Why TV Lost

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The popular Slashdot web site and technology guru Paul Graham get the demise of TV wrong. Here is why.

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Posted by timothy on Saturday March 07, @05:36PM
from the l-for-love dept.

theodp writes *"Over the past 20 years, there's been much speculation about what the convergence of computers and TV would ultimately look like. Paul Graham says that we now know the answer: computers. 'Convergence' is turning out to essentially be 'replacement.' Why did TV lose? Graham identifies four forces: 1. The Internet's open platform fosters innovation at hacker speeds instead of big company speeds. 2. Moore's Law worked its magic on Internet bandwidth. 3. Piracy taught a new generation of users it's more convenient to watch shows on a computer screen. 4. Social applications made everybody from grandmas to 14-year-old girls want computers — in a three-word-nutshell, Facebook killed TV."*

Slashdot and Paul Graham are just plain wrong. In particular, attributing video over the Internet to the "magic" of Moore's Law is incorrect. In 2003, there was a major advance in video compression technology, a rare genuine breakthrough and technological leap forward. Prior to 2003, the prevailing MPEG-1 video technology had a bit rate of about 1 Megabit per second. The MPEG-2 video compression technology used in DVD video and digital cable TV had a bit rate of about 4 Megabits per second, higher for more challenging material such as sports or heavy action video. The new video

compression technology embodied in MPEG-4 and other modern video formats can achieve almost DVD quality video at about 275 kilobits per second, *much* higher compression than MPEG-1 or MPEG-2.

Basic DSL (Digital Subscriber Line) has a maximum download rate of about 384 Kilobits per second over a standard copper telephone line to the home. Higher end DSL can achieve about 1 Megabit per second (and climbing). DSL existed well before 2003. With MPEG-1 and MPEG-2 digital video technology in the 1990's and early 2000's it was not possible to download video in real time from the Internet even over DSL. Often the download times were quite long; imagine downloading a 4 Megabit per second DVD over a 384 Kilobit per second DSL line.

The new video compression algorithms were widely deployed in software video codecs in mid-2003, making much better and faster video over the Internet technically feasible for ordinary end-users. This enabled YouTube and all of the other Internet video web sites and systems. The full implications of this technological advance are still working their way through the world economy. *"You ain't seen nothing yet."*

There was very little progress in digital video compression technology between 1995 (probably earlier) and 2003, despite many attempts to improve the video compression algorithms. The video compression advance deployed in 2003 was a quantum leap in performance, a rare technological breakthrough. Curiously, this technological advance, although highly visible, is little known and little remarked on outside of video technology experts and enthusiasts.

About the Author

John F. McGowan, Ph.D. is a software developer, research scientist, and consultant. He works primarily in the area of complex algorithms that embody advanced mathematical and logical concepts, including speech recognition and video compression technologies. He has many years of experience developing software in Visual Basic, C++, and many other programming languages and environments. He has a Ph.D. in Physics from the University of Illinois at Urbana- Champaign

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