

DISRUPTION REVISITED: NETFLIX, APPLE TV, GOOGLE TV, FACEBOOK TV

TREVOR BARR

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Professor of Media and Communications
Swinburne University of Technology

Abstract

Historically, television and media content have generally been tied to specific distribution platforms or outlets. However, multiple new players and new forces are at work now driving significant changes. Four business models have been constructed in this paper, about current initiatives for Internet based television in the USA, which have the potential to challenge the established television industry. First, Netflix with its ‘aggregation model’ currently runs the largest ‘watch instantly’ streaming content service in the USA. Second, Apple TV’s ‘walled garden’ model offers an iTunes compatible streaming media device intended to revolutionise how Americans view television. Third, Google TV, with its ‘convergence is free’ model, now claims that it offers a major in-built innovation that television has lacked for so long — the web. And fourth, Facebook’s ‘social media is ubiquitous’ model has only recently enabled large movie studios in the USA to use the Facebook site as their first mode of movie release.

The paper analyses how these new television services relate to the work of two established theorists on innovation, Joseph A Schumpeter, regarded as a pioneering thinker about ‘creative destruction’, and Clayton Christensen, who popularised the term ‘disruptive technology’. So how transformational might the long term effects of current Internet television innovation become? On a scale from minor disruption to major destruction, what might emerge regarding long term changes to television as a service for its viewers, and to the industry?

Introduction

This paper extends the work of a related published paper presented to the CPRF last year (Barr, 2010). New services made possible by Internet, broadband and mobile networks facilitate considerable change. No longer does an orderly transition to a new order seem possible: attention tends to be centred on threats to destabilise long-standing institutions. This paper primarily canvasses issues related to global innovation for television from three USA based corporations — Apple, Google, and Facebook — as well as those from another much smaller USA based newcomer company, Netflix.

It again draws upon the work of two established theorists on innovation, Joseph A Schumpeter, long known for his notion of ‘creative destruction’, and also Clayton Christensen, from a different era, who popularised the term ‘disruptive technology’.

Joseph A Schumpeter (1883–1950) was a prolific academic author in his twenties, Austria’s finance minister in his thirty’s, later a banker who made a fortune but lost it in a stock market crash, only to re-invent himself eventually to become a famous Professor of Economics at Harvard University. According to Schumpeter, nearly all businesses eventually fail as victims of innovation to their competitors, but the general prosperity created by this ‘capitalist engine’ far outweighed the wreckage it left behind. For Schumpeter real innovation was driven by ‘creative destruction’, where innovative capitalistic products and methods displaced older ones. In his seminal work, *The Theory of Economic Development* (1934: 66), Schumpeter specified five types of innovation that defined the entrepreneurial act, including ‘the introduction of a new good’, the ‘introduction of a new

method of production', and 'carrying out new organisation of any industry, like ... 'the breaking up of a monopoly position'.

Many decades later another Harvard luminary, Clayton Christensen, Professor of Business Administration at the Harvard Business School, wrote about the notion of 'disruptive technologies', with work that was more applied to the field of communications than Schumpeter's all embracing economic discourse. Christensen's *The Innovator's Dilemma*, first published in 1997, is regarded as groundbreaking work about technology and entrepreneurship. For Christensen, 'disruptive' technologies had the effect of completely undermining established business practices. These were technologies that initially offered little in the way of enhanced performance, but generally appealed to consumers because of their convenience and cheaper price. As Christensen explained in an interview:

A disruptive technology is a new product or service that isn't as good as your product line; therefore it doesn't appeal to your best customers. Typically it's technologically simple. Often it's more convenient to use. But it's less expensive, and you make gross margin dollars per unit sold. So it's a discontinuous improvement in technology. It's something cheaper, simpler and often smaller. (Christensen, 2001)

Disruptive technologies, he argued, can eventually 'steal' secure, low end, low margin markets from incumbent players. He devised four common characteristics of disruptive technologies, one of which is that they 'occupy new ground which is larger than the market share for the old technology'(Christensen 1997:69).

So what insights might the work of both Schumpeter and Christensen bring to bear on the contemporary innovations of Netflix, Apple, Google and Facebook regarding their contemporary forays into a new service domain — on-line television? Note that the greater availability of higher capacity broadband has made possible new services related to the different delivery modes for end users that broadband can support, including the downloading of on-line-streaming of video and television programming.

However these developments should not be seen as evidence that the USA is leading the world in new higher capacity broadband services because the availability of good broadband is actually very patchy in the USA. Currently in the USA television is still in an early stage of facing challenges to the so well entrenched conventional over the air broadcasting model, with considerable on-line experimentation by several newcomers to this field. And making predictions is fraught with difficulty because the management of established commercial network television in the USA faces complex dilemmas as to what extent they embrace the opportunity to offer more of their programming to new outlets, but at no risk to their programming rights and to their lucrative advertising base.

An important distinction needs to be made at the outset that this paper deals essentially with innovation related to Internet Television, not Internet Protocol Television (IPTV) and essentially service distinctions are made here. With Internet TV (Apple TV, Google TV, Facebook movies) the consumer pays for the content package separately, and in addition to, the broadband access package. Therefore the consumer pays Apple, for instance, for the movies, but possibly Big Pond for the broadband service. There is no guarantee of the quality of service. The content provider may use a VPN (Virtual Private Network) to deliver the content, but all that means is securing the content from copying, or eavesdropping, or recording, as best they can. So it is delivered over any Internet Service (ISP) providers' network, but encrypted and decrypted. However, with IPTV (Foxtel on T-Box, or Fetch from iiNet) the consumer pays the Internet Service provider (ISP) for both the content package and the broadband delivery package. This allows the ISP to 'guarantee' some quality of service by putting in place the necessary infrastructure and Content Delivery Network (CDN) to ensure that the content is coming from the nearest possible server to the consumer's premise and over their own networks. The paper focuses on Internet TV with some references regarding the possible relationship with IPTV in the context of NBN developments.

Netflix: the aggregation model

Reed Hastings, born Boston, Massachusetts, one time teacher of mathematics in Swaziland during the mid 1980s, co-founded Netflix in 1998, as one of the few survivors of the dot.com crash of the 1990s. In 2003 Netflix patented a hard drive that could download movies, but it cost consumers \$300 to install, and it generally took up to eight hours to download a two hour film because of poor network capacity. So the company decided instead to create a mail order business, and by 1998 this had become the largest online DVD mail rental service in the USA. Then in 2007 Netflix launched a new service streaming movies to users' computers, but only for users in the USA. Late in 2010, the company began its 'watch instantly' streaming content service essentially to be delivered to PCs, but now with the added prospect of delivery to set top boxes *for television* as well. Netflix announced the new service plan (again only for Americans) late in November 2010:

We are now offering a new \$ 7.99 a month plan which lets you watch unlimited TV episodes and movies streamed to your computer or TV ... The new plan, which does not include DVDs, is a great option for the increasing the number of members who only want to watch instantly. (Becker, 2010)

The 'unlimited episode and movie offer' is actually an exaggeration because rights agreements inevitably constrain what Netflix can offer its customers. An examination of the Netflix one month free trial site shows that its content strength is based on the rights it holds to movie titles, such as those from Paramount Pictures, MGM, 20th Century Fox, Sony Pictures, and Time Warner — all big movie studios, but restricted to back list movies. Hence Netflix is essentially an impressively successful movie streaming organisation that has built a clear market advantage over its main streaming competitor Hulu, another back list organisation offering limited broadcast television content, but again to USA customers only.

Netflix offers the promise of multi-platform ready access — sometimes referred to as 'hybridity' — by promising that subscribers can:

- (a) 'Watch instantly' on a computer — including a Mac
- (b) Connect devices such as Wii, PS3 and Xbox 360 to a television set.
- (c) 'Watch instantly' on iPad and iPhone (Netflix, 2011)

However, Netflix customers point out that only a few subscribers in the USA 'have a broadband speed capable of giving them Blu-ray quality or is often only DVD quality' (Taub, 2010), and that the quality of the vision often varies according to the device used irrespective of the speed of connection. This same analyst estimated that only 8% of Netflix customers in late 2010 viewed the content exclusively on their television sets. But substantial investments in high capacity broadband networks are likely to act as a catalyst for more services being delivered directly to television sets in the future.

One of the problems in making any assessment as to the level of likely long term effects of Netflix is that key corporate financial, advertising, and audience data related to the impact of Netflix to date on key stakeholders are not generally publicly available. Private consulting companies offer evaluative market data, but their reports are only available to clients who invariably pay a large financial sum for such reports. Occasionally the work of audience measurement companies about users' viewing habits is reported in the mainstream media. One such estimate by the company Rentrak OnDemand Essentials, is that USA cable video-on-demand network television entertainment significantly increased by 35% between 2009 and 2010 (Miller, 2011). Also, some network traffic estimates are similarly available, such as that reported by Sandvine that traffic levels showed growth such that by October 2010 Netflix accounted for 20% of the downstream Internet traffic in the United States between 8.00 pm and 10.00 am — remarkable indeed, if accurate (The Online Reporter, 2010).

There is already some evidence of the cannibalisation of cable/ pay television networks in the USA. Some 37% of Netflix subscribers between the ages of 25 and 34, recently stated that they choose Netflix instead of a pay television service (Cerra and James, 2011). Also the notion of ‘cord cutters’ has emerged in major web cam discussion forums of astute video production editors — people cancelling their pay cable boxes in favour of Netflix TV viewing via iPad (Cohen, 2011). Clearly the Netflix business success poses major issues for the established television content providers, and rights holders, but it is difficult to assess their position because little impact data is available about revenue effects. In keeping with the long term managerial practices of commercial network television, their executives rarely engage publicly in industry debates.

Investment banker Jonathon Knee has suggested that most observers expect Netflix to grow its subscriber base from its current 23 million (USA only) to 30 million by the end of 2011, making it easily the largest video service in the country. He explains why he sees this as somewhat unnerving:

Netflix is primarily in the business of aggregating entertainment content created by other companies and selling access to it as a subscription service to consumers. In a media culture committed to the proposition that ‘content is king’ the robust success of a mere distributor is something incomprehensible and frankly, a little unnerving, especially while those responsible for the creative lifeblood that flows through its veins struggle for profitability

(Knee, 2011).

Press reports at the time of writing suggest that Netflix is now negotiating with Internet service providers in Australia with a view ‘to begin operations in Australia in the next 12 to 18 months’ (Foo, 2011). Surely it will only be a matter of time before such a development becomes yet another dimension to the protection of, or promotion of, Australian content on Australian television screens.

Apple TV: walled garden

Views about Apple as a corporation and its strategies tend to be polarised. One school of thought is that Apple has designed its applications for users as a ‘walled garden’ or ‘trespassers will be prosecuted’ control model pitched against other competitors, and that this is anathema to the more ‘commendable’ open source movement.

A contributor to Wired argues this case in the context of the iPhone:

Apple exerts complete control over the iPhone. It builds the hardware. It designs the operating system. It runs the marketing campaigns. And it curates and polices the Apple Store, refusing programs it deems potentially offensive or a threat to its own business (Vogelstein, 2011).

The contrary overview of Apple as a corporation is one of deserved rewards for an entrepreneurial group that risked its capital, and backed its own people and their concepts. Users choose Apple in droves, so the argument goes, because it has the most appealing services, and users are free to go to Nokia or Android, or elsewhere, for a different phone, if they wish. Moreover Apple chooses to re-invest much of its handsome profit in other modes of innovation.

So how might these two schools of thought be applied to Apple’s latest offering, Apple TV? Apple’s first attempt to capture the television movie market was announced in September 2006 when it offered an iTunes compatible streaming media device intended to revolutionise how Americans viewed television. This coincided with Apple’s extraordinary success in launching its iPhone, and simultaneous change of corporate name to signify its ambitious diversification — Apple Computer became Apple Inc. However consumers widely rejected Apple’s first foray into the American on-line home television market in the USA. Users highlighted two main problems, namely that the price of the box was too high, and that ‘user settings for streaming or copying from iTunes are not stored’ (Critics, 2008). Subsequently the first launch of the service was discontinued.

Apple's second generation digital TV receiver (this time with a mere 256 MG storage) was released to the US market in September 2010. The company's rhetoric on their site made everything seem so easy:

Just plug the power cord into the wall and connect Apple TV to your widescreen TV using an HDMI cable ... Apple TV (also) gives you access to some of your favourite Internet content ... (and) with Apple TV, every megapixel of every photo looks amazing. Big, bold and in glorious HD. It's the treatment your digital life deserves. (<http://www.apple.com/au/appletv/>)

This version of Apple TV is the movie equivalent of the iTunes music store, where users can access movies through iTunes at one third of the price of the first version of Apple TV. Consumers are now able to rent movies and TV shows, and also stream audio and video podcasts. Version Two also allows access to content from Netflix, YouTube, and Flickr. Apple TV is inherently attractive in terms of the overall content by also allowing consumers to use an HDTV set to view photos, play music, and watch video that originates from limited Internet services, or a local network, or local IOS devices such as iPhone and iPad. But its centrepiece service was always offering movies on-line to homes.

The new \$US 99 set top box (but about \$130 in Australia) has a simple elegance of what has become the trade mark Apple design, and is a quarter the size of its predecessor. However consumers must buy a separate cable to connect to the TV's HDMI port, generally at an additional \$60 each. The rental system only works one way in that users can rent TV shows in contrast to cable TV (such as Foxtel), where a subscriber cannot record a movie screened on their television to a DVD, and then replay it later. Apple TV consumers are also able to stream audio and video podcasts.

So why did Apple make the move into the television field? Apple CEO Steve Jobs explained that originally the on-line movie players had failed in their initial attempts to bring video from the home computer to the living room due to a failure to understand what consumers wanted. At the time of the launch of Version 2 he said:

No one has succeeded yet. We tried with Apple TV. Apple TV was designed to be an accessory for iTunes and your computer (version One). It was not what people wanted. We learned what people wanted was movies, movies and movies. (Edwards, 2008)

So Apple created an online movie rental service, originally for USA viewers only, which included films from most of the major studios — Disney, Fox Touchstone, Miramax, MGM, Lions Gate, Paramount, New Line, Warner, Universal, and Sony. Films could also be watched from other platforms of the users' choice — Macs, PCs, iPods, and the iPhone — more hybridity. Renters are allowed 30 days to download and view. The movies available are not merely B grade recycled product. Within one month of the February 2011 Academy Awards presentations, Apple TV was offering two of the nominated best picture films, *The Social Network* and *Black Swan*. Ted Nelson (personal interview, Melbourne, April 2011), founding designer of Project Xanadu, attributed the overall success of Apple Inc to Steve Jobs whom he described as 'a talented former movie director who understands *the soul of the users*.'

Others would argue that Apple TV again guarantees the company considerable control over the content on offer by using its proprietary set top box. Apple TV is compatible with the files that only play iTunes, and cannot facilitate downloads from other videos. Viewers can, of course, also use their Apple remote to stream content from Apple's associated products — iPhone, iPad or iPod Touch. All the result of careful product design.

So this is apparently another manifestation of the Apple walled garden principle.

Google TV: convergence is free

At the annual Consumer Electronics Show in Las Vegas in January 2011 the principal focus was on ‘web friendly TV’ and especially on those manufacturers who were not merely launching yet another separate set top box to access the Internet from television, but on new models that actually had Internet capability built into the television set itself. The associated conference discussions centred on the ‘hot button’ issues related to multiple predictions about the forthcoming battle between Apple TV and Google TV.

Earlier, on 20 May 2010 Google had announced plans to introduce Google TV on its Official Google blog (2010) claiming they were offering something that the television lacks — the web:

What if we helped people experience the best of TV and the best of the web in one seamless experience? Imagine turning on the TV and getting all the channels and shows you normally watch and all of the websites you browse all day including your favorite video, music and photo sites. We’re excited to announce that we’ve done just that.

Well not quite. At this stage Google TV is basically an operating system that has emerged from collaboration between Google and Intel, whose Atom chips power the system. Significantly though there is not merely one Google set top box comparable to the Apple proprietary business model. Instead Google consumers can make a choice between a set top box connected to an existing television manufactured by Logitech, or a new 46inch Sony television set that has Google search functions built in (currently at a cost of about \$US 1400). At the time of writing earlier promises from other possible Google TV device manufacturers, notably Toshiba, Samsung, and Vizio, have not been realised, apparently in response to requests from Google to delay releases until some current operational issues are resolved.

The Google TV on offer at present is a software platform that can stream video, including material from Netflix and You Tube, and can also stream music and photos. Google TV customers can search the web, via their browser Chrome system, and also stream content from their computer and from the Internet. There are currently no comparable applications to Apple available, but there are plans to eventually offer Android applications, and consumers will eventually be able to use their iPhone or Android phone to operate Google TV. For Android to become involved raises another dimension of the open v closed systems debates. One commentator of the former school argues:

Android, by contrast (with Apple), prides itself on its lack of control. It gives away its operating system for free to anyone who wants it — though manufacturers must submit their phones if they want to access its apps markets or run optimised versions of Google apps. (Vogelstein, 2011.)

In June 2011 Google, in a surprise move, purchased Motorola Mobility and this move was widely seen as a strategic initiative to lock up valuable Motorola patents. An alternative view was that this represents a major shift on Google’s part in signalling a move towards the Apple business model:

Many have theorized about the strategy behind blowing two years of Google’s profits on a hardware operation ... Does it mean that its Motorola arm will produce beautiful Android phones for which people will pay an arm, a leg and a couple of days of their lives standing in line? There has also emerged the notion that now Google can be like Apple — a company with its own hardware/software infrastructure that welcomes you into its warm bosom and keeps you there with untold varieties of emotional sustenance ... Real people don’t have to pay to use Google products. They don’t have to really enjoy them. They just have to use them, so that Google can make money from the advertising ... Apple works the other way around. It looks at real people, how they live, how they try and how they suffer to bring a level of fascination, ease and emotional uplift through gadgets that become friends, toys and lifelines ... However, Google fancies itself as having brains bigger than Mars. So why shouldn’t we wonder that the company would prefer not to be like Apple, but to be post-Apple? (Matyszczyk, 2011)

Views are polarised about how Google TV will fare in the market place, but its launch was followed by an avalanche of criticism. One of the best encapsulated critiques described this initiative as being like ‘an incomplete jumble of good ideas only half realized, an unoptimized box of possibility that suffers under the weight of its own ambition’ — that ‘Google TV is a Trojan Horse with a home theatre PC inside’ (Patel, 2010). Further, there is much criticism about several usability issues:

This much is clear: Google TV may be interesting to technophiles, but it’s not for average people. On the great timeline of television history, Google TV takes an enormous step in the wrong direction: toward complexity. For starters, it requires a mouse and keyboard. That’s right. For your TV. Hope you weren’t going for that rustic look in your TV room. So why do you need a keyboard? First, you need it to navigate Chrome, Google’s Web browser. Second, you need the keyboard for Google TV’s star feature: Search. (Pogue, 2010)

Google faces substantial hurdles if this initiative is to succeed. Briefly, end-users will need to be persuaded of the value of developing new habits, and therefore to hook into either a new set-top box, or buy a new television set that runs on Google software.

Competition between Apple and Google is set to intensify as they progress their strategies. Steve Jobs, the late Apple CEO, when speaking at trade shows in the USA underplayed how he sees the future prospects of Apple TV competing with Google. He has portrayed this venture as ‘a hobby’ in that he and his company colleagues are allegedly fully aware that any serious attempt to tackle head on the established network television would be a herculean task. So this innovation is apparently merely micro — consumers can download an enjoyable movie, courtesy of Apple TV! By contrast, Google TV has devised an ambitious interface that offers not only normal television programming but also the additional option of search functions on the general Web access and web video.

In terms of its future prospects there is the major thorny issue of finding incentives for the big American TV networks — ABC, CBS NBC, and also Fox — to co-operate with Google and risk what they see as their ‘signal control’ without an as yet identified business model for them. There are many doubters of a bright future for Google TV until resolution of some kind of acceptable terms is agreed in co-operation with the big American TV networks. However it is worth remembering that so much of the creation of new wealth in the communications industry in recent years has come from the new non-establishment companies, such as EBay, Amazon, Netflix — but most of all from Google. Google TV is clearly pitched at the \$ US 70 billion per annum television advertising market, as well as the \$70 per consumer monthly cable and television market in the USA.

This paper has drawn on many of the views of people who are entrepreneurs of technology platform innovations. However it is unclear whether the integration of television viewing with Internet searching on the lounge room screen will become as popular as the investors and developers hope for. Duane Varan, executive director of Murdoch University’s audience research laboratory has doubts about end user responses:

Consumers don’t want to replicate a PC screen on the device they use for leanback’ leisure time. There are promises and there are pitfalls to Smart TV. The user interface has been hopeless (to date) and the idea that you can use your remote control to navigate a web site and type in a URL doesn’t work very well. (Interview, 4 May 2011)

Facebook: social media is ubiquitous

And what of the latest newcomer here, where innovation related to television is less developed, and less clear, at this stage — Facebook? On 8 March 2011 Warner Brothers starting renting their movie, *The Dark Knight*, via Facebook (again only in the USA) as the first mode of release. A regular PC magazine contributor outlined his experience:

To find the flick, I signed into Facebook, opened *The Dark Knight* movie page, and clicked a link to ‘Watch The Dark Knight From Warner Brothers’. After consenting to the app’s prowling

of my profile information, I arrived at a considerably more professional-looking movie page. *The Dark Knight* will set you back 30 credits — Zuckerberg for \$3 — which is in line with iTunes (\$2.99 for the rental) ... Purchasing the flick requires that you enter a zip code (presumably for copyright purposes) and to click a 'Pay with Facebook' button, the social network's integrated payment system ... (but) Facebook doesn't support alternative payment methods. Upon consenting to the 30 Zuckers, *The Dark Knight* began to play. Honestly, the quality is good, comparable to the other services. The sound is a bit low, but that can be remedied with a good set of headphones (Fenton 2011).

Given that Facebook has more than half a billion members internationally, it has the potential to disrupt the other emerging video streaming markets. Might many of the big studios shift to Facebook as another mode of distribution for their first release movies? Or, more speculatively, the longer term wild card may be that wider consumer access to high capacity broadband to American homes, and other homes internationally, could tip the film studios into a fundamental re-think of a distribution model — not based on physical cinema house but towards a prime market of home based online streaming content.

However, while it is possible for Facebook to offer so many more first release movies from the big studios, as well as access to movies from Netflix (and also those offered by Amazon and Hulu), this might not be what the Facebook participants actually want. Might they continue to prefer the user generated content that most likely brought them to the site in the first place, and that the 'unprofessional' mobile uploads of the best friend's party, or a special cooking sharing project, or video of the new grandchild's birth in hospital, be their prime content appeal?

Clearly, many people still enjoy the cinema experience itself — the lights go down, the curtain rises, and different modes of human creativity appear on screen for all present to experience. So it may be that the much discussed complex issues related to content rights are not just the major hurdle to institutional change. Rather, we come back to the vexed social issues that affect the take-up by end users and how generally so little investigative research is undertaken to shed light on these behavioural matters

How transformational?

So how might disciples of Schumpeter and Christensen perceive the prospect of future institutional changes in terms of these four case studies? Broadly speaking, the Schumpeter camp start from a more extremist position by drawing upon the notion of 'creative destruction', whereas those in the Christensen camp refer to 'disruption' rather than possible extinction.

Entrenched commercial television vested interests have been subject to different forms of threat for some time now. An advocate of draconian change, Mark Pesce, suggested in 2005 that the long term effects of the peer-to-peer file sharing technology Bit Torrent would lead to the death of TV. He argued in his provocatively titled paper 'Piracy Is Good: How Battleship Galactica Killed Broadcast TV':

October 18th 2004 is the day TV died. That evening British satellite broadcaster Sky One — part of News Corp's BskyB satellite broadcasting service — ran the premier episode of the re-visited 1970s camp classic *Battleship Galactica* (as an episode titled '33') ... A few hours after the airing on SkyOne, '33' was available for Internet download. From its premiere, *Battleship Galactica* has been the most popular program ever to air on the Sci Fi Channel. Piracy made it possible for word of mouth to spread about Battleship Galactica (Pesce, 2005).

Six years later an article in MIT's Technology Review suggested that a major contributing factor to institutional change for television was associated with the downloading of Internet TV derived from the remarkable innovation of the electronics industry:

Even without Google's contribution, the consumer electronics industry has already transformed the tv set into a computer that can be connected to the Internet. That means the future of

television is now up for grabs: the screen, the industry, even the meaning of the word. Just as the internet tore through newspapers, magazines, and music, it's now poised to make television the media battleground of the coming decade (Hof, 2011).

So, for both Pesce and Hof, the next decade will be working through the complexities of Schumpeter's notion of creative destruction. And what other institutional changes might be speculated upon?

Video stores could eventually be under some pressure to survive. Scott Lorson, CEO of Fetch TV, a company that seems set to make its mark with the advent of the National Broadband Network (NBN) in Australia, has suggested that until recently Australians rented more videos than people in any other country in the world. He pointed to considerable anecdotal evidence of video store closures in Australia, and suggested that on-line TV 'offers the prospect of a user downloading the entire DVDs of a video store' (Dalglish, 2011). Similarly it has been suggested earlier that:

The days of tramping to the video store to find the night's entertainment are past. Now the question is only how long will it be until walking to the mailbox to get a DVD is considered antiquarian (Turner, 2008).

And in the long term, too, the existing hierarchy of release for film and movies may not be maintained: generally first theatrical, then hotels, DVD retail, subscription television within 45 days, then release on commercial over the air television. The above section on Facebook points to a possible future 'by pass' model for film distribution that would diminish the first release role of cinema chains. So might cinema houses be classified as being in the possible camp for future creative destruction?

There appears to be more candidates situated in the less threatening column of future possible disruption. Advertisers, like so many other established media institutions, are struggling to secure their place within new business models. No longer do large advertisers have a relatively secure business model which has enabled them to place commercials with networks in programs that command large audiences. The viewers are now more fragmented as a result of having much greater choice of content, with DVDs and the PVR, as well as with IPTV and Internet TV options, and can select more of what they want. There is now a new battle for attention, sometimes characterised as a shift from limited choice 'push' technology to the greater diversity of 'pull' technology. As well, the management of established commercial network television in the USA faces complex dilemmas as to what extent they might embrace new opportunities to offer more of their programming to new outlets, but also ensure no risk to their programming rights, and to their lucrative advertising base. Also, for the entrenched American TV networks — ABC, CBS NBC, and also Fox — there is the thorny dilemma of whether to form new alliances with the new Internet players, but risk what they see as their 'signal control' without a well defined business model to suit their own vested interests. These effects will take a long time to unravel.

The USA cable and satellite operators, together with local broadcast affiliate stations, currently take in \$60 billion annually from advertising. Also the monthly consumer household charges yield an estimated total of \$80 billion annually to operators such as Comcast and Direct TV (Hof, 2011). So how might they fare in the future? There is already some evidence of cannibalisation of cable/ pay television networks in the USA, as by 2011 37% of Netflix subscribers between the ages of 25 and 34, stated that they now use Netflix instead of a pay tv service (Cerra and James, 2011). Already noted earlier is some evidence of 'cord cutters' — of large numbers people cancelling their pay cable boxes in favour of Netflix TV viewing via iPad (Cohen, 2011). Clearly a big distribution shift is now underway in the USA.

The related carrier business model is also being disrupted. Late in 2010 the major US carrier, Comcast, demanded that Level 3 — the 'middle mile' Internet provider that is the primary content delivery network for Netflix — should begin to pay a recurring fee to it to transmit on-line movies

by the Internet to its customers. Clearly Comcast was aware of the most recent significant spike in on-line move traffic. One analyst noted that:

The timing of the request is suspicious ... given that Level 3 streaming traffic generates a lot of traffic. On November 22, after being informed by Comcast that its demand for payment was 'take it or leave it,' Level 3 agreed to the terms, under protest, in order to ensure customers did not experience any disruptions. (Higginbotham, 2010)

Furthermore, the Comcast V Level 3 spat shows that Comcast wanted not only more revenue for itself from the growth of Netflix traffic, but it was also concerned about the prospect of eroding revenue from its own cable customers:

... Comcast is effectively putting up a toll booth at the borders of its broadband Internet access network, enabling it to unilaterally decide how much to charge for content which competes with its own cable TV and Xfinity delivered content. This action by Comcast threatens the open Internet and is a clear abuse of the dominant control that Comcast exerts in broadband access markets as the nation's largest cable provider. (Higginbotham, 2010)

This is an extremely complex issue that cannot be canvassed here, including that of incentives for carrier infrastructure future investments, and the long term outcomes of the net neutrality debates.

To conclude. The new Internet television service offerings outlined in this paper should not be seen as evidence of an emerging nexus between the most rapid growth of Internet television in a part of the world, the USA, and the widespread availability of higher capacity broadband services. Put simply, the availability of good broadband in the USA is actually very patchy indeed, though as broadband networks improve then the take-up of new services can be expected to grow.

For Australia, the National Broadband Network (NBN) is already disrupting the telecoms industry arrangements, and the availability of greater network capacity to households acts as a potential catalyst for substantial institutional change to the Australian television industry in the long term. The development of possible new Internet television services in Australia, as well as the introduction of new to the market IPTV services, raises many issues about how they might come to compete, or possibly co-exist. This is likely to be the subject of substantial future user-based research investigation. Briefly, the NBN business model is dependent on many users choosing to pay for higher capacities, and it also needs to gain many new service providers who will utilise its network. Some of these new service providers will bundle IPTV services, new to most households, as part of their 'triple play' — voice, video, internet — service packages. But those who come to offer such packages will face many households that already have television services imbedded into their way of life, and may be reluctant to change what now sits comfortably, and affordably for many people, 'in situ' in the majority of Australian households.

So change may only come if householders see clear advantage and benefit to them, and many may prefer status quo rather than risk perceived disruption. Time will tell.

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