

# ○ NETWORK NEUTRALITY – JUST WHO OWES WHO IN THE INTERNET CONTENT ECONOMY?

*Geoff Huston*

The debate over 'network neutrality' is reflective of a longstanding tension in the communications and transportation industries between carriage and content. The shift in the underlying business models of the Internet through the use of the Internet's open architectures has allowed content providers to have direct access to the end user without the more traditional, and often extremely lucrative, intervention of the carriage provider. And now the carriage providers are crying foul, taking the stance that content providers are having a free ride over the carriage providers' infrastructure investments, and are threatening to block such 'freeloaders' from their networks. This debate, often termed a debate about 'network neutrality' is really a debate about money of course, and the critical question of who should pay and who should receive in the new content economy that has been created by the Internet.

It's always surprising to see that some debating topics just never seem to die in this industry. The debate about the 'neutrality' of the network operator is about as old as the role of the carriage operator itself, and can be traced back to the English canal system of the mid nineteenth century, if not earlier (Odlyzko, 2004). A recent round of public debate on this topic appears to have been sparked late in 2005 with an interview with the CEO of SBC on the topic of Internet 'upstarts'.

Interview with SBC CEO Edward Whitacre, Business Week Online, 7 November 2005:

*How concerned are you about Internet upstarts like Google, MSN, Vonage, and others?*

'How do you think they're going to get to customers? Through a broadband pipe. Cable companies have them. We have them. Now what they would like to do is use my pipes free, but I ain't going to let them do that because we have spent this capital and we have to have a return on it. So there's going to have to be some mechanism for these people who use these pipes to pay for the portion they're using. Why should they be allowed to use my pipes?

'The Internet can't be free in that sense, because we and the cable companies have made an investment and for a Google or Yahoo! or Vonage or anybody to expect to use these pipes [for] free is nuts!' (BWO, 2005).

Other studies of this topic of price discrimination in carriage sectors have identified precedents in canal shipping, rail and road systems that point to the efforts of ISPs:

'This historical record helps explain the push in the telecommunications industry for new network architectures that would provide service providers greater control of what customers do, and would deviate from the 'stupid network' model of the Internet. However, there are substantial differences between the Internet and the old transportation systems, and even today's transport differs

in important respects from that of centuries ago. The Internet is special, in its migration of costs and capabilities to the edges, in its primary value being in connectivity and low transaction latency, and in its pervasiveness and frequency of use. Hence the historical precedents from transportation discussed in this paper may not apply to the future of the Internet' (Odlyzko, 2004).

'Network Neutrality', as it is commonly called today, is a principle that has rich antecedents in the common carrier role. It espouses the position that the network is entirely neutral with respect to content, and that the network does not offer any a priori biased response to any particular content or service, nor does the network attempt to prevent the operation of any application or service. In terms of the network's position with respect to competing content, application or services, the network itself should remain strictly neutral within the parameters of this common carrier position of strict neutrality.

Of course the area of intersection between Internet Service Providers and Content Providers is one that apparently produces more friction than synthesis these days, which is perhaps puzzling, in so far as similar relationships in the communications industry in the past have tended towards the mutually supportive and mutually beneficial, at the inevitable expense of the long suffering end customer!

Looking back at the earlier interaction of these two sectors (ISPs and content factories) we've seen the strident claims of 'you have to pay me' coming from the content industry and directed to the IP access providers some years back at the height of the Internet boom, while the precise opposite appears to be the claim today.

The claim that Internet access providers 'owe' content providers comes up in numerous ways: we've seen it in terms of a call for direct transfer of funds in regulatory framework debates, or in terms of a call for heavily discounted costs of access for content sites, or in terms of claims of a privileged position with respect to peering and financial settlements in the realm of network peering and interconnection. The underlying supposition made by the content providers in this debate was that without compelling content there would be no network that end consumers would want to access, and that access providers were monopolising the user while content providers were languishing with totally inadequate levels of revenue. The attempted leverage here lay in threats to withdraw access to content from specific ISPs, which always struck me as a measure that appeared to have a significant component of self-harm. The content providers' argument has, by and large, fallen on deaf ears, and neither ISP nor any regulator appear to be sympathetic to such a case.

The claim that the content providers owe the Internet access providers also appears in numerous ways: some in the form of direct threats of withdrawal of access, as in the SBC CEO interview quoted above, or in terms of elevated access costs due to the more intense network resource use profile, or even in terms of the ISP undertaking content 'stealing' through traffic interception and forced caching, or even to the extent of blocking certain traffic profiles, as we've heard with ISPs attempting to block certain applications such as Skype and BitTorrent.

What's going on with the content industry? Why is there this apparent mismatch here between carriage and content? Why is the carriage provider being tempted away from its traditional position of neutrality with respect to content?

Maybe its time to look at some online content business models and their effectiveness

## THE BUSINESS OF CONTENT

We've all heard that the Internet is making profound changes to the way we conduct business, and we've also all heard the predictions of further massive changes yet to occur that will be fuelled by the Internet. Some predictions about Internet-induced change have been realised at frightening speed, while other predictions are bypassed as a recalcitrant reality moves onward in an entirely different direction. One of the more challenging tasks has been to predict the longer term stable economic model of content provision on the Internet and the interaction with ISPs.

A classical content provisioning model is that used by the book publishing industry. Here the consumer purchases the medium, or in this case the book. The consumer's payment is used to compensate the retailer, the distributor, the publisher, and with luck, ultimately the author gets a percentage as well! The book world has proved remarkably resilient to technology-induced change so far. It's not difficult to scan and content index an entire book if you have the right machinery, as Google Book Search and Amazon have proved with apparent effortless ease, but for the end consumer it's a remarkably tedious process to undertake with a consumer-grade scanner. As a result, the publishing industry continues to be dominated by the costs of paper, printing, warehousing, distribution and marketing. The impact of the Internet on this activity has been concentrated on competing with the retail sector, creating virtual bookstores with greater inventories and discounted pricing.

The music industry followed a similar path of using the medium as the means of pricing content. However, in this case, a combination of technology advances in consumer electronics and the Internet have made it a trivial task to duplicate and redistribute music content. The problem with this content distribution model is that such redistribution may occur without the due recognition of the rights of the copyright owner of the music ('recognition' in the sense of payment, of course). It appears that we have managed to head a long way down this path, and included video distribution channels along the way. We appear to be at a stage of wide scale redistribution of such content, to the extent that such traffic appears to dominate most ISP networks. The entertainment content industry remains reluctant to abandon the medium and move away from their established business models, due, in no small part, to their inability to establish a viable content distribution model that takes into account such secondary redistribution methods. In such a circumstance, the Internet does not rewrite the economy of content publication or distribution, but takes on the more traditional role of a being a competitive (and highly disruptive) distribution regime. The international nature of the Internet also implies that seeking legal remedies to such unauthorised redistribution is often unwieldy and expensive, even when successfully prosecuted in individual cases.

Necessity, they say, is the mother of invention, and the need to derive a revenue stream from the provision of content on the Internet has fuelled other approaches. One of these is the online subscription model. Here the consumer enters into an ongoing relationship with the content provider, and is granted access to content that would otherwise be inaccessible. This arrangement has some obvious attractions in that there is no significant additional overhead in distribution of the content: no print, no distribution and no retailing requirement. The consumer pays the content originator directly for the content itself, without the added impost of the cost of distribution of the medium of the content. But this model has failed to take off on the Internet. Consumers appear to be reluctant to enter into a myriad of individual content access relationships,

and, for the content provider, the consideration is that once the content has been passed to the consumer digitally the content provider loses control over any consequent redistribution of the content. The digital content can be readily saved and redistributed, depriving the content provider of further revenue. Once again, conventional remedies are impotent in this situation, as the international nature of the Internet also implies that seeking legal remedies to such unauthorised redistribution is often unwieldy and expensive, even when successfully prosecuted.

Another economic model for content is commonly used when distribution is essentially unlimited and redistribution is relatively easy. Instead of attempting to limit distribution of content to those who have purchased the content, the content is tightly interlaced with paid advertisements. The advertisements are intended to compensate the content creator, while content distribution takes on its own momentum as a consumer activity. To maximise the advertising revenue, then the wider the distribution of the content, the better.

Here the Internet appears to offer significant potential. The ease by which content can be circulated so as to be accessible by tens of millions of potential viewers is without precedent in any other content distribution system. The cost of reaching each potential viewer is also at an unprecedented low point. This would appear to be a potential answer to the content economy, replicating free-to-air television and radio in its model of advertiser-paid content distribution. However it's not quite as seamless as some would hope, and cracks have emerged in the application of this model to the Internet. For the interlacing of advertisement and content to operate effectively, the interlacing must not be filterable by the viewer. It is possible to take a compound web page and alter the interlacing of advertisement and content. To be effective, the demographics of the viewer should be known to the content distributor, so that the advertisements with the greatest relevance and interest can be directed towards each viewer.

The original banner ad model of advertisement has not been very effective. The attention levels obtained by these ads, the so-called 'click-through rates' where the viewer actively follows the reference embedded in the ad, are extremely low. And, most critically, the Internet is too unconstrained as a distribution network, and has no reliable targeting demographics that are accessible to the advertiser. For advertisers the Internet, as an advertising channel, has lost its sheen of novelty, and now the traditional methods of measuring advertising effectiveness come into play. For content providers who are using an advertiser funding model of revenue generation this is not welcome news, as the effectiveness outcomes for Internet advertising are much lower than many other advertising channels. But these can be phrased as merely technical shortcomings in the traditional model and can be overcome by pushing a little harder in using additional information when attempting to match the consumer to the desired producer with the presentation of the advertisement. After all, one view of the difference between any annoying advertisement and a helpful intervention is merely a matter about the level of information about the client's current needs. The second generation of content 'seeding' factories, such as Google, appear to have found some useful answers to these questions, and, undoubtedly, have created advertising channels to markets that are seriously impacting traditional advertising activities by creating a richer relationship between content and advertising.

In the light of these developments in an advertiser-funded content economy, the original concept – of a separate and distinct content economy as an overlay on top of the underlying connectivity of the Internet – is one that is now taking some substantial form. We are seeing the dominance of content distribution models that leverage advertisement revenue to subsidise the

cost of content creation and distribution. Indeed this model is now so dominant in this industry that most of the value in today's Internet occurs in an economy that is well beyond the Internet Service Provider's reach, and the ISP is being consigned to the somewhat unglamorous role of undifferentiated packet pusher. The 'rivers of gold' that used to flow through newspaper presses each day have now been largely diverted to flow through the Internet. But in this case it is not the companies who press the packets into the cable who control the flow. Evolution has lent a hand here, and the value can be found in the application itself, rather than its method of delivery, much to the chagrin of the traditional telcos and their shareholders.

## **SO WHO DOES OWE WHO IN THIS INDUSTRY, AND HOW MUCH?**

How stable is this approach of viewing content as a distinct and unrelated overlay rather than as part of a bundle of network services and content? How large can such a content overlay get? Is this approach one that results in a fair and reasonable distribution of revenue between all the players?

In looking at the various options for the development of the Internet content economy, the overall observation is that perhaps we are simply too impatient for the 'right' answer here. The Internet is a broad and highly efficient communications system, and by virtue of this alone it already undertakes a massive proportion of the global content distribution workload. The Internet content market has become a robust and highly valued market, but to attempt to pass some judgements on its future stability and future size is a tough ask right now.

Content always was, and still remains, a distinct overlay enterprise, and efforts to bundle the network offering with exclusive content work in neither the network provider's interest nor the content provider's interests in the long run. Claims that content providers should pay ISPs for 'overuse' of a network's resources are not readily distinguishable from what others would claim as forms of extortion payments intended to address the shortcomings in the ISP's own service tariff structure. Such claims are about as specious as earlier claims that that ISPs should pay content providers for content that their customers may well have been completely uninterested in, let alone willing to subscribe to! In this environment of edge-to-edge based communication models there is no meaningful and productive intersection between network carriage and application content in terms of intertwining or bundling.

To take this a little further, bundling together service and infrastructure, in whatever form, strikes me as yet another reprise of that 'convergence' myth that has been inflicted on this industry for some decades now by anachronistic ex-monopoly telecommunications enterprises that continue to yearn for a past that is thankfully, long gone. It is currently being articulated by industry access players looking desperately for monopolistic relief from the harsh realities of a highly competitive deregulated communications industry.

Extracting extortion payments is not a useful answer for this industry.

Carriage provision is at its most effective in terms of beneficial externalities when it enables and fosters innovative content service models. While it could be argued that attempts by carriage providers to intercept and degrade specific services simply provoke an innovative service response that attempts to further cloak the characteristics and identity of the service from the network, as a means of fostering innovation this is a remarkably constrained mode. One of the more graphic illustrations of this is the moves in the BitTorrent application family. Here efforts by

ISPs to perform TCP port blocking and traffic shaping on Bit Torrent have lead to the application moving to cloak its own traffic so that there is no residual 'signature' for the ISP's traffic filters to latch on to.

There is the emerging suspicion that we will all benefit from further innovation in content service models if we continue to open up the network and the edge to unfiltered use. There is also the suspicion that models that rely on bundling and structural cross-subsidisation are retro-grade steps back into a world of tight controls and strong opposition to change.

So the best answer as to who owes whom in this industry is that we will all benefit if we look at content as an overlay activity that does not directly participate in the network access enterprise.

Network access and application content are distinct activities, and various forms of price and service discrimination by the carriage provider between content services and content service providers is a wholly undesirable outcome for the Internet, let alone in broader terms of the relative roles of public carriage provider and content providers within the long-established concept of the common carrier.

The Internet remains very much a 'work-in-progress' and the evolution of the service model is a journey we have only just started on. But for this to work effectively the network itself needs to 'disappear' from the picture and cease to be a selective impediment to certain applications and services. The network needs to be completely neutral with respect to the applications that use it.

## DISCLAIMER

The above views do not necessarily represent the views or positions of the Asia Pacific Network Information Centre.

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