

On the Road to Digital TV The Bumpy Road to Eldorado

By Leo B. Willner, Ph.D. and R. Gregory Kalsow

With what appears to be a stick in hand, the US Government and its media and entertainment minions seem to have mandated that the American people prepare to throw away some 150 million or so analog TV sets in three years. Now, Michael Powell Chairman of the FCC, speaking at the Consumer Electronics Show (CES) in Las Vegas on Saturday, January 11, 2003 has said, "no date certain exists." Either way, the public has been assured that high matters of national security and the conservation of broadcast bandwidth for cell phones and the like are involved, therefore they are to be generous and understanding.

In passing, we note that rights afforded to the people on analog media by US copyright law may, by techno-circumlocution, be diminished as information is converted to strings of bits and bytes. That is to say, once electronic data, telecommunication and entertainment content are converted into the abstract, symbolic, non-palpable, non-degradable, eternal, non-analog thing called digital information, the old legal protections afforded such information for private use may not apply in the same way. Caveat Public — let the public beware!

In this article we explore the good, the bad, the murky and the ugly huddled as kin under the umbrella of actions identified as: The

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"It's a regular zoo out there of winners and losers scattered among the many passers by."

conversion from analog to digital TV (DTV). We engage the key issues involved from the point of view of business, the public and the government. We also take account of Hollywood, Madison Avenue, the Silicon Valley, the consumer electronics (CE) industry, the broadcasters, the services and applications providers and the public. It's a regular zoo out there of winners and losers scattered among the many passers by. And we name a few names.

BIG PLUSES AND BIG QUESTIONS

On the favorable side of the ledger many knowledgeable people feel that the conversion to an all-digital DTV media experience offers a truly marvelous opportunity for consumers and providers alike. Digital content enables an enhanced TV experience for viewing TV

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CMS NewsLine
Alvairi-Derfler Associates
Lake Forest, CA 92630
Tel: +1.949.584.0989
www.ad-assoc.com
newsline@alvairi.com

programming and Hollywood videos, especially when these can be enjoyed on a high definition TV (HDTV) set. These new televisions are superior in many ways and represent a significant leap forward. They contain multiple new capabilities to enhance television viewing in ways that many folks are likely to embrace.

For example, the new 'aspect ratio' or width to height ratio of the TV screen — from 4:3 on a standard analog TV to 16:9 on an HDTV of direct-view, projection, LCD or plasma variety — is a great improvement. It corresponds to the way most people prefer to view video imagery — while the old screens were tied to the square-like shape of cathode ray tubes and not to viewer preference. Much the same can be said for picture quality attributes such as color fidelity and image resolution. High definition TV in particular, especially the top of the market new TV sets from the likes of Panasonic, Pioneer, Philips, Sony, Thomson, Toshiba and Zenith is dramatically superior. The images are enhanced, clearer, sharper and brighter to provide a far better visual experience. Even though the commercialization of HDTV is in its infancy, this exciting new standard is already driving consistent innovation by CE companies such as Toshiba with their Liquid Crystal on Silicon (LCOS) display, and Zenith with their combination HDTV and personal video recorder (PVR) in one unit.

Yet the transition to an all-digital TV media may also dangle a 'sword of Damocles' over the US citizenry via shadowy threats to somehow impact privacy unfavorably and bring on a graying of fundamental rights. All of which might become part and parcel of a conversion to an all-digital brave new world. While this may seem to be an abstract obtuse point, it nonetheless could represent a true danger. Therefore, it must not be overlooked — to protect the institutions we hold so dear. After all, digital information can, in a legal

sense, be viewed as something different and apart from analog information signaled by the physical condition or state of real things. Digital information is only an abstraction whose existence is limited to cyberspace with hardly a concrete connection to the real world. Therefore, it has different properties and characteristics. For example it is essentially permanent and non-degradable.

To dramatize the risk a bit further, consider the following historical example: The United States was some one hundred years old when its Supreme Court ruled in an obscure legal case that corporations had the legal rights of persons! At the time not many noticed and even fewer cared. It was the eighteen-nineties and America was preoccupied with its growing importance as an industrial dynamo and world power. With all of that on its 'mind' in the US few among the public seemed to appreciate the significance to their future lives that such a ruling might imply. So now, so many years later, we all live in what can be said to be more of a producer than a consumer dominated society. The US is a nation state where corporations often seem to hold greater sway over government institutions than do the people.

"Yet the transition to an all-digital TV media may also dangle a 'sword of Damocles' over the US citizenry..."

UNINTENDED CONSEQUENCES

We should not be surprised if unintended consequences of this kind in the past have led some to worry whether digital TV will similarly turn out to be a risky proposition. Hopefully not too many will feel this way as DTV is truly an idea whose time has come as it fully embraces the digital nature of computer technology to empower better television. The conversion to DTV will allow the television media to be significantly upgraded into a better and far more reliable form.

En passant, in the rush to DTV the prerogatives of the people to act in private and use information in standard ways, without interference or oversight by the government

or commercial interests, must be protected. In fact it is a proper role for the guardians of the people's rights within the US government to guarantee that the switch to digital TV be devoid of any such unintended consequences. The conversion should be institutionalized in a manner that fully protects all the established rights of the people. That may not be easy, for this is also about politics and big money — always a dangerous mix. Yet the FCC is now in very able hands, so we can be hopeful.

But who has time to deal with the subtleties of individual rights when a digital-progress-monkey is being held by the tail? After all, the public does not really seem to care very much about such matters; in fact many haven't even noticed what is transpiring or what the consequences, if any, might be. While facing the loss of all those zillions of nice TV sets, who wants to worry about finely balanced individual rights? Yet, it is the impact of technological change on such issues that will determine the ultimate success (or failure) of this digital enterprise. Similar questions come up whenever new technology is being implemented in the entertainment, computing and telecommunication sectors, the areas that represent the heart and soul of our new age.

CAVEAT VENDITOR — BUSINESS INTERESTS AT RISK

One may proclaim with some validity: Caveat Venditor, let the vendors beware. For the people have with consistency come down upon the special interests that have disadvantaged them. The public notices when its privilege is trespassed upon and will insist that its rights be protected as we move into the digital millennium. Throughout US history, as in the case of diminished states rights due to the New Deal as well as the Prohibition against the use of alcohol, when government or industry has ignored the wishes and rights of the public, the leaders and their cronies ultimately paid a price. Thus, it is better for everyone concerned

with DTV if the public and its interests are respected and its legitimate prerogatives are allowed to remain sacrosanct in an all-digital world.

For a taste of the pertinent arguments and for a more detailed description of several such threats have a look at: articles by Jane Black, BusinessWeek Online — *Will Your TV Become a Spy* — 1/3/2003 and: *Hollywood's Digital Love Hate Story* — 12/10/2002.

Far more dramatic and nearer to the public eye are the issues surrounding the controversy over human cloning. What are the pertinent legal, ethical, moral and practical standards that should apply? And what role must the government, industry and the public play? As with so much technology-based complexity, the ultimate consequences of any significant new methodology are hard to fathom. In the

case of human cloning, the commercial possibilities of, say, cloning to grow human organs are enormous, while the potentially damaging consequences are equally significant. In a similar yet far less dramatic fashion, the conversion from analog to digital television also casts a shadow over a vast unexplored landscape. Its

consequences too are hidden and could be significant.

“Everyone wants more bandwidth and more access, but whose turf will it ultimately be anyway?”

BANDWIDTH AND ACCESS ISSUES

Everyone wants more bandwidth and more access, but whose turf will it ultimately be anyway? The cable TV operators say that cable bandwidth is theirs and theirs alone to do with as they please. After all they paid for it! Of course they believe this is so, but what of the public's rights in a world of converging information technologies? Some have even suggested that a new variety of eminent domain may come to apply? As convergence brings telecommunications, entertainment, the Internet and computing into a confluence of systems available more and more through a common 'pipe', does there

exist an overriding right of the public to have access?

The broadcasters and the satellite people already operate under the purview of the FCC. Will the same come by degree to apply to the cable companies as well? The cable and private broadband people emphatically say no, but can they hold their ground while operating with their 'gatekeeper' and 'for profit only' business philosophies. One thing is certain; with the conversion to DTV many issues of bandwidth including those of access rights become more complicated and more controversial than before.

While the conversion from analog to digital television increases the number of available 'channels', concomitantly HDTV, video-on-demand (VOD) and ITV take up a lot of additional bandwidth. The net result will most likely be a great

squeezing out of marginal players in favor of those who can afford to pay much higher amounts. As a result, a lot of special interest group content and specialized programming may no longer have access to the cable and satellite byways. The question is whether such an outcome is indeed in the public interest. Whose highway will it become?

ORCA™ — A BROADBAND WHALE OF AN IDEA

How is one to govern the digital highway? Is it a case of might makes right, or do more ecumenical rules apply? Under the concept of Open Revenue Channel Access (ORCA), those who control the 'highway' are only allowed to charge a usage fee to any who would 'travel' on or use their highway. That is to say that any vendor or purveyor of goods or services, such as a video on demand (VOD) service or a video gaming service (Xbox, PS-2), simply pays a fee to the cable TV multiple systems operator (MSO), the telephone or satellite company and the like that owns and operates the digital highway. The highway cannot take ownership of the 'property' or 'content' that travels on its

byways, it can only charge a usage fee. Of course ORCA is an ideal and not in place anywhere except on the real highways of America. But it is an idea whose time has come!

Under the present system, the cable MSOs act in part as landlords and in part as highwaymen. Their practices are in some ways reminiscent of those, used long ago, by armed bands and local princes to prey upon the caravan routes from Cairo to Baghdad to Damascus to Afghanistan. Any passerby who wished safe passage was expected to turn over an unreasonable portion of his 'goods' to each of the gatekeeper bands along the way. Such travel can be hazardous to your business interests as the price tends to be very high and access is not always guaranteed unless you are willing to part with what is by right yours.

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In recent times no one has been better at this game than AOL. By what have been described as heavy-handed means in the publication Industry Standard and elsewhere, AOL managed to bully its business 'clients' and 'partners'. Those who desperately wanted access to AOL's walled garden were seduced into signing up to one-sided deals involving high fees and even the transfer of a little equity. All in the name of good business and of course they now plead innocence! At the same time, with growing dissension within the ranks of AOL and its Time Warner brethren, Bob Pitman is now gone, so too the wizard Gerry Levin and now AOL founder and paragon of innocence Steve Case has resigned. Perhaps those old stalwart major shareholders Ted Turner and John Malone can bring confidence back to AOL Time-Warner. Surely they will try to bring back honest dealing and good old American fair play — perhaps even ORCA.

In the human experience, large-scale commerce only really took off after good roads were in place and available at a reasonable price to all who wished to use them. The same can

be said for worldwide telecommunications and now the Internet. Only when a truly open ORCA-like system came into being along their silicon, copper and wireless byways did commerce and services usage explode to the benefit of us all. To achieve a similar success with digital TV, an ORCA based system, demanded by the public and institutionalized by the Congress and the FCC, will need to be in place.

CONSERVING BROADCAST SPECTRUM

At the 2003 Consumer Electronics Show Michael Powell of the FCC spoke eloquently and thoughtfully about the need to conserve, redefine and reallocate broadcast spectrum. He noted that we are running out of broadcast spectrum and that we have no choice but to become wiser in its use. In particular he said: "I have fought tooth and nail for Ultra Wide Band (UWB)." Chairman Powell also noted that the issue of spectrum has very high priority with the current FCC.

Consequently, the need to switch to DTV is real. The only question is how best to achieve this goal. HDTV is certainly a marvelous driving force; however, DVDs are what consumers watch 95-percent of the time on their HDTV capable TV sets. With recordable DVD players making strides in the market, a great deal of personal content will be created in DVD format, thereby pushing up the demand for HDTV and driving DTV forward as well. Thus, the combination of recordable DVD players and HDTV is potentially a major factor in making a successful transition to DTV. Nonetheless, 2006 as a deadline was never realistic according to Chairman Powell. The real goal is to get 85-percent of the system over to DTV as quickly as possible. Yet if the public and the industry do not move rapidly enough, Powell hinted that a date certain was still a possibility in the future.

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The need for more spectrum to energize wireless broadband in the home and elsewhere has many possible solutions and manifestations. Blue Tooth, WiFi and UWB are but a few of the more popular choices. In the end, the marketplace will decide what works best for the public. In the meantime, one should not overlook wired solutions such as IEEE 1394/FireWire®, as another way to enable broadband data transfer in the home. In fact, the national plug-n-play standards agreement recently announced between CE and cable TV companies for DTV specifies FireWire as the secure interface for recording digital TV programs on PVRs. Together with DTV and HDTV these approaches can herald in the coming of the networked home that effectively connects the TV and its set-top box with the PC, the DVD recorder, the stereo and all the rest of the digital appliances. For the moment all the talk is about WiFi in the form of IEEE

802.11a or b or g varieties. Nonetheless, we will just have to wait and see what form of digital home prevails.

IT HAPPENS ONLY ONCE

It is important to note that the conversion from analog to digital TV media will happen exactly once, and never again. There is an old German phrase that reminds us that with some of the most precious things in life — such as the birth of a first child — it happens only once and can never happen again. Therefore, such events and such moments are precious and must be nurtured and even guarded. So we might ask ourselves, why all the rush and all that pressure to move forward pell-mell to DTV? While it is often possible to correct one's errors by making changes that improve a system, the cost and the risk involved is usually lowest at the start. What is all the hurry? Do we really need to scrap a zillion analog TV sets to make the powers that be happy? Is it fair, is it right and is it in the best interest of the public to move

ahead at flank speed to complete the process by 2006?

The beauty of the hidden forces behind Adam Smith's free market is that they often lead to excellent results. But unbridled, these forces can also lead to a Thalidomide disaster as happened in Germany a generation ago. Not enough testing, not enough precautions, too big a hurry to make progress and lots of money and one hundred thousand or so crippled babies were born! DTV is the answer and HDTV is a marvelous result, but why the hurry?

As of last week DirecTV, the satellite TV service provider, informed the FCC that in the new deal between the Consumer Electronics Association (CEA) and the cable TV companies, to establish standards for DTV, they, the satellite providers, with over 20 million subscribers, were excluded from the process. Similarly Hollywood did not get much of a say in the deal that was struck, so they have not chosen to agree or disagree. With Jack Valenti and the motion picture association of America (MPAA), we can expect Washington politics to be key to their actions. So here we go again, if Chairman Powell and the FCC go along with the cable providers and the CE box makers, we will have a partial solution not fully supported by many of the most important people including the public. According to Powell the FCC process is now moving ahead toward the issuing of a final FCC Order on DTV.

As to the public, decency and honest dealing by the government and the private sector of business require that the public interest be protected. But there is little evidence that this is the case as the public and its interests often seem to be largely ignored. Negotiations such as the one cited above regarding DTV proceed everyday with only moneyed interests involved. Who will speak for Joe and Mary citizen and their rights? It is becoming clearer by the day that the rush to digital TV could

also be a rush away from Fair Use of copyrighted materials by the public. Is that fair, is that right and why the hurry? The Consumer Electronic Association headed by Gary Shapiro has generally been a guardian of consumer rights especially in the area of copyright and Digital Rights Management (DRM). We can only hope that this will continue to be the case, and we are assured that this is indeed so by the CEA.

Behind it all are many complex issues pertaining to the convergence of the principal technologies — entertainment, telecommunications and computers. Artificial barriers have commonly been placed in the way of true convergence. Standards are promulgated at times not for the purpose of making progress toward convergence, but to slow down the process. Of course a transition to DTV if properly thought-out and implemented should do a good deal to foster the overall convergence of these technologies.

“...the rush to digital TV could also be a rush away from Fair Use of copyrighted materials by the public.”

CAVEAT ACTOR — LET THE DOER BEWARE

So it seems that we are already embarked upon a great digital journey whose departure from safe analog moorings seems benign enough on the surface. But we are indeed heading pell-mell into uncharted waters, with the Devil to take the hind road. For who among us is wise enough and far-seeing enough to plumb the depths of these murky waters. As the Roman's would say: Caveat Actor — let the doer beware.

Looked upon from high above the fray, what we come to anticipate is a fully networked world coming into being. That means, in part, a world within which most information and content become ubiquitous. Therefore, as it becomes easier and easier to capture information belonging to others, the privacy of the individual and the sanctity of private property must be even more fully protected.

In this regard the mores and the institutions that have served us so well for over two hundred years including the Fair Use of copyrighted materials by individuals acting in private for non-commercial purposes — must be guarded as much as liberty itself. Technology, after all, cuts both ways.

Prior to establishing the main rules of the road, can we afford to allow special interests to set in concrete where we can go and with what limitations? Prudence would dictate that we get prior full agreement from Hollywood, the cable TV companies, the satellite, services and applications providers and the public as to what DRM and Conditional Access (CA) rules are to apply in an all-digital world. We also need to establish rules that are fair to the public and the commercial interests pertaining to how and under what circumstances news, educational and entertainment content providers and the like get access to the digital media empowered national broadcast, cable, satellite and broadband networks. Without such rules, much that is valuable, educational and informative will never see the digital light of day. Let the walled garden be viewed with suspicion.

This brings us to the issues that pertain to the Internet — the worldwide open network. Is it fair and proper that the cable companies and others seek to profit from the leasing of data modems to access the Internet while at the same time preventing the public from using the Internet as it may wish? Some benign examples involve throttling bandwidth and limiting e-mail attachment file sizes. More insidious are the artificial barriers placed in the way of moving certain information from the TV set-top box to the PC and to the Internet. These are excessively restrictive and not in the best interest of the public.

CONCLUSIONS & RECOMMENDATIONS

Let the FCC also beware in its rush to reclaim broadcast spectrum for national security and 'other' purposes through

the transition to DTV. It is moving into uncharted all-digital TV waters seemingly without a sufficient compass to guide the way. Sure we need to move ahead with DTV and indeed we must conserve broadcast spectrum, but we can only move ahead at the maximum pace that prudence and good judgment will allow. The tenure of Michael Powell at the FCC will ultimately be judged by how wisely and carefully he now manages the transition to DTV.

As we move ahead with DTV we will all profit by respecting the interests of Hollywood, the needs of the cable and satellite TV companies, the wishes of the many purveyors of products and services and the Fair Use Rights of the public in a digital world. There is also little choice but to be patient. For we know full well that we can only move forward within the limitations of the new technologies and their progress. First and foremost, we need to get the public fully involved in the dialogue and make sure that we do not alienate Joe and Mary consumer in a hasty and thereby foolish rush to 'Digital Gold'.

“...let the FCC also beware in its rush to reclaim broadcast spectrum for national security...”

[Don't miss Kalsow's Back-Channel; turn to the last page. —Ed.]

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Leo B. Willner, Ph.D., Editor, CMS NewsLine
Senior Partner, Alvairi-Derfler Associates
leo@ad-assoc.com or +1.831.427.3833

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Kandid Komments

"Validating the Middle Ground"

■ The impressive new conditional access system from Sony called PASSAGE allows two CA methods to operate out of a single cable headend system. It could mean the end of the Motorola/Scientific Atlanta 'gatekeeper' duopoly in America. If so, it is an opportunity for the cable companies to offer a greater variety of products and services to their subscribers. That sounds like a good result for everyone concerned — except the two leading set-top box houses.

■ The deal struck between the Consumer Electronics industry and the major US cable TV providers may or may not get support from the satellite service providers such as Echostar and DirecTV and the Motion Picture Association of America. These parties may be slightly disadvantaged by the new arrangement as the anti-piracy provisions may not satisfy the content providers, while the DBS operators may see the cable MSOs being granted a major capital expenditure advantage. The big winner here is the consumer as we return to the carefree days of purchasing a TV and connecting it directly to basic TV service — now in the new digital transmission environment.

■ Ultra Wide Band, as a service much broader than broadband over a very short distance, could become a major factor in distributing content in the home and office. If so, it would displace Bluetooth and WiFi in those applications that require a 'big bang' data transmission, like moving multiple streams of HDTV video from one part of the house to another. Xtreme Spectrum, a UWB house out of Virginia, showed very well at the 2003 Consumer Electronics Show in Las Vegas.

■ As the controversy over Copyright and related Fair Use issues on the use of PVR, VOD and DVD technologies rages on, it seems that the FCC and the Consumer Electronics industry strike a middle ground between providers and consumers. In counterpoint, the content houses, software makers and service providers may have failed to learn the lesson that the VCR experience taught years ago that limited copying under the Fair Use makes money for everyone concerned! Remember the continuing Blockbuster and Hollywood studios video bonanza — with home video outstripping box office revenue. Recently introduced legislation in Bill HR107 seeks to reconfirm the Sony versus Universal 'Betamax' court ruling as applied to the digital content world. Time will tell if sanity prevails.

■ Listening to Michael Powell the brilliant Chairman of the FCC at the Consumer Electronics Show last week brought home the idea that for communications products and services the key is balancing the *Rights* versus the *Expectations* of consumers and providers alike. If both parties will heed Chairman Powell on this point, we are all likely to be better satisfied with the new products, the new services and the regulatory environment in which they exist.

[Your mileage may vary. —RGK]



CMS NewsLine
Alvairi-Derfler Associates
Lake Forest, CA 92630
Tel: +1.949.584.0989
www.ad-assoc.com
newsline@alvairi.com

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Every month you will enjoy thought-provoking analysis of the significant issues driving the growth of new media, technology and entertainment.

R. Gregory Kalsow, Editor-in-Chief
Publisher, CMS NewsLine
Managing Partner, Alvairi-Derfler Associates