By Laurie Freeman Rowell

THE BALLAD OF DVD JON

Can one legendary hacker's assault on DRM change the rules for protecting digital content?

He slips in quietly while the lights are off, and heads for the corporate vault where iron-bound chests of art treasures sit stacked upon shelf after tidy shelf. He looks left and right, opens his case and pulls out his laptop. Settling on a nearby desk, he begins to type. There is a periodic cracking noise as locks pop open on the treasure boxes.

Is he a cat burglar? Robin Hood? A modern-day pirate?

Illustration by Lisa Haney

Opponents of DRM claim the technology imposes restrictions where none belong, and that the whole business of trying to keep people out with digital locks is expensive and ineffective.

That depends on who you ask. He's celebrated hacker Jon Johansen, widely known as "DVD Jon" for his famous 1999 success in breaking the Content Scrambling System (CSS) that had previously prevented the ripping of movie DVDs. And he's been back in the news recently for yet another code-cracking coup: He reverse-engineered the iTunes FairPlay Digital Rights Management (DRM) technology and audaciously announced a new business based on his work. It's a move that might unlock a treasure chest of opportunities for some media firms and result in wider digital media distribution for us all—or leave DVD Jon and his compatriots in permanent legal trouble. Either way, the long-term viability of today's embattled DRM systems for protecting intellectual property (and market share) may hang in the balance.

Whether Jon has unlocked a newly discovered community treasure or Pandora's box is a matter of fierce debate. FairPlay is Apple's DRM technology, there to ensure that media distributed by Apple will play on the iPod and the upcoming iTV set-top box (and not on other players) and that DRM-protected media downloaded from stores other than iTunes will not play on Apple devices. Companies claim they have the right to ensure their revenue streams by locking up access to this intellectual property.

Johansen's latest move was not a matter of cracking the FairPlay code (he'd already done that) but reverse engineering and replicating it. The result is a (theoretically) legal alternative that should allow him to license the resulting technology through his California firm DoubleTwist Ventures. His plan is to offer this technology to media companies that want their movies and music to play on the iPod—without having to fork over a basket of money to Apple for the privilege.

It's been a popular move with those who oppose DRM, claiming the technology imposes restrictions where none belong, and that the whole business of trying to keep people out with digital locks is expensive and ineffective—especially when an electronic locksmith like DVD Jon is bound to forge a key.

The debate promises to get louder and more bitter as new technologies emerge to challenge our views of what constitutes intellectual property, individual (and corporate) rights to that property, fair use, public domain, and commercial prerogative. As a result, the intersection of technology and intellectual rights promises to be a busy legal corner these days, and the plays enacted in that theater will define the digital neighborhood where all of us live. No matter what your interest, it's always worth checking what's on that particular theater's marquee.

Lock it Up and Hide the Key

It's a cold cyber world out there for big

media companies that make their money selling intellectual property, which—unlike land or tangible assets—is the kind of property that can be sold again and again to numerous buyers. First these vendors had to contend with peer-to-peer file trading à la Napster. More recently, the bottom line for the media marketers has been shaken by user-content sites like MySpace and YouTube, which allow artists to post their own music, video, photos, or audio to share freely with the masses.

The corporate answer to all this trading and sharing by media customers is DRM, a general term for any technology that preserves control of and restricts access to digital media—including software, movies, and music—and the devices on which these media are played. It encompasses not just access to the data, but individual instances of use. The companies that market hardware, software, and media see DRM as a practical means to limit unauthorized use of what they view as their property, and to protect the income that property generates. In addition, they argue, DRM protects the interests of artists involved in the creation of the media.

Opponents argue that these firms are not just protecting their investments, but are threatening your property rights and mine because DRM infringes on our rights to control the computers, mp3 players, cell phones, and content we've plopped down our hard-earned lucre to purchase. Opponents maintain that the purpose of DRM is not to prevent piracy, but to create a media hegemony where access to intellectual property can be held hostage by a few powerful companies.

At the heart of this controversy is the deliberately engineered incompatibility of DRM. The process works pretty much the same way for any proprietary media system because the major manufacturers with DRM locks on their digital data or hardware are looking to provide proprietary software and media that will only play on their proprietary devices. Furthermore, purchased media can be additionally "protected" with built-in obsolescence because DRM can limit instances of use—so you only play movies or songs a limited number of times.

There can be little doubt, however, that the anti-competitive nature of DRM increases the cost of media and keeps you limited to the flavor of fun your purveyor is willing to sell. Such a system forces artists to contract with each company separately and effectively shuts out smaller companies that might be willing to bring their own media goods to the fair and undercut the market.

The Public's Defenders

Among those who argue that DRM is a terrible idea are two groups that advocate for a sensible approach to the property we create in the digital countryside: the Free Software Foundation (FSF) and the Electronic Frontier Foundation (EFF). Both these nonprofit groups advocate a rational approach to intellectual property and to the increasingly complex copyright challenges raised by our evolving technology.

In fact, should you ever find yourself in a legal situation initiated by a company or the government in which you believe you are the victim of unfair tactics involving technology, the first phone number you might want to dial would be that of the EFF. From its beginning, the EFF has recognized the potential for abuse of power with regard to technology issues and has set itself the mission of "defending freedom in the digital world."

The home page of the Foundation's Web site carries constantly updated information on issues it deems of immediate concern, and in which it takes an active role: free speech on the Internet, patent and copyright law, government surveillance, file-sharing, electronic voting irregularities, protection of the open-source software movement, and unfairly

targeted victims of government or corporate legal actions.

The EFF has a keen interest in DRM, which, according to Fred von Lohmann, senior intellectual property attorney with the EFF, doesn't even do what it's ostensibly made to do. "DRM has proven to be ineffective at preventing piracy or ensuring that creators are adequately compensated for their efforts. What it has proven useful for is impeding innovation and competition." It is this stranglehold on progress that causes opponents of DRM to protest that the limitations of the technology are actually detrimental to artists. A frequent argument is that DRM creates its own strange world of rules and regulations in which artists are as tied by the thumbs as any of us.

Like a number of others, von Lohmann sees Apple's restrictive FairPlay technology as a perfect example of what's wrong with DRM. "Take a look at the iTunes Music Store," he says. "Apple's FairPlay DRM is not preventing anyone from downloading the very same songs from unauthorized P2P sources or from their friends' CDs, but it is allowing Apple to lock iPod owners into its proprietary store. Same story for DVDs—the movies are available from unauthorized P2P sources, but the DRM prevents legitimate DVD owners from making copies for their own portable media players."

What is frustrating for many people about DRM is that it forces people to purchase the same media again and again in different formats. "Legitimate movie fans are forced to either break the law (rip their own DVDs) or purchase the same movies a second time (from the iTunes Store)," says von Lohmann. "That's the legacy of DRM."

The Free Software Foundation is another non-profit that concerns itself with technology's legal issues. Its founder is Richard Stallman of GNU Project fame, and as might be expected of an organization with close early ties to the open-source community, it takes a grassroots approach to the kinds of restrictions imposed by DRM. Consider, for example, their invitation to everyone to surf over to Amazon and "tag" all the DRM-protected merchandise that they can find there with the FSF "Defective by Design" protest.

They recently launched a new site, http://drm.info, that explains their objections to the technology, which they render as Digital Restrictions Management. They cite potential problems that include media incompatibilities and threats to your system's security.

They also insistently counter the common argument of DRM advocates that artists reap the benefits of their work when intellectual property is "protected" by DRM. Artists, according to the FSF, would be better off with "clean physical distribution." This would free them from an artificially created dependence on providers of distribution channels and a consequent reliance on the will of those providers to maintain a given technology past the date of the media company's best profit margins.

Both the FSF and the EFF have considerable legal influence. The FSF claims on its board of directors two eloquent legal voices in the fight to preserve the public domain: Lawrence Lessig (law professor at Stanford, founder of the Center of Internet and Society) and Eben Moglen (law professor at Columbia and chairman of the Software Freedom Law Center). The EFF has a longstanding record of mobilizing legal action on behalf of those who fall afoul of government or corporate regulation. From the 1990 Secret Service raid and computer seizure at Steve Jackson Games—which the EFF was instrumental in proving unfounded—to this year's class-action suit against AT&T for turning over communications records to the government, the foundation's record is impressive.

Among the many cases in which the EFF

has been involved over the years were several involving Jon Johansen, including that first in his native Norway in 2002, when two US organizations—the Motion Picture Association of America and the DVD Copy Control Association—urged the Norwegian government to bring suit against him for his part in cracking the DVD industry's Content Scrambling System (CSS).

DVD Jon Returns

When DVD Jon and his colleagues cracked CSS, he was 15 years old, but his youthful endeavors rattled board rooms half a world away—and with reason. Like the proverbial smart cow who unlatches the gate, Johansen and his anonymous team members were only the first through the opening. Once the DeCSS code was posted on the LiVid Web site, a number of other hackers began finding ways to unlock CSS quicker, more thoroughly, and with less trouble. Products emerged that anyone could use to rip CDs, which explains why the corporate owners of intellectual property are not amused by such activity.

This sort of thing means digital content companies have to be back the next day trying to make a better cow trap. Their response was to devise a new DRM scheme, in this case, the Advanced Access Content System (AACS), developed by a consortium of computer and media companies, which offers more robust encryption.

They also responded through the courts. Johansen was arrested in 2002 for violation of Norway's computer hacking law for his part in DeCSS. He was acquitted in January of 2003, but was retried on the same charges by a higher court and acquitted again in December of 2003.

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Meanwhile media-makers have continued to follow up with newer, sturdier encryption schemes, including those used in the new HD-DVD formats. Ironically, despite the best efforts of the locksmiths, a workaround was discovered by *c't* magazine that involves using the Windows Print Screen button to capture frame-by-fame images. Captured video can then be remixed with the audio track.

Meanwhile, on January 8, 2006, Johansen announced on his blog that he was registering DeAACS, a software application that would decrypt AACS and be ready for market in 2007. In his announcement Johansen acknowledges: AACS, like CSS, will be a success. Not at preventing piracy. That's not the primary objective of any DRM system. Anyone who has read the CSS license agreement knows that the primary objective is to control the market for players.

Rush to Judgment

The truth is, before the general public even realizes there's a problem, our now-digital

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heritage can be cut up and claimed by those with the determination and resources to go after it. Media sellers will work toward fashioning laws that will give them as large a slice of the intellectual-property-rights pie as possible, in much the same way that corporations have successfully urged the continued extension of copyright laws in the past few years.

When I asked Fred von Lohmann why most people were not aware of the erosion of public domain, he pointed out something that hadn't occurred to me: Only recently did we acquire easy access to public domain works. "For example, although we have always enjoyed the legal freedom to copy and distribute public domain books, the availability of scanners and the Internet has made that freedom far more concrete, enabling things like Project Gutenberg and the mass digitization projects by Google and the Open Content Alliance," said von Lohmann.

And he sees another reason why people haven't placed a high value on this remarkable heritage. As legislation is enacted by those with vested interests in limiting the flow of intellectual properties into the public trust, the very character of what we own in common changes. According to von Lohmann, "The repeated extension of copyright term has meant that the public domain is increasingly comprised of comparatively old media, which many people find less relevant to their current experiences."

Independent movie-makers looking for background music for their scores; comics looking for works to satirize or parody; and small community movie theatres that could afford to run public-domain films all lose out to the pilfering of our public domain by large companies that profit from these copyright extensions. As a result, so do we.

And that brings us back to our digital street corner, where you can now hear the protests of those boycotting items that contain DRM technology. Ironically, some of them brandish their iPods, but they're not downloading iTunes encased in DRM. Better to rip CDs, they say, or download your tunes in pure MP3s unadulterated by DRM. So one thing on that marquee today is eMusic—for now, it is the only open distribution service that deals only DRM-free goods while ensuring artists are paid for each and every download.

To find out what's playing next week at the Digital Rights Theater, stay tuned. Maybe DVD-Jon is working on his next epic. ~

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