

POSITION PAPER
Internet Peering



Description:

Peering is where organisations exchange Internet data between their networks without charging each other. This compares to transit arrangements where one party pays the other - usually for long distance data carriage. Peering does incur a cost to each party in establishing and maintaining the connection.

The key to peering is the exchange of local traffic locally. It is often facilitated at a regional exchange such as the Wellington Internet Exchange or the Auckland Peering Exchange. It can also happen through direct links between two networks. Peering can happen across a city or within a building.

Examples of peering include a regional ISP peering with other regional ISPs at an exchange, or a national carrier peering with a regional ISP for free exchange of its local or regional data. These types of arrangements avoid the potential for local data to unnecessarily travel nationally or internationally and leads to a more robust, efficient and higher capacity Internet.

Peering is not just between service providers. Content providers can also peer and this is common practice. For example at the Wellington Internet Exchange providers such as Stuff, TradeMe and Radio New Zealand connect to peering ISPs.

Peering works in very well with Anycast technology to dramatically improve the distribution of content across geographic areas. The technology works by having multiple locations with the same IP address, so the content can be drawn from the closest source. For example, Radio New Zealand uses Anycast to efficiently deliver its programming from regional servers located at peering exchanges.

Background:

In 2004 the dominant telecommunications firms in New Zealand stopped peering at internet exchanges (after 6 years), and began charging ISPs and content providers for connection to all their Internet customers without distinguishing between whether the traffic was local or national.

There has been immense frustration with this approach – that the internet consists of only national and international traffic rather than local, national and international – but most independent content providers and ISPs are not in a position to take on the larger providers.

To work around the situation some content providers are delivering their streaming media to the dominant telcos' customers from servers in the US, as this can be the most cost effective way without peering. Ironically this will be costing the dominant telcos in overseas bandwidth. If telcos would recognise the value of local data exchange, this will have the effect of resolving some of their own national and international capacity issues.

Further development of the Internet and the evolution of real-time services will make it essential for increased peering in New Zealand so as to enable new services to operate robustly and at full efficiency. For example, future diverse and competitive voice services will depend on robust local data exchange, as the majority of voice calls are local.

Issues:

Not peering affects the distance of travel of data, and can even cause data to “trombone” internationally when travelling between two service providers. This can cause unacceptable data delays, affect the operation of internet applications, and could thwart implementation of

new services such as Internet-based video-on-demand. It can also potentially raise national security issues when sensitive Government data is being exchanged internationally.

Another impact of not peering is a reduced capacity for data, including future voice and video traffic, to travel different paths from its source to its destination – less “diversity” of the Internet. This directly impacts robustness and performance.

Some telcos are holding back a robust New Zealand internet by charging for other ISPs to connect and failing to distinguish between local and national traffic. This is short-sighted and leads to unnecessary higher costs and poor performance for all ISPs and their customers.

Dominant players claim unequal value between what they provide and what another ISPs might bring to the arrangement. However, there is a huge variation in value being offered by service providers considering the variety of “browsing” customers, “transactional” customers and “hosting” customers on the Internet and it is simplistic to imagine that one provider has more value to contribute in a connection just because of its size. All forms of connection to the internet deliver value in some way. The Internet's diversity is what makes it valuable in the first place.

Arguing on the basis of customer base is also clearly illogical when one considers content providers. Some smaller ISPs host major content sites of significant value to large ISPs' customers. All ISPs offer their customers access to “the Internet” and will only be able to deliver the full extent of it if they can send to and receive from each other.

Position:

Exchanging local data locally just makes sense. Exchanging local data internationally is nonsense.

Lack of local or regional data exchange and the resultant tromboning of data overseas are unacceptable and unnecessary failures in the internet environment in New Zealand and demonstrate how market forces have failed to deliver, in a market dominated by two national players.

Peering is key to the future of effective internet connectivity in New Zealand. Peering enhances the structure of the Internet through resilience, diversity and economic efficiency, contributing directly to ISPANZ goals and those of the Government.

There is a temptation to consider regulation in favour of peering, but while there might be benefits, ISPANZ prefers self-regulatory models.

Government does, however, have a significant role to play. It can take a lead through its own agencies by requiring a clear public commitment to local or regional peering from its own Internet suppliers. This would both enhance the diversity, performance and resilience of the Internet in New Zealand. It would also mitigate the risk of sensitive Government data being exchanged internationally. It ensures data transfer between resident New Zealanders stays in New Zealand.

Against a background that increased peering does cost ISPs to set up and maintain at an equipment level, it is crucial that policy settings encourage peering so that New Zealand has a world class national infrastructure with quality broadband available to all its citizens. Peering leads to lower latency and lower packet loss and is also a protection against a “digital divide” opening up in respect to access to the Internet.

The dominant telecommunications firms should also be encouraged to engage with the rest of the industry to resolve the issue of peering, and raise awareness levels.

ISPANZ also strongly encourages providers of major content to the New Zealand internet to employ the Anycast technique of content distribution into local or regional peering exchanges so as to maximise the benefits of peering.

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About ISPANZ:

ISPANZ is a non profit, industry group that represents most Internet Service Providers operating in New Zealand. Our membership includes all the major ISPs outside those of Telecom and TelstraClear; plus a broad range of medium and small ISPs. We exist to promote a fair and fully competitive Internet marketplace where our members can deliver the full benefits of the Internet to the New Zealand public and our economy. Our primary goals are to:

- Improve New Zealand's poor International ranking for broadband uptake,
- Enable New Zealand businesses to become more competitive internationally through use of Internet enabled technology,
- Improve Internet pricing and services for ordinary New Zealanders,
- Enable New Zealand to reap significant economic benefits as it becomes a broadband enabled society.

For more information please visit ispanz.org.nz