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The Future of the 4K Blu-ray Disc Format

If the Blu-ray Disc (BD) business is banking on the standard's upcoming 4K format to halt its sudden sales decline and supply long-term regrowth, it may want to prepare for disappointment.

Uncharacteristically for a major format upgrade, the Blu-ray Disc Association (BDA) "announced" the 4K BD format is in the works through a series of decidedly low-key press interviews with Sony VP Victor Matsuda, chairperson of the BDA promotions committee, at September's IFA exhibition in Berlin.

The first 4K BD players will likely spottily appear at retail late 2015, with the vast majority of decks hitting retail in spring 2016.

Technically, 4K BD will come in two capacities: 66 GB, which will support a 108 Mbps transfer rate, and a 100 GB disc that will handle 128 Mbps. Each of these two capacities will support all frame rates 60p and below, and include HEVC/H.265 decoding and HDMI 2.0. The format will include an extended color gamut with 10-bit channel depth rather than 8-bit, and will support high dynamic range.

Unconfirmed reports indicate a new digital-rights-management (DRM) system might be in the offing, and the format may include support for BT.2020 (aka Rec-2020), an international UHD program production and exchange compatibility standard proposed by the International Telecommunications Union (ITU) that would encompass up to 80 percent of the visual color spectrum for both 4K 3840 x 2160 and 8K 7680 x 4320 pixel resolutions, a vast improvement over the 30-35 percent covered by the current REC-709 standard.

Hollywood studios will likely produce 4K BD versions of their films in time to coincide with the first hardware availability. However, in many cases studios may not have kept the 4K masters of films. According to industry insiders, the high cost of storage resulted in some studios "down-converting" their 4K masters, which will result in the need to "re-upscale" these masters back to 4K.

4K BD decks and content are coming. The question is will anyone buy it? The format must clear three high hurdles.

First is the uptake of UHD TVs; currently, mass acceptance is far from a fait accompli, which means the installed base of possible 4K BD TV households will be comparatively low. In many ways, 4K BD player manufacturers may be counting on 4K BD players and content to help promote and sell their UHD TVs.

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PUBLISHER

Myra Moore | President
Digital Tech Consulting
214.915.0930
Fax 214.915.0931
dtcreports.com

CONTRIBUTING ANALYSTS

Stewart Wolpin
Myra Moore
Greg Scoblete

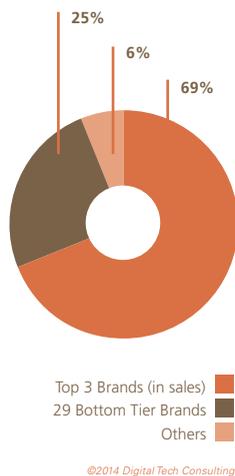
Second, all UHD TVs currently upconvert content from 2K to 4K, as do a growing number of higher-end BD decks. Depending on the initial price of the new 4K decks, consumers may think the upconversion they're currently experiencing is "good enough."

Third, 4K BD content may be superseded by the availability of 4K streaming content. Netflix and Amazon began 4K content streaming and, by the time 4K BD decks hit the market in force, the 4K streaming content ecosystem may already have ingratiated itself with UHD TV owners, obviating the need for a separate set-top box. Those who want to sell 4K BD content, however, may be able to make up for their late arrival due to the bandwidth constraints of streaming 4K content. Use of a UHD TV is no guarantee that viewers can receive a passable 4K viewing experience. Streaming at 15Mbps is considered the minimum acceptable bit rate for streaming 4K content. About 11 percent of home worldwide can pass that test today. Only 17 percent of U.S households, which typically are a leading bellwether for new TV viewing technologies, fit into that category.

Hurdles or not, 4K BD hardware and software are scheduled to roll out a year from now – perhaps with a bit more ballyhoo than the format's introduction.

Tablets: The New Consumer Electronics Commodity Product?

2014 U.S. Android Tablet Market Shares



The consumer electronics business has always been adept at designing and making high-tech products and then squeezing profit margins with a race to the bottom of the pricing scale.

For years that has been the purview of TVs and DVD players. Meanwhile computers more or less escaped this fate as Moore's Law regularly enabled greater processing power, utility and miniaturization, which, in turn, helped keep profit margins relatively healthy. But now, the latest version of the computer – the tablet – is imitating its consumer electronics brethren.

Apple has avoided driving down profit margins by keeping quality high and features rich. The Android side of the coin, however, is fostering a market skewed much more to the lower-end than many thought possible only a few short years ago. DTC estimates that about 65% of all tablets shipped worldwide this year will come from the Android camp. In a recent study of the Android tablet market (excluding any convertibles), DTC identified more than 75 brands available in the U.S. market alone (Other large markets, such as China, contained just as many Android tablet brands). DTC estimates that the top three brands will make up about 69% of the U.S. Android market share with an additional 30-plus brands making up the rest of the market. DTC forecasts that the market share of those other brands will continue to grow. With the exception of a handful of brands, all of these products range from about \$190 to \$70 at retail.

Even though tablets, by function, are just a bigger version of the smartphone, the business of selling them is as different as titanium and tin. Smartphone hardware payment over the course of a service contract vs. paying full retail upfront for tablets (in most cases) has created a tablet market that resembles consumer electronics more than computers. Once Apple and Samsung picked off the high-end buyers who spent \$500-\$900 on tablets (excluding "phablets") the only way to keep the tablet engine fueled was to offer product in multiple price points and exploit the niche and enterprise markets (toy, education, hospitality, medical, etc.).

And how has this occurred in such a short period of time? The barriers to entry are low – inexpensive off-the-shelf parts, sales through online stores without the need for brick-and-mortar locations, readily available ODM reference designs, and low-cost manufacturing. The new entrants include manufacturers and distributors of electronic accessories, retailers, and Chinese and Indian OEMs and ODMs.

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Many of the new entrants have flooded the market with low-quality products and it remains to be seen if reference designs from established semiconductor manufacturers and support from Google will help new providers chip away at the poor quality issues. If so, it could make for a much more competitive market for the top-tier suppliers who trade on their brand equity and well-designed high-quality product.

Many of these newer players will not survive but they will have played an important role in the tablet industry's journey from one that traded only in high-end, high-margin miniature computers to one with a growing segment that fits quite easily into the low-cost commodity category.

The Great Unbundling Has Begun

On October 15, cord cutters and streaming video enthusiasts let out a collective roar of excitement. The occasion? HBO CEO Richard Plepler announced that HBO would offer its service to Internet subscribers without requiring a pay TV subscription.

Call it, "the unbundling heard 'round the world."

Not a day later, CBS joined in with the announcement of CBS All Access, a \$6/month service that delivers all of CBS's programming (linear and a library of on-demand content) to the public.

While CBS All Access is already live, Plepler didn't reveal any fundamental details about what the standalone HBO streaming service would look like. The smart money is that it will offer a broad range of HBO original series and documentaries for \$15/month—an HBO Go on steroids. Because it's likely to be priced similar to the charge for HBO with a pay TV service provider, HBO is targeting viewers without pay TV subscriptions.

Whatever the specifics, it seems that the era of consumers having the option to buy individual channels is upon us and it's been initiated not by the traditional pay TV providers themselves but by the content owners who are seeking new revenue opportunities beyond their traditional partners. After all, if there is a segment of viewing public that doesn't buy a pay TV service and there is a chance they might purchase a specific channel, why leave that money on the table?

The consequences may be transformational. Here are a few possibilities:

More subscribers opt out of cable TV: U.S. cable companies are already struggling with flat-to-negative subscriber growth and giving lower income or Internet savvy households the option of getting quality content like HBO without a cable TV subscription could catalyze more subscribers to leave—or never sign up in the first place. Indeed it is this demographic—those with broadband but no cable subscription—that is ostensibly the main target of the standalone HBO service.

Other marquee TV brands do the same: If HBO proves that it can boost its profits by playing both sides of the distribution coin, other major TV properties like Viacom might just do the same. The CEO of Starz recently announced on its third quarter earning's call that a standalone OTT service would be launched internationally and was under serious consideration for the U.S. market as well. At a minimum, content companies will see pressure to be everywhere: available through cable and traditional pay TV platforms but also standalone Internet TV services.

Internet service gets more expensive: Cable companies are not going to watch their TV profits disappear without taking action. If more customers choose to spend money on streaming alternatives, rates for

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8th Edition

Both the high-definition (Blu-ray) and standard-definition formats for product categories, including PCs and peripherals, DVD/BD devices, pre-recorded media and video gaming systems are forecasted in this report that provides a thorough and concise snapshot of the future of video optical disc devices.

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cable broadband may just increase. That will certainly complicate the cost/benefit analysis for unbundling and gives cable companies a potent weapon to retain TV subscribers.

Pay TV providers may offer smaller bundles of programming in addition to current bundles: If there is a danger that some viewers may be willing to go without traditional pay TV services for a relatively small bouquet of programming, a recalibration of bundles may ensue.

Before HBO can revolutionize the TV landscape, it has to demonstrate it can deliver a reliable streaming video service. A standalone service means logistical issues – like credit card processing, quality of service, customer service and more – that HBO has never had to manage before, quite possibly on a huge scale. Remember that HBO GO has not exactly been without its embarrassing and inopportune outages, especially during Game of Thrones openers. Netflix has been building an extensive video-delivery infrastructure for years and engaging in very public fights with broadband providers over bandwidth. Is HBO prepared to do the same?

For the casual TV watching public, the age of unbundling TV channels and paying only for what they want may pass by unnoticed. Most surveys of U.S. TV watching habits peg the American appetite at between 36-40 hours a week. There simply isn't enough streaming content to satisfy that ravenous hunger and a great wave of unbundling would only reinforce just how expensive it is to individually purchase all that content a la carte. Netflix likes to boast of its binge watchers but it's the traditional pay TV companies that truly hold a monopoly on marathon viewers, a constituency which just might save them.

MISSING REVENUE?

Are you leaving intellectual-property revenue on the table when managing a consumer technology licensing program? DTC is well versed on the intricacies of applying market research to intellectual property licensing. It's important to understand the market potential of your IP and once you've designed a licensing program, you want to make sure that you are maximizing royalties. Such critical issues deserve tailored market-research. DTC's more than 15 years of experience in helping companies manage their licensing programs with highly customized and reliable market research and forecasts gives IP owners and managers an alternative to syndicated research that frequently doesn't

account for products and services that use very specific and sometimes obscure technology. DTC's intellectual-property services are put to work in a number of varied situations. Our clients have employed our expertise: To forecast potential revenues for technology IP they own; conduct due diligence for IP acquisitions; identify companies using their technology; to apply our critical technology market and licensing knowledge to help in developing sound licensing terms.

For more information about DTC's technology IP services and client case studies, please visit dtcreports.com or contact Myra Moore at 214.915.0930, or myra@dtcreports.com.