Broadband Technology Services: A Survey of New Zealand ISPs

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ABSTRACT

Broadband technology services becoming increasing popular among home and offices users worldwide as the Internet access technology. This paper reports on a survey of New Zealand Internet Service Providers (ISPs) focusing on the current state of broadband services, the level of deployment, reasons for non-deployment, the scope of deployment, investment in deployment, problems encountered, and future plans. The study was conducted using a postal survey. A self-administered questionnaire was sent to some 40 New Zealand ISPs and a total of 15 replies were obtained from the respondents. Survey results show that New Zealand's pace in broadband technology services is still lagging behind the developed countries.

INTRODUCTION

Broadband technology services are becoming increasing popular for high-sped Internet access for both home users and businesses worldwide (Clarke & Kanada, 1993; Cloetens, 2001; Oh, Ahn, & Kim, 2003). More about Broadband services in New Zealand can be found in (Putt, 2006; *Wikipedia*, 2006; Williams, 2006).

In this paper, we report on a survey of New Zealand broadband technology services providers. The survey seeks to gauge the broadband technology awareness in New Zealand, including deployment of broadband services and users (type and the number of users adopting broadband services), ISPs' experiences with broadband technology and future plans (problems with deployment and maintenance). See Appendix for survey questionnaire.

To gain an insight into the broadband technology services in New Zealand, we compared our survey results with some developed countries. We found that New Zealand's pace in broadband technology is actually lagging behind a majority of the developed countries, including Australia and the USA.

COMPARISON

Digital subscriber line (DSL) is a popular broadband Internet access technology worldwide. Overall, 62% users are using DSL and its variants, 31% Cable modem, and the remaining 7% of users using other technologies, such as wireless and optical fibre.

Table 1 compares broadband subscribers per 100 inhabitants of 30 countries over 2001-2005 (http://www.oecd.org). It also shows OECD average and EU15. As seen in Fig. 1, New Zealand is lagging behind 21 developed countries in broadband subscribers and is below the OECD average. A summary of survey results are presented next.

SURVEY RESULTS

In this section we present the key results of the survey on broadband technology services provided by New Zealand (NZ) ISPs. All costs are in NZ$.

- **Deployment:** Twelve ISPs (out of 15) have indicated that they are currently providing broadband services. Three ISPs indicated that they are not currently providing broadband services, but are planning to offer them in the future. Those who are planning to provide broadband services either considered it too expensive or complicated, which is why they have not implemented broadband services yet.
- **Year of deployment:** The year that each ISP deployed broadband services ranged from 1996 – 2005. The larger ISPs have begun earlier, whereas some smaller ones may have only just began offering broadband services or planning to offer them in the future.
- **Technology:** Eleven ISPs have indicated that they are providing asynchronous digital subscriber line (ADSL) and wireless broadband services, two ISPs

Table 1. Comparison of broadband subscribers per 100 inhabitants

	2001	2002	2003	2004	2005		2001	2002	2003	2004	2005
Australia	0.9	1.8	3.5	7.7	13.8	Luxembourg	0.3	1.5	3.5	9.8	14.9
Austria	3.6	5.6	7.6	10.1	14.1	Mexico	0.1	0.3	0.4	0.9	2.2
Belgium	4.4	8.7	11.7	15.5	18.3	Netherlands	3.8	7.0	11.8	19.0	25.3
Canada	8.9	12.1	15.1	17.6	21.0	New Zealand	0.7	1.6	2.6	4.7	8.1
Czech Republic	0.1	0.2	0.5	2.5	6.4	Norway	1.9	4.2	8.0	14.8	21.9
Denmark	4.4	8.2	13.0	19.0	25.0	Poland	0.1	0.3	0.8	2.1	2.4
Finland	1.3	5.5	9.5	14.9	22.5	Portugal	1.0	2.5	4.8	8.2	11.5
France	1.0	2.8	5.9	10.5	15.2	Slovak Republic	0	0	0.3	1.0	2.5
Germany	2.3	4.1	5.6	8.4	13.0	Spain	1.2	3.0	5.4	8.1	11.7
Greece	0	0	0.1	0.4	1.4	Sweden	5.4	8.1	10.7	14.5	20.3
Hungary	0.3	0.6	2.0	3.6	6.3	Switzerland	2.0	5.6	10.1	17.5	23.1
Iceland	3.7	8.4	14.3	18.2	26.7	Turkey	0	0	0.3	0.7	2.1
Ireland	0	0.3	0.8	3.3	6.7	United Kingdom	0.6	2.3	5.4	10.5	15.9
Italy	0.7	1.7	4.1	8.1	11.9	United States	4.5	6.9	9.7	12.9	16.8
Japan	2.2	6.1	10.7	15.0	17.6	**OECD**	**2.9**	**4.9**	**7.3**	**10.2**	**13.6**
Korea	17.2	21.8	24.2	24.8	25.4	**EU15**	**1.6**	**3.4**	**5.9**	**9.7**	**14.2**

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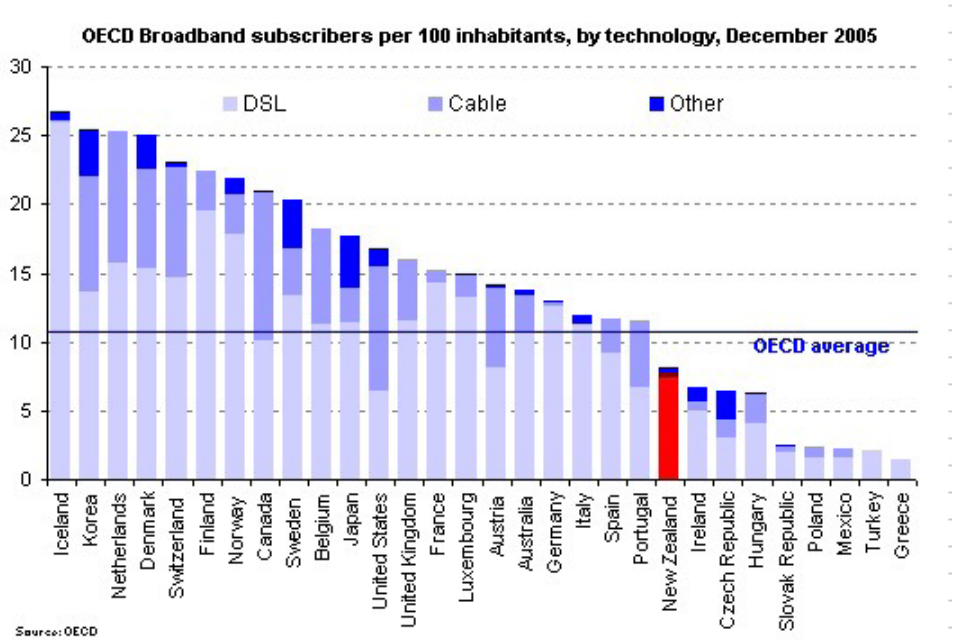
Figure 1. Comparison of broadband subscribers in OECD countries (Source: http://www.digitalstrategy.govt.nz)



indicated that they are offering cable modem, and the rest, two ISPs providing fibre optic and frame relay services. Although some ISPs offering several types of broadband services, ADSL services appear to be the most popular in New Zealand.

- **Cost of deployment:** Six ISPs have indicated that they have invested over $100,000 for the deployment of broadband services. Five ISPs indicated that they spent less than $10,000, one ISP spent from $10,001 to $20,000, and the remaining three ISPs did not provide deployment cost.
- **Setting up broadband services:** Six ISPs have indicated that they have implemented broadband using in-house services. Two ISPs indicated that they have implemented broadband services using third-party, and the remaining seven ISPs did not provide this information.
- **Deployment time:** The deployment time ranged from one week to six years and beyond. This was also dependent on whether the ISP was deploying in-house or whether they were reselling services to other ISPs.
- **Type of users:** Most of the ISPs (12 out of 15) are providing services to both residential customers and businesses, whereas the rest three ISPs offering services to government and schools. More users tend to connect to ADSL at 256 kbps, but gradually moving towards higher speeds.
- **Problems encountered:** Main problems associated with broadband deployment in New Zealand including, too many constraints, no system in place, making everything to be done was manual, poor support, problem with changeover from one ISP to another, limited visibility of network infrastructure, resource management, integration of broadband, and not adhering to their own procedures, bad congestion of network and outages due to overselling of services, restrictions to speed and price, constantly changing or deleting plans, everyone having to follow Telecom's rules, and time delays with ISPs that were not Telecom's. Other problems encountered include some technical difficulties, users have problems with understanding what to do, difficulty in contact regarding installation, reliability of ADSL in some areas were poor, slow and cumbersome installation, lack of government regulation, capital costs for building own network, and difficulty to make a profit.
- **Future plan**: The future plans for the ISPs, including wireless broadband services, continue to provide all available broadband services with better deals, build their own fibre optic network, and concentrate on business customers.

CONCLUSION

We have surveyed 50 large New Zealand ISPs to identify the current state of broadband services, the level of deployment, reasons for non-deployment, the scope of deployment, investment in deployment, problems encountered, and future plans.

While there is an increase in users opting to use broadband services worldwide, New Zealand is still lagging behind in broadband technology services and usage compared to other developed countries, including Australia and the USA. This lagging is due to the lack of users' knowledge about broadband services, high services cost, and the Telecom NZ monopoly on local loop (Nowak & Thomson, 2006).

REFERENCES

Clarke, D. E. A., & Kanada, T. (1993). Broadband: the last mile. *IEEE Communications Magazine, 31*(3), 94-100.

Cloetens, L. (2001). *Broadband access: the last mile.* Paper presented at the IEEE International Solid-State Circuits Conference (ISSCC'01) pp. 18-21.

Nowak, P., & Thomson, A. (2006, May 4). Telecom's Grip Severed. The New Zealand Herald.

Oh, S., Ahn, J., & Kim, B. (2003). Adoption of broadband Internet in Korea: the role of experience in building attitude. *Journal of Information Technology, 18*, 267-280.

Putt, S. (2006, August/September). Fair dinkum broadband. *Telecommunications users association of New Zealand (TUANZ) TOPICS, 16*(4), 15-20.

Wikipedia. (2006). Retrieved 15 May, from http://en.wikipedia.org/wiki/Broadband_Internet_access

Williams, R. (2006, December-January). Without Broadband, where will we be…? . *Tuanz Topics, 15*(6).

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APPENDIX: SURVEY QUESTIONNAIRE

Section 1: Broadband Technology Awareness

All respondents complete this section.

1. What is the current state of the broadband services that you offer? (Tick one)
   We will not provide broadband services at all.
   We are planning to provide broadband services in the future.
   We are currently providing broadband services to customers.

2. If you are not offering broadband services, or has decided against it, why is this? (Tick all applicable)
   Unaware of it.
   Consider it too expensive.
   Consider it too complicated.
   Other (Please specify)

Section 2: Deployment of Broadband Technology

Only respondents that are providing broadband services complete this section.

3. Which year did you first offer broadband services?

4. What type of broadband services are you providing? (Tick all applicable)
   ADSL
   Cable
   Wireless
   Other (Please specify)_____

5. How much did you spend ($) for the deployment of broadband services? (Tick one)

< = $10,000	$40,001-$50,000	$80,001 - $90,000
$10,001 - $20,000	$50,001-$60,000	$90,001 - $100,000
$20,001 - $30,000	$60,001-$70,000	> $100,000
$30,001 - $40,000	$70,001-$80,000	

6. How did you set up or deploy broadband services? (Tick all applicable)
   In-house staff.
   Third-party specialist.
   Other (Please specify)_____

7. How long did it take to deploy broadband services? _____

8. Were there any problems that you encountered during the deployment of broadband services?

Section 3: Users of Broadband Technology

Only respondents that are providing broadband services complete this section.

9. What types of users are using broadband services provided by you? (Tick all applicable)
   Residential
   Business
   Other (Please specify)_____

10. Approximately how many users are you providing services to?

a. Residential

< = 100	301 – 400	601 – 700	901 - 1000
101 - 200	401 – 500	701 – 800	> 1000
201 - 300	501 – 600	801 – 900	

b. Business

< = 10	31 – 40	61 – 70	91 - 100
11 - 20	41 – 50	71 – 80	> 100
21 - 30	51 – 60	81 – 90	

c. Other (As specified in question 9)

< = 10	31 – 40	61 – 70	91 - 100
11 - 20	41 – 50	71 – 80	> 100
21 - 30	51 – 60	81 – 90	

11. Which type of broadband service do most users choose? (Tick one)

a. Residential
   ADSL
   Cable
   Wireless
   Other (Please specify)_____

b. Business
   ADSL
   Cable
   Wireless
   Other (Please specify)_____

c. Other (As specified in question 9)
   ADSL
   Cable
   Wireless
   Other (Please specify)_____

12. Which plan (speed) is the most popular choice for users? (Tick most applicable)

a. Residential

256K	2Mb	5Mb
512K	3Mb	6Mb
1Mb	4Mb	> 6Mb

b. Business

256K	2Mb	5Mb
512K	3Mb	6Mb
1Mb	4Mb	> 6Mb

c. Other (As specified in question 9)

256K	2Mb	5Mb
512K	3Mb	6Mb
1Mb	4Mb	> 6Mb

Section 4: Experiences with Broadband Technology

Only respondents that are providing broadband services complete this section.

13. What issues have you encountered with providing support to users for these broadband services, if any?

14. What issues have you encountered with the network performance and management of broadband services, if any?

15. Any other issues that you are facing now?

16. What are your plans for the future of broadband, if any?

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