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THE EDITORIAL VIEW

## UNCHAINED MELODIES

By Tom R. Halfhill {5/29/07-02}

Amazon.com grabbed headlines this month by announcing that it will sell music downloads unfettered by digital-rights management (DRM). Customers will be allowed to download and listen to the songs anywhere—on personal computers, portable music players,

home sound systems, car stereos—and even burn copies on CDs. Amazon's announcement is trumpeted as a breakthrough for the music industry.

That's funny. I remember enjoying the same freedom to make copies of music for personal use back in the analog vinyl-and-tape days. Even in the 1980s, when audio CDs introduced the world to digitized music, it was common to make cassette copies for the car and mix-tapes for parties. Amazon's "breakthrough" is more like a restoration of lost rights.

Amazon is following a similar move by Apple. Apple's iTunes online store now offers DRM-free songs from EMI Music, and Apple CEO Steve Jobs is urging other record companies to make the same deal. The music-buying public has wanted this flexibility all along, but the record industry has been resisting for years. I can't think of another example of an industry's ignoring the demands of its customers for so long—demands that merely reflect customers' desire to preserve the status quo.

Of course, in the analog days, record companies weren't enthusiastic about tape recorders, either. Right-thinking people were supposed to buy a vinyl LP for their home stereo and either a prerecorded cassette or eight-track tape cartridge for



This LP cost \$3.67 in 1968. Today it would cost \$10 to download in MP3 format. After adjusting for inflation, which price is more fair?

the car, boom box, or Walkman. I guess some people dutifully bought copies of the same albums in different formats, but everyone I knew either standardized on one format or made cassette copies of LPs. (One friend bought an eight-track tape recorder—a relatively rare contraption.)

### The Catch: Audio Quality

An interesting variable in the music-download equation is audio quality. I'm not aware of any authorized source for downloading CD-quality uncompressed digital recordings. For one thing, the downloaded files would be huge. But mainly, the record companies worry about the unique ability of a digital-audio file to survive infinite

generations of copying with no signal loss. One legally purchased song can spread everywhere, without directly generating additional revenue for the record company or artist. To be fair, the concern is legitimate.

Some online music vendors sell DRM-free music at a higher compression ratio (e.g., a lower bitrate) to reduce the audio quality. Indeed, even copy-protected music may be crippled in this way. The regular 99-cent songs on Apple's iTunes store have DRM and are compressed to a 128Kb/s

bitrate in lossy Advanced Audio Coding (AAC) format. That's good enough for an iPod with earbuds, but far short of CD-quality audio, which uses lossless pulse-code modulation (PCM) encoding at 1,411Kb/s. In contrast, Apple's DRM-free songs from EMI Music are compressed to a higher-quality 256Kb/s bitrate—but cost \$1.29. In other words, iTunes customers have the choice of paying 30% more for high-fidelity recordings free of personal-use copy restrictions. Curiously, Amazon's announcement of DRM-free music didn't mention a bitrate or pricing.

For many of today's listeners—especially young listeners who buy most of the music—audio quality is less important than convenience. They want the flexibility to play their music anywhere, especially on portable music players like Apple's popular iPod. The cheap earbuds supplied with portable players and the ambient noise of the typical listening environment make high fidelity an almost impossible goal. Perhaps it's no coincidence that pocket music players with earbuds are thriving at a time when the most popular musical form is hip-hop—loud, bass-heavy music with strong rhythms, spoken vocals, and narrow dynamic range. In a parallel trend, mobile phones are becoming more popular with young people than landline phones are, despite their wretched audio quality.

Valuing mobility over quality is a big turnaround from the audiophile days of the 1960s–1980s. When I was a teenager, we competed to build elaborate stereos in our bedrooms. Nowadays, young hobbyists invest that effort in their gaming PCs.

Ironically, Sony's MiniDisc failed to win market acceptance as a prerecorded music format in the 1990s partly because people objected to the “substandard” quality of Sony's lossy digital compression. Sony's proprietary Adaptive Transform Acoustic Coding (ATRAC) was necessary to squeeze a whole album onto a 160MB MiniDisc, which has only about 22% the capacity of an audio CD. In those days, people were still enamored with the pristine quality of CDs and wouldn't accept a new digital format that was a little worse. Yet today's MP3 recordings often suffer more from overcompression than ATRAC recordings ever did.

At relatively high bitrates, today's advanced psychoacoustic compression algorithms and digital-music players are capable of delivering surprising sound quality. Plug a good pair of stereo headphones into a pocket player and hear for yourself. For an experiment, I ripped some classical, popular, and electronic music from audio CDs and converted the songs into MP3 format. I applied variable-bitrate MP3 compression, which dynamically varies the compression ratio to suit the waveform. (Generally, the bitrate varies from 128Kb/s to 320Kb/s.) I copied the ripped files onto a cheapo MP3 player—a freebie given to attendees at last year's Freescale Technology Forum. Using a patch cord, I connected the player's headphone jack to the inputs of my 130-watt Carver receiver. The Carver drives a pair of floor-standing Polk Audio four-way speakers with 10-inch woofers. Switching

back and forth between the original CDs and MP3s, I couldn't tell the difference.

So yes, record companies are understandably worried that selling DRM-free music in a high-quality format is a potential profit-killer. It's like distributing perfect copies of the studio masters to the world at large. What's a fair price to charge for that?

### Pricing Music in the Digital Age

If someone actually purchased enough music from the iTunes store to fill an 80GB iPod—which costs \$349 and holds 20,000 songs, according to Apple—the bill would total \$19,800 to \$25,800. Not many people do that. But then, not many people filled their shelves to capacity with LPs or tapes, either. Although I have known enthusiasts who amassed a few thousand LPs, most folks bought fewer than 100. People who grew up in the 1950s and 1960s probably had a tall stack of 45-rpm singles, too. Even then, it wasn't unusual to spend more money on recordings than on the player.

On the one hand, recorded music should cost less today than it used to. Once a song is digitized and stored on a server, it can be sold over and over again, forever. There are no vinyl discs to stamp, no tapes to duplicate, no products to ship and stock. There are no album covers to print and no packaging to make. (Sadly: see *MPR 2/27/05-02*, “The Oblique Perspective: Merry Virtual Christmas.”) It's all just ones and zeroes in the bitstream, the ultimate perfection of mass production.

On the other hand, the same digital technology increases the likelihood of theft, which should make recorded music cost *more* than it used to. Once an unprotected song is downloaded from a server, it can be copied over and over again, forever. There are no vinyl discs to counterfeit, no tapes to illegally duplicate, no pirated products to ship and stock. There are no album covers to reproduce and no packaging to make. It's all just ones and zeroes in the bitstream, the ultimate perfection of mass piracy.

Copying music isn't new, of course. Home taping became popular when Dolby noise reduction raised cassettes to hi-fi standards in the late 1960s. However, picky audiophiles still preferred virgin vinyl, and good duping took time and wasn't free. A top-quality blank cassette cost more than half the price of an LP in those days. Now, a few mouse clicks and key presses can create and distribute thousands of flawless digital copies in seconds.

Therefore, we shouldn't blame record companies for pricing downloadable music high enough to compensate for their inevitable losses to piracy. Right? But, in fact, today's music doesn't seem to be priced that way. Apple sells protected singles for 99 cents and protected albums for \$10. Higher-quality DRM-free singles cost \$1.29, and DRM-free albums still cost \$10. To compare those prices with past prices, I dug deep into my record collection and unearthed a few relics still bearing price stickers.

In 1968, I paid \$3.67 for a record album (*Sounds of Silence*, Simon & Garfunkel). In 1970, I paid 87 cents for a

45-rpm single (“Mr. Bojangles,” Nitty Gritty Dirt Band). After adjusting for inflation to current dollars (according to the U.S. government’s Consumer Price Index), those record prices equate to \$22.16 for the album and \$4.77 for the single. Obviously, the inflation-adjusted prices are much higher than today’s online prices for downloadable albums and singles. Indeed, they’re pricier than full-retail CDs. (Before objecting that we used to get *two* songs on each 45-rpm “single,” remember that the B-side was usually a throwaway. Unless it was a Beatles record.)

Now, my quick comparison of a few datapoints isn’t a thorough business analysis. However, it does suggest one of two things. Either today’s music downloads are reasonably priced—especially considering the potentially greater loss to piracy—or, records in the 1960s were vastly overpriced. Either view is arguable. My professional judgment is that anything recorded by Simon & Garfunkel, or even the Nitty Gritty Dirt Band, is worth a higher price than anything recorded by Britney Spears or Justin Timberlake. But kids today might disagree, so they are probably getting their money’s worth.

#### The Revival of the Single

Pricing is as much art as science. I suspect that if online stores slashed their prices to 50 cents or even 25 cents for a DRM-free single, sales would skyrocket. For almost everyone but the cretins, it would be worth 25 or 50 cents not to feel guilty about copying someone’s music. I suspect that people would buy more singles, which would expose them to more artists, which would spur sales of still more music. But I can’t prove it.

What’s really hurting the record industry is the sharp drop of album sales. People are buying more downloadable

singles, but not enough to compensate for the fewer albums they’re buying on CDs. The record industry is suffering a hangover after living large on the profits of albums for 25 years. Singles on 78- or 45-rpm records used to be the industry’s way of introducing youngsters to the habit of buying music. As kids grew older, they had more money and bought albums. But CDs virtually killed the single format, upping the ante. People who wanted only one or two hit songs had to buy the whole album. That was great for the record companies. Now, singles are making a comeback, depressing album sales. This is something the record industry will have to accept—there’s no going back.

Low-priced singles freed of DRM restrictions could again serve the purpose of introducing youngsters to the habit of buying music. This is critical, because an early developed habit of stealing music is hard to break. Even if the rising popularity of singles vs. albums reduces per-customer revenue, it’s better for the record companies than making little or no revenue at all. And remember, the record companies’ manufacturing and distribution costs are declining, too, because bits are cheaper than atoms.

Recording artists can benefit from the revival of singles as well. Let’s face it, not every musician is equal to the challenge of making a great full-length album. The 45-rpm single was ideal for one-hit wonders like Question Mark and the Mysterians (“96 Tears”). From what I’ve heard on the radio lately, a single is the perfect fit for many of today’s recording artists, too. ♦

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