IPv6 – industry hype or impending doom?

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When it comes to IPv6, about the only thing that ICT'ers agree on is the inescapable empirical fact that the IPv4 address space will, at some point, run out. Beyond that the market is divided along a continuum between the doomsayers forecasting dire consequences for those who don't prepare now, and the sceptics who poo-pooh the issue as just another Y2K industry scaremongering exercise.

There have already been stories in the industry press claiming that IPv6 will be required for many organisations in the next 2-3 years. These almost invariably also state that the business case for IPv6 deployment doesn't stack up in the short term. What does seem to have been missing though is any substantive advice on what to do about this quandary.

So what are the facts?

Internationally we are already seeing large deployments of IPv6 only networks. To date these have been limited and therefore have had little impact on New Zealand.

China started IPv6 deployment in 2003 with a goal to "establish the world's biggest IPv6 network as soon as possible" and supported this with $169 million to fund development of IPv6 networks. One of the key drivers for China is that the available IPv4 address space can only support a fraction of their connection requirements – and that was back in 2003 let alone today. China's IPv6 readiness was showcased during the 2008 Olympics.

Japan started promotion activities circa 2002. Japan's major issue was to mitigate the requirements of a huge number of addresses for mobility devices and applications, such as cell phones, PDA's, even Taxi's (for news and weather information)! In some circles Japan is seen as the IPv6 leader.

In the US the Verizon LTE mobile deployment specifies IPv6 as a mandatory requirement, and very large networks such as Comcast in the US have been forced to use IPv6 addressing as the extent of the new address space required means that IPv4 addressing is not an option. The US government agencies are already running IPv6, driven by a non-centrally funded mandate.

There is a potential adverse impact for NZ in that these are BIG target markets for our weightless industry in an increasingly digital global economy.

What does this mean? Simply put, going forward your international customers or your staff travelling overseas might not be able to reach your Internet services. Eventually we will see the same impact to local customers as well.

On the demand side in New Zealand the public service and education sectors are most likely to be impacted first. Already IPv6 capability is required in order to connect to the research and education network KAREN, which in turn connects to international IPv6 research and education networks – this means that in order for research and education institutions to get full access to services they will need to support IPv6.

Public services need to be accessible and available to New Zealanders wherever they are. The New Zealand Government is starting to take a leadership role with IPv6, forming the IPv6 Steering Committee through the Ministry of Economic Development and organising an "IPv6 Hui" for interested parties. It will be interesting to see if the New Zealand government will mandate IPv6 uptake in a similar manner to which the US government already has.

Another factor to consider is that with the growing scarcity of IPv4 addresses, a supply-demand market dynamic is likely see a price premium being placed on new IPv4 addresses, making these difficult to obtain for new services. The likely impact of addressing scarcity is still an unknown factor however one should assume that such market forces will likely come into play.

Is there another way to look at the business case? We think so. Deployment of IPv6 can be considered in terms of infrastructure maintenance, much like upgrade of an old PBX that is out of support but still meeting current business requirements. The impact of not maintaining infrastructure is an increase in business risk, and sometimes an increase in support costs.

Fundamentally migration to IPv6 is a risk mitigation project. It will not generate revenue (but may well in the future prevent revenue loss!). A business case based on least cost migration that mitigates a quantified business risk is relatively simple to articulate.

So, how do you minimise the cost of IPv6 deployment? We suggest by not running a large IPv6 deployment project. Some simple starters include:

- Creating a structure to work from. By having architecture standards for IPv6 defined, the reference architecture updated, and business applications prioritised the business will be able to take advantage of deployment opportunities as they arise.
- Taking advantage of other projects. Review upcoming projects to determine where there will be the opportunity to deployment IPv6. As IPv6 will run along side IPv4 for some time there are not inter-dependencies, however, if new infrastructure or applications are being tested and deployed it makes sense to add IPv6 as another function.
- Leveraging business-as-usual (BAU) change. Where site changes or configuration is required, add in the requirement to configure IPv6. This could require some pre-testing for infrastructure equipment.

Depending on the nature and extent of your organisational change programme you might find that the bulk of the change required for IPv6 is completed prior to the requirement, leaving a small project to mop up the residue.

The alternative is to plan when IPv6 is required and budget for a project to systematically upgrade the infrastructure and applications. This type of project can be more costly, particularly for large organisations, and will consequently divert focus from other strategic projects.

So what to do?

The first step is to understand how your organisation might be impacted by the run-down of the IPv4 address space and the subsequent deployment of IPv6.

In some cases there is business benefit based on leadership or innovation. FX Networks is the only New Zealand ISP that offers IPv6, a decision that could give them first-mover competitive advantage as awareness of the issue increases. The Government looks set to provide leadership, on the basis of wanting to see economic risk mitigated at a “NZ Inc.” level one assumes. It’s a cinch though that public good notwithstanding, government will look to industry and enterprise to bear the cost of addressing the risk.

Our counsel is to not buy into either the doomsday or sceptic stances. Instead, try to determine when you will need IPv6 and start working towards it now to reduce deployment costs.

Get along to the government's “IPv6 Hui”, which will provide real information from people who have deployed IPv6 networks - http://www.ipv6.org.nz/hui.html.

And make sure your business knows and understands the risks of delay or inaction.