

Video Tipping Point Near?

Are we near a tipping point at which [TV](#) becomes simply a collection of video streams we can choose?

The answer is important because today's broadband Internet policy is driven by the providers' triple play business model with "television" being the premier offering. If we can do "television" or, to more colloquial, "cable" over a generic Internet infrastructure then it would be easier to get communities to invest in the infrastructure rather than paying for multiple "[cable](#)" systems.

The problems are not technical – there are many ways to do "better-than-[television](#)" over the Internet. What is important is that networks are going beyond tepid experiments; they are delivering nearly their entire "season" over the net! I knew it was going to happen but didn't realize it had until ...

*Last night my wife [tuned](#) into the middle of an episode of Monk. She didn't know how it began so she wanted to "rewind" to the beginning and didn't understand why she couldn't. After all, I had upgraded my [STB](#) to have the Comcast [DVR](#) capability and she could rewind other shows that she had recorded. But Monk was being broadcast and the system was just caching the show while she was watching it. She settled for watching the rest of the show only to discover another limitation. I didn't realize she had paused the show and at 10PM I thought it was over and changed **channels**. Poof, the caching disappeared and she could not return to watch the rest.*

Alas, such seemingly arbitrary behavior is characteristic of today's [cable](#) experience. Given the programming constraints and the number of bugs I've found in using the STB I shouldn't be surprised. Nonetheless my wife wasn't pleased so I looked to see if the episode was available in the "on demand" portion but all I could find for network shows was a few selections from CBS. Premium channels did have a richer selection of shows.

Using the "on demand" capability and the DVR capability is a terrible user experience anyway – it's hard to guess what key to hit and if you hit the wrong key you have to go scurrying to find out how to get back to what

you were doing. It reminds me of WebTV which attempted to give you the "web experience" on your TV using a keyboard without a pointing device. I found the experience very painful and awkward and pointless. If you didn't understand the web enough to get the PC why would you want a broken version on your TV? Of course to the TV mindset it means more distribution options for their web "channel". But then Microsoft also tried to introduce channels to their browser to a great indifferent yawn from the user community.

Yet for many of the newer shows I can go directly to the network web sites and view the episodes fully on demand on my PC with a far better user interface. I can go directly to a position rather than having to use a simulated "remote control" with just rewind and forward with some speed control.

Even though much of the new programming is available online the networks are still experimenting with the medium just as advertisers were coming to terms with the web a few years ago. The quality of the viewing experience varies widely and the current players have a number of bugs but I see these as teething problems. What is surprising is how well it works already. I really can watch and enjoy the shows. Even better I'm in control – who cares about all that emcee's patter for a quiz show – I can jump right to the answers. Sometimes the price I pay is that I can't skip past the commercials but skipping past the annoying patter can make it a reasonable tradeoff. I can watch the show in a small window or full screen depending on what works better at the moment.

The ABC site says that the user should have a high end desktop computer in order to get the best experience. This is a sharp departure from "cable" model in which the provider supplies the STB and must be careful about cost and can't readily take advantage of evolving technology. It's difficult to evolve the technology when change requires updating a hundred million devices. When I own the device, in this case a PC, I can make my own tradeoffs and choose to pay more for better rendering. This factor alone dooms the cable model.

Sure, there's no single programming grid and the approaches taken by each network vary greatly but, again, we're learning. Traditional TV programming is called [long form](#) to distinguish itself from the snippets we find on YouTube, commercials and other shorter works. What these various video formats have in common is the PC as a common platform because all it takes to accommodate innovations is some software installed by individuals. The PC software is accommodating – it need not be perfect.

Writing software for the STB is far more difficult because the environment is so limited and is part of a complex and brittle service offering. It shouldn't be surprising to find the STB software showing its age and becoming buggier as the providers try in vain to catch up with what is happening in the marketplace.

Delivering video via the PC is not entirely new. Companies like Akimbo and Vongo have been experimenting for a while. What's new is the shows launched this season are being made available via the Internet. I now expect to find episodes available on the broadcasters' sites so I can watch them. I don't have to plan ahead.

It's interesting that these are the traditional broadcast networks while cable providers like HBO seem to be limiting themselves to previews at the moment. Vongo (Starz) has put more of its content online though at a high price with limited resolutions. Third parties like Netflix are also trying their own experiments.

Perhaps one reason is that sponsored programming benefits from additional channels (in the sense of distribution channels not TV channels) while subscription content needs a broker or aggregator. AOL came close to that role when they tried to do their broadband service but seemed to be unable to accept the role as a "mere" broker. Another, perhaps bigger problem is that the broadcasters can afford to experiment because they are making no promises. Since they don't charge directly and the sponsors are choosing to participate in an experiment they don't have to guarantee that everything works just like on the TV. This is an important part of the Internet Dynamic – providing opportunity and not guarantees.

If the early version of these experiments is already better than the VoD experience and if the STB software must cater to the shortest tail of the marketplace then it's only a question of time – and not much at that –

before we've tipped over and start to expect to view "TV" using a PC as the platform.

This might've happened sooner had not Microsoft chosen to conform to the cable TV model. Their "WebTV for Windows" in the 1990's was far more difficult than just using a TV and a VCR. The Media Center PC still has to second guess the STB and the myriad of connectors. Microsoft also has a problem in that their approach to IPTV presumes cable providers as intermediaries and gatekeepers. In addition to other problems this preserves the scarcity inherent in the concept of channels or ruts.

Why not follow Apples' example and deliver content directly. As Akimbo and others have shown one can have an IP STB or use the PC as a receiver while still maintaining [DRM](#). I may despise DRM but that's a separate issue – we don't need to maintain a special high cost infrastructure just for video any more than we need a separate high cost network for phone calls. Sure, it seems as if video bits would swamp the Internet but even if that were true, caching the content locally as Akamai does or by using the PC doesn't require very high performance. For the little remaining synchronous content we can use that video network or satellites but in reality there doesn't seem to be a capacity problem given how little of the current infrastructure we're already using.

Once we can start to assume the most popular content is available we will have tipped over. At that point the secondary content sources will come to the fore and find a marketplace unfettered by the artificial scarcity of the broadband channels.

Given how well the early experiments seem to be working for the viewer the technology is here so the time is nigh. Given how bad the STB experience is compared with the Internet, the era of Cable TV is passing and will live on only as a legacy technology.

The video tipping point doesn't mean that I can now watch a football game on a 50" TV in [1080i](#) over today's so-called [broadband](#) Internet. We'll be able to do so eventually it's not just about high resolution. Today you can watch baseball on the [MLB](#). Higher resolution is nice but being able to watch the game at all is a bigger change. With no limit on capacity they can even provide coverage for preseason games.

We'll still call it television but it will bear little resemblance to today's industry with its channels and delivery channels. Alas, Congress still thinks it is television and seems to think it vital to spend a lot of money to shift broadcasting to new digital bands rather than providing more Internet connectivity.

For an industry that seems forever threatened by change it has continued to reinvent itself. The individual players and practices may change but it's hard to imagine that we won't continue to be entertained.

Stay tuned – you may have to explain that that term means pay attention. It may be hard to explain the admonition “don't change the channel”.

A glossary of some of the terms:

Broadband: Since I've written so much about this term I won't belabor it. Technically a channel is broadband of spectrum and a broadband cable simply captures the broadcast signal. A computer network doesn't waste capacity by containing the packets in a single band; it uses the baseband as a single commons. Just as we still dial a phone by pushing buttons we think of the cable as a broadband and we apply it to fiber also. This approach of chopping up the commons into small plots creates scarcity by limiting us to small parcels and leaving us unable to take advantage of the commons. We've used these broad bands as best we can to do our own networking. Even as TV moves beyond the idea of channels we find ourselves thinking of the Internet in terms more appropriate to tubes than a commons.

Cable: Cable TV started out as nothing more than a way for a community to share a large antenna that could bring in weak signals. Over time the fact that the users were connected to a common cable made it easy to provide far more content than available in the limited number of broadcast or over the air channels. Today we continue to use the term even when we are viewing the content over a fiber or getting it via a satellite.

Content: This used to be pejorative term – a movie is no longer an artistic creation but simply a commodity to be sold. Today the term has become credible and acceptable to an industry that always saw itself as creating products and not artistic works.

DRM: Digital Rights Management. Basically an attempt to take the control afforded by clunky technologies – such as vinyl records and preVCR television into the digital world. The effect is to make any use of the new

technology too difficult and it should be no surprise that content providers are finding such protection limiting their ability to take advantage of new opportunities. This is a repeat of the fear of video tape, DVDs and other new channels of distribution and it too will pass.

Congress has embraced DRM because the members confuse preserving the past with a real marketplace. We shouldn't be surprised that the effect is to deprive of innovation leaving us rerunning the past.

DVR: Digital Video Recorder. Just another way of storing on recording video. Today's DVR's tend to be overly controlled by the providers be it a TiVo or a hard drive in an **STB**. At least we owned the VCR. Today the issue is DRM and fear of giving the users too much control. The limits on the current DVRs mean that going to a broadcaster's site works even better because we don't have to decide in advance what we will want to capture. The content is just there. I expect that over time they will backfill with older content just people have added old content to the web. Old TV shows aren't valuable unless they are available.

We do need to be realistic, if we rely on the studios to manage availability they will – we won't be able to assume that we can get just any episode. We will still want our own local cache for content there will be a lot of experimenting as we come to terms with the new rules.

Long Form: A term I learned recently. YouTube is about snippets or short segments of video. These are very important. In fact one aspect of digital cameras that has received too little attention is their use as video recorders with surprising high quality. The long form content is more like a novel and is what we see typically in a TV segment. Video is not just video – it's a technology with lots of different forms and manifestation. The tipping point is about the popular long form content, not just YouTube.

STB: Set Top Box. Originally this was just like the tuner on a TV – it let you choose which channel to watch in the days when Cable meant CATV or Community Access TV which was a shared antenna bringing the broadcast channels to those who couldn't get good reception. Today in the digital word the STB is meant to be the center of your world (the presumption being that TV is your world) but it lacks the dynamic of the PC. We see this failure to understand the idea that the marketplace is a [dynamic](#) again and again.

Television: It's useful to think about what a "television" is. It used to be simple – you'd buy a television in the store and it had a tuner to pick up over-the-air (OTA) broadcasts. Today the STB provides the video signal directly. You also get video signals directly from a PC or a disc or tape player. You can buy external tuners if you do want to pick up OTA broadcasts. There is no longer any difference between a TV monitor and a computer monitor. You can buy monitors in a variety of sizes from tiny screens that fit on your wrist to those that take an entire wall.

Tune and Channel: The idea of a TV channel is obvious. You tune to a frequency on the spectrum to watch the show you want. Since there were only a small number of bands available were treated as channels for content and given a number. The channels were then chopped up into units of hours and organized into a grid. This was a very good way of managing a small number of shows given the constraints of the medium. What is strange is that we still accept the concept of channels and new studios have to fight for a place on the channels and often have to give up a lot of their equity and control in trade for a slot. This persists because of the perception that you must get on a channel in order to get an audience. This is the tipping point – once you can start to assume people can view your content over the Internet the scarcity is gone. The downside is that you have to fight for your audience every day instead of having refuge in the small number of allowed slots.

The Channel: In marketing channel is also used to mean distribution channels. For example, the DVD is another channel for distributing content. The word is similar to the use within the TV grid but rather than symbolizing scarcity these channels represent new opportunities.

1080i: This is the term for hi resolution Digital TV (HDTV). 1080 means that you have 1080 lines but the "i" means interlaced – even lines and odd lines are sent separately. 1080p is progressive which means that each frame is a full image. Interlacing is a practice used since the 1930's for analog TV. Today's screens can do progressive but every format change is a major hurdle for the broadcast industry while new formats are just a matter of adding a software driver. I'm typing this on a computer monitor that has 1600 lines, not just 1080!