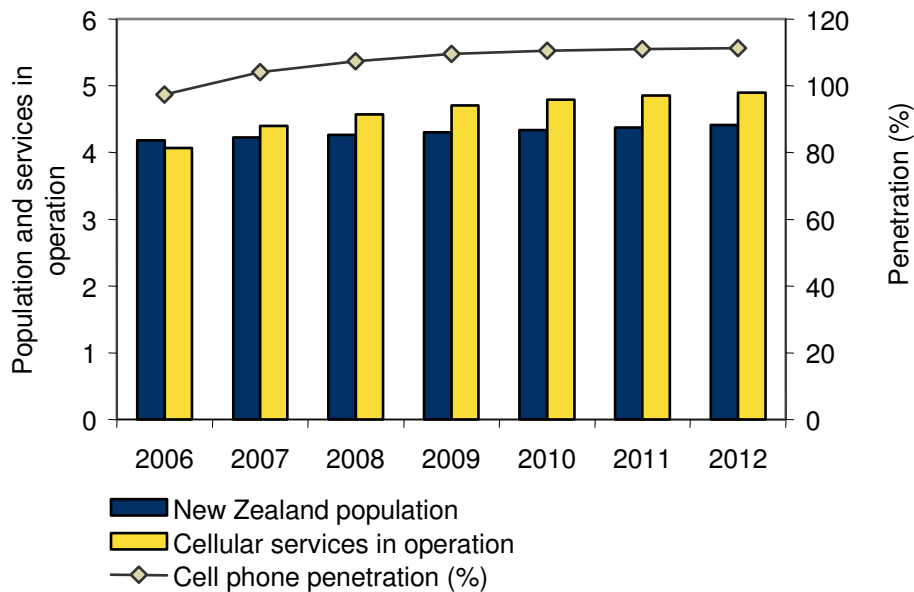
Source: IDC, 2007

Cellular Forecasts: 3G Services Take Centre Stage

IDC expects mobile penetration to reach 111% by 2012, with total subscribers numbers growing 14% over the forecast period to 4.9 million services in operation. This will be driven by new data products, and also growth in population numbers to 4.40 million by 2012 (NZ Department of Statistics).

Cellular services in operation (SIOs) grew beyond natural penetration in 2007, driven by growth in PDAs, datacards and mobile modems, and use of multiple handsets to take advantage of different SP capabilities. New products and devices will continue to drive this top-line growth. However, within this, there will be considerable volatility through migration from CDMA to WCDMA network technologies, the potential entrance of a new network provider and MVNOs, and the launch of converged services and broadband bundles.

We believe further growth will be capped from 2012 due to total saturation. Whilst mobile penetration exceeds 115% in some OECD markets, these are typically markets where there is an unusual level of mobile competition or where mobile has substituted slower fixed development.

FIGURE 21**Mobile Subscriber Penetration**

Source: IDC, 2007

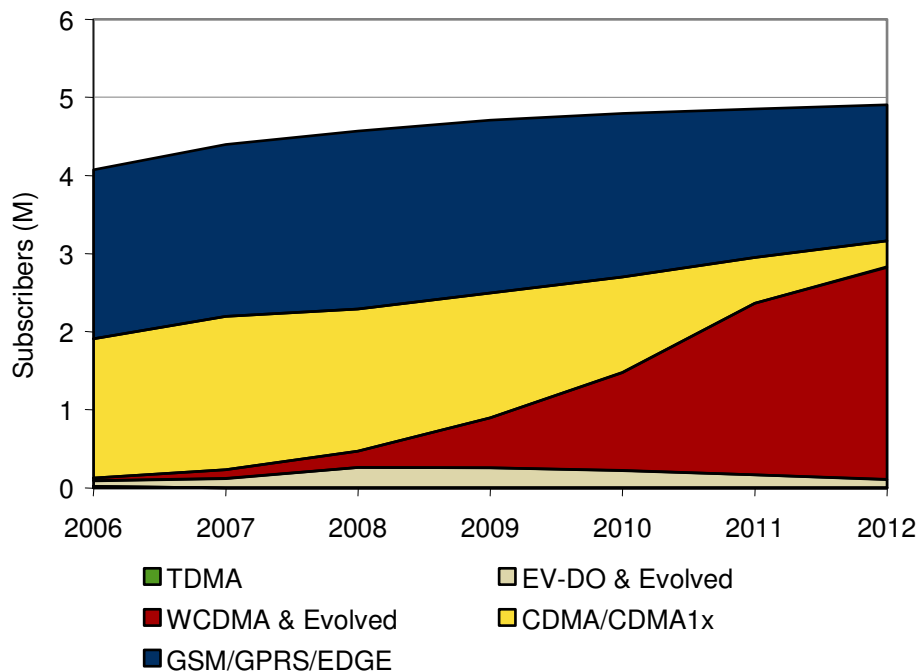
The most significant growth sector will be WCDMA, which will increase from 3% of today's total market share to 55% by 2012. The increase will be driven by Telecom completing its new network build, WCDMA delivering new economies of scale in handsets and services, and Telecom aggressively migrating users from its CDMA network.

Telecom at this stage is planning to roll out its new WCDMA network in main centres, with a national GSM/EDGE underlay from the end of 2008/early 2009. During this time it will promote its next generation CDMA upgrade, EVDO Rev A. Vodafone will seek to win further market share during this transition period.

From mid-2009, IDC anticipates both Vodafone and Telecom will seek to drive the uptake of higher value 3G services, particularly as part of business solutions or higher-value postpaid broadband/mobile bundles. Telecom will also use its WCDMA network to win back whole of business market share from Vodafone, as it will be able to offer a broader handset range and comparable roaming services – a previous business inhibitor.

Telecom has assured the market will maintain its CDMA/EV-DO network for at least five years through until 2012. However, we anticipate it will seek to aggressively migrate users towards the end of this period, due to the economics of running and maintaining multiple networks, with a strong push on 3G-based services.

Both Telecom and Vodafone have a migration path to the next generation of mobile, LTE, but this will not move beyond pilot stage during the forecast period.

FIGURE 22**Mobile Subscriber Growth (Air Interface)**

Source: IDC, 2007

Mobile Remains a Duopoly

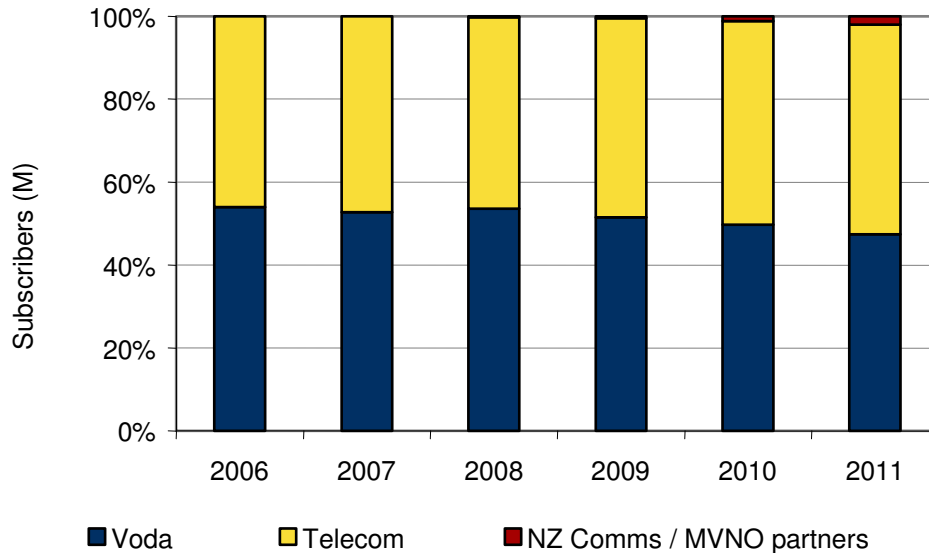
Mobile will become fiercely competitive — but the battle will wage between Telecom and Vodafone, with Telecom winning back an estimated 51% subscriber market share over the forecast period. New entrants will win a total of 100,000 subscribers or 2% market share. IDC assumes Vodafone will continue to dominate in 2008, taking advantage of a challenging transition period for Telecom. However, Telecom is likely to fight back thereafter. New Zealand Communications plans to enter the market in late 2008, having already deployed a number of cell sites in Auckland. However, IDC predicts the new entrant will have considerable challenges establishing itself in an already saturated market.

New Zealand Communications is likely to compete with a low-cost, no frills voice, and text service. We anticipate both Vodafone and Telecom will be willing to lose a percentage of low-value subscribers rather than enter a price war, but will retaliate rapidly should they perceive New Zealand Communications to be a threat. Limited coverage and the requirements and cost of roaming and co-location will also inhibit the new entrant.

Likewise, MVNO providers will have little impact on the mobile market. Orcon, Compass Communications, and M2 will have the ability to provide bundled broadband/mobile deals to help with customer stickiness, but we anticipate little room for truly disruptive price discounting. New Zealand Communications and MVNO provider will have little impact on the mobile market with less than 2% market share at the end of 2012.

FIGURE 23

New Zealand Mobile Market Share Forecast



Source: IDC, 2007

ESSENTIAL GUIDANCE

The industry needs to actively drive new models for infrastructure development. Sustainable network investment will continue to be challenged by population scale, density, and geography. The traditional model of infrastructure-based competition, with many competing network operators, has limited scope in New Zealand. Alternative models may be based on private and public partnerships, which recognize long payback periods and introduce new types of equity-based funding, or it may be infrastructure-sharing between competing carriers. This will not preclude the need for judicious investment in alternative networks in order to drive down costs and increase choice. However, it will need to be balanced with other models of open access or fair regulated access in order to minimise the risk of stranded asset "islands," which cannot deliver economies of scope or scale.

ISPs need to carefully manage the conflicting demands of exchange unbundling with the cost of innovation and customer services. Given tight resources, the risk is that ULL investment will push carriers into a "me-too" strategy, where ISPs are all offering similar services and can only compete on price, lacking the resources for further service innovation. Whilst this can drive broadband growth, an unsustainable price war will compete away margins, commoditise broadband, and drive further consolidation.

Carriers need to recognise unbundling in the cabinet, by its nature, has a marginal business case and work with the regulator on new approaches to competitive access. The drive to take fibre deeper into the network is critical for New Zealand's broadband development but will, by its nature, lead to a degree of network re-monopolisation – although there may be multiple owners or contributors to that network. It does not

preclude competitive investment, but the economics will be too challenging for many carriers. Rather than resist this, the industry needs to recognise that this will inevitably lead to a shift back to wholesale access and services-based competition and work with the regulator on sustainable competitive outcomes that do not slow fibre development. VoIP will be a critical tool in building full-service competition, but SPs launching primary-line VoIP must be extremely careful to both educate and manage users expectations on availability of emergency services, performance during a power outage, and QoS. A "cheap but poor quality" reputation will tarnish VoIP's reputation; it would be better to introduce it as a secondary line if a comparable PSTN service cannot be provided in early stages. Other hyped services — IPTV and Mobile TV — will struggle to deliver user value without genuinely high value, exclusive content. SPs will need to position these carefully as a value-add, priced to attract and retain subscribers in the short to midterm.

MVNOs will need to exploit their existing relationships, brand, and deliver new types of value rather than compete head to head with Telecom and Vodafone. There will be little scope for a "no frills" cut price voice and text offering based on current commercial terms; the opportunity is therefore to create new types of partnership — IT innovation or consumer services that provide relevant incentives and rewards for usage.

The New Zealand market is on the cusp of change. The industry to date has been marked with dissension and bitter infighting. A year of further infighting, legal, and regulatory challenge and inward focus will slow rather than speed development. The potential now is for carriers to observe and learn from the experiences in overseas markets, refocus back on the customer, collaborate as an industry where necessary whilst competing fiercely for the customer.

LEARN MORE

Related Research

- ☒ *New Zealand Market Analysis and Forecasts 2009-2013 – April 2009*
- ☒ *The New Zealand Government's Fibre Initiative – What will it mean for Telecommunication Carrier? September 2009*
- ☒ *Mobile Broadband – Complement or Cannibal to Fixed? August 2009*
- ☒ *The Impact of the Economic Crisis on ICT in NZ – December 2008*

Synopsis

This IDC study is the first integrated market analysis and forecast for New Zealand's telecommunications market, which is an in-depth study of the current and future opportunities and challenges facing the New Zealand market for the next five years. We evaluate in detail international trends, macro-economic factors including regulation, competition, technologies, and services. These underpin our detailed market development scenario and forecast assumptions for New Zealand's broadband, voice, and mobile markets.

"The New Zealand market is on the cusp of change. The industry to date has been marked with dissension and bitter infighting. A year of further infighting, legal and

regulatory challenge, and inward focus will slow rather than speed development: the potential now is for carriers to learn from the mistakes in overseas markets and refocus back on the customer, collaborating as an industry where necessary whilst competing fiercely for the customer," says Rosalie Nelson, research manager, Telecommunications, IDC New Zealand.

"IDC is assuming steady rather than stellar competitive growth. We anticipate the emergence of new full-service competitors eroding Telecom's market share, but Telecom will continue to be the most powerful market player unless there is a truly disruptive change through acquisition or consolidation amongst the market leaders."

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