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## Peer Pressure

**Wondering why you can't download that new Green Day track on your favorite P2P network—or why it sounds like crap if you can? Thank a little-known company whose sole mission is to make you pay for your digital kicks.**

In the middle of cool, laid-back Marina Del Rey sits an office that serves as the heart of a computer network strung across the planet—a collection of 2,000 servers connected to the Internet with enough bandwidth to wire up an entire town full of broadband-guzzling geeks. Those 2,000 computers are just waiting for you to do one thing: attempt to snag a song off a file-sharing network.

It doesn't have to be music, actually. You could be trying to pocket *Brokeback Mountain* for your collection, or just a copy of Microsoft Office for your PC. MediaDefender will declare digital war on you if you are downloading a file that contains intellectual property the company has been paid by a media conglomerate to protect.

Of course, you can try. But while you're trying, those 2,000 computers will be doing their best to jam your efforts with a host of digital head fakes. They'll serve you bogus files with the same name as the song. They'll insert bad code into the file so that when you play it, you'll hear hissing and popping. They'll cause your download client to hang there, trying to access a file that doesn't exist. They'll gang up on you in the file-sharing queue so you're the 2,001st person in line to get the song.

If MD's 2,000 computers are doing their job, your response will be, "Oh, screw this. I'll just buy it off iTunes." And you'll pay your 99 cents. MediaDefender, 1; you, zip. MD is the entertainment industry's special forces in the war against file sharing—and here is the creed by which they live.

### **SEE WHAT OTHERS DON'T. AND SEE IT FIRST.**

Back in 2000, when MediaDefender was founded, the first Napster was being sued by the record companies. Most people looked at the fracas as a clash of new technology and old business model. Randy Saaf looked at it and saw radar.

Saaf, a graduate of geek haven Harvey Mudd College in Claremont, California, had gone from college to defense contractor Raytheon,

where he and his buddies worked in airborne signal processing, spending their time thinking of new and exciting ways to jam and counterjam radar. By the time the Napster lawsuits rolled around, Saaf had gone on to UCLA law school, but the suits brought to mind his previous line of work. "They were talking about the lawsuits, and it was ambiguous whether [Napster] was legal," Saaf says. "We looked at it like it was a radar jam-counterjam—and whether it was legal or not, it was a technology that was evolving around the law."

Saaf, along with his MediaDefender co-founders, left the issues of Napster's legality to law school Darrows, and worked on technological solutions to frustrate file-sharers, using their computer engineering expertise to attempt what the company name promised: defending the content of media companies who felt violated—and robbed—by digital hackers. MD's first strategy? Decoying, in which fake files are introduced into the file-sharing system to make it harder for downloaders to find the real file. It was based on a similar idea in radar jamming called "metallic chaffing," in which a plane would shoot metal chaff out the back to dirty up its radar signal. "Same concept, different technology," Saaf says.

Saaf and his co-conspirators had the advantage of being the first company in the field of electronic countermeasure services. MediaDefender is currently contracted by all the major record and film companies to ride herd on their online properties. The company has a presence on the file-sharing networks responsible for 95 percent of worldwide electronic piracy—from old-school sites like USENET newsgroups to today's favorites like BitTorrent. If files are being swapped, MD wants to be there, pushing out chaff.

### **PICK YOUR BATTLES**

How frustrating can it be for an average user to download a song? Herein follows my maddening, ulcer-causing experience of trying to grab Gwen Stefani's "Hollaback Girl" using the eDonkey download client on a Sunday morning. The first attempt nets a song labeled "Hollaback Girl," but which is really OutKast's "Hey Ya." The second attempt hangs. The third attempt hangs. The fourth attempt gets an error. The fifth and subsequent attempts are abandoned when yours truly decides there are more important things in life than having a free copy of "Hollaback Girl."

MD spokespeople get a little twitchy if you ask them which files they defend, citing a need to protect their customers. In fact, they prefer that their business stay under the radar. But Jonathan Lee, MD's vice president of business development with an MBA from USC's Marshall School of Business, hints, coyly, that my attempt to download "Hollaback Girl" is not unlike the experience one could expect from a file his company is paid to protect. And while Lee doesn't say so, Stefani's track is, in fact, very much the sort of file MD targets: a big hit from a high-profile artist who is popular with the young'ns. "When someone is trying to download a hit track, it's

huge," Lee says. "We need to pick up the initiation of that track and swarm it. There's nothing harder to protect than an A-release."

Why? Because the demand is so large—up to 500,000 file requests a day for the most popular songs—and the files are so small. "A music track is a very small file, and with broadband it downloads real quick," Lee explains. "Our people need to find it, live, and hit it. We have to get it before it gets away from us." That MediaDefender can interdict these files and mess them up is what gives the company credibility with the entertainment giants, Lee says, "because if we can defend something like that, we can defend anything."

MediaDefender doesn't pick and choose the files it protects; that's left up to the client. "The companies choose a select number of titles," Lee says. "They'll send us updates: add this, take this off, increase the protection on this. It's up to them." And if the title falls off the protection list? "If we're not paid to protect it, we won't," Lee adds. This is why it's easier for file-sharers to grab a file from lesser-known artists, who relatively few people are trading online, than the high-profile artists that everyone seems to be sharing. On that Sunday morning encounter with eDonkey, four people were sharing a 10-year-old track from Emmylou Harris while hundreds were sharing Gwen Stefani's tune. But it's the Harris track that made it through the pipe, not "Hollaback Girl." Of course, the difference was that the four Emmylou Harris fans were probably real live humans, while the same probably couldn't be said for the hundreds of "Hollaback" traders, many of whom are likely to be automated servers, dishing up audio junk with Stefani's track name on it.

### **EVOLVE YOUR TACTICS**

Download clients like eDonkey are parrying to avoid MD's thrusts: For example, the alert to tell you whether or not the file you've selected to download is, in fact, the file you've selected to download. There are enough spoofed, decoyed, and mislabeled files on file-sharing services that the client builders are actively attempting to route around them. In short, there is an arms race between the downloaders and companies like MediaDefender, in which each side does their best to get out in front of the other.

Lee points to the eDonkey alert as a specific example of the arms race. "That's something called error checking, and it's done to thwart us," he says, noting that even when people are told the file may be labeled incorrectly, they'll still download it just to be sure. As long as they keep doing that, "they'll get errors, whether they're ours or not. We're still frustrating the user."

Frustrating the user has been the name of the game from the beginning, when MediaDefender sent out its first decoy files, and the early file-sharing network developers responded by verifying files through their "hash"—a data string that corresponds to the file contents. MD responded by making their decoy hashes look more

like the real thing, and then everyone was off to the races. Older networks change tactics and evolve while new networks spring up and become popular. MD keeps up with both.

"Once a network is assigned to a programmer, our R&D guys have to keep up with it—they need to make sure that the update doesn't affect what we're doing," explains Lee. And when it does, they need to fix it.

"No one wants to admit it outright," adds Lee, "but one big reason the newest file-sharing networks are decentralized is that there is no one person or company to sic the lawyers on, like there was when the original Napster went down. That company was a target because it had the servers the files were on—in other words, there was someone to blame."

But the same decentralized systems that make it less likely that file sharers will be sued also make it easier for MD to do its sneaky work. Today's file-sharing systems, for example, chop up a single file so that you download it from many sources. As a result, MD doesn't even have to fake an entire file, just one small segment that will get compiled with the rest and harsh your end-use mellow. "The more decentralized it is, the more you have to rely on others," Saaf says. "iTunes is totally centralized, everything created and packaged by one authority, and it's the real thing. If you're on Gnutella, you have to trust that a Gwen Stefani track really is a Gwen Stefani track. You can't have authentication when you have millions of users."

None of this makes MediaDefender popular with teh haxxors. The company keeps a low profile online (its site consists of two sparse pages and only two email addresses), but this doesn't stop the attacks on its platoon of servers. "Malicious hackers who know who we are will plant a virus to bring us down," explains Lee, "and non-malicious hackers with bandwidth envy will use it to host, store, or perform DOS attacks." MD's own decentralized nature, however, works to minimize these attacks. "If they take down 40 of our servers, it doesn't matter to us," Lee says with confidence. "We don't try to figure out what it is. We'll just bring down the servers, reconfigure them, and bring them back up."

### **KNOW YOUR ENEMY. CONVERT THEM IF YOU CAN.**

In the world of online file sharing, there are three types of users: the pirates, the kids, and everyone else. The pirates are hardcore. It's not that pirates can't pay for files they download; it's that they won't, whether for philosophical reasons or because they don't wanna. MD doesn't try to convince them to turn over a new leaf. "They're not going to spend a buck, ever, and we don't focus on them," says Lee. (MediaDefender does, however, pass along the IP addresses of the people they catch seeding files to the masses; the clients may or may not unleash the legal bulldogs on them.)

Next up are the kids. "The reason peer-to-peer will continue to

grow is that there's always a new group of people turning 12 or 13 years old," Saaf explains. "It's a young man's sport. The kids have limited resources—in terms of raw cash and access to credit cards—so they're quantitatively less likely to buy their music online." Kids also have the time to download a file until they get one that hasn't been corrupted.

Then there's everyone else. "There are about 150 million file sharers— a significant part of the online population," says Saaf. "You've passed the mark of saying no one here is a consumer." These folks are on file-sharing services for various reasons, not all of them antagonistic to the idea of paying for things. These are MediaDefender's targets—those with the money to buy legitimate content online but who don't have the time or technical experience to deal with the monkey wrenches MD throws at them.

Saaf sees MD as a tool for helping legitimate music and movie services like iTunes and MovieLink build an audience—"You can't sell something if you can get it for free"—but also sees those paid services helping his company, especially in dealings with media companies. "Our services are less compelling if [consumers] don't have a place to buy online. Right now they do."

Not everyone is convinced that media company offerings are equal to what consumers can get for free through file sharing. With music, for example, file-sharing networks have unprotected MP3 files, which nearly every computer and portable player can use, while sites like iTunes or Rhapsody use digital rights management (DRM) software, which prevents some portable players from downloading their content.

"Interdiction is much less effective than offering music fans a good, high-quality, legitimate alternative to P2P file sharing," explains Fred von Lohmann, senior intellectual property attorney for the Electronic Frontier Foundation, which focuses on online civil rights issues. "Instead of expending resources on a bigger stick, record companies should be making the carrot more attractive. So far, the record labels have not been willing to meet music fans in the market with a compelling product—certainly none of the authorized music services today lives up to what Napster offered in 1999. Limited inventory, high prices, and incompatibility caused by DRM are the limitations that are keeping authorized services tiny compared to peer-to-peer networks."

"We watch the build-out of the market," Saaf says. Even as the content companies move online, "people will still have the option of getting stuff for free. We'll evolve our product to meet the new challenges."

### **PREPARE FOR THE FUTURE**

Part of evolving the product could be changing the product. In August 2005, MediaDefender was bought by online music and entertainment marketing company ARTISTdirect for \$42.5 million

in cash. ARTISTdirect's universe of properties includes the ARTISTdirect Network web- sites, which offer music artist information, news, and downloads, as well as music videos and movie trailers—stuff that MD is already in the business of working with.

ARTISTdirect CEO Jonathan Diamond said in a press release that he expected the deal to "allow us to take full advantage of emerging possibilities for direct marketing on P2P networks and to develop new business models for the legitimate distribution of digital content online." In other words, those 2,000 servers could be used to distribute media files on the very same networks that are now defending it.

First things first, however. "If you don't stop the piracy, you can't do other things—you can't make an offer more compelling than piracy," says Saaf.

So those 2,000 computers are still out there infiltrating file-sharing networks, just waiting for you to download some Pink or Jack Johnson, so they can mess you up.