Strategic Behaviour of Internet Service Providers in New Zealand and the Performance of this Market

By Christina Enright

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Summary

This study provides an economic history of the Internet access market in New Zealand from 1996, essentially the inception of the market, to early 1999. It reviews the strategy literature about entry to new markets and tests a resource-based theory concerning the timing of entry.

The economic history describes and analyses the Internet access market in great detail. One advantage of the small size of New Zealand is that it is possible in studies of this sort to examine in detail the economic and strategic behaviours of almost all firms in the market. The market is one of low barriers to entry and, often, low switching costs for customers. The entry and exit that have occurred throughout the three years of the study, and the consequent rapid, steep price declines and quantity expansions that resulted are described.

The test of entry strategy focusses on the different, complementary resources that each Internet Service Provider (ISP) has had. Mitchell's dual-clock theory is proposed as an explanation as to why Xtra and ClearNet were late entrants among moderately competitive ISPs and yet quickly acquired substantial market shares. Mitchell's dual-clock theory states that a firm from a main industry may enter a subfield later and still become dominant if its resources, acquired in the main industry, are useable in the new subfield. Mitchell's theory focuses on an emergent new product or service that can be identified as a separate field from the main industry, yet have a definite relationship with the original industry, hence a subfield. He discusses the strategy of industry leaders,

entering a market later and using complementary resources to gain market share over market pioneers.

Examination of the theory focuses particularly upon the entry of the ISP Xtra to the New Zealand market, but not to the exclusion of the other entrants. Xtra is the Internet access service provided by Telecom New Zealand Limited, and its parent is the largest telecommunication service provider in New Zealand. Xtra's resources, acquired from its parent company, have enabled it to capture the largest market share and a sustained competitive advantage. In particular, the quantity of financial resources made available to Xtra has enabled the firm's services to be priced competitively and promoted heavily. There may also have been some advantage in communication with the parent company about the use and configuration of network resources that facilitated the outcome, although these resources were available to all competitors at equivalent prices.

Established telecommunications firms are likely to have sought a presence in the ISP market as an option on the evolution of modes of delivery of telephony and related services in the future as technology unfolds. Direct customer contact by an IP may be as important for future telecommunications company profitability as traditional telephony. Xtra's broad-based approach to acquiring customers and ClearNet's focus on existing telephony customers are in accord with this motivation.

Finally, in the New Zealand ISP market it has been possible for a pioneer starting with very limited financial resources to compete successfully and continue to perform well. By its innovative acquisition of bandwidth and pricing strategies Ihug has demonstrated that it can control costs and expand usage to the point that it is a feature of the New Zealand market and ranks third in market share.

The economic history of the New Zealand IP market reveals rapid growth in customer uptake, steeply falling prices and prices that have converged across suppliers. These results are not

surprising given the low barriers to entry and the increasing range of value-added products that are obtainable on the internet. Any economic evaluation of this should also take into account the classic network externality, in which the presence of additional persons with Internet access implies benefits to other consumers who may want to exchange information with them. In fact, although this externality is likely to exist, it may not be a s strong as it was in the history of telephony because of the reasonably close-substitute ways in which consumers can exchange information without Internet access. Importantly, any economic evaluation should also take account of the drivers of lower prices and internet penetration in the population. In this respect the motivations and actions of the telecommunications companies may have a very important influence the economic performance of the market. For example, it is argued in this study that Xtra has had a strategy of very aggressive pricing and broad based promotion funded by its parent. If this aggressive stance induced penetration in the population to expand more quickly than it otherwise would, and Xtra goes on to at least cover all costs, including those of its market investment, then these actions will almost certainly have improved the dynamic efficiency of the economy. The same would be true of any provider that influenced the size, as opposed to the share, of the Internet access market. It is likely that this is the case for market pioneers.

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1.0 Introduction

This study examines the development of the Internet industry in New Zealand over the period 1996-99, and focuses on the provision of Internet access to business and residential customers. It describes the development of the industry through the growth of Internet Service Providers (ISPs), the organisations that supply Internet access. During the period under study, the market evolved from one based on small providers to one based on large, focussed businesses. Although part of the shift was due to increased demand for Internet access, the entry of Xtra[1] into this market was the defining event. Xtra is a separate entity that is wholly owned by Telecom New Zealand Limited. Its method of operation (price scheme, billing methods, presentation, etc.) signalled to other market participants that it was prepared to function in a more competitive way. Furthermore, its parent, Telecom New Zealand, had extensive resources available to support the new venture, which signalled to the other participants that their competitive strategies must change or they would lose customers. Xtra was able to enter the market later than many of its competitors, yet quickly capture the largest market share. Through its investment of resources in Xtra, Telecom New Zealand made a strategic decision to develop and maintain a large presence in the Internet Service Provider (ISP) market.

Internet access services are very similar to the more traditional telephone and data communication services provided by telecommunication service providers. Most major telecommunication service providers have long histories as local monopolies, and have accumulated resources over long periods of time. This accumulation of resources is common among other utilities such as those in electricity and transportation, and include financial, infrastructure, capital and organisational resources. Several studies have discussed the disadvantages faced by traditional monopolies when they subsequently face nimble competitors. These one-time monopolies are often unable to reorganise their significant financial and physical resources, and their management structure is top-heavy and thus unable to mount counter attacks to the entry of new players in their market. This study looks at a different case – one involving an incumbent entering into a new subfield[2] within its main industry, when, in addition, the ex-monopoly continues to be competitive in their original

[1] A business unit of Telecom, New Zealand.

market. The study of Xtra's entry illustrates how firms with significant resources, complementary to the market of entry, can successfully enter later. However, from the viewpoint of others in the industry, this study also suggests the possibility of competing against an incumbent by using a niche strategy of securing low cost key resources and maintaining the loyalty of core customers.

More generally, the business strategy literature recognises that managers are in the position to determine strategies such as adopting late entry into a new market or becoming an early entrant and subsequently facing later entrants. In determining the appropriate strategy, the manager must decide how the timing of market entry affects the firm's current position and its ability to compete in the future. Related to the timing of market entry is the comparative level of resourcing available to each of the competing parties when a new entrant takes action. This study examines the relationship between timing and firm resources through the example of Telecom Xtra's entrance into the New Zealand market during the 1996-1999 period.

Notwithstanding the focus of this study on the complementary resource factor, the existing telecommunications companies would have been motivated by other concerns. In particular, the Internet was new and had the potential to utilise the time of their customers. Managers of these companies may have assessed that it was in their firm's interest to go beyond the provision of network services to maintain direct final customer contact. Maintaining direct customer contact provides advantages that may accrue through various potential future demands for telecommunications related services, and which may protect existing services, such as long distance toll calls, that are seemingly at risk from the Internet. The strategy of existing telecommunications companies may have been to achieve maintenance of their customer base by garnering market share in the Internet market. The Clear and Telecom strategies of focussing on their telecommunication clients are in accord with having been motivated by this factor.

Though generalisations are not necessarily possible for a study of one industry in one country, there may be interesting wider implications to the example discussed in this paper. First, many incumbent telecommunications service providers are entering or have entered the business of providing Internet access in the US, Australia and Europe. Also, this example of the 'incumbent as later entrant'

[2] A subfield is defined in Section 3.

versus ‘new player as market pioneer’ is being played out simultaneously in many regions. In addition, this example has lessons for other emerging subfields in the telecommunications industry.

The paper begins, in Section 2, by defining some relevant telecommunications terms and giving a brief discussion of the telecommunications market in New Zealand. Section 3 reviews some of the market entry literature found in business strategy journals. The review focuses on the relationship between the resources available to the firm and its strategic advantages. Next, Section 4 outlines the development of the Internet market in New Zealand over the period 1996-1999, focussing on the evolution of ISPs through the different stages of development of the industry. These stages are delineated through the actions of a particular ISP, Xtra. The relative changes in market share for each of the major ISPs are discussed together with the way changes in price have affected different types of users. Section 5 then considers this history in relation to the strategic literature – the resources possessed by particular ISPs, and how these resources have influenced market entry strategy and market share. Section 6 concludes.

2.0 Definitions and Telecommunications

A list of telecommunications terms used in this study is given in Table 1. In this section, I discuss some of these terms in more detail, as well as noting some of the characteristics of the industry

Table 1: Telecommunications Industry Terms

Bandwidth	The number of bits flowing through the telecommunications line per second. This term is usually measured in Kbps (thousands of bits per second) or Mbps (millions of bits per second). The average bandwidth of a customer is defined from their business location to the ISP's point-of presence. Most customers size their bandwidth requirement not on average use, but on peak requirements. Choosing the bandwidth size may effect transmission quality but mostly affects the speed at which the user can transmit and receive data.
Data communication network	Network which only transfers data traffic, i.e. traffic from computers and other sources. Voice traffic is normally transferred separately from this network unless it is digitised.
Dial up Access	Customers call a local or long distance toll number which connects directly with a modem or switch. The modem or switch is attached to the ISP's server which connects the user with an international gateway either directly or via a data communication network.
Domain Name	Unique Internet Protocol identifier such as vuw.ac.nz
Fibre Optic Cables	Plastic cables that allow telecommunications traffic to travel at much higher speeds than other cable types.
Hybrid Fibre Coax	This is a hybrid network of optical fibre cables of the transport network and coaxial cables laid to the home. This hybridisation offers a cost-effective manner of providing very high bandwidth in the transport network and hundreds of Mbps to the home, as coaxial cable is cheaper to purchase and install.
IPNet	Internet Protocol Network: Telecom's proprietary network that removes Internet traffic from the PSTN network at each switching exchange and sends it to its destination (usually an Internet Service Provider) via an Internet-optimised backbone.
Internet Telephony or Fax Service	The service is provided via ordinary telephones or fax machines, but is routed through the Internet via the ISP's telecommunication switch. Quality is lower than current telephone services but similar to older satellite technology. ISPs rely on having switching capability at the destination, which became available in 1998 through ISP membership services.
Interconnection Agreement	An agreement between two telecommunications services providers, exchanging traffic between the respective networks. The agreement includes quality of service and payment buy one for the use of use of the other's network.

Table 1 continued

ISDN	High bandwidth service to a location which offers two or more telephone lines at higher speed that the normal 128 Kbps on telephone lines.
ISP	A service provider that connects the customer to the Internet via dial-up modems, or high-speed data service connected to telecommunication switches for routing. The ISP will lease bandwidth from the national infrastructure service provider such as Telecom New Zealand. The ISP will also often provide its own web site for information and entertainment and may cache (or store) commonly used web sites around the world for faster/cheaper retrieval. ISPs often provide value-added services such as customer web site design and storage.
Gateway	Telecommunication switch that provides international access. Internet and voice telephony gateways are usually separated.
Point of Presence (POP)	This is the term used for an ISP's telecommunication switch located in a particular area. The customer calls a local number and the ISP is "present" in that location. The data from the customer is then routed from the ISP's switch through the ISP's gateway to either a national or international Internet site.
Toll Calls	Calls that are billed per minute and may be either national or international calls but are outside the free-calling region defined in the Kiwi Share.
VPN	Virtual Private Network. This is a private network created for organisations with more than one location. The private network is normally created through a telecommunications leased line service. The Internet Service Providers have created private networks on the public Internet through passwords, firewalls and other security measures.

Prior to 1987, only Telecom New Zealand was permitted to provide telecommunications services. Telecom New Zealand was part of the New Zealand Post Office until 1986, when it became a state-owned enterprise (SOE) under the 1986 SOE Act. Telecom was fully privatised in 1991 through the sale of 98% of shares to Bell Atlantic and Ameritech, with the requirement that more than 50% of total shares were to be issued to the public within a specified period. Telecom is a completely vertically integrated service provider within New Zealand, owning the local loop almost exclusively, owning the most extensive national network infrastructure, and operating the first

international gateway. Telecom is the main provider of the national tolls network and 0800 numbers. In addition, Telecom, through its subsidiary, Netway, operates a national Internet gateway, exchanging most international Internet traffic. Telecom also has extensive interconnection agreements and partnerships that provide access to international bandwidth. Low cost international bandwidth is a great advantage for the Internet, as most web sites are located in the US.

At the time of privatisation, the government sold its capital holdings and investments in telecommunications but retained the "Kiwi share", which requires free local calls for all residents, limits residential line rental rates, and specifies a relationship between rural and urban customers' rental fees.

In 1991, Clear Communications, a joint venture among four local and overseas businesses - British Telecom, MCI, Todd Corporation, and TVNZ[3] - began offering a toll service in New Zealand, using a long-distance interconnection agreement with Telecom, and began to build a fibre optic cable networks with national coverage[4]. In 1995, Bell South (now Vodafone) began a mobile service; and in 1996 Saturn began to build a local access cable and telephony network in the Wellington region. Rivalry between Clear and Telecom dates from difficulty in obtaining agreement on local call interconnection contracts. An extensive legal battle went to New Zealand's highest court of adjudication, the Privy Council, before an agreement was reached in 1995. Clear's initial market focus was in the international and long distance tolls market where it quickly captured 20% of the market. Clear has avoided entering the market for local loop provision except in the major central business districts, choosing to focus on higher value business customers. Clear argues its customer base is limited to new or relocating businesses due to a range of issues including number portability[5].

Thus, the telecommunications infrastructure is largely owned and maintained by the largest service provider, Telecom New Zealand, although some companies own small private networks that feed into the national network. Most major telecommunications companies own gateways that provide direct access to international networks.

[3] Now 100% owned by British Telecom.
[4] Clear Communications' effort to develop a national fibre optic network was greatly assisted by long-term contracts with New Zealand Railways Corporation to 1993 and then TranzRail. TranzRail, the national railway company, runs fibre optic cabling along its rail system.

The market is characterised by light handed regulation under the provisions of the Commerce Act 1986. The Act sets out conduct that inhibits efficient economic mechanisms and prevents competition. Grievances are usually brought before the Commerce Commission, the administrator of the Act. Section 36 and 36A of the Act are intended to prohibit monopolistic behaviour by dominant firms for anti-competitive purposes. The prohibition is against misuse of market power. There have been a large number of complaints made against the incumbent Telecom to the Commerce Commission over a variety of matters, including predatory pricing and anti-competitive interconnection agreements, that to date have not been upheld.

An Internet Service Provider is defined as an entity that provides access to the Internet as its primary function. Internet access has been available to the public since 1994 but was first available some 10 years earlier to some academic and government institutions. Since 1996, most ISPs have begun to provide additional services as a way of diversifying into higher value products. ISPs are considered members of the telecommunications service industry since they provide access to the Internet via the telecommunications infrastructure (which includes telephone service, leased-line services, data communication, and billing). Internet access is one of the many services provided by telecommunications companies.

Lists of ISPs are provided in Appendices B and C, with major/national ISPs in Appendix B and minor/regional ISPs in Appendix C. The ISPs are separated by coverage area. National ISPs are those which have advertised their services in all major cities: Auckland, Wellington and Christchurch. The table lists locations of points-of-presence (POP). The location of POPs in the table signifies coverage area for an ISP. All customers making a local call within the POP free call area are not charged toll fees. In 1996, most ISPs had limited national coverage. Voyager had full national coverage because users outside a POP free call area could make use of a toll free number for an additional hourly fee, which was about twice the free call hourly rate. Xtra did not have full national coverage until 1998 but had the largest number of POPs, meaning that a large percentage of potential users could access the service without toll charges. In late 1998, Telecom introduced a service for Internet traffic in order to get this traffic off the national network. This new service,

[5] Telecom claims that it owns all its numbers and a customer must change numbers to switch to Clear or another carrier. A number portability agreement was reached in early 1999.

IPNet, has eliminated competition between ISPs on the basis of POPs. Any customer can now call their ISP via IPNet with no toll charge. The ISPs must purchase the service from Telecom. Thus, the consumer dials a local number, which connects them to their ISP's server for Internet access. ISPs not using IPNet must continue to rely on POPs or toll-free numbers. In addition, customers whose ISP is not on IPNet pay a surcharge of 2¢ per minute.

Most competitors in the industry sell Internet access and other related telecommunications services through bandwidth leased from a data communication network, either that of Telecom, Clear, Saturn, BCL or other provider[6]. Companies then repackage this into amounts usable by individuals and companies. Internet access through either dial-up or high speed data connections is a repackaging of the leased bandwidth, and thus the provision of Internet access has become a new market, a *subfield* within the telecommunications industry. A subfield of a main industry is one in which either new customers emerge for the products or services of a well-established industry, or products or services emerge as new developments in a well-established industry. The subfield of Internet access can be characterised by low barriers to entry, low costs to customers who switch between ISPs, and minimal differentiation.

Entry barriers to the IP market are low. All that is required to start an ISP company is an Internet server ($5,000 to $20,000) and leased bandwidth. Since the leased service can be paid for monthly, it is easy to adjust costs as required. Switching costs are low. Changing ISPs requires the customer to pay a connection fee to the new ISP, obtain a new email address and install some new software. The differentiation of products that does exist is in response to the individual needs of the customer. The factors in determining the level of service include price, speed of access, consistency of access, and help available to the customer. For example, an experienced Internet customer is most likely to want a low monthly price and high access speed, but minimal help. The level of service required for business versus residential customers is distinguished by consistency of access since a business customer requires greater dependability of access. Switching costs are also likely to be higher for some business users due to the need to change email address but this may be avoided by purchasing a domain name.

[6] These other providers may include firms with microwave transmitting equipment or even ISPs themselves as they develop their own infrastructure.

To summarise the key features of ISP services: their up-front capital cost is very low, customer switching costs are low, especially for those entities with a domain name, and while there is some variation in service characteristics, they are sufficiently similar to be regarded as almost homogeneous. There have been variations over time in the quality of services that have affected service characteristics and the relative demands for ISPs.

3.0 Market Entry Literature

This section of the paper reviews an area of the business strategy literature relating to market entry. It discusses how the nature and quantity of resources of a firm affect the timing of its market entry; and the effects of entry into a new subfield of an industry, with particular reference to the relationship between the Internet market and the telecommunications market. Much of the literature discusses entry into an industry with a product. However, it also discusses products that require a continuing relationship with the customer, such as medical imaging, automobiles and pacemakers. This literature is considered relevant to the current case because telecommunication service providers are providing access to a network, either telephony or data communication, and included in this access service is customer billing software and consultation. Consequently, the user will have a continuing relationship with the provider, although a user can switch to alternative providers with some incurred costs. For example, customers are billed monthly and have contact each time they log in to their ISP.

Market entry from an economic perspective is characterised by Bain (Bensanko 1996) as entry reaction and retaliation. Bain describes four possible strategic responses an incumbent can take relative to new entrants into its market. The first is to deter the new entrants from entering the market through control of essential inputs. The second response is to attempt to block the new entrants by explicitly signalling a lower cost structure. Signalling to a competitor is clearly and explicitly indicating a firm's intended strategy through advertising, press releases or actions taken. If new entrants are unable to differentiate their products, then they are expected not to enter the market because their higher cost structure will prevent them from competing with the incumbent on price. The third strategy is to signal to the entrantsprior to their entering the market that a predatory

price will be charged after entry. Predatory pricing involves a firm setting a price lower than the cost structure of competitors, and without regard to its own cost structure. The incumbent cannot credibly continue this strategy without significant cash flows to cover possible extended losses. The fourth strategy is one of accommodation of new entrants. This strategy is most likely in cases where the market has low barriers to entry or high cost of deterrence.

In the economics and strategy literatures, an incumbent is defined in somewhat different terms. Generally, the incumbent is a current provider of goods or services in an industry that has been in the industry for a long period and has a substantial market share. In the economics literature, the incumbent may, depending upon various barriers to entry, have enough market power to be able to influence the market through price setting, controlling distribution channels or product inputs, or setting quality standards. In the strategy literature, the incumbent is assumed to be a stable firm within that industry to be contrasted with the new entrant. Besides being a stable member of the industry and having some success in gaining market share over a period of time, the incumbent is generally described as a firm that has developed a set of resources through its past successes. The incumbent has a secure, well-defined market share and is established within the industry. The power of the incumbent to influence the market is imperfectly indicated by its market share relative to other incumbent firms and directly affected by barriers to entry. The set of resources a firm accumulates from past successes includes financial, infrastructure and capital, both human and organisational. These resources support the firm's continued success in a stable or slowly changing industry. In both classes of literature, dominance in an industry may be gained through a controlling market share, which is not under credible threat of entry.

Caves and Porter (1977) extend Bain's framework by defining the decision of how to react to the new entrant in terms of an investment decision under uncertainty. They generalise the decision of both the new entrant and the incumbent, using the following investment decision criteria:[7]

(1) Expected income after entry

(2) Actual static or structural barriers to entry

[7] Caves and Porter pp. 242.

(3) Expected reaction of the other firms in the market or those expected to enter

(4) Relevant resources possessed by the new entrant

(5) Sunk costs in making the decision to enter.

Gruca et al. (1995) create a similar framework for reaction to a new entrant, one that is commonly referenced in the strategy literature. It includes

(1) The competitive environment of the industry – Are products differentiable? Is there a dominant firm? Is the industry populated by a few firms or several?

(2) Choice of strategy of the new entrant.

(3) Consequences that current entry strategy and subsequent entry decisions have on the current firms in the industry.

In both the economics and strategy literatures, the process by which a firm decides to enter a market depends on the nature and quantity of resources that the firm has available to apply to entry, and the environmental factors in the industry. The economics literature typically assumes that each firm, whether deciding to enter a new market or reacting to a new entrant, is a rational decision-maker wishing to maximise profit. A key component of identifying a firm's strategic behaviour is the time frame over which profit is maximised. Bain's framework assumes that each incumbent has the resources to implement the best strategic reaction. Robinson et al. (1992) point out that both Bain's and Gruca's frameworks assume firms have access to necessary applicable resources in relation to timing of market entry and their relative size in the industry. In reality, each firm has specific characteristics that either helps or prevents it from using all available resources to successfully enact the appropriate strategy: any discussion of market entry must include the industry environment, timing and individual firm characteristics.

In contrast, "resource-based analysis", a terminology introduced in Barney (1991), focuses primarily on the internal elements of the firm that give it a competitive advantage: that is, the firm's internal strengths and weaknesses in terms of its ability to compete against other firms. Sinha and Noble

(1997) describe the resource-based view in the following way: "a firm develops, protects and leverages its own relatively unique strategic assets while attempting to imitate or eliminate the strategic assets of competing firms."[8] Many authors in the strategic management literature use different terms for resources interchangeably: strategic assets, leveraged assets, core competencies, dominant logic[9], and resources and capabilities. Barney (1996) points out that while these terms are used interchangeably and have roughly the same meaning, the term "core competencies", as first described by Prahalad and Hamel (1994), is usually reserved for resources that may be used for diversification. All of these terms refer to a set of resources a particular firm possesses that are applicable to the firm's competitive environment and provide a competitive advantage. For example a firm that has developed a successful distribution channel may consider this distribution channel to be a resource if other firms in industry find it difficult to rapidly create a distribution channel of these same qualities.

Barney (1996) generalises a firm's resources into four categories

Financial capital:	Money resources: cash flows, liquid capital, stock value
Physical capital:	Technology, plant, equipment, geographical location
Human capital:	Training, experience, judgement or insight of individuals or managers
Organisational capital:	Formal reporting structures, planning, control and co-ordinating systems or informal relationships with suppliers and customers.

He evaluates these resources in terms of their value, rareness, imitability and organisation. This evaluation criterion is applied to a snapshot of the firm's assets. Over time the value of human capital, for instance, may translate into increased value in financial capital through profits. The value

[8] Sinha and Noble (1997), pp. 468.

of a resource is determined by its ability to enable the firm to respond to environmental threats. The term "rareness" is applied with respect to the number of other competitors in a market who have these resources, whether competing firms are at a cost disadvantage when trying to duplicate or create substitutes for these resources, and whether the firm is organised in such a way so as to be able to exploit the full potential of these resources. The usefulness of the resource to the firm depends on the four properties; and may determine whether a firm entering a new market will have a competitive advantage over its likely competitors.

Entrants into a market are classified in Robinson et al. (1992) according to the timing of their entry relative to the lifecycle stage of the industry. Early entrants into an emerging market are identified as "market pioneers". Firms that follow these pioneers as the market becomes identifiable, are called "early followers". Firms that enter a fully defined market, with clear market segments, are classified as "late entrants". There is a diverse body of literature to discuss why the new market has materialised (see Tushman and Anderson (1986)) and will not be discussed here. The main focus of this study is to describe the timing of entrants and what advantages they may gain from that timing relative to their resources in determining their eventual place in the market. The concepts of value, rareness, imitability, and organisational support when evaluating resources provide a way to rank a firm's resources and thus its ability to compete in the current environment. When evaluating resources in a market entry decision, these properties must be assessed relative to the entry timing strategy rather than as absolute properties of a resource.

Previous work in the strategy literature follows two distinct methods of analysing the timing of market entrance. The "Absolute Pioneer Advantage theory" or "first mover advantage" is evaluated in Lieberman and Montgomery (1988). This theory states that market pioneers are intrinsically stronger, and have a competitive advantage from being the first entrants into a new market. These firms gain their strength through developing the necessary skills and resources to compete efficiently. Robinson et al. (1992) go further in asserting that a firm's given set of skills and resources does not determine a particular order of market entry but increases the probability that a firm will choose a particular type of entry. Lambkin and Day (1989) test this assertion and further argue that smaller

[9] Dominant logic of a firm, for example marketing systems used for competitive advantage.

firms are more able to quickly respond to changes in the product or market. These smaller, more flexible firms are better suited as either market pioneers (prior to competition entering the market) or late entrants (able to respond quickly to changes in product demand). Mitchell (1991) extends the idea that a particular skill set or resource set creates greater success when a firm times its entry to make best use of these resources. In his empirical study of the medical imagery industry, he found that firms whose parent organisations had higher-value applicable resources were most likely to succeed as early followers. The early follower applies its resources to a market with less risk than the market pioneer and less competition than met by the late entrant.

In his study of market entry in the US automobile manufacturing industry, Carroll (1996) classifies the entrants based on their bundle of resources. A new entrant may be classified as possessing an entrepreneurial set of resources. An established entrant brings a set of resources, developed in another market, that is useful in this new market. Most literature agrees that older organisations also often have "baggage" that prevents them from responding quickly to changes in market demand. Carroll (1996) contradicts the notion that years of experience in an industry increases the probability of survival. He postulates that organisational resources are the primary reason for increased survival rates. Empirical results from the US automobile manufacturing industry show that the established entrant owes its success in the new market to the difficulty competitors have in replicating its resources, rather than the age of the firm. Carroll compared bicycle, carriage, and engine manufacturers' entrance into the US automobile industry. In this study, operational and product distribution skills increased survival rates. Results also showed that newer firms are less likely to have the financial resources to carry out proper planning prior to market entry. Mitchell (1994) also asserts that these established firms often have better financial and physical capital and personnel resources, and Levinthal (1991) finds that these firms are more likely to focus on longer-term success in a new market.

The second method of analysing timing to market entry relies upon the resource-based analysis approach. Abell (1978) discusses a "strategic window" where a firm's specific resources or competencies best fit the market requirements. Firms that enter during this "strategic window" are most likely to have a competitive advantage. Kerin et al. (1992) extend this concept by stating that

matching resources at time of market entry with market conditions creates a sustainable competitive advantage. They define the order of entry as being conditional upon the following effects: product development time, scope economies, search characteristics of the good, rate of technical change of the good, demand uncertainty, process and product innovation, investment in co-specialised assets, buyer purchase frequency, and market instability. Szymanski et al. (1995) describe a particular case from their empirical analysis:

> "The most logical late entrant might, for example, be one that can more effectively capitalize on their current product portfolio and new product market opportunities as uncertainties diminish. Late entrants may also excel at marketing – superior marketing skills can be crucial for identifying overlooked niche markets."[10]

Much of the initial work concerning market entry looked at the emergence of a completely new market. Later work has focused on entry into new subfields of a currently established industry. Mitchell (1991) defines a subfield as a new market that emerges following a significant technological advancement in an industry. Sinha and Nobel (1997) describe the emergence of a subfield as a chance to achieve a sustainable competitive advantage in an otherwise stable and mature industry. The cause of the change in the industry to create this new subfield may have relevance to a firm deciding whether its resources in the main market are relevant to the new subfield.

Stinchcombe (1965) describes an industry lifecycle as being defined by two phases. The first phase has great growth spurts with the founding of many organisations. The second follows as a stable period with slow growth. Based upon some events, the industry returns to the first and then the second phase in a cyclical fashion. This "punctuated equilibrium" of changes in stability and growth are traditionally attributed to changes in the environment. This model assumes that an industry doesn't die but transforms itself as product demand changes. Abernathy and Clark (1985) define these changes as innovations in technology, changes in government policy or regulation, or changes in consumer preferences. Swaminathan (1998) defines a mature industry as one having a few dominant firms, high barriers to entry and a low rate of new entrants. Thus competitors in the mature industry are stable in number and have evolved so that their resources are applicable to the

[10] Szymanski et al. (1995) pp. 23.

industry and are not easily imitable. Scherer (1980) describes the case of a few dominant firms being generalist firms taking advantage of economies of scale. In his study of microbreweries in the US brewing industry, Swaminathan (1998) describes the impetus for a new entry into a mature industry as coming from either exogenous or endogenous sources. The exogenous cause is created by a discontinuity in the industry's environment. The endogenous changes occur because the generalist firms do not serve the customers at the edges of the market well and thus new entrants can survive on the periphery of the industry. The exogenous factors that precipitate new entry into a mature industry are the same factors that create a subfield, such as changes in manufacturing process or technology. Thus a subfield is created from a mature industry due to environmental changes that the incumbents could not have planned for with their current set of resources. New entrants in a peripheral area of a mature industry signal the creation of a subfield that is offering different products to the incumbents. This subfield will begin its own lifecycle of dramatic growth followed by stability. Gilbert and Newbery (1982) found evidence to suggest that the new entrants into a subfield will gain above-normal economic rates of return if their resources are not highly imitable. Mansfield (1981) found that the first entrants to a subfield with imitable resources do not have a sustainable competitive advantage.

There is clearly a dichotomy between the Absolute Pioneer Advantage theory and the resource-based theory. In one case, the market pioneers will become the market leaders, and in the other case the firm that best times its entrance, given its resources, will gain sustained competitive advantages. Mitchell (1991) attempts to explain these two concepts with the idea that different types of entrants are on different "clocks". A "clock" can be defined as the time of formation of the subfield until a firm enters that subfield. The concept of dual-clocks is complementary to the idea of strategic fit between resources and order of entry into a market.

Mitchell (1991) presents the idea that new entrants into the market as a whole and incumbents in the main industry are on different clocks for order of entry into a subfield. His basic premise is that two separate clocks exist: clock-1 records the order of entry of each firm to the subfield, and clock-2 records the order of entry of the incumbents active in the main industry. Clock-2 is a subset of clock-1 containing only those firms that possess applicable resources. The gap between clock-1

and clock-2 represents the time it takes to replicate the incumbent's resources or specialised assets. For example, if firm A enters 18 months before firm B, and firm B possesses applicable resources to the subfield then, assuming both firms are successful in capturing market share, the theory states that it took firm A 18 months to duplicate firm B's resources.

In the framework of resource-based analysis, Mitchell defines the incumbents' specialised assets as characterising the individual firms, with every incumbent having a unique set of these assets. These specialised assets or resources are defined under Barney's framework and are specifically applicable or usable in the subfield. A single resource may provide the incumbent with a competitive advantage but it is more likely that the combination of resources provides the advantage. Mitchell's empirical study of the US diagnostic imaging industry assumes that success in the subfield is defined by the amount of market share the firm gains after entering the subfield. His reasoning for using this definition of successful performance is based upon the assertion that superior market share will lead to survival in the subfield.

Mitchell's (1991) empirical study concludes that an incumbent is better off entering the subfield later, when uncertainties in product requirements and demands are diminished. He further asserts that timing of market entry is more important for incumbents than for new entrants. Since all incumbents share similar specialised assets, early incumbents may effectively be able to close out later incumbents by capturing superior market share early. Both incumbents, however, would benefit by entering later than the market pioneers. Thus, the order of entry between incumbents is a waiting game. The key is to be the first incumbent to enter, waiting for product or service demand to be stable, yet not allowing the market pioneer to be able to duplicate assets. The incumbent's specialised assets are valuable because the users attracted to this subfield are similar to those using the products in the main industry, even though the products themselves may have changed. Mitchell does observe that participation in the main industry does not guarantee that the specialised assets will be complementary to the subfield for all incumbents, but that the incumbents are more likely to possess these assets. The study did not distinguish between types of assets and there may be some effect from an incumbent's possession of more capital, enabling investment in the subfield with lower risk to the firm. Thus, in a group of potential entrants into a subfield, the incumbents in the field that

possess superior financial assets may have a competitive advantage over other incumbents in this respect.

Mitchell also concedes that not all industries will experience this dual-clock phenomenon. The key to determining whether this situation exists in a given industry or subfield is whether incumbents possess specialised assets that take time and substantial costs to replicate. These assets or resources have been developed prior to the creation of the subfield, usually over many years of competing successfully in the main industry. They often assist in the manufacturing, distribution or service of a new product. Any new entrant that possesses these applicable resources from another industry should, in theory, receive the same benefit as the incumbent. In practice, however, incumbents from industries unrelated to the subfield will not possess the same type of resources. Even though the early entrant acquires some specialised skills, these may not be enough to overcome the broader skill-base of the later incumbent. New entrants that attempt to purchase resources through acquisitions or mergers often change the resources set through the change of ownership process and may not gain the same benefits as the incumbent prior to purchase. Thus the dual-clock phenomenon is most relevant in industries that have provided incumbents the time in which to acquire assets.

Banbury and Mitchell (1995) extends the concept of separate clocks for new entrants and incumbents to include incremental product innovations. Mitchell (1991) defines a subfield as a "significant" technical innovation. Banbury and Mitchell (1995) define a product innovation as something less radical: "important incremental product innovations that are product refinements and extensions of established designs that result in substantial price or functional benefits to users."[11]

The concept of incremental innovations can be applied to an industry or a subfield in which the early growth stage has subsided and subsequent actions effect market share. Banbury and Mitchell's empirical study of the US pacemaker industry concluded that, in general, firms that continue to innovate are more able to respond quickly to an evolving industry. Furthermore, the incumbent that introduces the innovation is more likely to gain market share over any new entrant. The incumbent's specialised assets often create a competitive advantage over the new entrant because the incumbent

does not need to develop distribution and marketing systems at the same time that they are expending resources on product innovations. Banbury and Mitchell conclude that:

> "by being first to market with incremental innovations, firms protect their market share from competitive erosion. Simply put, if somewhat figuratively, it is better for a firm to cannibalize itself than be eaten by its competitors."

Thus the incumbent may have an advantage by entering a subfield later, but must continue to monitor the timing of innovations in order to maintain market share. The study did find that later adopters have some advantages when an innovation created a further market segmentation.

From the market entry literature, we can conclude that though first-movers in a new market may obtain substantial market share, their gains are not necessarily sustainable. The incumbent who comes from an industry with complementary resources, specialised assets, or skills will have competitive advantages in the new market that allow later successful entry with less risk. Any entry into a new market involves risk derived from unknowns such as eventual size of demand and product requirements. Waiting to enter a subfield after its uncertain birth process eliminates some unknowns, thus decreasing risk. These specialised assets have a good chance of being complementary when the incumbent enters a subfield of the industry in which they already participate. Many of the systems that have led to success in the main industry will be of benefit in the subfield.

These benefits also continue as products in the subfield are continually modified. Thus, when managers weigh up the potential benefits of entering a new market, they should first take stock of the firm's resources or special assets, as resource analysis would dictate. The next step is to create a strategy for market entry that includes timing of entry in relation to the firm's resources. The key is for the incumbent manager to wait until the subfield becomes stable, yet be the first incumbent to enter. The work presented has illustrated that waiting to enter a new market may in fact be advantageous for incumbents relative to the actions of other entrants.

[11] Branbury and Mitchell (1995), pp. 161.

This concludes the review of the management entry strategy literature. Its applicability to the Internet market will depend upon the complementary resources actually provided by the incumbent and the extent to which the incumbent firm's subsidiary (entrant) has a comparative advantage in their use. As identified, an ISP requires access to bandwidth and a server, neither of which places high demands on capital. Any ISP may access the incumbent's services, but some small comparative advantage may accrue to an incumbent's ISP subsidiary due to information held about the parent's network services, and managerial communication. In addition to anticipated profits to be obtained in the new market, the incumbent subsidiary's entry to the Internet subfield, and the extent to which it has been supported financially, may well be influenced by a perceived need for the parent firm to retain its customer base. Although the ultimate effect of the Internet on the telecommunications industry is unknown, there may be advantages in retaining or developing final-use customer relationships. If so, then telecommunications companies may seek to achieve this by developing their own Internet service providers.

4.0 Growth of the Internet Service Provider Market in New Zealand

In this section, I describe the growth of the Internet market in New Zealand, focusing on the development of ISP's over the period 1996-1999. The discussion is based on an extensive search of the Reuters database. First, a search was made based on all articles published in New Zealand with the word "Internet" contained within the article. These articles were further filtered for content regarding ISPs. A list of all companies providing Internet access in 1996 (the time the Internet access subfield became commercialised) is provided by a New Zealand guide to the Internet, "Wired Kiwis" (Wiggins 1996). The web pages of the ISPs also provided information about the industry. Little information is known about some early ISPs that closed prior to the start of this study (1996).

This study focuses primarily on the ten largest ISPs in New Zealand, as defined by market share. A summary of significant events relating to these ISPs is provided in Appendix A and the narrative should be read in conjunction with this appendix.

The development is divided into four distinct stages, according to the level of competitive reaction to events such as the entry of new competitors and subsequent changes in pricing strategies. Changes to the demand side of the market, such as the segmentation of consumers, are a factor in the development of the market but their role is not explored here. The description emphasises the timing of entry of telecommunications service providers relative to the earlier entry of smaller ISPs, and classifies each ISP by the resources it possessed at entry.

Stage 0 is characterised by a small number of Internet users and collegial competition between access providers. There is no relatively large firm, competition between firms is minimal and market penetration is very low. Stage 1 sees Internet access companies run as businesses rather than as clubs or hobbies. Competition becomes fierce and a relatively large player emerges. Stage 2 begins a more stable period after the non-survivors have left the industry. Prices are more stable and ISPs can be classified into generalists and nichers. Internet users are growing by about 100% a year. ISPs have cut prices to remain competitive, and they seek to provide other telecommunication services that produce higher margins than Internet access service. Stage 3 sees the emergence of the larger ISPs as direct competitors to the telecommunications providers, and another round of price competition.

4.1 Stage 0: Prior to April 1996

Pre-commercialisation of the Internet in New Zealand

From 1995 to early 1996, there were two distinct market segments, not-for-profit providers and for-profit providers. The primary difference between these two segments was motivation for providing Internet access. The not-for-profits were primarily concerned with providing service to their constituencies and covering the costs of service. The for-profit entities sought financial gain from providing service.

The not-for-profit organisations can further be broken down into universities and polytechnics, and co-operatives. The universities and polytechnics were principally motivated by the need to provide Internet access for their staff and students. These educational institutions created infrastructures on

their campuses, and in the early days some of them sought to recover some of their costs by using excess capacity to extend services into their local communities. Providers in this market segment included: Taranaki Polytech, Canterbury University, Victoria University (now for-profit NetLink), Waiariki Polytech, and Wanganui Polytech. Much of the costs were covered by the information technology (IT) infrastructure of the institution and the service was managed by the campus IT staff. The majority of users had some affiliation with the institution. There were few business users.

The other type of not-for-profit organisation was the co-operative. Some of these were local community groups attempting to provide Internet access to small and rural towns not serviced by the educational institutions and for-profits. These organisations collected money in order to pay for these services and were usually run by volunteers. Examples include the REAPs (Regional Education Activities Programmes), which provided Internet service to high school students and later to the surrounding communities. As can be seen from the ISP list in Appendix C, REAPS are still located in rural towns. Other co-operatives included PlaNet and PlaNet Free New Zealand. Some of the original co-operatives are now run on a profit-making basis and have created niches for their services by focusing on particular groups/issues e.g., Christians, Gays, and environmental groups.

The for-profit ISPs can be segmented into homegrown organisations and those started by offshore organisations. The homegrown organisations were based around the three main population centres of Auckland, Wellington, and Christchurch. Often, individuals wanting to use their technical skills to capitalise on a need in the marketplace started these organisations. The best example of this type of organisation is Internet Users Group (now known as Ihug). Tim and Nick Wood started this service in the basement of their home in Auckland but demand quickly grew and several moves of premise were necessary. Other ISPs in this category include ICONZ, IproLink, NetLink, Actrix, SouthNet, and TpNetLink.[12] Several computer stores also tried to capitalise on the new interest in accessing the Internet. These organisations include CompKarori, Comnet (predominately switching technology), Eastern Southland Internet, Plain Communications, and PC Net. An entrepreneurial spirit that overcame a lack of financial and management resources typifies these homegrown firms. The users of these services tended to be similar to those who subscribed to the non-profit services,

[12] This is the current name after acquisition by NetLink.

but they either had no affiliation with a service-providing institution, or were seeking greater access than email and occasional Internet surfing, which was limited by pricing and speed of access. Some were early business users of the Internet.

Internet service was also provided in New Zealand by offshore organisations - Microsoft, CompuServe, IBM Global Networks, and Voyager. Voyager was started as a joint venture between OzEmail and two New Zealand entrepreneurs, with OzEmail[13] providing most of the Internet access expertise. Voyager is an exception to this classification because OzEmail's resources and character is closer to the case of a New Zealand homegrown ISP. OzEmail's financial and capital resources were limited and the owners relied on their desire to succeed rather than access to overseas assets. The majority of users of these services were businesses that required a high level of reliability and bandwidth.

Demand for Internet access through this period was small but growing steadily. Some price competition existed but most variation was due to differentiation based on service. For example, customers paid a premium to CompuServe for access to its extensive information databases. Fee structures consisted of a membership fee and usage fee based on Mbytes downloaded.

4.2 Stage 1: Mid 1996 – December 1997

Commercialisation of the Internet

At the start of 1996, there were more than 30 ISPs in New Zealand. Most of these ISPs served regional markets while Voyager, CompuServe and IBM served the national market. The largest ISP in New Zealand in terms of market share was Voyager. Voyager was 80% owned by OzEmail and 20% owned by local New Zealand entrepreneurs.[14] OzEmail was the largest ISP in Australia but had only recently translated this status into commercial success by recouping part of its heavy investment in new technology. OzEmail/Voyager was beginning to gain a reputation as first firm to market with each incremental technological improvement. The next largest ISPs with national coverage were IBM and CompuServe, both operating out of the US. These two providers

[13] OzEmail has the second largest subscriber base in Australia.
[14] OzEmail now owns 100% of Voyager.

concentrated on providing service to business users. All the ISPs were roughly price competitive, with the exception of IBM and CompuServe, which charged a premium.

Voyager focused on the home user with little technical expertise. Prior to Xtra's entry, Voyager's prices led the competition. Voyager had six POPs in New Zealand, all in major population centres. Most customers could access the service outside the POP local calling area via 0800 toll free numbers.

CompuServe had distinct advantages due to its large presence in the US market, which gave it access to management and software expertise not available to the other national competitors. CompuServe also had an international reputation for the high informational content of its web site. Non-subscribers regularly requested access to the site content, and CompuServe later split site access from the Internet access business to maximise profitability. IBM had a large international telecommunications network and was able to offer prices based upon a cost structure that made use of that network. IBM also had several large business customers in New Zealand, and was a trusted name with these institutions.

Each of these national competitors had a similar pricing structure for their services and offered either a local calling number or an 0800 (free) calling service.

The smaller ISPs, such as The Internet Users Group (Ihug), NetLink, Actrix and The Internet Company of New Zealand (ICONZ), generally targeted customers in their local calling area and focused on business users within that region. Only Ihug actively pursued a national focus. Though most of its customers were in Auckland, Ihug secured bandwidth capacity from a source external to Telecom.[15] By late in 1996, these smaller ISPs began to offer limited data transmission services with their spare capacity. Internet telephony service was available in 1996 but limitations in the technology constrained uptake until 1998. Actrix offered a national Internet service in November 1998 with use of a toll-free number.

[15] External sources include trans-Tasman service via satellite, an agreement with SITA (an international airline communications company) for their excess capacity, and an Auckland-based wireless service using radio transmitters. These sources are separate from any bandwidth that Telecom provides to ISP.

Competition among ISPs changed dramatically in mid-1996 with the entrance of Xtra, a business unit of Telecom New Zealand. As noted above, Telecom has a commanding competitive position in the telecommunications industry in New Zealand arising from its ownership of a large part of the national telecommunications infrastructure, including local access. Most customers call their ISPs locally using Telecom owned lines to the ISP's switch or via a toll-free number.

During 1996 and 1997, Xtra was run separately from Telecom. Separate staff were hired to develop Xtra. Equipment to provide Internet access was purchased. Xtra did not signal its relationship with Telecom in advertisements and news announcements. However, staff were located within Telecom buildings and had access to Telecom management staff. The Xtra technical staff also had unfettered physical access to the Telecom network for installing, testing and maintaining their own equipment. Most importantly, Telecom was funding the venture and seemed to have an open-ended timeline for success. During 1998, Xtra was re-branded as Telecom Xtra and Telecom admitted that it did not expect to recoup costs for another two to three years[16]. Xtra maintains that, due to its bulk purchasing, it pays Telecom less for telecommunications access than do other ISPs[17].

When Xtra entered the market in 1996, the stated goal was to obtain 50% of all new Internet users. (In fact, during 1996, Internet connections grew at a rate of 17% per month.[18]) Xtra did several things differently from ISPs already in the market. First, the set-up fees it charged users were much lower than those charged by many competitors. Second, charging was on a time basis rather than by usage (Mbytes), thereby making it easier for users to estimate charges. Third, Internet charges were placed on the telephone bill, allowing users to make one payment for all Telecom services. Fourth, their connection package was tailored to the inexperienced computer user and their web site was designed for the home customer seeking information and entertainment. The site was elaborate by New Zealand standards, and Xtra used it to create brand identity. One aim was evidently to draw more home computer users into the market.

In anticipation of Xtra's launch, Voyager announced its intention to add POPs to supplement the six already operating. More POPs would increase the number of customers who could access the

[16] Telecom 1998 Financial Statements
[17] Quote from Xtra manager Chris Tyler to the press.

service via a (free) local call. Voyager also announced its intention to purchase additional servers. Evidently, however, not all nodes or servers were purchased - OzEmail's 1996/97 end of year financial report claimed only 6 POPs in New Zealand.

During the first half of 1996, Voyager had problems with the fast growth of customers, as evidenced by complaints of slow service and inability to fulfil customer requests. Rumours circulated in the press that Voyager was slow paying Telecom for wholesale services, and Voyager cut its 0800 number briefly in a dispute with Telecom. Due to the fast growth in subscribers, Xtra also had significant problems in providing service, and there was negative press regarding technical help, ability to connect, and service outages. Most service complaints had stopped by mid-1997.

During Stage 1, Xtra made an additional significant change to their pricing schedule at entry into the market. In August 1996 they cut their rates by 50% and their 0800 access prices to $1/hr below Voyager[19].

Xtra's entry price was below other ISPs, but appeared to have only minor effects on competing suppliers and customers. The August 1996 pricing scheme, however, had a dramatic effect. Many smaller regional ISPs complained they were unable to compete, and 19 of the 80 ISPs in operation at the start this phase either closed or stopped providing Internet access service. IBM and CompuServe did not match either pricing scheme, and also lost customers. The international infrastructure of these ISPs, and associated cheap bandwidth, was a competitive advantage in the market prior to Xtra's entry; but became a weakness with the entry of Xtra and some of the other more competitive ISPs. The international ISPs experienced high national costs, with few points-of-presence, but had no advantage internationally, as Xtra, through Telecom, faced the either the same or lower international costs. Both CompuServe and IBM continued to lose market share and had became insignificant competitors by the end of Stage 1.

[18] Templeton, pp 25.
[19] Voyager initially charged $6.95/hr and Xtra $4.95/hr but Voyager immediately dropped their price to $5.95/hr in order to compete with Xtra's price.

Voyager was the other significant loser during this period, with its market share dropping from 38% to 22%. Voyager was unable to meet the new pricing regime due to its cost structure, which it complained was largely dictated by Telecom, from whom it purchased bandwidth and 0800 service.

In November 1996, six months after Xtra's launch, Clear Communications, New Zealand's second telecommunications service provider, launched its own ISP, ClearNet[20]. Clear's initial investment in the service was NZ$8 million and ClearNet started with 15 points of presence. ClearNet is a business unit of Clear Communications and there was no pretence of separation between the two entities - ClearNet uses the resources of Clear Communication as necessary. Clear stated that its competitive advantage would be in its ability to provide superior service. ClearNet launched its service with much less fanfare than Xtra and primarily offered service to existing customers, most of which were businesses. In 1997, ClearNet began focusing even more directly on business customer needs, with increased offerings for value-added services such as hosting web sites and supplying high-speed data services over the Internet. The ClearNet pricing strategy was different to Xtra's, and was based on peak service demand times. (See the ISP price list in Appendix B.) At $5.95 per hour, ClearNet's 0800-access service was unable to compete with Xtra's offer. For whatever reason, Clear decided that it could not match Xtra's toll free pricing. Despite being less aggressive on market entry, ClearNet quickly captured about 17% of the market and it maintained this share throughout the period.

In general, although Clear Communications' parent companies were well-resourced, it seems that Clear may have had fewer resources available than Telecom.[21] As may be expected, it targeted large users. Although it has built a national backbone, its bandwidth capacity is less than that of Telecom. Specifically, the backbone runs only through the main population centres. Its organisation is much smaller than Telecom's and its customers are mostly confined to businesses in the CBD of major population centres. Its residential customers are mostly confined to Auckland.

[20] Clear announced their intention to start an Internet access service in July 1996, soon after figures were first released showing Xtra's phenomenal growth.
[21] 75% of Clear Communication was purchased by British Telecom in June 1999 which will may affect access to resources. MCI was the majority owner prior to British Telecom but Clear's financial resources seem to have been restricted parent owners.

Ihug grew substantially during this period. At the time of Xtra's entry, Ihug began to offer a flat rate service, backed by the bandwidth it had obtained from sources outside of New Zealand. Its pricing plan implied far lower charges for heavy Internet users (details in Section 4.5), and Ihug was able to compete with the other firms in this small segment of the user population. Financial success allowed Ihug to grow, offering services nationally and in Australia by the end of Stage 1.

Other ISPs, such as NetLink, Actrix, ICONZ and some regional ISPs, maintained their customer base but their overall market share did not grow with the major ISPs. NetLink, for example, chose to target business customers and de-emphasise residential customers. This relegated them to a small, profitable ISP in the Wellington region.

Stage 1 thus saw dramatic changes in competitor positions and pricing schemes:

- Xtra entered the market and quickly influenced prices and price structures, and expanded market share.
- ClearNet, in a less aggressive manner, entered the market and followed Xtra's actions, becoming second in market share, targeting business customers and following Xtra's strategic behaviour.
- Ihug competed with a radically different pricing structure of a flat monthly rate, which it was able to offer by sourcing bandwidth from other than Telecom and Clear.
- Voyager drifted from first to fourth in market position during this period, and was unable to remain price competitive.
- CompuServe and IBM lost market share.
- Smaller and regional ISPs had to learn to compete in this new environment or exit the market.

The end of Stage 1 brought fewer accusations in the press about anti-competitive behaviour and violations of net etiquette, and saw more stable market prices. Xtra's prices remained stable through to the end of 1997 and, after their initial response, competitors also settled into a period of stable prices. By the end of the period, all ISPs were experimenting with offering traditional

telecommunications services such as ISDN and leased-lines to supplement their Internet access revenue streams, which had decreased in profitability on a per-subscriber basis.

4.3 3 Stage 2: 1998

ISPs develop into "Little Telcos"

After the intense price competition of Stage 1, Stage 2 saw the Internet market move into a period of stability , with a lower rate of exodus of providers. The practice of offering telecommunications services spread to smaller ISPs, and by the end of 1998, most ISPs offered some type of telecommunication service focused on business customers. Most of these services focused on data communication, but some included forms of traditional voice telephony. These services competed directly with those of the telecommunications service providers, and frequently undercut their prices. As marketing for these services grew, so did customer interest, and the ISPs, as subfield members, were effectively competing with firms in the main industry in some areas.

By the beginning of Stage 2, the ISPs could be classified into two types: "generalists" and "nichers". The generalists, or "full service ISPs", included Xtra, ClearNet and Voyager and can be defined as those providing service to experienced and inexperienced users, high and low traffic users, and to both business and residential customers. The companies invested resources in personnel, advertising and technology to attract all customer types. It is apparent through the market share figures of Table 2 that Xtra and ClearNet had success in using this strategy. Voyager, however, continued to lose market share. Of all the ISPs in the Internet subfield prior to Xtra's entry, Voyager is the only ISP remaining a generalist. During Stage 2, customers could still identify Voyager (and its parent OzEmail) by its early strategy as industry innovator. For example, Voyager introduced Internet telephony more than a year before any other competitor, and developed an international network to support the technology. However, Voyager's image as an innovator does not seem to have been sufficient to retain its market share in an increasingly price-competitive market. Xtra and ClearNet shifted during Stage 2 to place more emphasis on business customers, possibly to seek greater margins.

The rest of the ISPs can be classified as market nichers. These include Actrix, ICONZ, Iprolink, NetLink, Ihug and all the smaller ISPs. Most of the regional ISPs maintained either a CBD or regional focus. For example, one ISP serving Palmerston North maintained a web page advertising local events and the services of local businesses. These ISPs were often more expensive than Xtra but competed by meeting the needs of their local users. Some ISPs focused on specific interest groups, such as religious or environmental groups. Other companies such as NetLink, focused on the Internet and data communications needs of businesses, offering customers more options for consulting and technology. Ihug was the only regionally-based ISP in this stage to have pursued a national subscriber base and business outside of New Zealand. At the end of Stage 1, it was a major competitor in the Auckland region, but was struggling to launch an ISP and data communication service in Sydney. Ihug charged (and continues to charge) a flat monthly price for the service (independent of time or Mbytes used) which has attracted heavy Internet users. It also continued to minimise its costs for bandwidth by using innovative contracts and alternative technologies, such as satellite communications. This strategy of expanding, reducing cost, and concentrating on heavy users has paid off, as Ihug has grown to be the third most popular service in the country.

Table 2 – Market Share of ISPs – Percentage of Total Customers

	Jan 1997	**June 1997**	**Jan 1998**	**June 1998**	**Jan 1999**	**June 1999**
Xtra	40%	57%	44%	44%	38%	40%
Ihug	unknown	unknown	17%	15%	15%	16%
ClearNet	No reliable figures	7%	19%	18%	18%	18%
Voyager	38%	22%	13%	8%	7%	6%
Total accounts[A]	40,000	90,000	180,000	300,000	400,000	500,000

[A] Estimate based on a combination International Data Corporation (IDC) estimates and discussion in the press

Many of the small ISPs continued to survive due to the lack of free calling options from the major ISPs outside of the population centres. However, the dynamics of competition began to change in

late 1998 as more ISPs purchased bandwidth on IPNet. IPNet is a network, separate from the national network, which is specifically built for the transport of Internet traffic. Using IPNet means that any ISP is only a local call away regardless of its POPs. IPNet contained some new technology and was publicly trialled for approximately two months exclusively by Xtra, then was made available to all ISPs. ClearNet does not use IPNet services due to their own network investments. Ihug uses IPNet, but also uses other sources of bandwidth, including satellite services. Although there are no accurate figures, anecdotal information in the press would suggest many of the medium to smaller ISPs have switched to IPNet.[22]

The major trend in this period was that more and more ISPs began to offer data communication packages to businesses. As shown in Appendices B and C, both the national and regional ISPs list ISDN service packages, and many offer leased-line services. These services provide businesses with high-speed connections to the Internet. For example, ISDN can access the Internet at a bandwidth of 64kbps - 1.9Mbps. The ISPs sometimes resell service provided by Telecom or Clear, but many repackage their spare capacity to improve revenues. Many ISPs also began in this period to offer value-added services such as web page design, web page hosting and e-commerce facilities, targeting small business that didn't have this expertise.

A small number of new regional ISPs entered the market to fill under-represented market segments. Most provided low cost service with minimal customer support. Whereas most of the major service providers charged $2.50/hour for Internet access, these new entrants charged as low as $0.40/hour, but provided little or no customer support. For example, Paradise.Net opened in 1998 as a small ISP based in Wellington. The Paradise.Net customer was charged less than 20% of Xtra's price schedule but had little access to help desk support or installation guidelines. None of the incumbents have offered a similar service matching price and customer support levels.

During Stage 2, the number of Internet accounts in New Zealand grew by over 100%. Users were broadly segmented into residential and business customers. A number of medium to small businesses - possibly lured by the lower prices – began developing ways of utilising the Internet to

[22] More ISPs have switched to IPNet in late 1999 as a result of Telecom imposing a charge for all Internet users accessing their service for more than 10 hours per month. Telecom created this charge to induce ISPs to use

enhance their own business activities. Ihug's growth suggests that users on average began spending more time on the Internet.

4.4 Stage 3: 1999

The subfield of Internet access enters the main industry

Stage 3 begins in January 1999 and is still in progress at the conclusion of this study. The major event between January and June 1999 was a change in the price schemes offered by Xtra, which began to offer a flat rate price below Ihug's rate. This led to a new round of price cuts, with ClearNet and Ihug offering prices to match that of Xtra's. The factors which led to this event include:

- more people connecting for longer periods, and
- Ihug improving its market share with the flat rate scheme.

The penetration of most ISPs into business data communication continues, and the number of customers seeking Internet access continues to grow. The rate of growth has slowed, but is still forecast to increase by around 50%[23] for the year.

During this period, tariffs have switched from time-based billing to a flat rate. This encourages most users to increase their connection time. The long-term effect of flat rate billing is unknown, but in the short-term it has increased use of the Internet for both traditional and new services. Internet telephony and Internet fax are slowly gaining popularity in the market. In addition, the number of secure users on Internet sites (Extranets) has increased, and cable modems are replacing traditional telecommunication data services. ISPs are not yet full telecommunication service providers, but the change seen at the beginning of this period would appear to position them as competitors in the main telephony industry.

IPNet and thus remove traffic from the telephony network.
[23] IDC Research Report.

4.5 The Effect on Consumers

All Internet users have benefited from the decrease in Internet access prices, with different types of users enjoying price decreases at different times. Using the price schedule for each ISP listed in Appendix B, monthly charges for three typical users were calculated from 1996 through 1998. Only prices for international traffic are calculated because it is assumed that most Internet traffic is international. This assumption is based on the fact that most sites are located in the US and non-US users spend most of their time at US sites. The users are defined as:

- Low-End User

  Each month, uses 10 hours per month of connection time and downloads 20Mbytes of international traffic, all at peak usage times. As of 1998/99, this characterises a low-end home user, although this would not have been so at the start of 1996.

- Mid-Range User

  Uses 20 hours per month of connection and downloads 100Mbytes of international traffic, 50% at peak usage. This characterises either a heavy residential user or a small business, with a relative increase in the former during the study period.

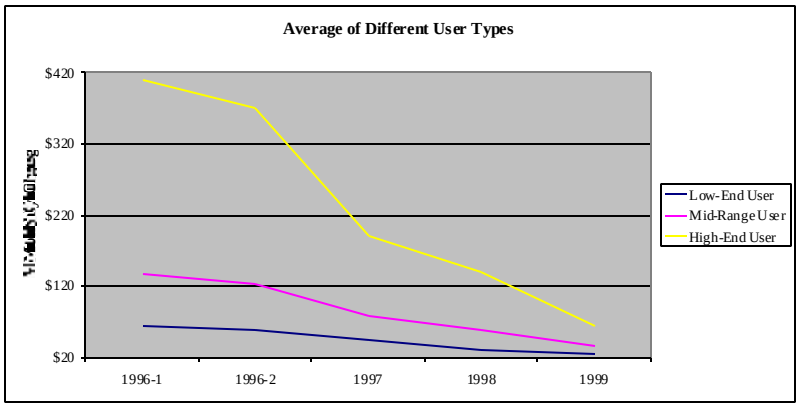
- High-end User

  Uses 50 hours per month of connection time and downloads 500Mbytes of international traffic, 20% at peak usage. This characterises a business user, and the calculations assume that extra email addresses are not as important as minimising the monthly charge. Many of these users have high speed dial up connections or upgraded data connections, although this has not been assumed for price calculations.

Figure 1 below shows average prices, based on all ISPs listed in Appendix B, for 1996-1999 for the three types of user[24]. Two averages are shown for 1996, the first for May 1996 when Xtra was launched and the second for August 1996 when Xtra makes its first aggressive price move. Results for the major ISPs - Xtra, ClearNet, Voyager, and Ihug - are shown in Figures 2-4.

[24] These prices have not been adjusted for inflation, which has been low throughout the study period.

Figure 1- Average of Monthly Price for All Users



The tables in Appendix B and C list ISPs by National and Regional coverage respectively, and the ISPs are separated by coverage area. The nationals are ISPs that advertise their service in all major cities: Auckland, Wellington and Christchurch. The table lists locations of points-of-presence (POP). The location of POPs in the table signifies coverage area for an ISP, the area in which all customers making a connection to the ISP are not charged toll charges. Most ISPs had limited national coverage in 1996. Voyager had full national coverage because users outside a POP free call area could make use a toll free number for an additional hourly fee, which was about twice the free call hourly rate. Xtra did not have full national coverage but had the largest number of POPs, meaning that a large percentage of potential users could access the service without toll charges. In late 1996 as Xtra's subscriber base grew rapidly, Xtra instituted a toll free number at $1 less per hour than the Voyager number. This event sparked aggressive statements in the press between the two (see Appendix A) and led to a Commerce Commission investigation.

In late 1998, Telecom introduced a service for Internet traffic in order to get this traffic off the national network. The prior service, New Zealand Internet Exchange (NZIX), collected all Internet traffic on the national network and sent it through a special purpose gateway. This new service, IPNet, has eliminated competition between ISPs on the basis of POPs. Any customer can now call their ISPs via IPNet with no toll charge. The ISPs must purchase the service from Telecom, which seems to have not proven cost effective for smaller ISPs.[25]

[25] The new scheme does not appear to benefit smaller ISPs, based upon their reluctance to take up the service:instead they pass on the Telecom charge after 10 hours per month for those customers not on IPNet.

Figure 2- Monthly Price for Low-End User

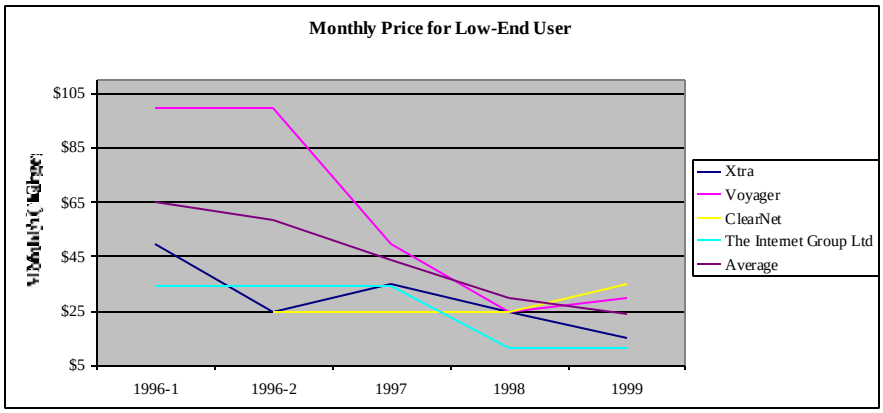


Figure 3- Monthly Price for Mid-Range User

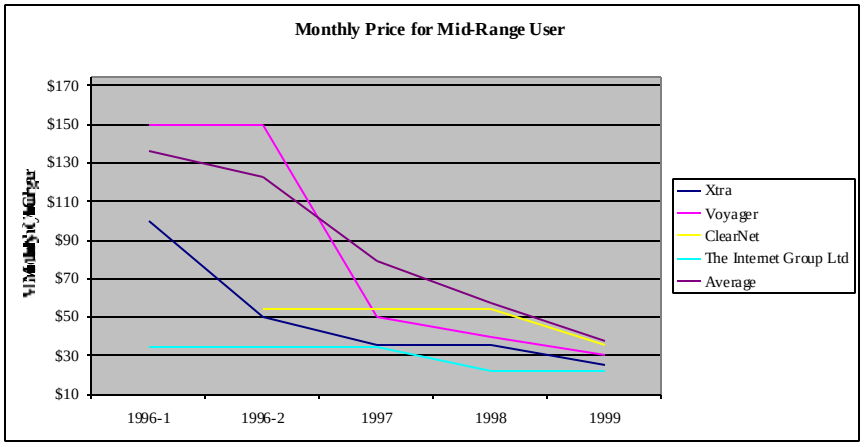
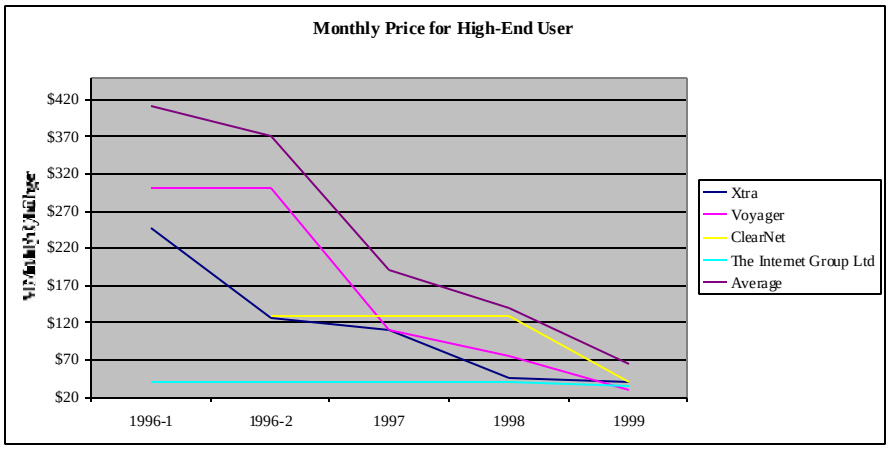


Figure 4- Monthly Price for High-End User



For all three user types there has been a steady decline in price over the period, with the largest decline for the high-end user. The gap in prices between different ISPs and user types has closed. Also:

- Xtra entered in 1996 at a price somewhat below the average, but it was not the lowest in the market. The subsequent decrease in the price in late 1996 was large. From Figure 4 we can see that Xtra made no attempt at price leadership until 1998, when Ihug's market share began to overtake Voyager's. (See Table 2)
- ClearNet entered at the end of 1996 with an entry price matching Xtra's price. Its price remained stable until 1998, when it increased the price for the low end user (Figure 2) and decreased the prices for mid-range and high-end users.
- Ihug has remained competitive for the low-end user and has maintained the low price leadership in the mid-range and high-end user segments.
- Voyager was not price-competitive for the low-end user until 1997. We can surmise that Voyager lost customers because of charging a higher price than its competitors through 1996 and 1997. More recently, it has been unable to regain market share.
- The convergence of monthly charge over time (see Figures 1-4). The convergence between Low-End and Mid-Range Users in particular reflects the increasing variety of tariffs offered to customers on the basis of their usage.

Evidently, all three types of Internet access customers have benefited from the lower prices in the market. Users who use less than the "low-user" above can take advantage of the low-cost, low-service providers. It is also clear that as the pricing schemes become less differentiated, ISPs will be forced to compete on other factors, such as extra services or dramatic increases in transmission speed.

Ihug has maintained the lowest price for the high-end user throughout the study period. The figures above show that Xtra's prices were below its competitors for the low cost user but Ihug maintained a lower price for the mid-range and high-end users. Some of Voyager's decrease in market share may be explained by its inability to remain price-competitive in most of the user classifications during

the study period. The pricing scheme of Xtra complemented the marketing scheme, targeting the novice or low end user.

4.6 Competitive Interplay

The Internet access market in New Zealand has evolved from a market supplied by small grass roots providers to a highly competitive environment where the main telecommunications industry providers have the top two market shares. The largest firm, Xtra, has largely been able to determine the prevailing price for Internet access. On entry, Xtra charged a price that was below the prevailing market price and for some firms was less than the cost of supplying access. The immediate result was a decrease in the number of ISPs in New Zealand during 1997. This strategy has had two effects: decreasing the price the other firms had to charge to remain competitive, and increasing demand. Soon after entry, Xtra intensified competition by further decreasing its price and switching to charging by time rather than transfer use. Xtra then maintained this price and began to focus on expanding services and attracting more business customers. The major ISPs followed suit and the result was a more stable period with increased product offerings. In 1999, Xtra further decreased the market price by introducing a flat rate scheme at a lower level than Ihug's. The other major ISPs matched this, whereas they had not felt it necessary to match Ihug's pricing scheme prior to this change. Overall, the level and variation in prices charged by the suppliers has decreased greatly since 1996.

Xtra's effect to the market is evident in Table 3, which shows a commanding market share six months after launch and continued growth. During 1997, Xtra obtained a large percentage of new Internet users.

Table 3 - Number of Subscribers[26]

	Pre-5/96	**1/97**	**6/97**	**1/98[27]**	**6/98**	**1/99**	**5/99**
Xtra[28]	0	16,000	51,000	80,000	133,000	150,000	200,000

[26] These subscriber figures are from published articles from the Reuters' News Feed.
[27] IDC Research study claims 214,200 Internet accounts for 12/97.
[28] Xtra counts subscribers as number of people who have signed up, less number of people who have cancelled.

Voyager	10,000	14,580	20,000	23,000	24,000	28,000	[A]
ClearNet	[B]	[B]	15,000	35,000	55,000	70,000	90,000
The Internet Group (Ihug)	[A]	[A]	[A]	30,000	45,000	60,000	80,000
CompuServe	7000	8400	7000	[A]	[A]	[A]	[A]

[A] Unable to obtain figures for number of subscribers for these times from Reuters' News Feed.

[B] Not in operation until 11/96, no accurate figures by 1/97

Xtra has made competition difficult for some of the other ISP's and this has led to complaints to the Commerce Commission, the administrator of the Commerce Act 1986. The Commerce Act 1986 is relevant to Xtra as a business unit of Telecom New Zealand. The Act sets out conduct that inhibits efficient economic mechanisms and prevents competition. Grievances are usually brought before the Commerce Commission. Sections 36 and 36A of the Commerce Act are intended to prohibit misuse of market power. The test generally applied is the ability to dominate a particular market, not solely that of providing great influence.[29] The Commerce Commission has ruled that Xtra is not considered a dominant player in this market since entry barriers are very low and Telecom is not the only provider of Internet access, local access or data communication services.

Xtra maintains that the wholesale bandwidth price it enjoys is due to its bulk purchasing. It has also been funded heavily by Telecom and continued to sustain significant operating losses through 1998. Telecom spent NZ$9 million to start Xtra[30] and initially predicted Xtra would be operating at a profit within one year. Towards the end of 1998, Xtra was still not profitable and CEO Roderick Deane stated Xtra will be profitable by 2000[31] – four years after initial launch.

Each of the ISPs discussed has created a strategy for entry into the New Zealand Internet access market. Each firm decided whether to enter the market and how much to invest in the entry effort. This initial strategic decision determined the resources an ISP had on market entry and greatly influenced their reactions to competition. Telecom New Zealand decided to enter the Internet access market in 1996, after the initial establishment of demand for access services. Telecom

[29] Watson et al. Chapter 24
[30] Figures quoted from several newspaper articles at the time of Xtra's launch.
[31] CEO statement in 1998 Telecom Financial Statement.

entered the market late relative to the market pioneers Ihug, Voyager, and NetLink but earlier than the second telecommunications service provider, Clear Communications. Telecom's strategy for Xtra was to grow market share and grow demand for Internet access services. In support of this strategy Telecom placed few expenditure restrictions on Xtra. Telecom New Zealand announced that it spent $9 million in direct investment on the launch but total figures have not been made public. Through Xtra services offerings in IP telephony, leased lines and ISDN, Telecom has demonstrated its willingness to allow Xtra to utilise its telecommunications services in order to grow and maintain its market share. Other "agents", including ISPs, had access to these services as well, either for their own use or for resale.

In contrast, Clear Communications' subsidiary entrant ClearNet may well have been on a restrictive budget for their product launch, even though the owners of Clear, MCI and later British Telecom, have had vastly more resources than Telecom New Zealand. However these international companies have their investment spread across a wide range of markets. British Telecom (BT) is the majority owner of Clear Communications and views Clear as the New Zealand member of its international network, and one of many global profit centres. It may be that Clear had restricted financial backing for its development of Internet services. If so, this would have influenced Clear Communications' strategy of entering the Internet access market in order to offer additional services to existing customers. Clear has developed this strategy to best use their other resources: customer loyalty, customer service, and strong presence in Auckland. Clear's goals seem to be motivated by retaining customers for multiple services rather than growing market share in individual markets.

Xtra's strategy since its launch has been to grow market share with the view that holding the majority of subscriber accounts will lead to long-term profitability. ClearNet's strategy is to maintain customer relationships, and offering Internet access is another service to provide to its customer base[32]. Clear's passive strategy towards the major competitors in the Internet market is due in part to restricted financial resources and in part to a determined strategy to retain the number two position in the telecommunications market. Other internationally owned companies such as IBM, CompuServe and Microsoft entered early when there was little competition. Their initial strategy

was to use resources developed in the US to compete in the New Zealand market. As more firms entered the market, these resources ceased to provide a competitive advantage and their structure, with most resources located in the US, became a disadvantage.

The most successful small ISP has been Ihug. Ihug's strategy has been typical of a new firm, starting with few resources and growing the business primarily on the entrepreneurial skills of the owners. Typical of a start-up firm, Ihug has concentrated on keeping costs low and maintaining cash flow. There has been no apparent strategy to grow market share but rather there has been an effort to maintain the appropriate number of subscribers to minimise the marginal cost of investing in additional bandwidth. Ihug has focused on residential customers and small businesses.

In contrast, Voyager's strategy has been greatly influenced by OzEmail's financial resources. OzEmail has invested heavily in technological innovations that have paid off in captured market share in Australia, placing them in second position. Voyager was OzEmail's entry into the New Zealand market in 1995. As a market pioneer, it quickly captured market share. However, throughout the study period, Voyager seems to have been unwilling to decrease price in order to remain competitive. Voyager has concentrated on the competitive residential market, and seemingly any expenses or infrastructure improvements must be covered by income. This is similar to Ihug's financial situation, but Ihug has steadily increased its market while Voyager has lost market share. It is apparent that Ihug, through risky and innovative acquisition of bandwidth capacity, has been able to achieve a lower cost structure and thus remain competitive on price. Voyager has not remained competitive on price, perhaps reflecting its cost structure.

NetLink, a smaller player, has maintained profitability but developed a different strategic direction. NetLink was started as a residential service through Victoria University of Wellington in 1995. Though NetLink, through its relationship with the University, had more resources than other New Zealand start-up ISPs, its primary motivation was not profit but to provide access to constituents. As the residential access market became more competitive through the 1996/1997 periods, NetLink began a shift to build credibility with business customers. Currently NetLink has mostly business

[32] Both Telecom's and Clear's strategies are in accord with an overall strategy of retaining their telecommunications customer bases. The extensive customer base of Telecom meant that it would have to target

subscribers, who are few in number relative to the total market, but more profitable due to the value added services Netlink provides.

The smaller group of ISPs (IproLink, Actrix, ICONZ and newly formed Paradise.net) has concentrated their resources on retaining customer relationships in specific population centres and maintaining a positive cash flow. Their long-term strategy appears to be survival rather than expansion.

Xtra's strategy throughout the period has been to grow the market and its market share. Xtra has had access to financial, human, physical and organisational resources of Telecom through their relationship. Xtra has been successful in accomplishing strategic goals and has achieved a competitive advantage by leveraging off resources shared with Telecom New Zealand. In addition to heavy financial investment, Telecom provided Xtra access to the physical network for trials and tests, and limited use of new technology for testing purposes for short periods prior to its availability other ISPs. Xtra was also able to utilise Telecom's expertise in billing software, call centre operation and project management. Though the value provided by Telecom in human and organisational resources may have contributed less than other resources in achieving strategic aims, these advantages have nonetheless made a valuable contribution. Other ISPs have had the same access to physical resources, but communication about network use and configuration would have been easier for Xtra.

Evidence of advantage from organisational resources can also be observed through a top view of Telecom New Zealand's organisational chart and how other ISPs received service through the structure. The organisational chart is shown in Figure 5. The figure demonstrates lines of reporting to the CEO. Xtra reported directly to the CEO as a separate business unit within the Enterprise and Directory Group. All requests were negotiated through the CEO and the Networks Group as necessary. Clear and Telstra, however, negotiated with Networks Group for services but as external entities. This created a layer of decision-making between Clear or Telstra and Telecom New Zealand that Xtra did not have. The other ISPs; such as Voyager, Ihug and Actrix, discussed services with an account manager which in turn were discussed with the Services Group manager

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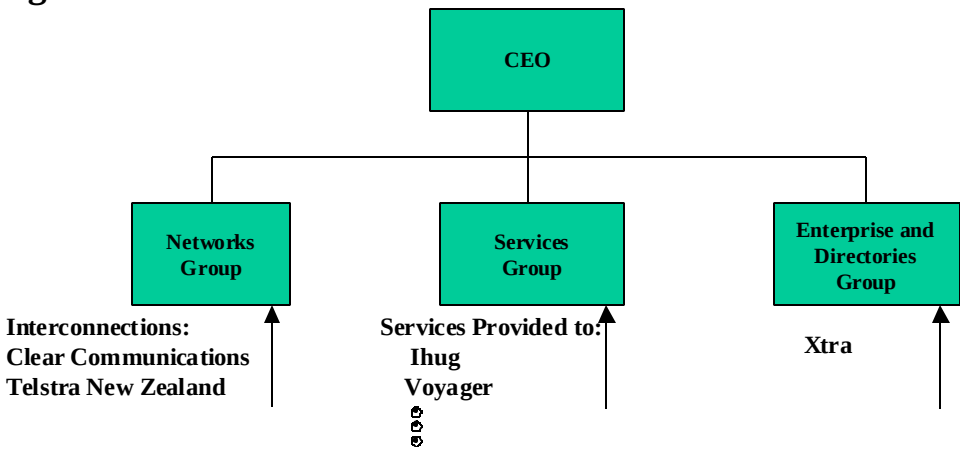
all sorts of customers to be successful in the wider strategy.

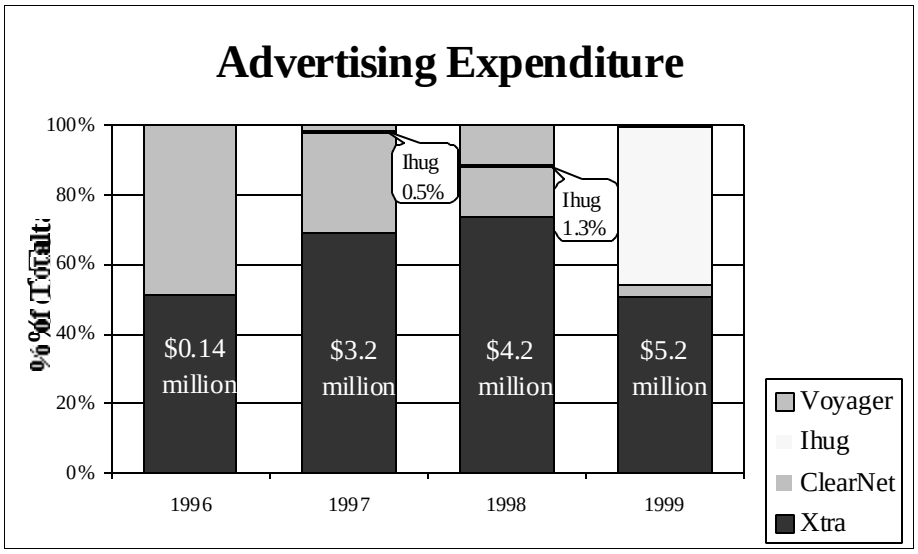
and to the CEO as necessary. These ISPs faced an additional layer of decision-making, which slowed service requests, communication and implementation. This provided an additional advantage for Xtra as it is closest to the decision-making and implementation process. ClearNet would have similar advantages within Clear Communication's network. However, top level decision making would have been heavily influenced by the parent company.

Figure 5 - Telecom's Structural ISP Interface



Resources available to individual ISPs influence the components of business strategy. The decision of how much to spend on advertising and which types of advertising to purchase are directly affected by financial resources available to the ISP. Figure 6 shows the total of advertising expenditure for Xtra, ClearNet, Ihug, and Voyager for 1996 through the third quarter of 1999. Each ISP's percentage contribution to the total is also shown. The total advertising expense increased substantially between 1996 and 1997 and then more modestly in subsequent years. This initial jump corresponds to increased competition for subscribers. In an effort to gain consumer recognition, Xtra has spent at least 50% of the total expenditure of the top four ISPs in each year. The precise causality between advertising and number of subscribers is unknown but advertising is one possible contribution to Xtra's rapid increase in number of subscribers.

Figure 6 – Advertising Expenditure of the Four Major ISPs



Voyager spent around 50% of the total expenditure in 1996. As the absolute money spent on advertising between these four ISPs jumped in 1997, Voyager's percentage amount decreased dramatically presumably due to its inability to maintain a large expenditure on advertising. Ihug substantially increased its advertising expenditure in 1999.

Part of the reason for the large differences in total advertising between the four major ISPs can be explained in Table 4, which lists the percentage of each ISP's budget spent on TV/Radio versus Print. Most of the advertising in the TV/Radio category was for television advertisements. Few ISPs used radio spots. Print combines both newspapers and magazines. TV advertising is more costly than print, but reaches a more diverse audience. Quarterly data were aggregated into annual totals to avoid fluctuations caused by a contract figure reported in a single quarter, yet covering more than that quarter's advertising.

Table 4 – Advertising Budget Percentage Devoted TV versus Print

	Xtra		ClearNet		Ihug		Voyager	
	TV/Radio	***Print***	***TV/Radio***	***Print***	***TV/Radio***	***Print***	***TV/Radio***	***Print***
1996	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
1997	56.0%	44.0%	60.8%	39.2%	0.0%	100.0%	0.0%	100.0%
1998	17.6%	82.4%	0.0%	100.0%	0.0%	100.0%	0.0%	100.0%
1999	75.9%	24.1%	0.0%	100.0%	73.1%	26.9%	0.0%	100.0%

Most of the ISPs spent some money on print advertising, with Ihug, ClearNet, and Voyager favouring print over TV. Most of the large advertising expenditure corresponds to a single event. Xtra spent substantial money on TV in 1997, when prices were dropped, and again in 1999, when the flat rate was introduced. ClearNet has spent significantly less on advertising and yet maintained their number two spot in terms of numbers of subscribers. This relates to the strategy to focus on current Clear Communications customers, spending advertising dollars on direct marketing efforts rather than on a push to reach new customers. Xtra has maintained its percentage of advertising expenditure even though absolute amounts have risen. This fits with the strategy of maintaining leadership in number of subscribers. Ihug has increased expenditure at the same time as the firm has become more aggressive in the New Zealand market.

The Internet access market is considered to be a subfield on the larger telecommunications market, and the top four firms in the Internet market now include two firms that have entered from the larger market, and two firms that entered directly into the subfield. It is reasonable to assume that the telecommunications providers are motivated, in part, by a desire to diversify their service offerings. For example, in Telecom's 1999 Annual report, the CEO, Roderick Deane, describes the role of Internet in its overall strategy:

> "The continuing development of Internet–based online technologies and services has created demand for access to very high capacity (broadband) networks. Telecom's broadband strategy aims to open opportunities to create and sell innovative services and products to meet this demand and lead the New Zealand economy online. Telecom is committed to an online future. This commitment will have substantial effects on Telecom's networks, the services that Telecom sells and on interactions between Telecom, its suppliers and its customers…"

5.0 Strategy, Entry and Resources

This section of the paper considers the development of the Internet market in terms of the strategy literature discussed in Section 2. In particular, recall that the resources-based analysis in business strategy literature focuses on the unique resources possessed by each firm within an industry and how each collection of resources within the industry leads to success of some firms over others. In Barney's 1996 paper, resources are classified specifically as being valuable, rare, non-imitable and supportive through the organisation. He postulates that these qualities of an individual firm's

resources may lead to a competitive advantage in the marketplace. The resources of the major ISPs at the time Xtra's entry and in Stages two and three are shown in Table 5.

Table 5 - Resources of ISP Competitors

	At time of Xtra's Entry	Stage 2	Stage 3
Xtra	• Large financial resources evident from financial statements • Managementresources in telecommunications • Parent Telecom network coverage almost 100% of households and businesses (available to ISPs) • Certain communication advantage from complementary with Telecom • Billing processes available from telecommunications part of business	No change in resources	• Increase in accessible physical resources due to establishment of IPNet • Continuing decrease in cost structure
ClearNet	• Possible limited financial resources due to decision of parent firms • 3 years experience in telecommunication industry gives some management expertise • Clear's physical resources include a fibre optic network connecting CBDs for data communication low percentage of direct access outside Auckland (available to ISPs) • Call centre and billing processes available from telecommunications part of business	• No change is resources • Possible reasons for continuing success √ Strong customer loyalty √ Strong customer presence in Auckland √ Customer service skill	• Little change • Increase in accessible physical resources due to establishment of IPNet

Table 5 – **continued**

	At time of Xtra's Entry	**Stage 2**	**Stage 3**
Voyager	• Minimal capital available from parent company, used for investing in new technology • Survival skills gained by management due to growth in market share and successes in Australia • Very little physical capital available with 5 POPs in New Zealand • Minimal organisational resources available due to new organisation and rapid growth in market share.	No change in resources, cost structure continuing disadvantage	• Little change • Increase in accessible physical resources due to establishment of IPNet
Ihug	• Minimal financial capital, working to maintain status in market and expand into Australia • Little management experience but entrepreneurial spirit • Physical resources consist of several POPs in New Zealand (comparable with Voyager) but real advantage is contracted bandwidth external from Telecom allowing a more competitive price structure (ie SITA) • New organisation with little developed business process and organisational support systems	• Improved financial capital due to profitable business in Auckland and Sydney • Continue to improve access with contracted bandwidth	• Cheap source of bandwidth becomes sustainable resource • Capital infusion by SkyTV share purchase[33] • Management gains sufficient expertise to become resource • Increase in accessible physical resource due to establishment of IPNet

[33] SkyTV backed out of the agreement in 1999.

Table 5 – **continued**

	At time of Xtra's Entry	**Stage 2**	**Stage 3**
IBM/ Compu-Serve	• Large potential financial capital from parent company • Extensive management experience of parent companies • No physical capital within New Zealand, all holdings in international networks • Extensive business processes experience available from parent companies	• No change in resources • Lack of physical resources prevents innovative bandwidth acquisition and thus competitive price schemes	Left market for all practical purposes
Major Regionals	• Minimal financial resources • Minimal management resources (varies extensively between ISPs) • Minimal physical resources • Minimal business processes but some success of survivors	Continue to improve physical resources via investment in services	• Improvement in management resources allows them to make better use of their limited resources. • Increase in accessible physical resources due to establishment of IPNet

More specifically, the decision of a firm to enter into a subfield requires the firm to match its resources with the ingredients needed to compete within that subfield. The literature discussing entry into a subfield of a mature industry is applicable here: the Internet access subfield was created from the relatively mature telecommunications industry. But the development of a new subfield does not necessarily provide incumbents in the mature industry with a competitive advantage. The resources of the incumbent must be applicable to the new subfield. Mitchell (1991) postulated that the

incumbent may enter the subfield later in the subfield lifecycle than other less resource rich entrants without loss of competitive opportunities.

This has clearly been the case for the telecommunication service providers in the New Zealand Internet market. What has created their competitive advantage over other Internet access providers? Telecom and Clear both possess some form of local access through their investments in telecommunication infrastructure. Both also possess a large capacity of cheap international telecommunications traffic through multinational inter-connection agreements. Xtra has been more successful than ClearNet in growing market share largely due to Telecom's substantial financial support for Xtra that allowed more flexibility in determining price strategies. Ihug's number three spot in terms of market share is primarily due to local and international capacity from sources outside the other access providers, that allow a lower cost structure and thus maintain flat rate pricing. Most of the smaller ISPs use Telecom's IPNet and its predecessor NZIX[34].

Xtra's probability of success in the subfield was increased by the low cost structure derived from the physical network holdings of the parent company: the ability to provide a single bill for telephony, data communications and Internet access services, the parent company's well defined business processes and lengthy experience in managing call centres, and more generally, the financial and management resources available to it. Telecom's financial resources have allowed Xtra to set price structures and provide services that have made a loss for the division. It has a competitive advantage in the subfield that supports its continued large market share.

This can be seen as part of a wider strategy for Telecom, in which it seeks to maintain its position in the telecommunications industry, including any potentially profitable subfields that arise. Xtra's strategy has been to modify its data communication products when it becomes clear that new Internet technology promotes other ways of providing services. For example, Xtra introduced Internet telephony when its competitors did, but withdrew the product after ordinary telephony customers did not switch to this new product en masse[35]. It is apparent that Telecom will introduce new services through Xtra as a substitute for current products in order to retain overall market share

[34] NZIX – New Zealand Internet Exchange. This is an international gateway available to all Internet service providers, which is separate from Telecom's toll call network.

and thereby profitability. Telecom's operating revenue streams also demonstrate the changes for the last 10 years, shown in Table 6. While local calling revenue has declined from 40% to 30% of operating revenue and toll calls have declined from 30% to 16% of operating revenue, these declines have largely been made up by revenue from mobile and data services. As we track the revenue from mobile services, we see an increase over the period from 3% to 14% of operating revenue. Unfortunately, Internet and data communications figures cannot be accurately tracked because Telecom changed the definition of these services three times during the period. We can track enhanced network services until one year after Xtra's launch (1997) and find at least a 10% of operating revenue due to these services.

Table 6: Telecom Operating Revenue Streams 1989-1999-08-25

	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Operating Revenue (millions)	2158	2292	2431.8	2568	2474.3	2497	2691.9	2924.7	3083	3398	3434
Rev:Local Calls	37.5%	36.0%	34.7%	32.7%	33.9%	34.2%	32.4%	30.4%	29.6%	30.2%	30.8%
Rev:Nat Calls*	29.4%	22.5%	22.3%	21.4%	18.9%	18.1%	18.4%	18.8%	18.0%	0.0%	0.0%
Rev: Intnl Calls	17.2%	19.5%	20.4%	19.8%	19.0%	18.3%	17.9%	16.8%	16.7%	15.4%	13.7%
Rev: Other	15.9%	22.0%	22.6%	26.1%	28.1%	29.5%	31.3%	34.0%	36.5%	0.0%	0.0%
Other/Cellular		2.6%	3.8%	4.6%	5.8%	7.0%	8.5%	10.7%	10.3%	12.5%	14.0%
Other/Directories		2.4%	3.6%	4.8%	3.6%	4.0%	4.0%	4.1%	4.4%	4.3%	4.6%
Other/Leased		5.9%	5.7%	5.8%	5.3%	5.1%	4.9%	4.6%	4.5%		
Other/Enhan Ntwk			0.7%	1.5%	3.5%	4.3%	6.2%	7.8%	10.4%		
Other/Misc			2.8%	3.6%	4.9%	4.2%	3.3%	2.6%	3.1%	3.4%	3.3%
Rev: Local Service									31.1%	30.2%	30.8%
Rev: Calling									38.1%	36.9%	34.0%
Revenue: Interconnection									2.1%	2.1%	2.5%
Revenue: Cellular and other mobile									10.2%	12.5%	14.0%
Rev: Data									8.3%	8.7%	9.8%
Revenue: Other operating revenue									10.1%	9.7%	8.9%

*Revenue from National toll calls was discontinued as a category in the 1998 annual report and split between Calling Revenue and other revenues.

Xtra and ClearNet have similar resources developed through their telecommunications business. ClearNet entered the market six months after Xtra and its market share has increased at a slower rate than Xtra's. It has moved to second place in market share, but its non-aggressive strategy as a price follower signals ClearNet's willingness to remain in the second spot. The history of events

[35] Consumers did not accept a lower quality of service for greatly reduced prices.

shown in Appendix A demonstrates that Clear Communication's strategy has been to follow Telecom's actions and maintain parity to the greatest extent possible in price and service offerings. For example, Telecom announced it would offer an ISP service in early 1996. Clear Communications also announced a service in August 1996, three months after observing Xtra's early entrance results. Clear decided it was necessary to offer a similar service rather than allow their customers to sign up with Xtra.

Over time, the market pioneers have not done as well as the later entrants. The Absolute Pioneer Theory would predict that companies such as Actrix, Ihug, Voyager, ICONZ and some regionals should be the market leaders. This advantage should come from smaller firms quickly changing service offerings to meet ill-defined customer demand and vague preferences. In fact, the later entrants have done well due to apply significant resources targeted on clearly defined customer preferences.

The primary reasons for the non-applicability of Absolute Pioneer Theory are:

- The pioneers were unable to create a differentiability of their products through branding or reputation. Consumers wanted the lowest price for their access time.

- The pioneers were unable to create a switching cost barrier. The later entrants picked up both new customers and switching customers due to the practically non-existent switching costs in this subfield.

Ihug continues to remain competitive as the only firm without the resources of a telecommunications company. It has been able to do this with a niche strategy, and has benefited from a growth in their target niche. It looked for innovative ways to cut costs by developing a distribution system outside of Telecom's services. International bandwidth is the raw material for providing Internet access and Ihug purchased satellite time without knowing whether it would fill the capacity. That gamble, along with some technology gambles, such as using local radio transmission and substantial investments in international traffic access, created a beneficial cost structure for Ihug. It also began offering a flat rate service in 1996 when competitors were charging by time and/or traffic. As shown in Figure 4, the flat rate service greatly benefit high-end users. Ihug's market share has grown from a negligible

share to 16% of the market, largely due to the growth of Internet users in that niche. Xtra and ClearNet ignored these users until 1999, when Xtra announced a flat rate scheme and ClearNet matched.

When reviewing the events of the Internet access market in New Zealand, we can classify the entry strategy by the set of resources a firm possesses and the timing of market entry. A firm with limited resources that selects early entry can be classified as a Market Pioneer. This firm is entering when the lack of resources does not pose a disadvantage. In the case of Internet access in New Zealand, the market pioneers would be Ihug, Voyager, Actrix, NetLink, ICONZ and IproLink. A late entrant into a new market with limited resources would be classified as a Nicher. This firm uses its limited resources to meet the demands of a small segment of customers whose needs are not well met by the large firm(s). Examples in the New Zealand market are firms such as Paradise.Net who offer a low price, but with limited customer support services. In order to achieve market success, Ihug has changed its strategy from Market Pioneer to Nicher. Ihug is an example of how a survivor of early entry can change its strategy in order to succeed with continuing resource limitations relative to late entry competitors.

The firms with a larger set of applicable resources either enter the market early or late. The early entrant - the Creator firm - is investing money in technology or market research in order to find a new source of demand, such as a new subfield. This firm has the extra financial resources and management skills in the main industry to create a new subfield. The New Zealand Internet access market has no example of such a firm (but a classic example is 3M with its Post-it Notes[36]). The firm with a large set of applicable resources and a strategy of late entry, relative to Market Pioneers, is labelled a Clock-Watcher, after the concept of a dual clock. From Mitchell's work, this firm would enter a new market or subfield later and expect to receive substantial market share. Xtra and ClearNet are examples of Clock-Watchers.

The dual clock theory can only be fully tested in a market with two equal incumbents entering at the same time. Mitchell (1991) tested his theory in the US medical imaging industry with the staggered

entry of incumbents to a new subfield. He showed empirically that (1) incumbents could enter later and have strong success and (2) timing between incumbents determined long-term success in the new subfield. Mitchell also postulates that a dual clock most likely exists in industries with specialised assets such as manufacturing or distribution since they are costly to replicate. This is applicable to the New Zealand Internet access market since a key advantage of telecommunications firms is the ability to distribute the service locally and possession of a national network. Entrants that achieve a lower cost structure succeed.

The strategy literature suggests that a decision regarding early or later entry will based upon the resources available at the time of entry. For example, if an incumbent firm within the main industry felt it could take the Creator position and gain a majority market share in the subfield, the use of resources in the subfield development would be justified. On the other hand, an incumbent firm in the main industry could enter later, when more information about the new subfield is known, and still gain superior performance. In summary, a company can match its applicable resources, evaluate them with respect to competitors, and select an appropriate strategy based on the timing of its entrance into the new market. This study offers support for the resource-based entry-affecting strategy; although it demonstrates that innovative pioneers that develop a comparative advantge can also succeed.

6.0 Final Comment

This study has provided a short economic history of the Internet access market in New Zealand. To date it has been a subfield of the telecommunications industry. The subfield has evolved from Stage 0 when most of the users were hobbyists and academics to Stage 1 where the providers became profit maximising firms, through to Stage 2 where most ISPs offered traditional telecommunication services. This study concludes in mid 1999 at the start of Stage 3 where the incumbents are aggressively seeking to maintain their relative position in the subfield.

[36] A 3M employee discovered how to make temporary adhesive note pads to keep notes in his Bible. 3M used this discovery to create an entirely new product which later spawned a new subfield within the office products industry.

This study observes two generalisations from the New Zealand Internet access market. First, resources that a firm possesses and the timing of their entry are more important than entering the market first. The incumbents entered the Internet market much later but with superior resources that allowed them to capture substantial market share and create a sustainable competitive advantage. The concept of an absolute advantage held by pioneers is not applicable if the cost to consumers of switching is low, and if sunk costs are low or one or more of the potential competitors are prepared to commit substantial financial resources. In addition, later entry may be facilitated by ready organisation of complementary resources. The concept that a strategic window or relatively short period exists between clocks is not applicable in these circumstances unless the entrant achieves and maintains a lower cost structure. These conclusions may be more generally applicable to other Internet markets globally, and may help companies predict successful strategies in markets with a dominant competitor. The question of how long an incumbent can wait remains unanswered in this study.

The economic history of the New Zealand IP market reveals rapid growth in customer uptake, steeply falling prices and prices that have converged across suppliers. These results are not surprising given the low barriers to entry and the increasing range of value-added products that are obtainable on the internet.

An economic evaluation of this should take into account the classic network externality: that extra persons with Internet access implies the existence of benefits to other consumers who may want to exchange information with them. In fact, although this externality is likely to exist, it may not be as strong as it was in the history of telephony because of the reasonably close-substitute ways in which consumers can exchange information without Internet access. Importantly, any economic evaluation should also take account of the drivers of lower prices and internet penetration in the population. In this respect the motivations and actions of the telecommunications companies may have a very important influence on the economic performance of the market. For example, if Xtra's aggressive pricing and broad based promotion induced penetration in the population to expand over what it would have been otherwise, and Xtra goes on to at least break even (where its costs include its market investment costs), then these actions will have very likely improved the dynamic efficiency of the economy. This would be the case for any of the ISPs that by their own actions induced an

expansion in the market as a whole, and for whom the investment was recovered. It is likely to be the case for market pioneers.

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Appendices

Appendix A – Summary of Major Events in ISP market 1996-1998 – Major ISPs

Name	Apr-96	May-96	Jun-96	Jul-96	Aug-96	Sep-96	Oct-96	Nov-96	Dec-96	Jan-97	Feb-97
Actrix		Offers ISDN service					Looking for roaming partner.	Lanuches national service: $1.08/hr>$2.50/hr			
CompuServe		Splits ISP from Information service					Has global roaming service.				
ClearNet					Announces offering ISP service			Launches service: $2.95/hr day, $2.50/hr peak, $2.25/hr off-peak, $5.95/hr 0800, Accuses Xtra of anti-competitive behaviour over bundling practice.			
IBM Global Network					Halves prices			Has global roaming service.			
Internet Company of NZ											
The Internet Group Ltd (Ihug)	$40/mo flat fee						No plans to launch global roaming service.				
Internet ProLink NZ											
NetLink							Offer VPN service				
Voyager NZ Ltd	$4.95/hr peak $3.95/hr off-peak, $6.95/hr 0800, Claims it will increase from 6 to 19 POPs				(1) Several ISPs meet to discuss Xtra pricing plan. (2) Threatens to withdraw 0800 service	Fingering/Spamming incident takes place, registers complaint with Commerce Commission	1. Accuses Xtra of Exit promoting strategy 2. Expected to launch global roaming service.	Offers fax to fax service.		Launches Internet telephony	
Xtra		Launches service: $9.98/hr>$6.95 $7.49/hr>$6.95 $4.99/hr>$.95			Switches to hourly rate: $2.50/hr $4.95/hr 0800		(1)Telecom drops $400 ISDN connection fee (2) Telecom blocks Voyager from Xtra (restored within a week) 3. Lots of problems in delivering service.	Invites Voyager to take part in IPNet trial.			Trials Internet telephony

Name	Mar-97	Apr-97	May-97	Jun-97	Jul-97	Aug-97	Sep-97	Oct-97	Nov-97	Dec-97	Jan-98
Actrix											
CompuServe			$8.50>$5.50, $3.95>$5.50, $2.80>$5.50								
ClearNet				Begin major marketing campaign, offers ISDN for $7.50/hr					1. Advertising focuses on business customers, offers VPN service. 2. Launches Clear Net Commercial to invite business customers.		Introduces iPass service, make local call to ISP in 150 countries.
IBM Global Network											
Internet Company of NZ				$2/hr to $1.10/hr							
The Internet Group Ltd (Ihug)					Launches competitor to Telecom's FR network at great cost savings by leasing BW on satellite.		Launches Sydney service	85% of international traffic goes through satellite link via Sky Tower. 2. Sells microwave bandwidth via SkyTower.		$1.125/hr	
Internet ProLink NZ				Offers 56.6Kbps					Offers VPN service over Internet		
NetLink									Offers radio based VPN service.		
Voyager NZ Ltd	1. $1.66/hr>$2.49, $5.99 0800, $4.89/hr 0800prepaid, $2.99/hr 2. Accuses Xtra of differential 0800 charging.						Ozemail buys remaining 20%				
Xtra	FCC Complaint lodged against them.	Launches Internet telephony		Commerce Commission rules in favour of Xtra.	Telecom lists investment in Xtra at approx. $100m.				Changes name to Telecom Xtra, slashes ISDN prices, refocuses on bus cust. Offers data service cheaper than Netway. 2. Launches Business Network to offer e-commerce services.	$1.75/hr>$2.50/hr, $4.95/hr 0800	

Name	Feb-98	Mar-98	Apr-98	May-98	Jun-98	Jul-98	Aug-98	Sep-98	Oct-98
Actrix	Not fully upgraded to 56kbps						1. Spends $100,000 for 3D e-commerce server for web based shopping mall. 2. Signs on for IPNet and begins national service.		
CompuServe									
ClearNet	Purchases LMDS frequency						Unveils new packages for business customers. Claims 66,000 subscribers		
IBM Global Network									
Internet Company of NZ	To offer 56kbps in CBDs only.					Claims NZ Post and ASB Bank are customers.			
The Internet Group Ltd (Ihug)	Launches StarNet, steps up data services ads.						Plans fast data service using satellite connections		
Internet ProLink NZ									
NetLink		Launches VPN Service via Internet.		Launches Internet telephony		Starts VPN over Internet service.	Launches Internet phone service "iPhone" in Wellington, Auckland, Christchurch		
Voyager NZ Ltd	Cuts 0800 to $3.36, Relaunches Internet telephony	1. Launches VPN Service via Internet. 2. Claims it made operating profit, has 24,000 customers, 800 corporate clients, expect to expand in 1998. Has migrated to IPNet.				$1.25>$2.50	Offers NetGain, prepaid plans from $1.25/hr to $2.50/hr.		
Xtra	Cuts 0800 to $2.50 **IPNet online**	Launches "Business Builder", ISDN service @ $7.50/hr, Internet roaming service. Releases voice over Internet RFP.			1. Subscribers later reported at 124,100 2. Launch $45/mo for 50hrs.	Launches VPN Service	(1) Suspends Internet telephony (2) Deane quoted as Telecom's future is the Internet (3) Subscribers reported at 133,000		

Name	Nov-98	Dec-98	Jan-99	Feb-99	Mar-99	Apr-99
Actrix			Using IPNet	1. Reorganises management structure in order to expand business. 2. Hal King purchases company outright.		
CompuServe						
ClearNet						
IBM Global Network						
Internet Company of NZ						
The Internet Group Ltd (Ihug)		1. Claims 60,000 subscribers in NZ, 20,000 in Oz. StarNet TV service installation listed at NZ$3,000. Current rate in Oz at 400kbps. ISDN Internet service A$868 installation, A$59/mo flat rate. POPs Sydney, Brisbane, Melbourne. 2. Commerce Commission unofficially investigating Ihug flat rate because it has a 3 hr max in peak times for continous use.	Has 40 ISP customers in Australia. Expected to resell PanAm Sat bandwidth to Korea and Taiwan. Not using IPNet due to unreliability.		To spend $7.5 mil on private long distance toll calls network.	
Internet ProLink NZ			Not using IPNet.			
NetLink			Sets up eftpos transactions on its hosted sites, NetPOS. Cost is $325 to setup and $100/month. Transaction fees applies for large transaction traffic.			
Voyager NZ Ltd	Launches e-commerce service. Design cost will be $35,000-$40,000.	1. Hosts ASB's e-commerce site. 2. Has 15 POPs.				
Xtra	(1) Telecom floats charging local dialup data service access. (2) $2.96/hr 3. Xtra still losing money.	1. Telecom admits Xtra still losing $. Subscribers are now to 159,600. Launches web mail site. 2. Hackers infiltrate Xtra but subscribers must pay $150 to trace bad charges. 3. 5000 customers were left without email from 27/11 to 28/11 due to error in upgrade. Web site hosting drops from $100 to $25/mo.	Launches CommerceBuilder, an e-commerce trading platform for businesses wanting transactions on the site.	1. Telecom charges $0.10/hr for IPNet connections. 2. CommerceBuilder allowed to use 128bit encryption by US Dept of Commerce. 3. Initial package is $600/store and $3/invoice over $100, minimum $100/mo. EDI services available.	Telecom will offer ADSL service to all ISPs on IPNet from April. Subscribers are now to 160,000.	

Name	May-99	Jun-99	Jul-99	Aug-99	Sep-99
Actrix					
Auckland Internet Exchange					
CompuServe					
ClearNet	1. Moving to a flat rate in June but price not disclosed. Expects to spend $2mil on upgrading the network to meet demand. 2. Clear adds modems and bandwidth and access points in Christchurch. Currently has 90,000 Customers.	Introduces flat rate $39.95 charge in response to Xtra and Ihugs new flat rate charge.			
Globe.net					
IBM Global Network					
Internet Company of NZ					
The Internet Group Ltd (Ihug)	1. Sky TV planning to purchase 30% stake in ISP with an option to increase stake to 45%. Price estimates for stake is $30 to $35 million. Claims 75,000 Internet accounts. Ihug claims Sky has complementary technology, Sky claims Ihug a good investment with possible future synergy. 2. Claims 80,000 subscribers. Claims 60% of customers on flat rate. Doubled the time of its $30 Sapphire account.	Flat rate fee reduced from $45 to $39.50 in response to Xtra price announcement			Sky pulls out of deal to buy 30% stake due to Ihug plan to offer competing cable service.
Internet ProLink NZ					
NetLink					
Paradise.Net			Offers free Internet access through Saturn.		
Quik	Introduces flat rate service for $39.95/month.				
Voyager NZ Ltd					
Xtra	1. Rumours that Xtra may be floated. 2. Introduces new flate rate for $39.95 undercutting Ihug's $45 flat fee. 3. Claims 200,000 customers		Has first profitable month. Has 200,000 subscribers, 40-50% of the market		

Appendix B: List of Internet Service Providers in New Zealand – National

Name	Location 1996	Set up Fee 1996	On-going Charges 1996	Connect Charges 1996	Customer Service 1996	Products 1996
Actrix	Nationwide	$30	$168/yr switches to $65/mo for 60hrs 12/96	Int'l: $3/Mb, Nat'l: $0.50/Mb	Help, desk, modem speed: 28.8kbps	Internet access, web page hosting
CompuServe	Nationwide	None	(a) $17/mo for 2hrs Powerusers: $39.50/mo for 5hrs	(a) $9.90/hr Powerusers: $13/hr peak, $0.60/hr off-peak, no data volume charges	modem speed: 28.8kbps	Internet access, magazine, downloadable software and news service, web page hosting
ClearNet	Nationwide	$34.95	None	$2.95/hr 7am-4pm, $2.50/hr 4pm-12am (all day Saturday/Sunday), $2.25/hr 12am-7am, $5.95/hr 0800 service		Internet access, email
IBM Global Network	Auckland, Christchurch, Wellington	None	(a) $12/mo inc 3hrs (b) $55/mo inc 10hrs	(a) $5.75/hr (b) $5/hr no data volume	modem speed 14.4kbps	Internet access
Internet Company of NZ	Auckland, Christchurch, Dunedin, Hamilton, Napier, Nelson, Palmerston North, Rotorua, Tauranga, Wellington	(a) $25, (b) $100 ($150 comml)	(a) $10/mo inc 1Mb (b) $30/mo inc 3Mb ($50/mo comml inc 10Mb)	(a) $3.60/hr (b) $1.20/hr peak ($12/hr peak, $2.40/hr day comml) Int'l: $1.99/Mb peak, $0.99/Mb off-peak	20 users/modem modem speed: 28.8kbps	Internet access, leased lines, ISDN
The Internet Group Ltd	Auckland, Christchurch, Wellington, Whangarei (via IGRIN)	$49 ($75 comml)	(a) $20/mo Auckland ($25.38 elsewhere) for 6Mb int'l traffic (b) $30/mo Auckland ($34.13 elsewhere) for 30hrs c) $39/mo Auckland ($39.38 elsewhere)	(a) Int'l: $0.99/Mb Nat'l: $0.50/Mb, (b) $0.99/hr, c) none	10 users/modem modem speed: 28.8kbps	Internet access, email, web page hosting
Internet ProLink NZ	Auckland	$49.95 ($89.95 comml)	$19.95/mo ($49.95 comml)	Int'l: $2.80/Mb peak, $0.98/Mb off-peak, Nat'l: 0.55/Mb	12 users/modem modem speed: 28.8kbps	Internet access, email
NetLink	Auckland, Christchurch, Wellington	$30 ($10 email only)	$30/mo(for 30hrs/mo, 2Mb Int'l, 20Mb Nat'l), $10 email	$1/hr, Int'l: $1.60 peak, $0.32 off-peak, Nat'l: $0.20	12 users/modem modem speed: 28.8kbps	Internet access, email
Voyager NZ Ltd	Nationwide	$35 for 5hrs connect time	None	$10/hr peak, $5/hr off-peak	modem speed 28.8kbps	Internet access, email
Xtra	Nationwide	$39.95	(a) $19.95/mo for 2hrs (b) $29.95 for 4 hrs c) $49.95 for 10 hrs discontinues 8/96	(a),(b) $6.95/hr c) $4.95/hr, switches to $2.50/hr flat 8/96	billing on Telecom bill	Internet access Telecom charges for ISDN: $945 for modem, $120/mo CBD, $150/mo otherwise

Name	Location 1997	Set up Fee 1997	On-going Charges 1997	Connect Charges 1997	Customer Service 1997	Products 1997
Actrix	Nationwide	(a) $30 (b) $50	(a) $168/yr (b) $65/mo for 60hrs	(a) Int'l: $2.50/Mb peak, $0.80 off-peak Nat'l: $0.50/Mb peak, $0.20 off-peak, (b)$2.50/hr	modem speed: 33.6kbps	Internet access, email, ISDN, web page hosting
CompuServe	Auckland, Christchurch, Dunedin, Hamilton, Wellington	None	(a) $17/mo for 2hrs (b) $39.50/mo for 10hrs c) $70/mo for 25hrs	(a) $5.50/hr (b)&c) $3.95	modem speed: 33.6kbps	Internet access, email, web page hosting
ClearNet	Nationwide	$34.95	None	$2.95 business hr, $2.50/hr Inet peak, $2.25/hr otherwise, $5.95/hr for 0800	24 hr help desk, modem speed: 56.6kbps	Internet access, email, Web page hosting, ISDN
IBM Global Network	Auckland, Christchurch, Wellington	None	(a) $12/mo for 5hrs (b)$45/mo for 20hrs c) $90/mo for 50hrs	(a) $2.50/hr (b) $2.25/hr c) $1.50/hr	modem speed: 33.6kbps	Internet access, email
Internet Company of NZ	Auckland, Christchurch, Dunedin, Hamilton, Napier, Nelson, Palmerston North, Rotorua, Tauranga, Wellington	(a) $25, (b) $100 ($150 comml) c) $100	(a) $10/mo inc 1Mb+free off-peak access (b) $30/mo inc 3Mb ($50/mo comml inc 10Mb) c) $50/mo for 50hrs Auckland ($55 elsewhere)	(a) $3.60/hr (b) $1.20/hr peak ($12/hr peak, $2.40/hr day comml) Int'l: $1.99/Mb peak, $0.99/Mb off-peak c) $0.04/min no data volume charge	20 users/modem modem speed: 28.8kbps	Internet access, leased lines, ISDN
The Internet Group Ltd	Auckland, Christchurch, Wellington, Whangarei (via IGRIN)	$49 ($75 comml)	(a) $20/mo Auckland ($25.38 elsewhere) for 6Mb int'l traffic (b) $30/mo Auckland ($34.13 elsewhere) for 30hrs c) $39/mo Auckland ($39.38 elsewhere)	(a) Int'l: $0.99/Mb Nat'l: $0.50/Mb, (b), c) none	10 users/modem modem speed: 28.8kbps	Internet access, email, web page hosting
Internet ProLink NZ	Auckland, Christchurch, Wellington	$49.95 ($89.95 comml)	$19.95/mo ($49.95/mo comml)	Int'l: $2.80/Mb peak, $0.98 off-peak Nat'l: $0.55/Mb	modem speed 56.6kbps	Internet access, email
NetLink	Auckland, Christchurch, Wellington, Hamilton, Napier, Palmerston North, Nelson, Dunedin	$30 $10 email	$30/mo for 30hrs+2Mb int'l traffic+20Mb nat'l traffic $10/mo email	$1/hr, Int'l: $1.60/Mb peak, $0.32/Mb off-peak Nat'l: $0.20/Mb	12 users/modem, modem speed: 28.8Mbps	Internet access, email
Voyager NZ Ltd	Nationwide	$35, switches to $29.95 3/97	(a) none (b) $55/mo for 10hrs , switches $49.95/mo for 30hrs ($2.49/hr) 3/97	(a) $7.95/hr peak, $4.95/hr off-peak, (b) $4.95/hr no data volume charges switches $2.99/hr OR $5.99/hr 0800 ($4.49/hr prepaid) 3/97	modem speed 28.8kbps	Internet access, email
Xtra	Auckland, Wellington, Christchurch, Dunedin, Gisborne, Hamilton, Napier, Nelson, New Plymouth, Palmerston North, Rotorua, Tauranga, Wanganui Wellington	$39.95	$35/mo for 20hrs	$2.50/hr, $4.95/hr for 0800	Charge on phone bill, modem speed: 33.6kbps	Internet access, email,

Name	Location 1998 (POPs if available)	Set up Fee 1998	On-going Charges 1998	Connect Charges 1998	Customer Service 1998	Products 1998
Actrix	Nationwide	$49.95, $5 (email only)	$60/yr (email only) (a) $10/mo for 5Mb (b) $20/mo for 10Mb c) $30/mo for 15Mb (d) $30/mo for 30hrs (e) $50/mo for 50hrs	Peak: (a) $3/Mb (b) $2.50/Mb c) $2/Mb Off-peak: (a) 1.50/Mb (b) $1.20/Mb c) $0.98/Mb, (d)&(e) $2.50/hr	modem speed: 56.6kbps	Internet access, email, newsgroup, web site hosting, secure server access, leased lines, national roaming Internet access, DDS, ISDN
CompuServe	Nationwide		(a) $17/mo for 2hrs (b) $39.50/mo for 10hrs c) $70/mo for 25hrs	(a) $5.50/hr (b)&c) 3.95/hr		Internet access, email, newsgroups
ClearNet	Nationwide (15POP)	$34.95	None	$2.95 business hr, $2.50/hr Inet peak, $2.25/hr otherwise, $5.95/hr for 0800	24 hr help desk, modem speed: 56.6kbps	Internet access, email, Web page hosting, ISDN
IBM Global Network	Nationwide+several countries	$70 (none for 1999)	(a) $11.99/mo for 5hrs (b) $45/mo for 20hrs c) $90/mo for 50hrs	(a) $2.50/hr (b) $2.25/hr c) $1.50/hr ($6.19/hr for roaming)		Internet access, email, roaming access
Internet Company of NZ	Nationwide (POPs in Auckland, Wellington)	$50+3mo fee ((d)&(e) $100)	(a) $10/mo for 5hrs+5Mb email only (b) $30/mo for 20hrs+20Mb c) $50/mo for 50hrs+50Mb (40hrs+40Mb outside calling area) (d) $75/mo for 60hrs+60Mb inc 5 email addresses (e) $125/mo for 100hrs+100Mb	(a) $1.99/hr+$1.99/Mb peak, $0.50/Mb off-peak int'l (b) $1.20/hr+$1.20/Mb peak, $0.50/Mb off-peak int'l c) $1.50/hr+$1.50/Mb peak (time charge all the time outside calling area) (d)&(e) $1/hr+$1/Mb peak, $0.30/Mb off-peak int'l, $0.20/Mb nat'l	modem speed: 56.6kbps	Internet access, email, ISDN, DDS, wireless connections, roaming access
The Internet Group Ltd	Alexandra, Auckland, Balclutha, Christchurch, Dunedin, Hamilton, Invercargill, Oamaru, Queenstown, Timaru, Wellington, Whangarei	$59	(a) $45/mo (b)$480/yr c) $33.75/mo for 30hrs (d) $22.50/mo for 20hrs (e)$11.25/mo for 10hrs (f) $50/mo for 100hrs (toll-free)	c)&(f) $1.10/hr (d)&(e) $2.25/hr		Internet access, wireless local access, satellite service trans-Tasman and in Sydney, web site hosting, video conferencing, StarNet video multicasting, ISDN @ 64kbps
Internet ProLink NZ	Nationwide	$49.95, ($89.95 comml)	(a) $19.95/mo (b) $26/mo for 6Mb c) $44/mo for 25Mb (accounts must be prepaid), $49.95/mo comml	Int'l: $2.80/Mb peak, $0.98/Mb off-peak Nat'l: $0.55/Mb	modem speed: 56.6kbps	Internet access, email, leased lines, newsgroups, chat rooms,
NetLink	Auckland, Christchurch, Wellington, Hamilton, Napier, Palmerston North, Nelson, Dunedin		(a) $28.60/mo for 2hrs (b) $39.31/mo 8hrs c) $64.63/mo flat rate	(a) $4.49/hr (b) $3.31/hr		Internet Access, wireless local links, extranets via VPN service, ISDN service, fibre loops in Wellington.
Voyager NZ Ltd	Nationwide	$30 ($26.67 ex GST comml 1-5 users)	(a) $25/mo for 10hrs (b) $40/mo for 20hrs c) $52.50/mo for 30hrs (d) $75/mo for 50hrs (e)$125/mo for 100hrs, all accts prepaid, comml rates	$3.36/hr Peak, $2.50/hr off-peak (a) $3.36/hr (b)&c) $2.50/hr d) $2/hr (e) $1.50/hr	modem speed: 56.6kbps	Internet access, email, web site hosting
Xtra	Nationwide (all calls billed as local)	$39.95	(a) none (b) $35/mo for 20hrs c) $45/mo for 50hrs	$2.50/hr ($4.95 for 0800 calls but "most" callers can dial 087)	modem speed: 56.6kbps	Internet access, email

Name	Location 1999 (POPs if available)	Set up Fee 1999	On-going Charges 1999	Connect Charges 1999	Customer Service 1999	Products 1999	Notes 1999
Actrix	Nationwide	None for residential dial up, $49.95 corporate	Prepaid: $100 increments, 1c/min, Dial Up One: $7.95/mo for 15hrs Dial Up Two: $34.95/mo Corporate: $79.95/mo	$1/hr	Help Desk: 24hrs Mon/Fri, 7:30am-10:30pm Sat/Sun Flat Rate max 6hrs	Dial Up 56Kbps, ADSL, ISDN, Cable Access, VPN	Dial Up One: 1 email address and 2.5M page Dial Up Two: 5 email addresses and 5M page
CompuServe	Nationwide via toll free number	None stated	Standard: $17/mo for 2hrs, Super Value: $39/mo for 10hrs, $70/mo for 25hrs	Standard: $5.50/hr else $3.95/hr	Call Centre	Dial Up access, News service	
ClearNet	Nationwide (local call access not available in all areas)	$34.95	Usage: $2.50/hr, $5.95/hr 0800 Casual: $26.50/mo for 12hrs Serious: $38/mo for 20hrs, Power: $51/mo for 30hrs Flat Rate: $39.95/mo or $399.50/yr	$2.50/hr	24hr/7 day help desk	Roaming, web page hosting, ISDN, VPN	Flat rate only available for local access, Usage accounts must pay $5.96 for email, Web page is $4.40/mo for 5M and 20M traffic
IBM Global Network	Nationwide (local call access not available in all areas)	$78.75	Classic: $12/mo for 5hrs Convenience: $45/mo for 20hrs Mega: $90/mo for 50hrs	Classic: $2.50/hr Convenience: $2.25/hr Mega: $1.50/hr	Help Desk: normal business hrs, 5 email accounts for all	Leased Lines	
Internet Company of NZ	Nationwide	$34.95 residential, $50 corporate	Residential Lightnet: $14.95/mo for 20hrs, Midinet: $24.95/mo for 50 hrs, Meganet: $34.95/mo for 200hrs Business Entrynet: $30/mo for 25hrs+50Mb Sohonet: $50/mo for 50hrs+100Mb Biznet: $70/mo for 75hrs+150Mb Corpnet: $85/mo for 100hrs+200Mb	$1/50/hr	Help Desk	ISDN, permanent connections, VPN, fibre connections, wireless connections, ADSL, Cable access	Corporate gives 5 email accounts and free access from 12am to 7am
The Internet Group Ltd	Nationwide	$39	Diamond: $39.50/mo Diamond Plus: $34.95/mo Sapphire: $29.95/mo for 60hrs Gold: $19.95/mo for 30hrs Bronze: $10 for 10hrs	$1.50/hr	Help Desk: 24hr/7 day	Satellite Internet connection, TV programming, Internet Telephony	Diamond Plus must be at local POP calling locations, all accounts have 5M web page
Internet ProLink NZ	Auckland, Hamilton, Napier, Wellington, Christchurch, Dunedin	$49.95	Standard: $19.95/mo Discovery: $26/mo for 6M Surfers: $44/mo for 25M	Additional charges int'l peak (9am-8pm) $2.80/Mb, int'l off 98c/Mb, nat'l: 55c/Mb		ISDN dial up and permanent, wireless access, VPN, leased lines	Dial up accounts include 100K web page
NetLink	Auckland, Wellington, Christchurch	$30	Netvalue15: $10/mo for 15hrs Netvalue50: $25/mo for 50hrs Netvalue100: $45/mo for 100hrs Netvalue200: $85/mo for 200hrs	Netvalue15: $1.25/hr, otherwise $1/hr	Help Desk: 8:30am-5:30pm M/F	ISDN, permanent connections, VPN, fibre connections, Cable access, Frame Relay	Use 0867 access outside of POPs (IPNet)
Voyager NZ Ltd	Nationwide	Casual, NetGain100: $30 NetGain200: $37.50	Casual: $3.36/hr peak (8am-12am), $2.50/hr otherwise NetGain100: $29.95/mo for 100hrs NetGain200: $37.50/mo for 200hrs	$1.25/hr	Help Desk	VPN, ISDN, leased lines, Internet telephony	5M web page
Xtra	Nationwide	$39.95	NZPlan: $2.50/hr Advance10: $10/mo for 10hrs, Advance20: $25/mo for 20hrs Advance50: $35/mo for 50hrs Advance100: $65/mo for 100hrs Advance: $120/mo for 200hrs	Advance10: $1/hr Advance20:$1.25/hr Advance50: 70c/hr Advance100: 65c/hr	Help Desk 7am-11pm, 7 days, $25/mo web site	VPN, ISDN, ecommerce	Mar 99: $2.50/hr nationwide May 31, 1999: Flat Rate $39.95/mo, Advance10 $15/mo for 10hrs, Advance20 $25/mo for 20 hrs, NZPlan $2.50/hr

Name	Web Site	Bandwidth provider	Notes
Actrix	www.actrix.co.nz or www.actrix.gen.nz	NZIX 1996/97 Telecom IPNet 1999	Leased lines: $1000 connection fee, $115/mo plus Telecom charges for installation+monthly+Mb ISDN $50 connection fee, $50/mo, plus Telecom charges for installation+monthly Saturn supplied services available in some areas
CompuServe	www.compuserve.com, www.compuserve.com.au	CompuServe Network/PACnet	
ClearNet	www.clear.net.nz	CLIX	web site hosting: $112.50/mo for 10M+200Mb/mo traffic
IBM Global Network	www.ibm.net, www.ibm.com/globalnetwork/newzeal.html	IBM Global Network 1996/97	Current name: IBM Internet Connection Services, accounts 5 additional user Ids and 3Mb storage
Internet Company of NZ	www.iconz.co.nz	NZIX 1996/97, IPNet	Started in 1992 by Jon Clarke and Chris Thorpe "techno-nerds" with 100 accts. Purchased by Ron Woodrow in 1995 due to financial trouble. **ISDN**: dialup: $400 setup, $195/mo for 64kbps+$1.50/Mb int'l peak+$0.50 int'l off-peak+$0.20 nat'l peak+$2.40/hr, $300/mo for 128kbps, **centrex**: $800 setup, $295/mo for 64kbps+$1.50/Mb peak+$0.50/Mb off-peak+$0.20/Mb nat'l, $590/mo for 128kbps, **call-back**: $250 setup, $25/mo Connect Charge: $2.40/hr peak $1/hr offpeak Data Charge Int'l: $1/Mb peak ($1.50 perm connect), $0.20 off-peak ($0.30 perm connect), Data Charge Nat'l: $0.20/Mb **Leased Lines**: $1500 setup, $155/mo analogue 28.8k, $195/mo DDS 48K, $295/mo DDS 64k, $495/mo DDS 128k **VPN**: **web site design**: $195 -$795 web site host: $250 setup **e-commerce**: $250 setup, $50/mo,$0.50/transaction, $50 setup secure server+$10/pg+$10/mo **64k wireless**: $500 set up, $195/mo, $1.50/Mb int'l peak, $0.30/Mb int'l off-peak, $0.20/Mb nat'l **roaming**: $25 setup, $1/hr non-ISDN, $2.50/hr ISDN **global roaming**: $7.50/hr, $1/connect DDS charges available
The Internet Group Ltd	www.ihug.co.nz	NZIX and SITA 1996/97 some traffic on IPNet, Left IPNet 1999	(a), (b) &(f) includes 5Mb home page, c) includes 2.5Mb home page. web site hosting: $11.25/Mb/mo Starnet: Sky Tower: $767 installation (inc hardware, software, acct setup, dish) satellite data service: $868 installation (inc hardware, software, acct setup, dish) for 500kbps, $59/mo for 60hrs ($2/hr over) or $69/mo flat rate $20/mo for toll service. inc 5Mb home page. ISDN: $99 setup, $49/mo+$3/hr inc 5Mb home page, $99/mo for 60hrs+$2/hr inc 5Mb home page, $299/mo+$0.04/min for packet call-back and 5Mb home page
Internet ProLink NZ	www.iprolink.co.nz	NZIX 1996 CLIX 1997	Accounts include 100KB web page (1Mb for comml). DDS installation $400, $95/mo for 64kbps plus Int'l: $1.45/Mb peak, $0.65/Mb off-peak, Nat'l: $0.15/Mb VPN set-up $150-$750, $75-$175/mo depending on level of security
NetLink	www.netlink.co.nz	private 1996/97 Telecom IPNet 1999	
Voyager NZ Ltd	www.voyager.co.nz	ISDN provided by "Telephone company" Telecom IPNet	**ISDN**: $55 setup, $8/hr for 64kbps (12.5hrs min), $15/hr for 128kbps (10hrs min), $900/mo 64kbps flat rate, $1750/mo 128kbps flat rate **DDS**: 64kbps: $500 setup+$900/mo 128kbps: $750 setup+$1750/mo 256kbps: $1250 setup+$3500/mo **VPN**: $1326.67 setup+$900/mo+$6/hr ISDN dial connect+$2/hr analogue dial connect **web site hosting**: 1Mb inc in acct, $155 setup, $33.75/mo for 3 Mbytes storage+$10/Mb e-comm site: $1652 setup+$135/mo for 5Mb **Phone**: $20 setup+prepaid cards for NZ, Aust, US, HK, S. Africa, Korea, UK, Japan
Xtra	www.xtra.co.nz	NZIX 96/97, IPNet 1998/99	Internet service: Connection time charged per sec, all charges billed on Telecom bill web site hosting: $112.50/mo for 10M+100Mb/mo traffic

Appendix C: List of Internet Service Providers in New Zealand – Regional

Name	Location 1996	Set Up Fee 1996	On-going Charges 1996	Connect Charges 1996	Customer Service 1996	Products 1996
Auckland Internet Exchange	Started in 1997					
Bay City Internet						
Bay of Plenty Internet Service (PlaNet FreeNZ)						
Binary Brothers	Auckland, Christchurch, Wellington	$30 ($10 e-mail only)	$30/mo for 30hrs+20Mb nat'l traffic+2Mb int'l traffic ($10 email only)	$1/hr, Int'l: $2.50/Mb Nat'l:$1.25/Mb	12 users/modem modem speed: 28.8kbps	Internet access, Web design
Bitworks Internet Services						
Brice Parker Consultants	Gisborne	$82	$27/mo	Int'l: $3/Mb Nat'l: $1/Mb		Internet access
Cave Rock Software Ltd	Christchurch	None	$25/mo	Int'l: $5/Mb peak, $2.50/Mb off-peak Nat'l: $2.50/Mb	3 users/modem modem speed: 28.8kbps	Internet access
Central Plateau REAP (PlaNet NZ)	Taupo (REAP-Regional Education Activities Programme)	$60 for software	$15/mo	$2.35/hr or $4.50/Mb whichever comes 1st	modem speed: 19.2kbps	Internet access
Comnet Technologies Ltd	Auckland, Christchurch, Wellington	$50 ($99 comml)	$15/mo ($45/mo comml)	Int'l: $3/Mb peak, $1/Mb off-peak Nat'l: $0.80/Mb peak, $0.50 off-peak	10 users/modem modem speed: 28.8kbps	Internet access
CompKarori Internet Services	Wellington	$30 ($10 email only)	$30/mo for 30hrs+20Mb nat'l traffic+2Mb int'l traffic peak OR 10Mb off-peak ($10 email only)	$2/hr, Int'l: $3/Mb peak, $0.60/Mb off-peak, Nat'l: $1/Mb	modem speed: 28.8kbps	Internet access
CyberNet Ltd	Auckland	$45	(a) $20/mo for 5Mb (b) $50/mo for 25Mb c) $100/mo for 100Mb	Int'l: $1.95/Mb peak, $0.95/Mb off-peak Nat'l: $0.40/Mb	15 users/modem modem speed: 28.8kbps	Internet access
CyberXpress	Auckland, Christchurch, Wellington	$50	$30/mo for 15hrs	$3/hr no data volume charges	12-15 users/modem modem speed: 28.8kbps	Internet access
Deep South Networks	Dunedin	$20 ($40 comml)	$110/yr ($295/yr comml)	$2.65/hr, no data volume charges	20 users/modem modem speed: 28.8kbps	Internet access, web advertising
Digital Edge Ltd	Started in 1997					
Earthlight (PlaNet NZ)	Dunedin	$40	$35/qtr or $120/yr ($120 email only with no time charges) ($300/yr comml)	$3/hr, no data volume charge	15 users/modem modem speed: 28.8kbps	Internet access, email
Eastern Southland Internet	Gore	$25 ($45 comml)	$150/yr ($230/yr comml)	$4.50/hr no data volume charges	modem speed: 28.8kbps	Internet access
Efficient Software Internet	Alexandra, Balclutha, Dunedin, Invercargill, Oamaru, Queenstown, Timaru	$15	$135/yr ($300/yr comml)	Queenstown: $4.50/hr $3.36 elsewhere, no data volume charges	15 users/modem modem speed: 28.8kbps	Internet access

Name	Location 1996	Set Up Fee 1996	On-going Charges 1996	Connect Charges 1996	Customer Service 1996	Products 1996
EnterNet Online Ltd	Tauranga	$50 ($100 comml)	$15/mo ($50 comml)	Int'l: $2.80/Mbyte peak, $1.40/Mb off-peak, $0.70 night owl ($1.10/Mb comml) Nat'l: $0.50/Mb	8 users/modem modem speed 28.8kbps	Internet access, email, web hosting, back-up and online help
ESNet	Christchurch					
gisborne.net						
GlobeNet	Wellington	$49	$30/mo for 30hrs+10Mb nat'l+5Mb int'l	$1/hr, Int'l: $1.50/Mb Nat'l:$0.50/Mb	12 per users/modem modem speed: 28.8kbps	Internet access
Hindin Communications	Christchurch (nationwide via PacNet)	from $50	$20/mo	$2.40/hr, Int'l: $4/MbNat'l: $1.45/Mb	modem speed: 28.8kbps	Internet access
i-Max	Auckland	None	$4-12/mo	$0.30-$1.80/hr, Int'l: (prepaid) $2.80/Mb peak, $1.50 off-peak, $3.60/Mb peak, $2.30 off-peak Nat'l: $1.20/Mb prepaid, $2/Mb	10 users/modem modem speed: 28.8kbps	Internet access
inet						
Interactive Internet						
Internet Hawke's Bay	Hastings, Napier	None	$15/mo	Int'l: $4/Mb Nat'l: $2.50/Mb	modem speed: 28.8kbps	Internet access
Internet New Zealand Online	Auckland	$60	$20/mo ($30/mo comml)	Int'l: $2.75/Mb peak, $1.50/Mbyte off-peak Nat'l: $0.80/Mb	24 users/modem modem speed: 28.8kbps	Internet access
Internet Queenstown	Queenstown	None	$175/yr ($295 comml)	$4/hr, no data volume charges	15 users/modem modem speed: 28.8kbps	Internet access
Jet International	Hamilton		Closed in 1996			
KiwiConnect Internet Services	Auckland	$40 ($100 comml)	(a) $20/mo for 5Mb (b) $40/mo for 20 Mb	Int'l: $2.50/Mb peak $0.95 off-peak, Nat'l: $0.50/Mb	10 users/modem modem speed: 28.8kbps	Internet access
Kiwi Internet	Auckland		Private Service			
Lloyd Group	Hamilton		Started in 1998			
Lynx Internet	Christchurch	$75	$15/mo	Int'l: $5/Mb, Nat'l: $2/Mb	20 users/modem modem speed: 28.8kbps	Internet access
Manawatu Internet Services Ltd (part of PlaNet)	Levin, Palmerston North	$45	$135/yr ($220 comml)	Int'l: $3.95/Mb, Nat'l: $0.50/Mb	15 users/modem modem speed: 28.8kbps $45 per hour for on-site service	Internet access
Medi@net						
Microsoft Network	Auckland, Wellington		$28/mo inc 2hr	$19/hr, no data volume charges	modem speed: 14.4kbps	Private on-line connections, Internet access
Midland Internet	Hamilton	$50 ($100 comml)	$16/mo ($50/mo comml)	Int'l: $3/Mb peak, $1.50/Mb off-peak, $0.75/Mb way off-peak, Nat'l: $0.50/Mb, comml: $1.25/Mb 24hr access	10 users/modem, modem speed: 28.8kbps	Internet access, domain name registration

Name	Location 1996	Set Up Fee 1996	On-going Charges 1996	Connect Charges 1996	Customer Service 1996	Products 1996
Millenium Internet Services						
Minidata						
Molten Media						
NetAccess	Christchurch	$50	$10/mo ($45/mo comml) $108/yr ($486/yr comml)	Int'l: $4/Mb peak, $2/Mb off-peak Nat'l: $1/Mb	10 users/modem, modem speed: 28.8kbps	Internet access
Netbyte Internet	Auckland	$50 ($100 comml)	$30/mo ($50 comml inc 60 Mb)	Int'l: $1.75/Mb, Nat'l: $0.50/Mb	6 users/modem, modem speed: 28.8kbps	Internet access, DDS, ISDN, web site hosting
NetGain	No Information					
NetGate Communications Ltd.	Auckland	$30	$20/mo ($45/mo Powerusers) for 8 peak hours, all off-peak hrs and 5Mb per mo	$0.60/hr peak Int'l: $1.95/Mb peak, $0.95/Mb off-peak Nat: $0.35/Mb	5 users/modem, modem speed: 28.8kbps	Internet access
NorthInfoLinE (NILE)	Whangarei	$50	$20/mo	Int'l: $2/Mb, Nat'l: $0.50/Mb	8 users/modem, modem speed: 28.8kbps	Internet access
NZ Flat Net		$45	Closed in 1996			
NZNET Internet Services Ltd.	Auckland, Hamilton, Wellington	$30	Auckland: $10/mo ($30 comml) Wellington: $15/mo ($35 comml)	Int'l: $4.80/Mb peak, $2.50/Mb off-peak, Nat'l: $1.50/Mb	9 users/modem, modem speed: 28.8kbps	Internet access
Omega Centauri Internet	Hamilton	$22.50 ($60 comml)	$13.50/mo ($40/mo comml)	Int'l: $3/Mb ($2.50Mb comml) peak $2/Mb ($1.50Mb comml) off-peak Nat'l: $0.20/Mb	10 users/modem, modem speed: 28.8kbps	Internet access
OUTnet Internet	Started in 1997					
Paradise Internet	Started in 1998					
Plain Communications	Christchurch		Stopped offering service directly to public in 1997		30 modems (1997)	
PlaNet NZ Auckland						
PlaNet (NZ) Bay of Plenty (part of PlaNet NZ)	Rotorua	$40 ($60 comml) $80 for	$11-$16/mo ($40-60/mo comml)	$2-$4/M	30 users/modem, modem speed: 28.8kbps	Internet access
PlaNet (NZ) Canterbury (part of PlaNet NZ)	Christchurch	$50 ($60 comml)	$135/yr ($160 comml) for 1 hr/day	$0.15/min Int'l: $4.90/Mb peak $2.90/Mb off-peak Nat'l: $2.50/Mb peak $1.50/Mb off-peak	15 users/modem, modem speed: 28.8kbps	Internet access
PlaNet (NZ) Hawke's Bay						
PlaNet (NZ) Nelson (part of PlaNet NZ)	Nelson	$40 ($60 comml)	$180/yr ($210 comml)	Int'l $4/Mb Nat'l $1/Mb	18 users/modem modem speed: 28.8kbps	Internet access
PlaNet NZ (mlb.planet)						
PlaNet (NZ) Wanganui	Wanganui	Stopped offering service in 1996				
PlaNet (NZ) Wellington (part of PlaNet NZ)	Wellington	$75	$150/yr ($200/yr for Newsgroup)	Int'l $3/Mb Nat'l $0.60/Mb		Internet access
PlaNet Free NZ	Auckland, Blenheim, Christchurch, Gisborne, Hamilton, Kapiti Coast, Tauranga, Wellington	$40-$75	$25-$35/mo, $202/6 mo, $382/yr for 60-90min/day+20Mb int'l traffic/mo+all nat'l traffic	Time charge, Int'l: $1.50-$2.50/Mb	12-20 users/modem, modem speed: 28.8kbps	Internet access

Name	Location 1996	Set Up Fee 1996	On-going Charges 1996	Connect Charges 1996	Customer Service 1996	Products 1996
PlaNet Free NZ Gaia (part of PlaNet Free NZ)	Christchurch	$50	$135/yr	Int'l: $5/Mb Nat'l: $1/Mb	10 users/modem modem speed: 28.8kbps	Internet access
PC Net	Stopped offering service in 1996					
Quik Internet						
RAM Management	Napier, Hastings		$22.50/mo	Int'l $4/Mb Nat'l $2.50/Mb	12 users/modem, modem speed: 28.8kbps	Internet access
Scenicland Internet Ltd.	Started service in 1997					
SineSurf	Started in 1997					
SirraNet	Christchurch	None	(a) $15/mo ($40/mo comml) for 20 min (b) $40/mo ($90/mo comml)	(a) $0.15/10 min, Int'l $7/Mb peak $4.50/Mb off-peak Nat'l $3/Mb peak $2/Mb off-peak (b) $0.30/10 min Int'l $4.5/Mb peak $2.50/Mb off-peak Nat'l $2/Mb peak $1/Mb off-peak	5 users/modem, modem speed: 28.8kbps	Internet access
Sky Surf Internet	Started service in 1997					
Southern Internet Services	Christchurch	$50	(a) $16.85/mo 15 hrs (b) $28.13/mo 30 hrs c) $45/mo 60 hrs (d) $61.88/mo 90 hrs	$0.95/hr, Int'l: $4/Mb peak $2.50/Mb off-peak Nat'l: $1.80/Mb peak $1.35/Mb off-peak	10 users/modem, modem speed: 28.8kbps	Internet access
South Net, South Net Queenstown, South Net Te Anau	Invercargill		$99/yr ($199 comml)	$3/hr ($10/hr 0800) no data volume charges	12 users/modem modem speed: 28.8kbps	Internet access
Synapse Networks						
Taranaki Netsource	Started service in 1997					
Taranaki Polytechnic	New Plymouth	Stopped offering public in 1996 or 1997				
The Internet Group Northland Ltd (IGRIN)	Started service in 1997					
The Net	No Information					
The Packing Shed	Started service in 1997					
TIPNET	New Plymouth	None	(a) $15/mo (b) none	(a) $0.01/min, Int'l $5/Mb Nat'l $1/Mb (b) $5/hr no data volume charges	10-14 users/modem modem speed 28.8kbps	Internet access
TpNet	Started service in 1997					
TpNetLink	Christchurch	$40	$10/mo w/data volume charging $40/mo w/out data volume charging	Int'l: $4.95/M Nat'l: $2.50	8 users/modem	

Name	Location 1996	Set Up Fee 1996	On-going Charges 1996	Connect Charges 1996	Customer Service 1996	Products 1996
University of Canterbury	Christchurch	None	None	$0.03/min Int'l: $4/M peak, $2/M off-peak, $0.80/M way off-peak Nat'l: $1/M	modem speed: 28.8 kbps	Internet access, web page hosting
Virtual Comm-Unity	Started service in 1998					
Waiariki Polytech	Rotorua	$112.50 coml	$11.25/mo $56.50/mo comml.	$2.25/M off-peak, $$4.50/M peak	modem speed: 28.8kbps	
Wairarapa Internet NZ	Started service in 1997					
Wanganui Internet	Wanganui	None	$85/yr $240/yr comml	$30/mo for 8Mb Int'l and 2Mb Nat'l then $4.95/Mb Int'l and $1.75/Mb Nat'l	10 users/modem, modem speed: 28.8kbps	
Wanganui Polytechnic	Wanganui	$25	$80/yr ($150/yr comml)	Nat'l: $0.20/Mb Int'l: $3.60/Mb or $4.20/Mb comml peak, $1.50/Mb or $1.80/Mb comml off-peak	10 users/modem, modem speed: 28.8kbps	Internet access
Wave Internet Services	Auckland, Hamilton, Tauranga, Thames/Coromandel, Whakatane	Economy $25 Standard $50 Premium $100	Economy none Standard $30/mo Premium $60/mo	Economy $5/hr Standard none (off-peak only, 30hrs max) Premium none $1.50/Mbyte	8 users/modem modem speed 28.8kbps	Internet access
Web InterNet	Started service in 1997					
Web World Ltd	Auckland	None for data acct, $20 for time acct	$3.63-$17.78/month $395/year (comml)	$13.50/hr or Nat'l: $0.44/Mbyte Int'l $0.89/Mbyte	10 users/modem, modem speed: 28.8kbps	Internet access, web page hosting
Wizkid® Internet Limited	Started service in 1997					

Name	Location 1997	Set Up Fee 1997	On-going Charges 1997	Connect Charges 1997	Customer Service 1997	Products 1997
Auckland Internet Exchange	Auckland	None	$9.95/mo	$0.39/hr	10 users/modem modem speed: 33.6kbps	Internet access, ISDN
Bay City Internet						
Bay of Plenty Internet Service (PlaNet FreeNZ)						
Binary Brothers	Auckland, Christchurch, Wellington	None	$30/month for 30hrs+2Mb peak+nat'l traffic, $10/month email	$1/hr, Int'l: $2/Mb peak, $1/Mb off-peak	12 users/modem modem speed: 28.8kbps	Internet access, web design, intranet design
Bitworks Internet Services						
Brice Parker Consultants	Gisborne	$55	$27/mo for 3Mb int'l traffic	$8.75/hr Int'l: $3/Mb Nat'l: $1/Mb	12 users/modem	Internet access
Cave Rock Software Ltd	Christchurch	None	(a)$30/mo no time charge (b) $30/mo for 1hr/day+nat'l traffic+off-peak traffic c) $25/mo for 1hr/day	$3/hr, Int'l: $2/Mb peak, $0.75/Mb off-peak (a&c) Nat'l: $0.25/Mb (a&c)	8 users/modem modem speed: 28.8kbps	Internet access
Central Plateau REAP (PlaNet NZ)	Taupo	None	(a) $30/mo (b) $30 c) $25	(a) $2.50/hr, Int'l: $2/Mb peak, $0.75/Mb off-peak Nat'l: $0.25/Mb	modem speed: 28.8kbps	Internet access
Comnet Technologies Ltd	Auckland, Wellington, Christchurch	$50 ($99 comml)	$15/mo ($45 comml)	Nat'l: $0.80/Mb peak, $0.50/Mb off-peak Int'l:$3/Mb peak, $1/Mb off-peak	10 users/modem modem speed: 28.8kbps	Internet access, ISDN, leased lines
CompKarori Internet Services	Wellington	$30 ($10 email)	$30/mo for 30hrs+20Mb nat'l traffic+2Mb peak int'l traffic OR 10Mb off-peak traffic ($10/mo email)	$2/hr, Int'l: $3/Mb peak, $0.60/Mb off-peak, Nat'l: $1/Mb	modem speed: 28.8kbps	Internet access
CyberNet Ltd	Auckland		Service now supplied by Auckland Internet Exchange			
CyberXpress	Christchurch	$15	$29.50/mo for 15hrs	$3/hr no data volume charges	12 users/modem modem speed: 28.8kbps	Internet access
Deep South Networks	Dunedin	$39.95	None	$2.98/hr, no data volume charge	15 users/modem modem speed:33.6kbps	Internet access, web advertising
Digital Edge Ltd	Auckland	None	(a) $2/mo (b) $32/mo 40hrs c) $25/mo 40 hrs student (d)$55/mo	(a) $2/hr, $1.50/hr otherwise	modem speed: 33.6kbps	Internet access, ISDN, leased lines, DDS
Earthlight (PlaNet NZ)	Dunedin	$40	$35/qtr, $120/yr email only ($300 comml)	$3/hr, no data volume charge	15 users/modem modem speed: 28.8kbps	Internet access, email
Eastern Southland Internet	Gore	$75	None	$4/hr, no data volume charges	modem speed: 28.8kbps	Internet access, email

Name	Location 1997	Set Up Fee 1997	On-going Charges 1997	Connect Charges 1997	Customer Service 1997	Products 1997
Efficient Software Internet	Alexandra, Balclutha, Christchurch, Dunedin, Invercargill, Oamaru, Queenstown, Timaru	(a) $15 (b) $59	(a) $135/yr ($300/yr comml) (b) $45/mo ($55/mo comml)	(a) Queenstown, Oamaru, Timaru, Balclutha: $4.50/hr Invercargill, Dunedin: $3.36 (b) none, no data volume charges (a)or (b)	10 users/modem modem speed: 28.8kbps	Internet access
EnterNet Online Ltd	Tauranga	$50 ($100 comml)	$15/mo ($50 comml)	Int'l: $2.80/Mb peak $1.40/Mb off-peak, $0.70/Mb night owl, $1.10/Mb comml Nat'l: $0.50/Mb	8 users/modem modem speed: 28.8kbps	Internet access, web page hosting
ESNet	May have been a subsidary of Efficient Software					
gisborne.net						
GlobeNet	Wellington	$39.95	(a) None (b) $35/mo for 30 hrs+5Mb int'l traffic+10Mb nat'l traffic	(a) $2.50/hr (b) $1/hr, Int'l: $1.50/Mb Nat'l: $0.50/Mb	12 users/modem, modem speed: 28.8kbps	Internet access, email
Hindin Communications	Christchurch	$50	$20/mo	$2.40/hr, Int'l: $2.50/Mb, Nat'l: $0.60/Mb	modem speed: 28.8kbps	Internet access, email, 7 day help desk
i-Max	Stopped operation in 1996					
inet						
Interactive Internet						
Internet Hawke's Bay	Napier, Hastings	$25	$15/mo (free if no usage)	$2.95/hr OR $2.75/Mb	modem speed: 33.6kbps	Internet access, email, web hosting, web
Internet New Zealand Online	Auckland	$60	$20/mo ($35/mo comml)	Int'l: $2.75/Mb peak, $1.50/Mbyte off-peak Nat'l: $0.80/Mb	24 users/modem modem speed: 28.8kbps	Internet access
Internet Queenstown	Operation taken over by South Net					
Jet International	Started and closed in 1997					
KiwiConnect Internet Services	Closed in 1997					
Kiwi Internet	May be private service					
Lloyd Group	Started in 1998					
Lynx Internet	Christchurch	$75	$15/mo	Int'l: $5/Mb Nat'l: $2/Mb	20 users/modem modem speed: 28.8kbps	Internet access, email
Manawatu Internet Services Ltd (part of PlaNet)	Palmerston North, Levin	$45	$135/yr ($220/yr comml for 5 accounts)	Int'l: $2.70/Mb Nat'l: $0.72/Mb	15 users/modem modem speed: 28.8kbps	Internet access, email
Medi@net						
Microsoft Network	Stopped offering service to public in 1997					
Midland Internet	Hamilton	$25	Bronze: $45/mo flat rate Silver: none Gold: $20/mo comml	Bronze: none Silver: $2.50/hr Gold: $0.95/hr	10 users/modem modem speed: 28.8kbps	Internet access, email, web hosting
Millenium Internet Services						
Minidata						

Name	Location 1997	Set Up Fee 1997	On-going Charges 1997	Connect Charges 1997	Customer Service 1997	Products 1997
Molten Media						
NetAccess	Christchurch	$50	$10/mo or $108/yr ($45/mo or $486/yr comml)	Int'L: $4/Mb peak $2/Mb off-peak Nat'l: $1/Mb	10 users/modem modem speed: 28.8kbps	Internet access, email
Netbyte Internet	Iprolink took over operation in 1997					
NetGain	No information					
NetGate Communications Ltd.	Auckland	$30	$20/mo ($45/mo powerusers) for 8hrs peak+all off-peak+5/Mb	$0.60/hr, Int'l: $1.95/Mb peak, $0.95/Mb off-peak Nat'l: $0.35	5 users/modem, modem speed: 28.8kbps	Internet access, email
NorthInfoLinE (NILE)	Stopped operation in 1997					
NZ Flat Net		$45	$35/mo			
NZNET Internet Services Ltd.	Auckland, Wellington, Hamilton	$30	Auckland: $10/mo ($30/mo comml) Wellington: $15/mo ($35/mo comml)	Int'l: $4.80 peak, $2.50 off-peak Nat'l: $1.50/Mb	9 users/modem, modem speed: 28.8kbps	Internet access, email
Omega Centauri Internet	Stopped operation in 1997					
OUTnet Internet	Auckland	$50 ($100 with installation)	$50/mo	None	modem speed: 28.8kbps	Internet access, email
Paradise Internet	Began service operation as CyberXpress					
Plain Communications						
PlaNet NZ Auckland						
PlaNet (NZ) Bay of Plenty (part of PlaNet NZ)	Stopped operation in 1997.					
PlaNet (NZ) Canterbury (part of PlaNet NZ)	Christchurch	$15	$120/yr for 1hr/day	$0.015/min, Int'l: $2.85/Mb peak, $1.50/Mb off-peak Nat'l: $1.50/Mb peak, $0.85/Mb off-peak	15 users/modem, modem speed: 28.8kbps	Internet access, email,
PlaNet (NZ) Hawke's Bay						
PlaNet (NZ) Nelson (part of PlaNet NZ)	Nelson	$40 ($60 comml)	$180/yr ($210/yr comml)	Int'l: $4/Mb Nat'l: $1/Mb	18 users/modem, modem speed: 28.8kbps	Internet access, email
PlaNet NZ (mlb.planet)						
PlaNet (NZ) Wanganui						
PlaNet (NZ) Wellington (part of PlaNet NZ)	Wellington	$75	$150/yr ($200/yr inc newsgroups)	Int'l: $3/Mb Nat'l: $0.60/Mb	modem speed: 28.8kbps	Internet access, email
PlaNet Free NZ	Keri Keri, Whangarei, Auckland, Hamilton, Bay of Plenty, Gisborne, Napier, Wellington, Wairarapa, Christchurch, Blenheim	$75	$20-$70/mo, $202/6 mo, $383/yr	$1/hr, Int'l: $1.10-$2.50/Mb (overdata) Nat'l: free	12-20 users/modem, modem speed: 33.6kbps	Internet access, email
PlaNet Free NZ Gaia (part of PlaNet Free NZ)	Christchurch	$50	$135/yr	Int'l: $5/Mb Nat'l: $1/Mb	10 users/modem, modem speed: 28.8kbps	Internet access, email
PC Net	launched 11/97					

Name	Location 1997	Set Up Fee 1997	On-going Charges 1997	Connect Charges 1997	Customer Service 1997	Products 1997
Quik Internet						
RAM Management	Napier, Hastings	$33.75	$22.50/mo+lessor of connect time or data volume charge	$2.8125/hr OR Int'l: $2.8125/Mb peak, $1.125/Mb off-peak Nat'l: $2.025/Mb peak, $0.84375/Mb off-peak	12 users/modem, modem speed: 33.6kbps	Internet access, email
Scenicland Internet Ltd.	Greymouth, Hokitika, Westport	None	None	$4.50/hr no data volume charge	10 users/modem modem speed: 28.8kbps	Internet access, email, web hosting
SineSurf	Auckland	$56.25	$35/mo	None	No frills, no helpdesk, modem speed: 28.8kbps	Internet access, email
SirraNet	Christchurch	None	(a) $15/mo for 20 min ($40/mo comml) (b) $40/mo ($90 comml)	(a) $0.15/10min, Int'l: $7/Mb peak, $4.50/Mb off-peak Nat'l: $3/Mb peak, $2/Mb off-peak (b) $0.30/10min, Int'l: $4.50/Mb peak, $2.50/Mb off-peak Nat'l: $2/Mb peak, $1/Mb off-peak	5 users/modem, modem speed:28.8kbps	Internet access, email
Sky Surf Internet	Auckland	$49	(a) none (b) $10/mo for 10hrs c) $25/mo for 30hrs (d) $39/mo flat rate	(a) $2/hr (b) $1.50/hr c) $1/hr (d) None, no data volume charge	7 users/modem modem speed: 56.6kbps	Internet access, email, web design, web hosting
Southern Internet Services	Christchurch	$50	(a) $16.85/mo 15 hrs (b) $28.13/mo 30 hrs c) $45/mo 60 hrs (d) $61.88/mo 90 hrs	Int'l: $4/Mb peak $2.50/Mb off-peak Nat'l: $1.80/Mb peak $1.35/Mb off-peak	10 users/modem, modem speed: 28.8kbps	Internet access
South Net, South Net Queenstown, South Net Te Anau	Invercargill, Queenstown	$39.95 includes $22.50 time credit	None	$2.25/hr peak, $1.13/hr off-peak	8 users/modem in Queenstown&Te Anau, modem speed: 56.6kbps	Internet access, email, web hosting
Synapse Networks						
Taranaki Netsource	New Plymouth, Stratford, Hawera	$39.96	None	$0.60/hr, $0.63/Mb	modem speed: 33.6kbps	Internet access, email, leased lines, ISDN
Taranaki Polytechnic						
The Internet Group Northland Ltd (IGRIN)	Whangarei, Keri Keri, Kaitaia, Dargaville	$50	(a) $38/mo for 120hrs (b) $20/mo for 20hrs c)$10/mo for 10hrs (d) none	(a) $1/hr (b) $2/hr c) $2/hr (d) $1.50/Mb	modem speed: 33.6kbps	Internet access, email, account (d) is a radio connection @ 2Mbps
The Net			$150/yr	$2.40/hr or $1.50/Mb international traffic		
The Packing Shed	Franklin	(a) $45 inc 5 hrs (b) none	(a) none (b) $45/mo for 40hrs	(a) $3.60/hrr (b) $1.08/hr	modem speed: 28.8kbps	Internet access
TIPNET	New Plymouth	None	$5/mo	$0.60/hr, $0.65/Mb	10-14 users/modem, modem speed: 28.8kbps	Internet access, email
TpNet	Christchurch	(a) None (b) $56.25 ($84.37 comml)	(a) $110/yr ($200/yr comml) (b) $45/mo ($56.25 comml) no connect charges	Nat'l: $1.50/Mb Int'l:4/Mb	8 users/modem modem speed 28.8kbps	Internet access
TpNetLink	Purchased by NetLInk in 1997.					
University of Canterbury	Stopped offering service to public in 1997					

Name	Location 1997	Set Up Fee 1997	On-going Charges 1997	Connect Charges 1997	Customer Service 1997	Products 1997
Virtual Comm-Unity	Auckland	$30	(a) $15/mo for 3hrs (b) $30/mo for 6hrs	(a) $6/hr (b) $5/hr no data volume charge	modem speed: 28.8kbps	Internet access via dial up and kiosk
Waiariki Polytech	closed and customers transferred to Wave Internet					
Wairarapa Internet NZ	Masterton, South Wairarapa	None	None	$4.50/hr OR Int'l: $2.81/Mb Nat'l: $2.03	modem speed: 33.6kbps	Internet access, radio links
Wanganui Internet	No information					
Wanganui Polytechnic	No information					
Wave Internet Services	Auckland, Hamilton, Rotorua, Tauranga, Thames/Coromandel, Whakatane	Economy $25 Standard $50 Premium $100	Economy $10/mo for 2hrs Standard $30/mo for 30hrs Premium $60/mo	Economy $5/hr Standard $2.50/hr (off-peak only, 30hrs max) Premium none, No data volume charges	10 users/modem modem speed 33.6kbps	Internet access
Web InterNet	Auckland	$45	(a) $30/mo for 25hrs (b) $45/mo for 60hrs c) $55/mo flat rate	(a) $1.10/hr (b) $1/hr	modem speed: 33.6kbps	Internet access, email, 128kbps routing
Web World Ltd	Auckland	(a) $49.95 (b)&c) none	(a) none (b) $9.95/mo for 5hrs, $29.95/mo for 15hrs, $49.95 for 30hrs c) $10/mo	(a) $2.50/hr (b) $2.50/hr c) Int'l: $1.95/Mb peak, $0.95/Mb off-peak Nat'l: $ 0.50/Mb	8 users/modem, modem speed: 33.6kbps	Internet access, email, web page hosting
Wizkid® Internet Limited	Christchurch	$45	$15/mo	Int'l: $3/Mb peak, $2/Mb off-peak Nat'l: free	modem speed: 56.6kbps	Internet access, email, web page hosting, ISDN

Name	Location 1998	Set Up Fee 1998	On-going Charges 1998	Connect Charges 1998	Customer Service 1998	Products 1998
Auckland Internet Exchange	Auckland	$33.69	(a)$67.16/6mo for 60hrs email only (b) $134.66/6mo for 150hrs c) $202.16/6mo for 300hrs (d) $269.66/6mo for 600hrs (e) $404.66/6mo for 600hrs (f) $607.16/6mo for 900hrs comml			Internet access, email, e-commerce, dialup/dedicated ISDN, leased-lines
Bay City Internet	Timaru		now www.timaru.com no price info		modem speed: 33.3kbps	Internet access, email, leased lines, web site design & hosting
Bay of Plenty Internet Service (PlaNet FreeNZ)	Bay of Plenty	$40 ($75 for 1hr service)	(a) $100/yr email only (5hrs+5Mb)/mo (b) $20/mo or $210/yr for (20hrs+15Mb)/mo c) $25/mo or $270/yr for (30hrs+20Mb)/mo (d) $35/mo or $382/yr for (45hrs+30Mb)/mo (e) $70/mo or $770/yr for (50hrs+100Mb)/mo (f) $70/mo or $770/yr for (120hrs+40Mb)/mo	$1/hr and $0.60/Mb for Int'l traffic	modem speed for dial up: 33.6kbps, for ISDN 56.6kbps	Internet access, email, ISDN, analogue leased lines, news groups
Binary Brothers	Coromandel		no price info			Internet access, email, secure server, newsgroups
Bitworks Internet Services		$40 ($10 if download s/w)	(a) none but hrs pre-paid (b) $45/mo (both inc. email and home page)	$2.20/hr		Internet access, email, web site design & hosting, e-commerce sites
Brice Parker Consultants	Gisborne	none	Data Plan $27/mo for 10Mb int'l traffic Time Plan $27/mo for 10hrs Corporate Plan $56.25/mo for 20 access accounts	Data Plan Int'l: $2/Mb peak, $1/Mb off-peak National: $0.75/Mb Time Plan $2.95/hr Corporate Plan Int'l: $1.68/Mb peak, $0.84/Mb off-peak Nat'l: $0.56/Mb		Internet access, email, newsgroups
Cave Rock Software Ltd	Christchurch	$30 all accounts except corporate at $120	time: none, time+1 hr/day: $30/mo time+2hr/day: $45/mo prepay20hrs/mo: $25/mo prepay60hrs/mo: $45/mo home (1hr/day): $15/mo standard: $30/mo bulk: $45/mo corp: $60/mo webhost: $35/mo	$2.50/hr for all time based accounts, Int'l/Nat'l home: $0.75/$0.25, standard: $0.75/$0.25, bulk: $0.30/$0.15 corp: $0.75/$0.25		Internet access, web site hosting, email, national and international news access, ISDN, DDS, V.90, secure transaction server
Central Plateau REAP (PlaNet NZ)						
Comnet Technologies Ltd	Auckland, Wellington, Christchurch			***No price info on page***		
CompKarori Internet Services	Wellington	$30	$30 for 30hrs+2Mb int'l traffic peak OR 10Mb off-peak+20Mb nat'l traffic	$2/hr, Int'l: $3/Mb peak, $0.60 off-peak, Nat'l: $1/Mb		Internet access, email, web site hosting
CyberNet Ltd						
CyberXpress		30+ $10 manual	Personal $15/mo Business $20/mo (Personal accounts are prepaid) Flatrate $32/mo for 3hrs/day peak free for off-peak	Personal $1/hr for 15hrs then $2.50/hr Business $1/hr for 15hrs then $2.50/hr		Internet access, ISDN, web site hosting, radio connections
Deep South Networks	Dunedin					

Name	Location 1998	Set Up Fee 1998	On-going Charges 1998	Connect Charges 1998	Customer Service 1998	Products 1998
Digital Edge Ltd	Auckland	$27	(a) none (b) $36/mo 45hrs c)$28/mo student 45 hrs d)$39.95/mo 75hrs (e) $60/mo 110hrs (f) $45/mo (g) $32/mo comml a-e prepaid	(a) $1.95/hr (b) $1.50/hr c)&(d) $1/hr	web design, modem speed: 56.6kbps (flat rate restricted to 33.6kbps)	Internet access, email, email/fax, ISDN, secure web servers, dedicated dial-up modem $75 setup & $140/mo
Earthlight (PlaNet NZ)	Dunedin	$40 (none for email only)	$35/qtr or $120/yr (email only must be paid yrly in advance)	$3/hr	help desk, free web page 500kb for full access, max 5Mb email for email only	Internet access, email
Eastern Southland Internet	Gore	$59	$10/mo for 3.5 hrs	$2.81/hr	24hr help desk	Internet access, email, web site hosting, web site design
Efficient Software Internet	Purchased by ihug in 1997.					
EnterNet Online Ltd	Tauranga	70 ($100 comml)	$15/mo ($50/mo comml)	Int'l: $2.80/Mb peak, $1.40 off-peak, $0.70 (11pm to 7am) $1.10/Mb comml Nat'l: $0.50/Mb	help desk, web page design, 5 email accounts comml, free web page 500kb (2Mb comml)	Internet access, email, web page hosting, radio connections, newsgroup, chat room
ESNet						
gisborne.net				**Now PlaNet Free NZ**		Internet access
GlobeNet	Wellington	$35.51	Freedom: none, Prepay30: $35/mo for 30hrs Prepay60: $50/mo for 60hrs	Freedom: $2.22/hr Prepays: $2/hr		Internet access, email, web site hosting, ISDN
Hindin Communications	Christchurch	No direct dialup Internet access				Consulting e-commerce solutions, EDI, online databases ie National Library, ISP set ups, Intranets
i-Max						
inet	Christchurch	None	$15/mo for 20hrs, $35/mo for 100hrs, $50/mo for 120hrs, $70/mo for 200hrs		modem speed: 56.6kbps	
Interactive Internet			Gone to www.es.co.nz			Internet access, email, email/fax, web design & hosting, intranet
Internet Hawke's Bay	Napier, Hastings	$25	$15/mo	$2.50/hr OR $2.50/Mb		Internet access, email
Internet New Zealand Online	No site.					
Internet Queenstown	Service taken over by South Net					
Jet International	Stopped operation in 1997					
KiwiConnect Internet Services						
Kiwi Internet						
Lloyd Group	Auckland, Hamilton	$100, $200 for dedicated	$45/mo, $100/mo for dedicated modem	None	6 users/modem	Internet access, web site design and hosting, xDSL, PABX, DDS
Lynx Internet	Christchurch	$30 ($75 for on-site installation)	(a) $15/mo (b) $30/mo	(a) Int'l: $3.50/Mb Nat'l: $1.50/Mb (b) Int'l: $1.20/Mb Nat'l: $0.60/Mb		Internet access, email, web site hosting, ISDN
Manawatu Internet Services Ltd (part of PlaNet)	Manawatu, Levin, Dannervirke, Palmerston North	$15 ($45 with onsite installation)	$135/yr or $12.50/mo for 3Mb/mo ($220/yr comml for 5Mb/mo)	Int'l: $1.99/Mb (email traffic $2.25/Mb) Nat'l: $0.56/Mb (email traffic $0.67/Mb) Cached: $1.41/Mb	70 incoming lines, modem speed: 33.6kbps	Internet access, email, newsgroup, web site hosting

Name	Location 1998	Set Up Fee 1998	On-going Charges 1998	Connect Charges 1998	Customer Service 1998	Products 1998
Medi@net			Advertised on Canterbury Online but no site.			Internet access, web site design & hosting
Microsoft Network	Stopped service in 1997. Accounts transferred to Wave Internet					
Midland Internet						
Millenium Internet Services	No information					
Minidata	Greymouth to Hokatika			$2.50/hr		
Molten Media						
NetAccess	Christchurch	$50 ($250 dedicated line)	(a) none (b) $48/mo for 100hrs c) $62/mo for 200hrs (d) $150/mo dedicated line flat rate	(a) $2/hr peak, $1.50/hr off-peak (b)&c) $1.13/hr		Internet access, email, web page hosting, data services, fax email
Netbyte Internet						web site design, e-commerce hosting
NetGain	Gone.					
NetGate Communications Ltd.	Auckland	$25	$35/mo (acct must be prepaid)	Not listed		Internet access, email, web page design & hosting
NorthInfoLinE (NILE)						
NZ Flat Net	Stopped operation in 1997					
NZNET Internet Services Ltd.	Auckland	$30 (private or comml) $80 with comml web site	(a) $29/mo for 30hrs (b) $49/mo for 80hrs c) $69/mo for 80hrs+5email accts (d) $99/mo for 80hrs+5email accts+traffic to web site	$1.50/hr	Help desk, modem speed: 56.6kbps	Internet access, email, newsgroups, web site design & hosting, ISDN, microwave link
Omega Centauri Internet						
OUTnet Internet	Auckland	$50 unassisted, $100 for service call	(a) email only $10/mo (b) $50/mo			Internet access, email, web page hosting
Paradise Internet		None	(a) $10/mo for 20hrs (b) $30/mo for 100hrs	$1/hr		Internet access, email, web page hosting
Plain Communications						
PlaNet NZ Auckland	Auckland	$56.25	(a) $100/yr email only for (5hrs+5Mb)/mo (b) $20/mo or $220/yr for (20hrs+20Mb)/mo c) $25/mo or $275/yr for (30hrs+30Mb)/mo (d) $35/mo or $385/yr for (45hrs+45Mb)/mo(e) $50/mo or $550/yr flat rate for 6hrs/day (f) $70/mo for 185 in hrs or Mb, all accts are prepaid	$1/hr and $1/Mb for int'l traffic	2nd rate schedule: (a) $100/yr email only for (5hrs+5Mb)/mo (b) $20/mo or $210/yr for 15hrs/mo c) $25/mo or $270/yr for 25hrs/mo (d) $35/mo or $382/yr for 40hrs/mo (e) $50/mo or $550/yr for 80hrs all accts are prepaid time:$1.50/hr	Internet access, email, ISDN, web site hosting, ADSL trial connection
PlaNet (NZ) Bay of Plenty (part of PlaNet NZ)	Now Bay of Plenty Internet Services					
PlaNet (NZ) Canterbury (part of PlaNet NZ)						

Name	Location 1998	Set Up Fee 1998	On-going Charges 1998	Connect Charges 1998	Customer Service 1998	Products 1998
PlaNet (NZ) Hawke's Bay	Hawke's Bay, Napier	$40	(a) none (b) $12/mo or $55/tmo or $110/yr for 40hrs+5Mb c) $22.50/mo or $115.50/6mo or $227.50/yr for 40hrs+15Mb (d) $22.50/mo $115.50/6mo or $227.50/yr for 80hrs+5Mb (e) $30/mo for 60hrs (f) $55/mo for 120hrs	(a) $1.80/hr (b), c)&(d) $1.35/hr+$1.35/Mb (e)&(f) $1.80/hrtraffic		Internet access, email
PlaNet (NZ) Nelson (part of PlaNet NZ)						
PlaNet NZ (mlb.planet)	Marlbourgh					Internet access, email, ISDN, analogue leased lines, news groups
PlaNet (NZ)						
PlaNet (NZ) Wellington	Wellington, Kapiti Coast		No price info on page.			
PlaNet Free NZ	North Shore as KiwiLink Internet Services, Marlborough	$40 all accounts	(a) $30/mo 60hrs (b) none c) $12/mo for 40hrs+5Mb int'l traffic (d) $22.50/mo for 40hrs+15Mb int'l traffic (e) $22.50/mo for 80hrs+5Mb (f) $55/mo for 120hrs (g) none (h) $270/yr for 30hrs/mo+10Mb/mo (I) email only $100/yr for 6Mb	(a) $1.80/hr (b) $1.80/hr+$1.35/Mb c),(d) & (e) $1.35/hr +$1.35/Mb (f) $1.80/hr (g) $1/hr+$2/Mb int'l traffic+$2/Mb email (I) $1.75/Mb		Internet access, email, ISDN, web site hosting
PlaNet Free NZ Gaia (part of PlaNet Free NZ)	Gone					
PC Net	Auckland					Offers Hong Kong radio service
Quik Internet						
RAM Management	Hawke's Bay	$30	$20/mo	Lessor of: $2.50/hr or Int'l: $2.50/Mb peak $1/Mb off-peak Nat'l: $1.80/Mb peak, $0.75/Mb off-peak		Internet access, email, chat room, news groups, radio links, web hosting
Scenicland Internet Ltd.	Gone					
SineSurf		$56.25	Dialup: (a) $10 email only (b) $35/mo 1 email acct. c)$45/mo 2email accts+100Mbemail limit (d) $50/mo 1 email acct. (e) $60/mo 2 email accts+ 150Mbemail (f) $75/mo 5Mb web page Perm connect: $200/mo for 28.8kbps+2email accts, $250/mo for 28.8kbps+5email accts, $250/mo for 33.6kbps+2email accts, $300/mo for 33.6kbps+5email accts, $300/mo for 56.6kbps+2email accts, $350/mo for 56.6kbps+5email accts			
SirraNet			No price info on page.			
Sky Surf Internet	Auckland	$59 ($69 for (e))	(a) None (b) $10/mo for 10hrs c) $25/mo for 30hrs (d) $39/mo for 80hrs peak (e) $39/mo for 80hrs (a) - (d) 33.6kbps	(a) $2/hr (b) $1.50/hr c) $1/hr (d) $1/hr peak, off-peak free	Help desk	Internet access, email, web site design & hosting

Name	Location 1998	Set Up Fee 1998	On-going Charges 1998	Connect Charges 1998	Customer Service 1998	Products 1998
Southern Internet Services	Christchurch	$49.95 ($75 comml)	(a) $15/mo for 6hrs email only (b) $35/hr for 20hrs c) $55/mo for 50hrs (d) $15/mo for 15hrs (e) $25/mo for 30hrs (f) $45/mo for 60hrs (g) $60/mo for 90hrs (a)-c) prepaid, 100Mb traffic limit/mo (d)-(g) peak time only charged Comml accts: $25/mo for 15hrs, $40/mo for 30hrs, $55/mo for 45hrs $70/mo for 60hrs $90/mo for 90hrs all peak connect time	(a)-c) $2.50/hr peak, $1.95/hr off-peak (d)-(g) More than 90hrs peak time charged at $1.07/hr, Int'l: $4.50/Mb peak, $3/Mb off-peak Nat'l: $2/Mb peak, $1.50/Mb Off-peak Comml: More than 90hrs peak time charged at $1/hr, Int'l: $3/Mb peak, $1.50/Mb off-peak Nat'l: $1/Mb peak, $0.50/Mb off peak		Internet access, email
South Net, South Net Queenstown, South Net Te Anau	Dunedin, Invercargill, Queenstown, Te Anau	$39.95 (none if self-installed)	(a) $10/mo (b) $120/yr for 20Mb/mo c) $70/mo for 200Mb	(a) $2/hr (b) $0.50/Mb c) $0.35/Mb	modem speed: 56.6kbps	Internet access, ISDN, Secure web sites, microwave radio connections, VPN
Synapse Networks			no price info			Internet access, web site hosting
Taranaki Netsource	No information					
Taranaki	No information					
The Internet Group Northland Ltd (IGRIN)	No information					
The Net	No current information/No Site					
The Packing Shed		$45	Standard none, Kiwi $22.50/mo for 20hrs Premier $45/mo for 100hrs+web page	Standard $2.25/hr Kiwi & Premium $1.50/hr	modem speed: 56.6kbps	Internet access, ISDN
TIPNET	No longer valid address.					
TpNet	Now Synapse Networks					
TpNetLink						
University of Canterbury						
Virtual Comm-Unity				no information		
Waiariki Polytech						
Wairarapa Internet NZ		None OR $50 for installation help and free access for month	$85/mo for 200hrs OR Connect Charges	$2.50/hr OR $2/Mb		Internet access, email, newsgroups, web hosting, video conferencing, radio network access

Name	Location 1998	Set Up Fee 1998	On-going Charges 1998	Connect Charges 1998	Customer Service 1998	Products 1998
Wanganui Internet	Gone					
Wanganui Polytechnic	Gone polytechnic info only.					
Wave Internet Services		$35	(a) $10/mo for 4hrs (b) $30/mo for 30hrs c) $45/mo 60hrs (d) $55 for 100hrs inc 5 email addresses, web site	$2/hr		Internet access, email, leased lines, web site hosting
Web InterNet	Auckland, Hamilton, Rotorua, Whangarei	$40 ($200 dedicated)	On acct, 5 email addresses: (a) $22.50/mo for unlimited off-peak, (b) $30/mo for 40hrs c) $45/mo for 70hrs (d) $55/mo for 110hrs Prepaid, no help desk: $29.75/mo for 65hrs accts limited to 65hrs/mo Prepaid, no Help desk, dedicated: $105/mo (Auckland) $123.75 otherwise	(a) $1/hr (b) $0.70/hr c) $0.50/hr dedicated users: $0.50/Mb in excess of 200Mb peak	Help desk, support 56.6kbps	Internet access, email
Web World Ltd	Auckland	None	Prepaid: $9.95/mo for 5hrs, $19.95/mo for 10 hrs, $29.95/mo for 15hrs, $34.95/mo for 20hrs, $49.95/mo for 30hrs, $74.95/mo for 50hrs, $90/yr for 5hrs/mo, $180/yr for 10hrs/mo, $252/yr for 15hrs/mo, $320/yr for 20hrs/mo, $468/yr for 30hrs/mo, $750/yr for 50hrs/mo, $150 for 100hrs, $350 for 250hrs, $650 for 500hrs, $900 for 750hrs, $1100 for 1000hrs	Prepaid: $2.50/hr	Help desk	Internet access, email
Wizkid® Internet Limited	Christchurch			No price info on page		Internet access, email, web page hosting & design