



3D-TV: Is it Closer Than You Think?

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As you've heard, 3D-TV was the star of the 2010 Consumer Electronics Show (CES) last month. Dozens of manufacturers showed products across the value chain, from video capture and production to transmission to display. Undeniably, 3D-TV is on its way, and technologically advanced consumers will begin to adopt the 3D displays that will ship later this year.

Some service providers are moving aggressively to offer 3D. Most notably, DirecTV and Panasonic announced they are partnering to offer three dedicated Panasonic-sponsored 3D channels starting in June. To get to market quickly, DirecTV will use a side-by-side format which is "frame compatible" with its existing broadcast equipment, HD set-top boxes and DVRs, requiring only a free firmware upgrade. (The broadcast industry will likely use frame-compatible formats for the next several years until infrastructure is upgraded to support "full" 1080p 3D to each eye.) In addition to the movies, sports and other content on the three Panasonic channels, DirecTV is working with CBS, Fox, MTV, NBC Universal, TBS, and others to offer additional 3D programming in 2010-2011.

Despite these and other announcements—and the success of "Avatar" and other theatrical 3D releases—some still view 3D as a gimmick that may not catch on. I've been hearing doubts from a few of those in the industry, including some service providers, such as:

- "The glasses look goofy; people won't wear them for extended periods"
- "Consumers won't pay for the glasses...especially the active ones that cost \$75 to \$150 or per pair"
- "A 3D-TV is pricey...uptake will be slow"
- "Some people—roughly 4-10 percent of the population— can't even perceive 3D displayed on a 2D screen"
- "Consumers won't buy the equipment until the technology stabilizes"
- "If the programming isn't done well, people will get nauseous watching it"
- "There's not much content available"

The skepticism is puzzling to me and others in the industry who are bullish on 3D. Based on my discussions with industry experts, here is my optimistic view on why 3D will become a powerful driver of consumer preference for content, equipment, and service providers:

- **The experience.** We've all seen the surveys that roughly a third of consumers with HD sets can't tell when they're *not* actually watching HD

content. People won't have that confusion with 3D—they'll know it when they see it, and they'll miss it when it's not there. Despite how impressive most of us find HD after watching SD for years, the change in the consumer experience from 2D to 3D is more like the leap from black-and-white to color than the step from SD to HD.

- **Displays.** The cost premium for a consumer to buy a 3D-compatible display (vs. an HD 2D display) may be a few hundred dollars at first, but will then vanish. That's because manufacturers have been working to increase refresh rate, the primary technology needed to make 3D work well, in order to improve HD quality. In a year or two, anyone who buys a new decent-quality display will get 3D compatibility built in, just as 1080p has become a standard feature today.
- **Glasses.** 3D glasses may look goofy, but only if you're not wearing them. Manufacturers are on a path to introducing glasses that are sleeker, lighter, and available with prescription lenses. Personally, I don't understand the fuss—I, like many people, wear glasses all day. As for the cost tradeoffs, consumers will be able to choose the 3D equipment and price point that works best for them. It reminds me of the initial HD decision of buying an LCD or a plasma display. If you can keep the room reasonably dark, want the best possible picture quality, and have only a few people in your household, you'll probably opt for a TV using active (shuttered) glasses. If you're a hectic household with lots of people and stuff stuck between the sofa cushions, then a TV using the less expensive polarized glasses would work better. Further, the technology of auto-stereoscopic displays may even improve to the point where glasses are not required.
- **Content.** Availability of new, high-quality content is accelerating both in movies, due to the commercial success of "Avatar," and in broadcast, stimulated by investments that Sony (with Discovery and ESPN), Panasonic, and other manufacturers are making in the production business to spur adoption of displays. Studios are also making plans to convert existing 2D movie content to 3D.

3D is not a gimmick, and it's coming to market more quickly than HD did. Consumer awareness of 3D is gaining momentum, thanks to theatrical, Blu-ray Disc, and video game releases. 3D is an opportunity for video service providers to meet the needs of their most valuable customers, who will continue to pay a premium for higher quality video. It's also a necessity to stay ahead of competitors—other service providers and over-the-top video providers—in the never-ending battle to improve video quality. In a few years, a service provider without 3D will look positively black and white.