INTERNET AGGREGATORS: THE IMPACT OF THE CLASSIFIERS ON OPEN COMMUNICATION

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Abstract

The Net Neutrality debate in the United States has ramifications for all countries interested in how the Internet is structured as an 'open space'. The US Federal Communications Commission (FCC) developed in 2005 general principles governing access to the Internet, given the potential of ISP and broadband carriers to potentially restrict or control traffic for competitive or other purposes. Carriers took the FCC to court on the basis that it had no jurisdiction over them, but this has only heated up the debate rather than calmed it. In this paper, the author looks at issues surrounding the knowledge aggregators on the Internet. Google has recently bought a virtual currency platform in order to increase its knowledge harvesting capacity and to make money from social gaming. Not surprisingly, the aggregators like to control their own spaces and what counts as 'open communicative spaces' is shaping up as technically and socially and politically complex.

The 'Traffic-Ramp Control'

> The Commission, under Title I of the Communications Act, has the ability to adopt and enforce the net neutrality principles it announced in the Internet Policy Statement. The Supreme Court reaffirmed that the Commission 'has jurisdiction to impose additional regulatory obligations under its Title I ancillary jurisdiction to regulate interstate and foreign communications.' Indeed, the Supreme Court specifically recognized the Commission's ancillary jurisdiction to impose regulatory obligations on broadband Internet access providers. *(From Broadband Deployment Notice of Inquiry, 16 April 2007)*

Comcast and other ISPs sometimes delay video, music and other files shared using software like BitTorrent over the Internet. These companies compare these practices to a traffic-ramp control that regulates the entry of additional vehicles on to a free way at peak times. The argument from ISPs and carriers is that this is not preventing people using the Internet but temporarily delaying it. There is another side to this, of course. As the Internet more and more becomes an exhibition platform for artists, such delays can be problematic. And further, as ISPs and carriers themselves increase their strategic financial interests in creative production, competitive pressure might hypothetically lead them to be selective in how traffic is handled.

These types of actions are a part of discussion in what is now called the Net Neutrality debate. They raise questions about how companies that run the services on the Internet might or might not act to restrict traffic and the nature of the communicative spaces themselves. What does it mean for the Internet to be 'open'? The US Federal Communications Commission (FCC) in 2005 proposed a set of principles that it thought should govern the Internet:

> *To encourage broadband deployment and preserve and promote the open and interconnected nature of the public Internet*, consumers are entitled to access the lawful Internet content of their choice.
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> *To encourage broadband deployment and preserve and promote the open and interconnected nature of the public Internet*, consumers are entitled to run applications and use services of their choice, subject to the needs of law enforcement.
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> *To encourage broadband deployment and preserve and promote the open and interconnected nature of the public Internet,* consumers are entitled to connect their choice of legal devices that do not harm the network.

> *To encourage broadband deployment and preserve and promote the open and interconnected nature of the public Internet*, consumers are entitled to competition among network providers, application and service providers, and content providers. [FCC 07-31]

The FCC said that these guidelines were not 'enforceable' but in 2007 issued a Notice of Inquiry seeking examples of the beneficial or harmful actions of network platform providers; whether they had biased particular content and traffic, how users might be affected by these biases, and whether user choice of network providers was sufficient to ensure overall equity. [FCC 07-151] Comcast restriction of BitTorrent transfers were obviously in the sites. By 2008 a three-judge panel in Washington rejected an FCC August 2008 cease and desist order against Comcast. The judges decided that the FCC failed to tie its actions to an actual law enacted by Congress; that is to say, it did not have the power to regulate network management practices (McCulagh 2010).

At first glance large Internet companies supported the principles of Net Neutrality and an FCC role in policing it. The US Congress in 2006 rejected five bills backed by Google, Amazon.com, Free Press, and Public Knowledge that gave the FCC enforcement powers. But if you look closer at company actions you see a different picture. Google is a good example of the twists and turns in the Net Neutrality saga. In 2007 the FCC licensed wireless spectrum with binding rules that forced a wireless carrier that won a spectrum auction to let users use whatever handsets, services and applications they wanted to connect to it. Verizon, that had been bidding against Google for Android and eventually won, filed a lawsuit against the FCC rules. Google opposed Verizon's rejection of the FCC rules. This year, however, we see a different picture. Google and Verizon as part of their bilateral net neutrality trade agreement have argued that Congress should ratify that open wireless rules are unnecessary (Singel 2010). Google defended its reversal:

> We have taken a backseat to no one in our support for an open Internet. We offered this proposal in the spirit of compromise. Others might have done it differently, but we think locking in key enforceable protections for consumers is progress and preferable to no protection. (Singel 2010)

If you compare this statement to the one from a post on Google's official blog in 2007 at the time it supported Net Neutrality for wireless, then you get a wonderful contrast:

> The nation's spectrum airwaves are not the birthright of any one company. They are a unique and valuable public resource that belong to all Americans. The FCC's auction rules are designed to allow U.S. consumers — for the first time — to use their handsets with any network they desire, and use the lawful software applications of their choice. (Singel 2010)

There can be no doubts that individuals and large organisations are aware that important distortions can occur within the Internet 'open space'. The phrase 'network provider' as Steve Peterman, producer of Hannah Montana said, can be misleading. Network providers can be enmeshed in a whole set of vertically integrated interests:

> In a Tuesday hearing held by the House Subcommittee on Telecommunications and the Internet over a proposed bill intended to ensure open access to the Web, 'Hannah Montana' exec producer Steve Peterman, speaking on behalf of the Writers Guild of America West, described the Internet as 'the new TV' and the best of the diminishing opportunities for independent artists to reach a large audience. Media consolidation over the last 15 years had reduced a once 'rich marketplace of ideas' into a tightly controlled environment ruled by seven congloms that determine 'nearly all of the information and content we see,' Peterman said. 'Because this small group now acts as producer, studio and network, there has been an inevitable stifling of creativity and diversity, and because they maintain a chokehold over distribution, there has been nowhere else for the creative community to go,' he declared. (Triplett 2008)

The implications of the Comcast judgement is that it is permitted to block web sites or speed up the delivery of movies from other sites like Hulu if it wishes. The FCC has not given up on regulation of the network managers. One option for the FCC is to completely reclassify the Internet as a telecommunications service rather than as an information service, the current classification. Its choice at this stage is to take a 'third way', or a tailored approach. The FCC will:

1. Recognise the transmission component of broadband access service — and only this component — as a telecommunications service;
2. Apply only a handful of provisions of Title that, prior to the Comcast decision, were widely believed to be within the Commission's purview for broadband;
3. Simultaneously renounce application of the many sections of the Communications Act that are unnecessary and inappropriate for broadband access service; and
4. Put in place up-front meaningful boundaries to guard against regulatory overreach. (Genachowski 2010)

The FCC looks here as though it has abandoned the field to the giant network management companies. This is far from the case. The Internet structures have changed since their origins in settlement free peering. Hyper giants, super aggregators, have emerged and they are leading to a consolidation of content (Elby 2010). It is worthwhile turning to the business of aggregation, in all its forms, to see what the modern regulators are facing.

The super aggregators ('hyper giants')

The emergence of the super aggregators, or hyper giants, is changing perceptions about the structure of the Internet, even within the Internet industry itself. These super Content Delivery Networks (CDNs) now operate at global and national levels and provide backbones for regional providers and customer IP networks. McPherson (2009) reported on the trend towards consolidation of content contributors in 2009, noting that in 2007 thousands of ASNs contributed to 50% of network traffic (An Internet Service Provider must have a registered Autonomous System Number (ASN)). Today only 150 ASNs contribute to 50% of the network traffic, with the 30 hyper giants like Comcast accounting for 30% of traffic. But there are also other kinds of consolidation. Browsers have become more important for consolidation of functions (e.g., mail, video). New technologies like cloud computing are redefining the notion of network. Figure 1 below provides an overview of changes to the global core.

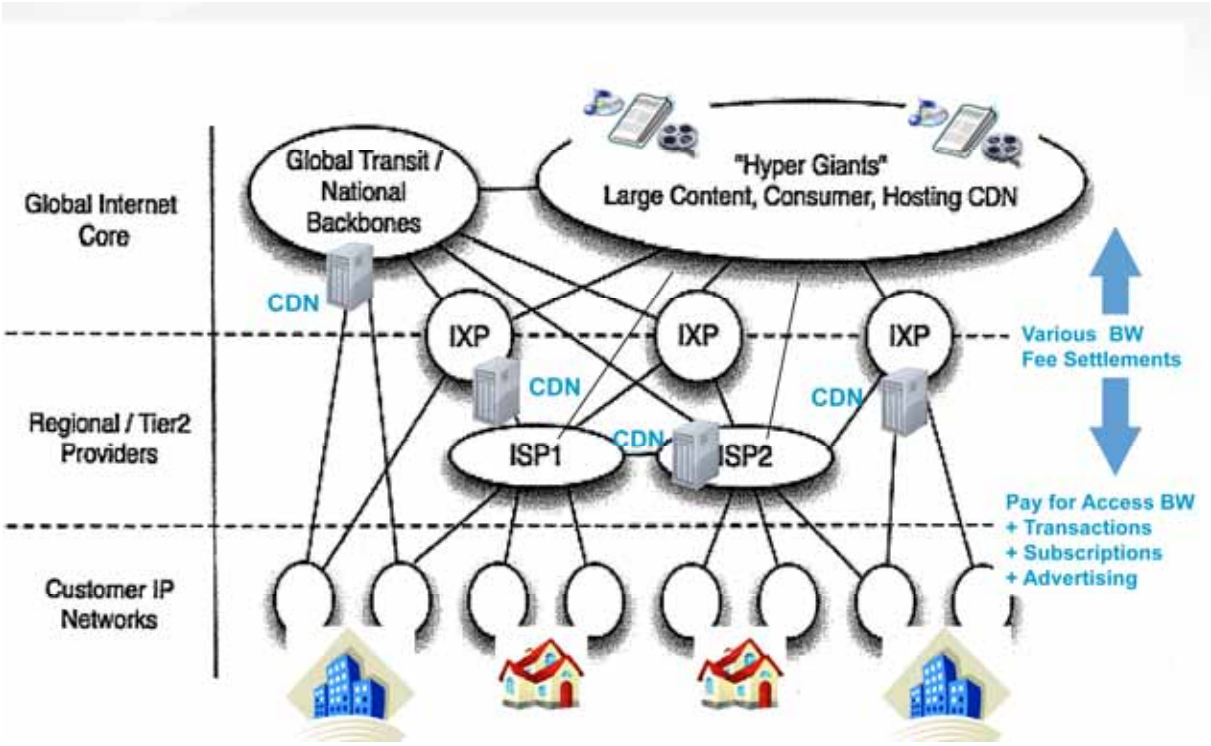
Figure 1: The global core

Rank	2007 Top Ten	%	2009 Top Ten	%
1	Level(3)	5.77	Level(3)	9.41
2	Global Crossing	4.55	Global Crossing	5.7
3	ATT	3.35	Google	5.2
4	Sprint	3.2	–	
5	Cogent	2.77	–	
6	NTT	2.6	Comcast	3.12
7	Verizon	2.24	–	
8	TeliaSonera	1.82	–	
9	Savvis	1.35	–	
10	AboveNet	1.23	–	

Source: McPherson (2009).

In Figure 2 the author provides an adaptation of Arbor Networks schematic of the current Internet structure, used also by McPherson (2009).

Figure 2: The new Internet tiers



Source: Adapted from McPherson (2009).

A super aggregator that decides to bias one form of traffic over another would fall under the FCC's definition as part of the 'transmission component of broadband access service', if the FCC's proposal for the 'third way' becomes law. This is no minor issue. The aggregators in all their forms have become more concentrated and more influential. They have also become extraordinarily complicated in how they operate. Nowhere is this more apparent than in online money and fantasy games. Google recently purchased the currency platform, Jambool, to help developers manage and monetise their virtual economies across the globe (Takahashi 2010). Google, like Comcast, has vested interests in where traffic goes. Communities using virtual, real, status or notoriety currency are now big business. These communities can be solely social and involve no real money, such as the famous Farmville (where you need a Facebook account to play). But even in Farmville real money can be and often is committed to gain advantage (Virtual farm games absorb real money, real lives 2010). The size of the social and fantasy sports gaming communities and the revenue they generate is staggering. A United States study commissioned in 1999 estimated that there were 29.6 million fantasy sports fans over 18 years old in the US, eight-five per cent of those using the Internet and generating over USD$100 million in revenue (Lomax 2006). Social gaming in the US brought in over USD$725 million in the US last year alone.

The temptation to bias flows of traffic among the super aggregators is going to be irresistible, as it already is. These games platforms are big bandwidth users and certain types of traffic are going to be premium for these global aggregators. The super content aggregators are not only interested in traffic. They are interested in harvesting data on people.

A *Telegraph* reporter who visited Acxiom was surprised about out how much Acxiom could know him. This is not surprising. Many people have not heard about Acxiom. Most people though would have flash cookies on their computers that collect data for aggregators (flash cookies are normally undetectable, except now for Firefox browsers). Acxiom has in its database approximately 1,500 facts about half a billion people worldwide. It works behind the scenes for Google and many other major Internet companies. The reporter recalls his meeting with Acxiom's CEO:

> 'Oh we do have you on our database. I guarantee you,' Mr Meyer assures me. 'Your name address, phone number. You have a cat. You're right handed. That sort of thing.'

> This is true. I'm not sure if it's a lucky guess, but I'm impressed.
>
> Mr Meyer, a brash, confident chief executive, explains that while the company has been nervous of promoting its activities in the past, he has no fear of a higher profile.
>
> 'We're the biggest company you've never heard of,' he grins, with a hint of Southern drawl. 'In the past we were afraid of people knowing us, but I'm trying to get business awareness and if consumers have privacy concerns I want to know.' (Mason 2009)

Acxiom is a giant aggregator. Knowledge aggregation takes many forms on the Internet. User tracking is one form but there are many others. The term news aggregator for example describes websites or search engines that select, retrieve and link news from anywhere on the Internet. *Google News* is an aggregator of this kind and it has had its own troubles from news providers who think that their content is being taken without reward to them.

An RSS is also an aggregator as it pulls together threads relevant to the person who has subscribed to it. The giant aggregators like Acxiom argue that they are neutral in terms of their effects on the 'openness' or not of the Internet. Others disagree because in many cases mass opinion is re-presented back to the Internet and traditional media:

> the opinions crafted by individuals (presumably after or through discourse in a small community) can be aggregated and passed to other users and communities for further discussion and subsequent aggregation. Such sites cut out the human mediation traditionally required in a social network, allowing for a seemingly direct representation of public opinion in the blogosphere. Through a system of uncoordinated coordination, collective action has become possible on a previously unimaginable scale, due to the small amount of effort required by each human in order to bring about the so-called 'wisdom of crowds'. (Geiger 2009)

It might be argued that knowledge aggregation is different from traffic-ramp control, Comcast's argument for being selective over its traffic. It is not a giant step, though, from an aggregator being able to identify all 14-year-olds gobbling up its bandwidth, and favouring more commercially profitable traffic. It is not only at this level where this is little or no public consultation on how influential Internet activities are structured. The public has even less influence or knowledge about the IPV4 or IPV6 debates, as DeNardis (2009) points out in her work. MIT for example owns a massive 16,777,214 IP addresses and as these addresses become scarce their value will go up. Decisions on the ownership and distribution of these addresses is done with little or no public consultation through the entity ICANN, the Internet Corporation for Assigned Names and Numbers, incorporated in California. Indeed at one stage all IP addresses were owned by one person (DeNardis 2009). Super aggregation of IP addresses has the potential of biasing traffic not only within an industrialised country like the US, but as DeNardis (2009) points out, globally. Poorer countries could potentially be treated like BitTorrent traffic because they use space but do not contribute sufficiently to the overall bottom lines of the aggregators.

Information filtering

Aggregation by its nature involves filtering and this is not in itself unethical or illegal. Information filtering has traditional been cast as a subset of information management and retrieval practices (Hanani, Shapira & Shovel 2001; Belkin & Croft 1992). Filtering is understood as a way of regularly managing information flows according to the desires of the users and producers. Email filters for instance can be set to block email that the system has been programmed to recognise as spam or as undesirable. Likewise many systems can be customised to allow individual users to tweak the filtering process; to block out some users or traffic from particular locations. There is now a vast literature that discusses the development of information filtering practices using technological means and increasingly digital media platforms. Hanani, Shapira and Shovel (2001) distinguish between four different parameters: firstly, *where filtering is initiated*, being either active, with information being sought out, or passive, omitting or blocking information received; secondly, *the location of the operation*, for example, the source of information, via filtering servers, at the user's

site, and so forth; thirdly, the *approach to filtering*, distinguishing between cognitive and social filtering; and finally, the *method of acquiring knowledge about users*, distinguishing between explicit, implicit and combined methods (Hanani et al. 2001, p. 206).

The Net Neutrality debate in the US has opened up discussion about how distortion on the Internet in the general is happening and how those distortions affect the individual's relationship to the open spaces that they are using. Comcast argued that its Internet traffic control ramp was not linked to any motivation other than efficiently allocating time and space in its management of its network. Of course, there is more to this than meets the eye as the author has attempted to show. Aggregators might be tempted to prioritise the traffic involving harvesting of people's data on their network over and above other types of traffic, for instance. There is now clear recognition in the regulatory mind that the material design of the Internet, its transmission, is related to its openness.

Summary

In October 2009, United States FBI agents swooped on a house in Queens and arrested a 41-year-old man for using Twitter to alert Group of 20 protestors in Pittsburg about police movements; what police locally called 'Twerorism'. Others involved in the Tweets ran for cover (Moynihan 2009; Garrido and Halvais 2009). Putting your name to a protest and then facing the law — your government — are two different things. Facing legal action tends to be a good test of commitment. It is not new for people to protest against government through media. The Radical Press in Britain did exactly that and was in the end restricted by taxes. In the 1800s, the modern press — literally printing machines run by small groups of 2 to 3 people — produced 'circulating libraries of the poor', printed posters the poor could put up on walls to discuss or debate contentious issues or simply to teach kids how to read and write. Wealthy residents of London and the government insisted on pulling down the posts because they looked untidy (Balnaves, Donald and Shoesmith 2008).

There are many dimensions to the debate about the openness of the Internet, indeed even on what counts as 'public domain'. Fluevog's *Open Foot Software* is a classic of this kind. It is after people's voluntary labour as potential up and coming footwear designers. Open source footwear offers people the opportunity to send their shoe designs to the organisation to 'get real recognition'. The site says:

> Will I be rich? Are you insane? Nobody gets paid for Open Source Footware designs because nobody owns them. That's right: once you send us your design, it becomes public domain, freely available to all. We might use the whole thing, base a design of our own on its, or just part of it. And your idea might only be for part of a shoe anyway. This keeps everything fair. Having said that, if you're chosen, we'll send you a free pair! (http://www.fluevog.com)

But of course Fluevog has first options on the designs and it is a private not a not-for-profit organisation. There is a range of groups interested in what happens in 'open spaces', from the FCC as regulators through to law enforcement itself. Saddam Hussein is famous for his 'Freedom Wall'. Each university in Iraq under Hussein had a large wall where students could write anything they wanted on them. Not surprisingly, nothing was written on them. How open spaces on the Internet are materially constructed and regulated does matter. The Net Neutrality debate in the United States is not only of concern to the US. The issue of distortion of 'open spaces' is a universal one. The distortion that the Federal Communications Commission (FCC) is concerned about in the case of the Internet is where network carriers/providers decide to restrict traffic flow to their competitive or commercial advantage. You do not have to be anti-business to appreciate that regulation may be required to limit distortion in the Internet's open spaces. Nor do you have to be anti-business to appreciate that the emergence of the super aggregators presents new challenges in our understanding of how the Internet itself has been restructured. The FCC will be returning to the Net Neutrality concerns and the legal actions by Verizon and others have started that process. The outcome of the Net Neutrality debate will no doubt shape the perspectives of regulators elsewhere.

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