



Internet Service Provider Survey

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Internet Service Provider Survey

Abstract

The Internet Service Provider (ISP) Survey measures the nature of Internet service provision in New Zealand. The ISP Survey provides information on the total number and types of permanent or regular Internet connections through Internet Service Providers (ISPs). This information allows a measurement of the global connectivity of New Zealanders, which is regarded as an important determinant in accelerating economic growth. A core set of official statistics on Internet service provision results from this survey and this will help individuals, communities, businesses and government to understand how information and communication technology is changing the economy and society.

The ISP Survey has been conducted annually since 2009. Prior to that it was conducted six-monthly. The first set of survey results was released in August 2005.

The survey is posted to approximately 80 enterprises which provide Internet services in New Zealand.

Purpose

The access that New Zealanders have to technology and the internet are reliable indicators about the performance in the Information Economy. Whereas several years ago, this could be measured by the number of dial up connections, the prevalence of broadband connections is now being linked with the continued acceleration of economic growth in the world economy.

The Internet Service Provider (ISP) Survey allows the measurement of an industry that supplies the majority of permanent or regular connections to the internet. This is deemed to be an important indicator of the ability of New Zealanders to access information and communicate using the internet. In recent years, the 'digital divide' has become an issue of concern for government, academics and non-government organisations. The digital divide is viewed as both a symptom and cause of the growing inequality of wealth in OECD countries. The ISP Survey attempts to bring together a list of indicators, for example, relating to internet access, type etc, which may allow the digital divide to be better understood in New Zealand, while at the same time providing data on the nature and levels of penetration of services in the ISP industry.

Measurement of the way in which individuals, households and businesses use information technology and communications (ICT) have been collected in other Stats NZ surveys, such as Business Operations Survey, Household Use of Information and Communication Technology Survey and so on.

Note that the ISP survey is actually a census of all of New Zealand's Internet service providers.

Population

Internet Service Provider Survey Population September 2006 - Current

Internet Service Provider Survey Population September 2006 - Current

All resident New Zealand Internet service providers, where Internet service providers were defined as economically significant businesses that supply permanent or regular Internet connectivity services to individuals, households, businesses and other organisations in New Zealand. A business is considered economically significant if it is found on the Stats NZ Business Frame and meets one or more of the following criteria:

- has greater than \$30,000 annual GST expenses or sales
- had more than two employees over the last year
- is in a GST-exempt industry (except for residential property leasing and rental)
- is part of a group of enterprises.

For the purposes of this survey, the population included all resident ISPs, regardless of their RME (rolling mean employee) measurement, found on the Stats NZ Business Frame or other employment measures.

Internet Service Provider 2015

The target population is 'all resident New Zealand Internet service providers'. Internet service providers (ISPs) are defined as economically significant businesses that supply Internet connectivity services to individuals, households, businesses, and other organisations in New Zealand. Internet connections via mobile phones were included for the first time in 2011. Mobile phones

are used to access the Internet, and for the ISP Survey to cover all businesses that supply Internet connectivity, this change was required.

Businesses that provided other Internet services, such as web and domain hosting, but that did not provide ISP services, were excluded from the population. This is because the primary activity of an ISP is providing a connection to the Internet. Web-hosting units do not meet this condition, but rather, provide Internet-based services.

Businesses that provide only occasional or unmetered access (including Internet cafes, kiosks, libraries, and universities) are also excluded. The activity of this group is covered by the ISP each business subscribes to, and so do not need to be surveyed separately.

Methodology

The Internet service provider survey is a postal survey of all businesses that meet the population selection criteria.

Population size

The Internet Service Provider (ISP) Survey is a survey sent to all New Zealand-based Internet service providers. The target population for the ISP Survey in 2015 was 89 businesses. This increased from 2014, when 84 businesses were surveyed. Such changes in the population can be explained by:

- new businesses being created
- existing businesses merging or ceasing
- improved selection method.

Not all businesses identified in the survey population ultimately report ISP activity.

Response rates

The overall target response rate for ISP 2015 was 85 percent which was achieved.

Some businesses were identified as key units if their total number of connections made significant contributions to the previous ISP survey. The target response rate for key businesses was 100 percent, and this target was achieved.

Non-Response

The ISP Survey is a census; therefore the data is not subject to sample error.

Unit non-response occurs when a business does not return the questionnaire. While weighting is commonly used in other Statistics NZ surveys, it is not applied to the ISP Survey. This is because there are no external (non-survey) variables that allow us to group businesses in a way that they are likely to provide similar survey responses, and therefore be representative of one another. To minimise the impact of unit non-response on the outputs, key respondents are targeted with 100 percent response rate targets. Therefore, we do not expect overall figures to be significantly affected by unit non-response. Data for businesses that did not respond to the survey was not imputed.

Item non-response is not applied to the ISP survey either, for the same reasons as above.

Time Method

Reference period

The survey was posted out in July 2015. The reference period was the last 12 months ended 30 June 2015. This aligns with the reference period used by other OECD member countries and previous iterations of the ISP survey back to 2009.

Spatial Coverage	New Zealand
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Internet Service Provider 2016

The target population is 'all resident New Zealand Internet service providers'. Internet service providers (ISPs) are defined as economically significant businesses that supply Internet connectivity services to individuals, households, businesses, and other organisations in New Zealand. Internet connections via mobile phones were included for the first time in 2011. Mobile phones are used to access the Internet, and for the ISP Survey to cover all businesses that supply Internet connectivity, this change was required.

Businesses that provided other Internet services, such as web and domain hosting, but that did not provide ISP services, were excluded from the population. This is because the primary activity of an ISP is providing a connection to the Internet. Web-hosting units do not meet this condition, but rather, provide Internet-based services. Businesses that provide only occasional or unmetered access (including Internet cafes, kiosks, libraries, and universities) are also excluded. The activity of this group is covered by the ISP each business subscribes to, and so does not need to be surveyed separately.

Methodology

The Internet service provider survey is a postal survey of all businesses that meet the population selection criteria. In 2016, data used by mobile phone Internet connections was collected and published for the first time.

Population size

The Internet Service Provider (ISP) Survey is a survey sent to all New Zealand-based Internet service providers. The target population for the ISP Survey in 2016 was 92 businesses. This increased from 2015, when 89 businesses were surveyed. Such changes in the population can be explained by:

- new businesses being created
- existing businesses merging or ceasing
- improved selection method.

Not all businesses identified in the survey population ultimately report ISP activity.

Response rates

The overall target response rate for ISP 2016 was 85 percent which was achieved.

Some businesses were identified as key units if their total number of connections made significant contributions to the previous ISP survey. The target response rate for key businesses was 100 percent, and this target was achieved.

Non-Response

The ISP Survey is a census; therefore the data is not subject to sample error.

Unit non-response occurs when a business does not return the questionnaire. While weighting is commonly used in other Statistics NZ surveys, it is not applied to the ISP Survey. This is because there are no external (non-survey) variables that allow us to group businesses in a way that they are likely to provide similar survey responses, and therefore be representative of one another. To minimise the impact of unit non-response on the outputs, key respondents are targeted with 100 percent response rate targets. Therefore, we do not expect overall figures to be significantly affected by unit non-response. Data for businesses that did not respond to the survey was not imputed.

Item non-response is not applied to the ISP survey either, for the same reasons as above.

Time Method

**Reference period **

The survey was posted out in July 2016. The reference period was the last 12 months ended 30 June 2016. This aligns with the reference period used by other OECD member countries and previous iterations of the ISP survey back to 2009.

Internet Service Provider 2017

The target population is 'all resident New Zealand Internet service providers'. Internet service providers (ISPs) are defined as economically significant businesses that supply Internet connectivity services to individuals, households, businesses, and other organisations in New Zealand. Internet connections via mobile phones were included for the first time in 2011. Mobile phones are used to access the Internet, and for the ISP Survey to cover all businesses that supply Internet connectivity, this change was required.

Businesses that provided other Internet services, such as web and domain hosting, but that did not provide ISP services, were excluded from the population. This is because the primary activity of an ISP is providing a connection to the Internet. Web-hosting units do not meet this condition, but rather, provide Internet-based services. Businesses that provide only occasional or unmetered access (including Internet cafes, kiosks, libraries, and universities) are also excluded. The activity of this group is covered by the ISP each business subscribes to, and so do not need to be surveyed separately.

Methodology

The Internet service provider survey is a postal survey of all businesses that meet the population selection criteria. Since 2016, data used by mobile phone Internet connections was collected and published.

Population size

The Internet Service Provider (ISP) Survey is a survey sent to all New Zealand-based Internet service providers. The target population for the ISP Survey in 2017 was 83 businesses. This decreased from 2016, when 92 businesses were surveyed. Such changes in the population can be explained by:

- existing businesses merging or ceasing
- businesses being excluded from the population after not reporting ISP activity in the previous survey

This decrease is slightly offset by new business being created. Not all businesses identified in the survey population ultimately report ISP activity.

Population scope

Businesses are included in the population for the ISP survey if they reported activity as an internet service provider in the 2016 ISP survey. Further businesses are considered for addition to the population if their main business activity or main income sources include any of a list of internet related keywords, and their industry sector is one typical for an internet service provider (such as telecommunications). Such businesses will be added to the population if research indicates that they currently provide any internet connection services.

Scope error is possible if a business acts as an ISP, but their reported industry sector is not typical of an ISP. This error is mitigated by subject matter experts manually adding businesses to the population once they are publically renowned.

Response rates

The overall target response rate for ISP 2017 was 85 percent, which was met with a response rate of 91 percent.

Some businesses were identified as key units if their total number of connections made significant contribution in the previous ISP survey. The target response rate for key businesses was 100 percent, which was achieved.

Non-Response

The ISP Survey is a census; therefore the data is not subject to sample error.

Unit non-response occurs when a business does not return the questionnaire. While weighting is commonly used in other Stats NZ surveys, it is not applied to the ISP Survey. This is because there are no external (non-survey) variables that allow us to group businesses in a way that they are likely to provide similar survey responses, and therefore be representative of one another. To minimise the impact of unit non-response on the outputs, key respondents are targeted with 100 percent response rate targets. Therefore, we do not expect overall figures to be significantly affected by unit non-response. Data for businesses that did not respond to the survey was not imputed.

Item non-response is not applied to the ISP survey either, for the same reasons as above.

Time Method

Reference period

The survey was posted out in July 2017. The reference period was the last 12 months ended 30 June 2017. This aligns with the reference period used by other OECD member countries and previous iterations of the ISP survey back to 2009.

Significant events impacting this study series

The frequency of the survey was bi-annual from March 2005 to March 2008 and annual from June 2009 onwards.

From 2009 the ISP survey used a new population selection method. Previous ISP surveys were supplemented using industry lists rather than a key word search. The lists are no longer available.

The impact of this change was analysed and is negligible.

Changes were made to the Internet Service Provider Survey: 2011, which affects the comparability of data to previous surveys.

Usage and limitations of the data

The main objective of the ISP Survey is to provide the government with information on the total number and nature of the subscribers that use New Zealand based ISPs to connect either permanently or regularly to the internet. This information is important as it allows the global connectedness of New Zealanders to be measured and taken into policy considerations. Globalisation is seen as an important determinant of economic growth, and by measuring global connectedness, which can be used as a proxy for globalisation, it will be possible to develop the 'appropriate' policies, to lift New Zealand to a higher trend level of economic growth than that of the OECD as an average.

Other survey objectives are to:

- measure the speed and type of connection subscribers have to the internet. This provides a quality measure on global connectedness and is an important factor impacting on business performance and economic growth. In addition, the type and speed of connection indicates the maturity and competitiveness of the ISP industry.

• break down number of subscribers as business, government or residential. This provides information on the split of subscribers in New Zealand, thereby allowing policy targeting to take place.

• measure total data capacity of providers. This allows the determination of the data capacity being used by providers and provides information on the accessibility of New Zealanders to the internet.

• measure subscriber uptake of ISP- provided, Internet related services. This information provides a measure on the uptake of additional complex services provided by the ISP industry and the uptake of these service by New Zealanders.

A supply side ISP survey, compared to demand side survey, will provide reliable information about internet activity on a regular and timely basis, while being relatively low cost and having low respondent load.

The above information will be useful as it will feed into policy development and goal setting and in the monitoring of their implementation. The ISP Survey will provide reliable information about ISP supply which will inform debate, decision making and research, within the wider community. A core set of official statistics on ISPs will result from this survey, which will help in enabling individuals, communities, businesses and the government to understand how new ICT technologies are changing the economy and society. Given that the ISP Survey provides data on issues such as the barriers faced by ISPs in their operations,

government and businesses can use this information to address factors relating to the 'digital divide', thereby leading ultimately to economic and social gain.

The above measures is collected via a census of all ISP's based in New Zealand and the results reported as aggregates and changes to aggregates over time.

In developing the survey design, importance was placed on international best practice as well as government, industry and other public needs from the data. Stats NZ has utilised a number of resources to ensure that the submitted questionnaire meets these demands. Throughout the production of this survey, the following sources of advice and information were used:

Stakeholder representation from Ministry of Business, Innovation and Employment (MBIE).

Technical advice from Internet New Zealand, Commerce Commission and other industry representatives, Australia Bureau of Statistics Internet Activity Survey, OECD and other Asia Pacific statistical agency advice.

Frequency

- Annual

Main users of the data

Ministry of Business, Innovation and Employment; Commerce Commission.

Variables

Concepts

Internet Service Provider concepts

Name	Description
Active subscriber/connection	A connection that has been used to connect to the Internet within the last 90 days. *Note:* The term 'connection' replaced the term 'subscriber' from 2014.
ANZSIC06	Australia and New Zealand Standard Industrial Classification 2006 codes. These are the codes used to classify and categorise all businesses on the Stats NZ Business Frame.
Botnets	A botnet is a collection of compromised computers that, although their owners are unaware of it, have been set up to forward transmissions (including spam or viruses) to other computers on the Internet.
Broadband	Technologies that provide an 'always on' service. This includes digital subscriber line (DSL), cable, fibre optic, satellite, cellular, and fixed wireless.
Business Register/Frame	A register of all economically significant businesses operating in New Zealand. Name change from Frame to Register in 2013.
Connection	A connection provided through an Internet Service Provider enabling access to the Internet. Active connections are those that have been used to access the Internet within the last 90 days. Under this definition, the following inclusions and exclusions are made: Includes: - all connections providing access to the Internet through an ISP - all dial-up and broadband connections - free or discounted connections offered for staff - free or discounted connections offered for customers. Excludes: - web-hosting subscribers only - email only subscribers
Data cap	A method employed by ISPs to limit the volume of data downloaded and/or uploaded by subscribers during a fixed period, normally a month. Once subscribers reach the cap, lower speed or extra access charges may apply. Also referred to as a data allowance.
Data card	A card which contains data or which is used for data operations (examples: Vodafone 3G card or Telecom Aircard).
Dial-up connection	A connection to the Internet via a dial-up modem that uses the public switched telephone network (PSTN). Includes integrated services digital network (ISDN) and analogue connections.

Dongle	A device that is connected to a computer to allow access to wireless broadband or use of protected software.
Digital Subscriber Line (DSL)	<p>A technology that allows high-speed transmission of data, audio, and video over standard telephone lines; a form of broadband transmission.</p> <p>ADSL: asymmetric digital subscriber line is a type of DSL technology for transmitting digital information at a high bandwidth on existing copper telephone lines. It simultaneously accommodates analogue information on the same line so voice calls can be made while using the Internet. It is asymmetric in the sense that it uses most of the channel to transmit downstream to the user and only a small part to receive information from the user.</p> <p>ADSL2+: an extension to ADSL broadband technology that provides subscribers with significantly faster download speeds when compared with traditional ADSL connections.</p> <p>SHDSL: single-pair (symmetrical) high-speed DSL is a form of DSL designed to transport data across a single copper pair. SHDSL technology can transport data symmetrically so users can get the same rate of transmission for both upstream and downstream data.</p> <p>VDSL: very-high bit-rate DSL is the fastest available form of DSL. It is an improved version of ADSL which was developed to support the high bandwidth requirements of HDTV, media streaming, and VoIP connections.</p>
Economically significant enterprises	<p>Enterprises that produce goods and services in New Zealand. They must meet at least one of the following criteria:</p> <ul style="list-style-type: none"> - has greater than \$30,000 annual GST expenses or sales - 12-month rolling mean employee count of greater than three - is part of a group of enterprises - is registered for GST and involved in agriculture or forestry - over \$40,000 of income recorded in the IR10 annual tax return (this includes some businesses in residential property leasing and rental).
Enterprise	A business operating in New Zealand. It can be a company, partnership, trust, estate, incorporated society, producer board, local or central government, voluntary organisation, or self-employed individual.
Gigabyte (GB)	A measure of the volume of data. Gigabyte represents a data unit of one billion bytes.
Internet protocol (IP)	A system for assigning a unique identifier to all devices connected to the Internet. Each device is assigned, and can be identified by, a unique address. This address is made up of a series of numbers (similar to a phone number).
Internet Protocol version 6 (IPv6)	The next generation Internet Protocol, which greatly expands the IP number space and is the approved standard to replace IPv4.
Internet Service Providers (ISPs)	<p>Businesses that supply Internet connections to individuals, households, businesses and other organisations. We breakdown the results of the Internet Service Providers Survey by size of provider. There are five sizes:</p> <ul style="list-style-type: none"> - Very small: Providers with between 1 and 100 subscribers - Small: Providers with between 101 and 1,000 subscribers - Medium: Providers with between 1,001 and 10,000 subscribers - Large: Providers with between 10,001 and 100,000 subscribers - Very large: Providers with 100,001 or more subscribers.
Mbps and kbps	Mbps and kbps are measures of download and upload speed. Mbps stands for megabits per second (1,000,000 bits per second) and kbps stands for kilobits per second (1,000 bits per second).
Mobile handset connection	Internet connection via a mobile phone. For pre-paid plans with no monthly subscription, the connection is active if it was used to connect to the Internet within the last 90 days. Connections with recurring fees for services including data are included as active, regardless of actual use.

Pharming	Pharming is a hacker's attack aiming to redirect a website's traffic to another, bogus website. Pharming can be conducted either by changing the hosts file on a victim's computer or by exploitation of a vulnerability in DNS server software.
Phishing	A way of attempting to acquire sensitive information such as usernames, passwords and credit card details by masquerading as a trustworthy entity in an electronic communication, such as fraudulent emails.
Rolling mean employment (RME)	A 12-month moving average of the monthly employee count (EC) figure. The EC is obtained from taxation data.
Trojans	A Trojan horse, or Trojan, is software that appears to perform a desirable function for the user prior to run or install, but (perhaps in addition to the expected function) steals information or harms the system.
USB modem	Universal serial bus modem. A small portable device that functions as a modem and plugs into a laptop or desktop computer allowing Internet connectivity.
Voice over Internet Protocol (VoIP)	Voice over Internet Protocol (VoIP) A group of technologies for the delivery of voice communications and multimedia sessions over Internet Protocol (IP) networks, such as the Internet.
Unmetered and uncharged Data	Unmetered and uncharged Data Data which does not count against the total capped and charged usage enabled by the Internet Provider. This is often linked to specific arrangements between ISPs and content providers, which allow customers unlimited data access to a particular content provider.
Terabyte (TB)	Terabyte (TB) Multiple of the unit byte for digital information. Terabyte represents a data unit of 1,000 gigabytes or 1 trillion bytes.
Theoretical maximum speed	Theoretical maximum speed Also referred to as the 'design speed'. The maximum possible upload and download speeds an ISP allows on a connection in ideal conditions.