

>>STACEY FERGUSON

Hello, everyone. This is session three, DRM in action. I'm an attorney in the FTC's division of advertising practice, and this is Julie Meyer, an attorney in the FTC's Seattle office. So today we have with us Professor Alexander Halderman, Assistant Professor of Electrical Engineering and computer Science at the University of Michigan, and we have Patrick Ross, the executive director of the Copyright Alliance. Christopher Soghoian, a Student Fellow at the Berkman Center for Internet & Society at Harvard University. Debbie Rose, Intellectual Property Fellow, Association for Competitive Technology, and Rashmi Rangnath, Staff Attorney, Public Knowledge, and Crossan R. Andersen, who is the President and CEO of Entertainment Merchants Association. So in the interest of time because I've been noticing our panels have been running out of time early, I'm going to cut out my intro and I'll turn the mike over to Professor Halderman, including some of the security and privacy implications associated with those systems.

>>J. ALEXANDER HALERMAN

Thank you. As you said today our focus is on the burdens to consumers that are created by DRM technologies. I believe that the FTC has a role to play in using those. I think this role is twofold in. Helping consumers understand what they are buying when they buy a technology containing DRM an

helping to ensure consumers get what they pay for from technology that involves DRM. I think the content industries incentives ought to be aligned with consumers here, since the lack of transparency in DRM has been giving these technologies generally a bad name. Consumers are beginning to expect that products containing DRM will harm them, and this is not something that either the content industry or consumers benefit from. My focus is going to be on DRM security. This is my area of research. I study computer security. I teach courses about computer security at the University of Michigan, and for many years, I've been making one of the -- one of my primary areas of research security of DRM technologies. Now, at one time researchers were mostly concerned with content security issues, how to build stronger DRM, and the computer science community has been very actively involved with the content industry in helping to strengthen DRM. But there is an emerging threat of interest that's resulted from problems we've seen in DRM systems in recent years. This has to do with the arm that DRM systems create for the security of consumers' computers. This is collateral damage that's caused by DRM protection measures. There is growing evidence that DRM technologies have a tendency to create security risks that go beyond the risks created by typical consumer software, and these extraordinary risks call for special remedies to help

mitigate them. So evidence for collateral damage from -- from DMCA -- from DRM goes back sometime. We've already talked about the Sony root kit. This was a case where a technology that was included in a DRM system meant to strengthen the DRM, to protect it from circumvention, could be repurposed by hackers to attack the consumer's computer. We saw more evidence with a DRM system for video games called safe DISC that involved a component of the DRM system that was distributed with copies of Microsoft Windows, and was present around a billion personal computers. It turned out to be a security bug in this software that was similar to the kinds of bugs we see in many kinds of applications, except that this software, because it was involved in certain DRM functions required special privileges within the system. It required what we call kernel level access to the computer. And because of the bug, hackers could leverage this particular component that had kernel level access to gain that access for themselves so the way the DRM system was designed, inherently had a higher level of risk than traditional applications, and that risk was borne out in the ability for attackers to compromise computers. There are other design aspects that are common in many DRM systems that create security worries, things like automatic updates that are own by default and maybe happen without notification to the user. The ability to remotely control

the features of the application. To enable and disable functions after installation. Reporting back information to the software maker, and generally technologies that are involved in concealing the behavior of the software or restricting the user's ability to control the computer. All of these things that involve reducing the user's understanding of the operation of the computer, reducing the user's level of control, they run contrary to generally accepted security practices. The user or their proxy, the system administrator, needs to be able to understand and control the operation of the computer to keep it secure. But increasingly we're observing that DRM systems attempt to limit their ability to do that in order to serve content protection goals. All of these cases where DRM is invoking these kinds of risky behaviors are compounded by the deliberate secrecy involved in the creation and sale of DRM software. In other areas of security, we tend to de cry this kind of security by obscurity. These cases where the operation of the system must be kept secret in order to keep it secure. And much research has gone into developing things like algorithms, where the only thing that has to be kept secret is a key. The rest of the operation of the system can be known to the attackers, and in some kinds of DRM systems like the AACS used for high-definition DVDs, the system is, in fact, designed that way. And that's the kind of design

that I would advocate for DRM systems, as opposed to DRM systems where the operation is kept secret and the risks are indeterminate. In other contexts, with different kinds of software packages we've seen that the only effective way of hardening software against attacks is by exposing it to adversarial challenge. That is either real people trying to attack it or researchers and other kids trying to find bugs for malicious attackers, in order to close them. This is why truly independent review is necessary in order to keep software secure, but in the context of DRM, there are factors that limit independent review. Factors like the DMCA, which has caused a chilling effect in the research community. I, myself, have been threatened with a lawsuit for my academic security research into the security of DMCA, in the context of the Suncom shift key DRM, and many other researchers fear that legal complications will prevent them from being able to complete research that they begin in this area. This is why I would like to call on -- I would like to propose -- propose two separate remedies. One is I would like to call on DRM producers and the FTC to approach, to pursue measures that will facilitate independent security review of DRM systems by hobbyists, researchers and private security firms contracted by consumers. One form that this could take is adopting a mere notice regime for security testing where under the current framework where researchers

have to ask permission in order to test a system, we could merely let the manufacturer know that we're going to conduct testing. This would allow -- this would allow researchers to investigate the systems without worrying about the DMCA liability, while, at the same time, allowing them to maintain their independence, rather than have bad actors just deny permission to test. On the second remedy, it involves providing notice to consumers. We've already heard several proposals for kinds of capsule notices on product packaging, that would indicate what kinds -- what kinds of DRM features, or I would like to propose extending that to cover risky security -- security risk behavior that the DRM might engage in such as running kernel level code or having automatic updates in the background. Finally, I would like to propose transparency on a more technical level through providing notices -- providing disclosures of the technical function of products posted to the website of the manufacturer, that disclose in a high level of technical detail, what is going on, to allow experts and others acting as proxies for consumers to assess the level of risk that the technologies create in order to allow consumers to make informed buying decisions about level this of risk that they are taking on when they install and use a particular DRM product. I see my time is up. So thank you.

>>STACEY FERGUSON

Thank you, Patrick?

>>MALE SPEAKER

Thank you, everyone at the Federal Trade University and here at the University Of Washington School Of Law for hosting this together. I think we heard our mission this morning from Mary. We're supposed to be talking about the disclosure of digital rights management technologies to consumers. And that is a critical issue. It's critical to creators because, frankly, we're thrilled nowadays when somebody is actually willing to pay for something that we've produced. We want to encourage that. We do not want people going into the dark net and infringing. We want a positive consumer experience. I think you're seeing a move in that direction. There is confusion in the DRM space. I think that's coming from numerous sources, not just the creative community. I think the reasons for those sources of confusion are generally innocuous, and I think that we'll learn more about that today. Now, a disclosure on my organization. I represent individual artists and creators as well as organizations. We've got photographers and illustrators and songwriters and musicians and film producers and directors and screenwriters and video game developers and business software developers, and folks from the newspaper, magazine and book publisher industries. Professional sports. If something is being created out there, my members are involved in that. Now, you

guys have been sitting out here very beautifully. I would like to try to wake things up a little bit and ask a show of hands, how many of you out there feel you have a comfort level with technology? Okay. See, there are actually one or two people not raising their hands and I think they are being shy. If you're sitting through a full day seminar, I bet everybody in this room has a better comfortable level of technology than I do and I'm the first to admit that. I will say, I know one thing about technology. This has been taught to me many times. It is neither good nor evil. It just is. I think we've heard that today. A lot of my friends hate peer technology because they see their creative works being spread around the earth. But the community is always telling me, but it does good things like enabling global, you know, academic collaboration, which is true. So it's neither good nor evil. It just is. And the same is true for digital rights management. Part of the description of this panel is of benefit to consumers. Attaway gave us some good business models. We're seeing this across communities and what DRM is doing is allowing creators to take the rights they are given upon creation of works and manage those digital rights in a way that benefits all of us as consumers, by creating all sorts of business models. So I think we all have to admit a lot are simply not sustainable economically without DRM. And we're seeing more experiments come out in the space. We're

seeing an expansion of the uses and permissions that we have as consumers for these works. We're also seeing increasingly, completely unobtrusive DRM. If you're listening to Led Zeppelin or watching the office, or a huskies fan and you're watching the NCAA games on CBS or the NCAA websites, you're enjoying a great consumer experience without even noticing the DRM. Although if you're a DRM fan and you watched that Purdue game you're probably not having a positive consumer experience there, but you can't blame DRM for that. We're hearing a lot today about the DMCA and restrictions there, which is not really relevant to here. That's something that the copyright office. If you feel passionate about it, go to their website. We're hearing a lot about fair use which is a very important topic. Also one that intentionally in the law is kept vague, but again, the Federal Trade Commission does not -- they go after unfair business practices and they do a very good job at it. Some of you may remember a woman named Ms. Cleo. She used to do these commercials where she claimed to predict the future. In 2002, the Federal Trade Commission said, I don't think so. That's unfair and deceptive. They are right. Just by the very act of going after her, they actually proved a point, because if Ms. Cleo had been able to see the future she would have known they were coming after her. That is an example of what the FTC can do for us. Now, we do have

confusion. I pointed out that creators obviously have a natural incentive to try to reduce that confusion, but you have a number of players in the supply chain. Creative works are distributed by third parties. Held on platforms by third parties. They are on hardware devices and manufactured by third parties, so there are a lot of players in the chain. They all have their own agendas and business models. Often, they have more direct contact with consumers than do creators. And we've also heard today about another source of confusion. What are the rights of consumers to works?

Someone can feel very passionately that something is a right but as we know under the law, there is not always bright lines. There is some ambiguity there. So it's not surprising that consumers can be confused. So disclosure is good.

Confusion is bad. Where does the Federal Trade Commission or the government in general fit into this? I brought something here today. This little thing came with some medicine that I purchased. It's a Federally mandated disclosure form of health risks. If I can unfold this here. It's quite lengthy. It has lots of small words on it. You know, not unlike what Jason was talking about with other warnings. It has little chemical symbols and Greek things. You know what I do when I get one of these? That's what I do with it. Okay? I bet you a lot of you do as well and that's bad, because the government is concerned about our health. They are trying to

let us know some warnings and I guarantee you the warnings on that sheet of paper are far more important than anything that could ever come with a video game or a movie. Right? There could be a warning on there about a side effect like death or something even more serious, like a medical condition that lasts more than 4 hours. So it's very important that we get this information, but that we get it in the right way and not this reverse origami. So maybe it's self-regulation. You find that industries often self-regulate in positive ways a lot of times, because they are familiar with things. But generally, self-regulation works when you have kind of a narrow field that you're dealing with, a narrow set of players and a narrow set of variables, but with all of the creators throughout and different fields, all of these different players in the supply chain, all of these bundles of rights and permissions that actually keep growing as providers offer more and more permissions, if you do standard language it's going to look like that sheet of paper on the floor there. So I think the key here is, that through market interactions you find the right sweet spot of disclosure for each service and work. We don't want to burden the consumer. We don't want to make it an unpleasant experience with disclosure because then they will leave our legal services and go elsewhere. But we also want the Federal Trade Commission to remain vigilant because

occasionally there are bad actors out there and they have a great track record of going after those bad actors. I would like to conclude by citing one of the commenter's in the proceedings here. The -- the executive director of the copyright office is going to endorse something written by a pirate party so all of you out there, jot that down in your copybooks. What we've got here is, I don't think they did this intentionally but they included a lot of their own internal dialogue in the comments, like little conversations amongst themselves as they were writing this. And here's what the author wrote to some colleagues. "This whole exercise pre-FTC work pre-closed pre- is a moot point since the marketplace is deciding what works." God bless you, pirate party, and I'll conclude with that

>>STACEY FERGUSON

Thank you.

>>MALE SPEAKER

Before I start I just want to clarify one thing. While I'm really thankful to be a fellow at the Berkman Center, I'm not representing Harvard. I'm wearing my own hat here. There are many issues regarding DRM that concern me but the one I'll be speaking about today is this issue of longevity. In particular, the DRM schemes. They were briefly mentioned in the previous panel. Before I get into the issues, I'm going to just explain how these servers work. I think that will

highlight the main problem. Many services now rely on an authentication server in some way or form. Generally what happens, when a consumer wishes to transfer a purchased work to a new device, or restore it to an existing device after it's been broken and fixed, or reinstalled after a virus has infected their computer, or even in some cases, before it can be played each time, their computer has to call, call home. To contact an apple server or the Wal-Mart server to ask permission. In other cases like with Google's failed video store, it had to call home every time. Each time you wanted to play the movie that you had purchased you had to then be online and request permission from Google server. The problem with the scheme is that eventually, some stores have failed or have gone under, or were deemed to be unprofitable, so the providers of those servers have decided to shut off their authentication service. When that's happen there has been no more server the computers can call home to and the consumer has lost lawful access to the work they paid for. As was mentioned earlier, in many cases, there has been widespread consumer backlash in response to the shutting off of these services so the services have either provided a full refund to consumers or, in the case of Wal-Mart, have extended the life of the DRM server. Now, some of these that are have been failed have been Yahoo, Microsoft, Google, Wal-Mart, these are billion dollar

companies that are making profits in many areas so they are able to subsidize the failure of one store with the profits from another. Now, we heard earlier, from one gentleman that he believed that forcing companies to extend the life of their service might stop companies with smaller pockets from experimenting in this marketplace. But one, I guess one of the important points to make here is that if a company with small pockets gets into this market, they don't have the money to provide refunds in case of failure, or if they go bankrupt, they don't have the money to continue operating their you a then station server, so in many ways consumers are lucky that the stores that have failed so far have been the big boys. And in this changing market, where companies really have to look at their bottom line and figure out what's profitable and what is not, the failure of small services is going to lead to consumers being completely locked out of the works that they have purchased. Now, consumers really cannot predict the failure of stores. It's the fact that consumers are not telepathic. They don't have crystal balls, that's led to regulations in some areas. Consumers are not expected to predict the failure of banks. It's for that reason that we have the FDIC to protect their investments. We don't have an FDIC with regards to DRM. A consumer that purchases a work from a DRM store 1 day, the next day, could suddenly lose access to that work. Now, the

DRM vendors would like to tell you that they fully disclose this risk to consumers by putting it in their terms and conditions. I don't have a problem -- like my colleague over here. If I did, I would pull out the 22 pages, where in part 16, number D, it says you acknowledge that in some aspects, products administering under the usage rules, accordingly, you may lose access to the works, blah-blah-blah. There is no way you can expect reasonable consumers to, one, read through 22 pages of terms of service, and two, to dig through to the 10th page to find this little section where it says oh, by the way, we may turn this off. We won't give you any notice and if we do turn it off you lose access to the works that you paid for. As a result, you know, while education is a great thing, I don't know if it's sufficient in this area. Patrick pulled out this pharmaceutical guideline which is clearly not doing a very good job of informing consumers of the risk. I think maybe there is a model of sufficient education of consumers. Now, tobacco labeling. I would love to see huge 20-point bold print, warning, you may lose access to this work if and when a company of this size doesn't want to offer it to you anymore. I don't think Apple is going to wish to go down that road. So given that education isn't sufficient, something I argue, I think we need more. Companies could go bankrupt. There is nothing that you can do to force a

bankrupt company to provide refunds to customers. It's more than likely the company will owe money to plenty of other people. So I propose something -- I propose an action for the FTC. What I would like would be that the action force all DRM providers to provide the source code and authentication keys of the DRM, to be held in Washington, D.C. If the service decides to go bankrupt they have several options. They can provide a refund to consumers. They can make a deal with another DRM or media provider to make sure that consumers have alternative access to those works. They can extend the life of the authentication server, or, as a last resort when none of those other options are available, the FTC can provide the source code and authentication keys to the public via the internet so people can then encrypt the works they have paid for. It's a proposal that's a little bit out there. I recognize that, but this is a tough situation that calls for serious solutions. I guess to wrap up, there was one other point that I wanted to make, which is, you know, we basically have seen in the music market that DRM has failed. I don't know whether it's been the threat of regulation in other countries or whether it's been just widespread complaints by consumers. But finally, the IP and media companies have realized they don't want DRM music and they have shift to MP-3s. A wise person once said the very definition of insanity is to keep doing the same thing

over and over again expecting different results. I think what we're seeing in the DRM market proves that we're dealing with insane actors, and so we cannot expect them to behave rationally. We need the government to get involved. Thank you very much.

>>STACEY FERGUSON

Debbie?

>>DEBBIE ROSE

Our members are originally, we have some very large members as well, but most of which are small -- the guys out there who are in their garages coming up with cool technology that is they want to promote and hopefully be hugely successful with someday, and in terms of that, they are not creating content, and they are not consumer electronics manufacturers either. They are kind of in the middle of the road. But -- and therefore, their knowledge of copyright law is varied. Some are very savvy and some are rather ignorant about the basics of copyright law in terms of how they can use copyrighted materials on their websites and other products. So they real -- they are interested in knowing what the rules of the road are and how they can use them to innovate cool products. That's the basis of what they are trying to do. They are in between the two extremes. And I think what we've been trying to message to our members is the rules of the road are not that prohibitive. The DMCA and DRM

technologies are not roadblocks to successful innovation. They want to have a flexible and marketplace where they can try and fail and try and succeed and keep doing that. To that end we've recently written a paper, kind of an innovator's guide to the DMCA and hopefully it will be published in the very near future, which describes and explains the DMCA in kind of real person terms what you can and cannot do -- how you can access and use content legally. Really, the DMCA is only two prohibitions, but it has in itself' host of exemptions, plus it also has the fail-safe mechanism which has already been discussed at the copyright office where you can go and get further exemptions, and the key to that is it works, and, you know, these guys up here are asking for new exemptions, and they know there have already been exemptions given. So it's a working mechanism. And with that, there is a wide-open field to innovate. The DMCA is not the roadblock that its critics make it to be. As for -- let me quickly respond to the failed authentication servers, our guys would through as an opportunity to innovate. And the proposals for the FTC to jump in, all of those things can be done in the marketplace where you have a failed business and you can negotiate, you know, for someone to buy it, for other people -- for other ways for the consumers to manage that relationship, get their products back. The FTC does not need to jump in and create that. I

think we're a little bit weary of the government getting involved in new businesses since it's already in the banking business.

>>MALE SPEAKER

It owns the banking.

>>DEBBIE ROSE

This is not a place for the FTC to go. We're not necessarily involved in creating DRM technologies for entertainment products but they are also involved in DRM technologies for managing rights such as your privacy, healthcare, and things like this. Access control technologies are -- that's a vibrant marketplace in and of itself and they manage lots of different types of rights. That's more suited to the FTC's jurisdiction in terms of where, you know, consumers need to be protected. How their medical records are going to be used and who is looking at them and things like that. Of course, DRM works best when it's transparent and when the consumers don't know it's there. Like was mentioned earlier. Most of us don't know it's working, we don't butt up against its restrictions and we're able to use the products -- we're just talking about movies and music and products that have nominal value but we derive a lot of pleasure from them and I don't think a lot of consumers are expecting that just because they bought the Dumbo movie for their kids that it's going to be forever available to them. These things do wear

out. Goods do wear out and have limited time span, lifetimes. I just learned yesterday of a cool new DRM product. Well, I guess it's up for discussion as to whether it's a DRM product, but this DRM where it's creating a unique product each and every time. Each copy is unique and traceable, and as long as you have a valid account, you're able to access that copy of that work wherever you're at. So portability, that's cool. It's everywhere. But only one copy can be accessed at a time. There you go. That's a really great way that the marketplace is working. So anyway, again, our guys want to preserve a field where they can keep trying, fail, try again, succeed, and with limited government regulation. That's it.

>>RASHMI RANGNATH

Thank you, Debbie.

Public Knowledge is based in Washington, D.C. and we represent the consumer in the competitive culture. Alex and Chris have done a great job of explaining some of the harms. I have two particular concerns. Harms caused -- and the harm caused to establish uses --[inaudible] the first time, lack of interoperability among devices and services affects both consumers and competition. First of all, lack of intra-operative ability causes consumer surprise. If I buy a DVD I would expect to plug it into any TV regardless of the make or model. But in certain instances that doesn't work that

way. For example, with HD-TVs, some older sets don't interoperate that well with Blu-ray or high-definition players because of a scheme --[inaudible] -- so because all HD-TVs don't have compliant inputs, the image is displayed at a lower resolution than the capacity of the HD-TV. This is unfair to those consumers who bought the HD-TV at considerable expense, and the consumer might learn to live with it, or buy a new HD-TV. But it's not fair to the consumer. One way to alleviate this harm, and a lot of people have referred to this is to provide notice to consumers of the presence of DRM on media and devices. The notice should be clear and conspicuous. And should be provided pre-purchased. It should inform consumers of, first of all, limitations and use that will be placed because of the contra production scheme, and also the fact that DRM will not allow certain devices to interoperate with others. The second harm I want to mention about it, because of lack of intra-operability is lock-in. The most famous example is iPod's Apple being locked into the iTunes store. They used to use a contra protection scheme called fair play on music stores, sold to the iTunes music store and because iTunes music store was a market leader in sales of digital music, those consumers who wanted to subscribe to the store were locked into the iPod. And were deprived of the choice to buy monopoly players that might be cheaper or offer different

functionality, such as the ability to also play A.M.-F.M. radio. Such lock-in also harms competition in the MP-3 device market. Lock-in has also been used to prevent competition in after markets. For example, in 1 case, the manufacturer of garage door openers sued a universe --[inaudible] -- alleging that it had infringed DRM. In another case, Lexmark, the manufacturer of printers, manufactured a tonal cartridge that would only work -- Lexmark printers had only to work with their printers, when another company figured out a way to get around this, they got sued by Lexmark. Fortunately, in both of those cases, appellate courts held that prohibitions of the DMCA were only available if what was being protected was a copyrighted or copyrightable work, but so long as a colorful argument exists that a DRM is being implied and the DMCA is circumvented -- violated, lock-in will continue, and those who do not have the legal resources to challenge that will not be able to go to court. The FTC should investigate lock-in and its effect on competition, and if necessary, consider that an unfair trade practice. The second harm I want to talk about is preventing lawful uses that consumers have come to expect. And here again, the copyright law is supposed to be a balance between the rights of producers and the public. The public has a number of rights under copyright law and the DRM upsets this balance by creating a blanket

ban regardless of the purpose of the circumvention. Time shifting is one of the well-established user rights that is not possible because of DRM placed on a number of media. Similarly, teachers have had the rights to display clips from movies in the course of teaching, and many consider that a vital part of the classroom experience. But the DMCA, with its circumvention of DRM placed on DVDs presents classroom uses, it prevents teachers from making clips of DVDs, and using it in the course of classroom teaching. As Debbie mentioned, there is the --[inaudible] -- certain teachers, specifically professors in media studies department, got an exception and were able to circumvent the DCSS. However, there are limitations to the process. For one, consumers have to use -- have to reapply every 3 years and establish the case for the necessity for the ability to circumvent once every 3 years, and second, the exemption by the copyright office does not extend to trafficking. So, for example, if you're not technically savvy, you would not be able to circumvent, because nobody can sell you the tools to circumvention. So one way of getting around the harm to consumers and the harm to lawful users is to amend it for lawful uses, and that is the ultimate goal. As a temporary solution, the DMCA can be amended to extend the copyright offices authority under the tri-annual rule making procedure to trafficking devices, and the FTC has a vital role in

recommending these changes to Congress. Thank you.

>>CROSSEN R. ANDERSEN

Thank you. I join everyone here in thanking the Commission and the clinic for shedding light on this important debate. And let me also thank Stacy and Julie for managing this unruly panel. Here's my plan for my few minutes. I would like to spend a moment or two on why I think the voice of retail is important to this debate. Why that voice should be listened to. I thought it would be fun today to do a hypothetical with you. I have a law school hypothetical. It may be a more simple one that fits this debate. Then I would like to come back to one of the real debates about the foreclosure of some uses and rights to some entertainment products. So, first about retail, and I represent retailers. Retailers of entertainment products. Retailers are really at the pivot point of commerce in the commerce of entertainment goods. They actually deliver product into the hands of consumers. They have a brief and somewhat costly opportunity to educate consumers about DRM and limitations on use. And they get the direct and personal feedback from customers when they are pleased, but more often, when they are displeased with the expectation that they had or what they realized from the expectation that they had for a particular product. So retailers are the first to hear when there is a deviation from a customer's expectation. That's the point at

which trust with the retailer and with the content owner is broken. I would suggest to you that rebuilding broken trust is more costly to both the content owners and retailers than is merely taking a return from a dissatisfied customer. So I hope you'll appreciate it's understandable that retailers try mightily to defend the trust that they engender with their customers. In the context of this discussion today, that means that retailers are concerned about the use of DRM when it has the effect of bridging consumer's rights of use and transferability, and when it compromises their privacy. So retailers are concerned when DRM is used for more than authentication and, for instance, remains resident on a player or a console or a PC, and especially where it may collect consumer personal information and purchasing habits. They are concerned whenever a DRM is used beyond authentication. Requiring the consumer to establish a business relationship with the content owner or a third party as a condition of continued use of that product. So let's take a look at the debate. And do it through this hypothetical. If you will, you're a senior staffer with the department of commerce escorting a busload of folks from a developing country, this is a development team sent by the developing country. This is a team that fits the demographic. 18 to 35, and slightly skewed to male. And they are recent movie watchers and gamers. In fact, I have a

slide I hope of my favorite of this team. A recent gamer, as you can tell. As you take this team to what is a mall of entertainment, these are just retailers, just retail opportunities and DVD/video games/Blu-ray. It's all of the top brands. Wal-Mart, Blockbuster, I won't continue with the commercial. You're taking this team and you've briefed them on the U.S. market. \$33 billion in DVD and video game commerce. Consumer spending dollars. Another \$10 billion in video game hardware sales and peripherals. And you've given them a full deck of slides of material that you would normally give them to understand the market that they are coming to view. I won't go through the deck, but they are well prepared. You know that they are interested in DRM and you've briefed them on CSS because you know that they are concerned that if consumer copying is a feature of product brought to their country, that the retail equation may well be on economic. And you acknowledge that CSS had some weaknesses, but perhaps those are improved upon by AACS for Blu-ray and media plus encryption. And the renewable security in that. And you find yourself describing these as market enabling DRM. But on the bus ride to the entertainment mall the development team learns that they are very concerned about the root kit example that Mary Engle referred to earlier. It's probably understandable because they have been living under a very oppressive regime, and

any collection of viewing habits is an anathema to them. In addition, you suggest that the policymakers on the team take a look at the Video Privacy Protection Act and significantly describe it as part of our United States criminal code and not just the Copyright Act. The discussion of privacy security turns even more sensitive, in my view, when the members of the development team ask if, in the U.S. DRM can be used to require the user to identify himself, for example, through an email address or otherwise, in order to access additional levels of a game or otherwise requires a user to establish a business relationship with a third party. And they are concerned that this would make a mockery of a new element of retailing in their country, retailers privacy policies. And finally, they ask rhetorically, how will we ever get shopkeepers in our country to stock an inventory of these games if they have got only one chance with that customer before he is redirected to a third party or to the content owner? Here's one example of a good DRM that I would just like to mention in passing. Here's what the video and DVD section of the malls that they take a look at. Thousands of copies. Thousands and thousands of titles. Open shelves. Here's the marketing retailing of video games. Frankly, the development team would be shocked by that because what is the opportunity for pre-purchase disclosure of DRM issues if you can't even handle and read any

disclosures that are on the packaging itself? Here's an example of a wonderful use of DRM. If the product could be delivered to the retailer and remain on the shelves, open shelves of the retailer, brain dead, if you will, until the transaction is completed, and that product now can be secured by the purchaser itself, so I promised to go back to the active debate, and that is whether DRM can and should be used to foreclose secondary markets, most particularly reselling, trading, gifting, and lending of particularly video games. I think we've got to recognize that this is a real market. Perhaps 100 million occurrences of more -- more than 100 million occurrences of interpersonal lending and trading. And at retail, consumers demand the opportunity to trade for used games and used and previously viewed movies.

>>STACEY FERGUSON

I was going to break in. We're coming to the close of your comments and I just want to make sure that everyone knew we want to give y'all some time to respond to each other before questions or audience members do.

>>MALE SPEAKER

Let me simply go to the end and suggest what we would like to suggest by way of a starting point for the FTC. When DRM is used to facilitate the expansion of commerce and the broad dissemination, it should be encouraged, and when it's used to restrict, burden, or control dissemination beyond

the reach of those limited rights, it should receive the closest scrutiny.

>>STACEY FERGUSON

Thank you. Like I said, if our panelists want to engage in a little discussion. We'll just go in order.

>>MALE SPEAKER

Thank you. I wanted to respond to a couple of things very quickly, but most generally, I think I want to point out that the reason we need transparency and disclosure here is because this is a case of asymmetric information between the DRM producers and distributors and consumers. The distributors have some idea of what their finances are like, how long they intend to continue this experiment with this particular store before discontinuing it. They have a better ability than the consumer to predict how long they will be able to maintain that as a viable enterprise. They have a better idea than the consumer also about the risks that they are taking internally to the software since the operation of the software is not transparent. And economy lifts tell you, when you have this kind of asymmetric information it's a market like for used cars where the buyer has no idea whether this car is a lemon. And that tends to result in the sales price being less than optimal. So transparency could help both sides. Help DRM producers charge a higher price for their products while helping consumers reduce and better

understand the risks that they are taking on. Secondly, just to respond to Patrick's drug information sheet, I think that is really a great illustration of disclosure in action. We may not always read the drug information sheet but I'm sure glad that information is available to my doctor and pharmacist before they give me that medication. Similarly, I think that kind of technical detail about DRM products and their operation ought to be available online for experts, for anyone to read and process as a proxy for the consumer. Finally, just to respond to Debbie's point, the idea that the DMCA is not a roadblock to innovation, to research and understanding of DRM products doesn't square with experience. The DMCA, as sun who has been threatened with a lawsuit under the DMCA for research into a defective product I can tell you that it creates a real chilling effect.

>>MALE SPEAKER

Real quick. I just point out, I don't think that's meant for me because I look at that and I need a chemistry degree to understand it. I just want to respond quickly to something Chris said that puzzled me, and it was not him suggesting that those of us in the creative community are insane. I expect that. And I've heard far worse. So I -- what surprised me was that the context in which he said it, where he said that he can't understand why other industries are repeating that. It surprised me because I deal with a lot of

people that are not could teen on the DRM but they usually recognize there are lots of different models and creative devices at different price points. In the music space alone, yes, downloads are now by and large free of DRM. But you have the streaming models which I mentioned, you have subscription models, I'm a Napster subscriber from day one. I love my service, but imagine if there were no DRM, you pay for 1 month, you set your computer to download a million songs and then cancel your subscription. Obviously that's not viable in my songwriter and music friends would not like that very much. We saw before the consumer value versus transaction cost equation which I found very intriguing. If you look in the music space, the value that consumers apply to one single song tends to be different than the value they apply to a major motion picture, or a robust video game. And so if the transaction cost of a \$0.99 song is high enough that they are not going to go in that direction, the record labels have to say, you know what? I guess we just have to try to sink or swim without it but we'll keep it in these other models. It's kind of hard to imagine a motion picture that has a production cost of \$150 million deciding, you know what? That song, we're just to go DRM-free as well. You have to look at each one of these things individually by their creative work and by the model in which its in, the consumer value formula. If you look at how many people are

downloading motion pictures legally, downloading games legally and purchasing hard copies I think you're seeing the value equation such that consumers are by and large pretty satisfied with it.

>>MALE SPEAKER

There are a couple of things I would like to address. The first would be Patrick's comment just there. I'm not that concerned about DRM and rentals or DRM and streaming services, where you listen to it for 5 seconds and then you move on to the next song. I'm solely concerned about DRM and purchases, where consumers have an expectation that they can listen or play or watch that work next week or next year or next month, you know, Debbie said before consumers may not expect that they can watch a Disney movie in the next year, but my father is a musician and he listens to records from the 1940s at home and he's able to take advantage of the fact that, you know, even if, you know, RCA or whoever that created that record player goes under someone else can come along later on and make a new record player and because of the DMCA and other laws, no one kills come along and create new you a -- no one else can come along and create a new authentication server when they decide to shut theirs down. Like Alex, I feel chilled by the DRM, as a doctoral student, as a researcher, as someone who engages in applied security research. Every project I do at my university has to go

through the general counsel's office before I can release it to the public. Some students have to go through IRBs or ethics review board. I have to go through a team of lawyers and that's a significant roadblock because as you know lawyers like to say no even when they don't need to. The final point I would like to make is regarding the steam product that Debbie mentioned, which is a new game service or a new game distribution method that was announced yesterday, company is claiming is not DRM. Every copy of the executable is different for each consumer. What she didn't mention was that because they allow you to play your games on any computer, you're required to authenticate to their server every single time you play the game. So if they decide to shut down their service you're completely locked out the next day. I don't think consumers have any idea. It may be in page 30 of the terms of service but they have no idea.

>>MALE SPEAKER

What the copyright owners -- what the DMCA don't like to focus on either, is there are coming up next exemptions. You can make tools for security testing. Reversibility, inoperable, you can make them. By and large there is a test in each of those exemptions that allows you to do that as long as your purpose is good. If you're doing it for legitimate purpose, there is an argument in the DMCA that

duke it. So if your purposes are good, hey, go for it. If you get scared by one thread of a lawsuit, then that's kind of -- there are lawsuits all the time. Try it. Apple will pay for your own defense. If it's a good case. They will take it.

>>FEMALE SPEAKER

I hope they will pay the judgment, too, if I lose, the fact that you have to get a bunch of lawyers, that's everywhere. Come on. For these minuscule 1% of the 1% of cases where we're talking about the problems, because you have to get a bunch of lawyers in your university to say it's okay, like you just mentioned, there are lots of other fields that have to go through and get ethics board reviews, there is red tape everywhere, but for the most part what consumers are using these products for, they are using it exactly as they intended to buy it with the purpose that they intended it for when they bought it. They are using it, they are enjoying it, and, you know, if the services go out of business the next day, you know what? One of the arguments I made to the folks at ACT is that, maybe you could even make a product, maybe a product, maybe you can make a tool that could bypass the access control on the services that go out of business. Get back to what you can -- what you bought your product for whether it's music, movies, or games. If that product -- there is still a test on the DMCA, the

access that you get when you bypass DMCA -- when you bypass a DRM product or when you make a tool that would bypass DRM, there are factors that you have to apply to that action or to that tool. And whether or not it's -- why it's created and the purpose for which it's used, and the marketing that's involved, perhaps you can make one that doesn't match that. That doesn't -- that isn't marketed for hacking. That isn't marketed for pirating, it's main purpose isn't simply to allow illegal access. If your purpose is to, you know, somehow make the connections back so you can have use ability of the product, that you purchased, maybe, it doesn't violate -- there is some conflict in that with the contract and the copyright law, yeah, that's right, that's difficult. But there is some opportunity there is to innovate and the DMCA doesn't necessarily say no. That's not necessarily what copyright owners want to say. And it's not necessarily what the critics of the DCMA want to say because it's great say it's so bad, it's so bad, but it's not.

>>STACEY FERGUSON

Thanks. Passions are running high. We don't want to take it down a level too much. We have one or two questions.

>>MALE SPEAKER

10 seconds, really quick. So what Debbie stated was the DMCA provides an exemption for the circumvention of some DRM that these exemptions are being provided by the copyright office.

What she didn't mention, is there is no exemption for the trafficking and tools, which means that we expect individual university media studies professors to reverse engineer, the encryption on DVDs. I can't make a tool and give to it professors. So no matter what exemption we get the creation -- every single person has to crack the DRM themselves. And we can't expect consumers to do that that's completely unrealistic. We need to have a system in place where technically savvy persons can use those exemptions and then provide the means to others to do that. Now, that's obviously something that the law would need to provide for, but for Debbie to state, well, we have these exemptions and everyone can take advantage of them, that assumes that everyone has a Ph.D.

>>MALE SPEAKER

I think there is some dispute about how enough exemptions in the DMCA are able to provide assurance to people who are doing research in this area, that they are going to be -- that they are going to be safe from costly court battles. I hope to the extent that Debbie believes that the -- that her interpretation of the DMCA as providing sufficient protection, she'll support my efforts to work through the copyright office rule making -- rule making, to provide a clear statement of such an exemption for security research for legitimate purposes into DRM that causes security harm.

>>STACEY FERGUSON

-- tests in the trafficking of devices, saying that there are three factors. If a product doesn't meet that then you can track it in the product. But the tests look at the entire product. The part of the product can be used for primarily circumvention, trafficking in that is also forbidden. That considerably limits the tools that can be used for circumvention

>>FEMALE SPEAKER

We want to step away from the -- issue. What are some of the differences both equal at a time activity and quantitatively between the security risks presented by DRM and let's say web browsers or networks and are DRM security risks being unfairly scrutinized?

>>MALE SPEAKER

I don't think they are being unfairly scrutinized. There are concrete differences between, say, a word processor, or a web browser and typical DRM system on a computer, something like, say, the Sony root kit type DRM, or the DRM that's often used to protect video games. These differences are that those DRM products reach deeper into the computer's workings than other typical applications software. And they do this in order to conceal what they are doing and to prevent them from being tampered with. These may be, in many cases, legitimate purposes, but those risks, those

operations need to be disclosed so the consumer can understand what is taking place and these may be things that pose a higher risk of being exploited for nefarious purposes than the things that a typical application would do.

>>STACEY FERGUSON

Thank you. We did have a question for -- one of the public comments we received was touching on the value, either added or subtracted from DRM. We've had a lot of discussion about the value equation. So the question is, what should the recourse be, if any, for a consumer who purchases a song with a DRM from a company and the company later decides to remove the DRM. What if the consumer wants to get the DRM free product. Repurchase at a higher cost. Are there any recourse and should there be a recourse and if so, what should it be? Female speaker. The company should offer --  
[ no sound ]

If they don't allow it from being circumvented. I don't think what the consumer can do. That's part of the evil of the DMCA, it limits consumer options so much

>>STACEY FERGUSON

Did you want to respond to that as well?

>>MALE SPEAKER

We've seen some companies who have opted to provide consumers with free upgrades to the free versions and an opportunity to upsale and get an additional \$0.20 from each

track. I would hope that companies would do the right thing but I would suspect that, in this market, they would see this as an opportunity to ring additional profits out of purchase works.

>>STACEY FERGUSON

We had one question that we wanted to pose from one of our virtual listeners --[inaudible]

>>MALE SPEAKER

If I could respond, I think that's a really good question. There may be a couple of aspects to that. One, maybe DRM in these cases is providing somewhat of a speed bump or a minor roadblock to circumvention. And you may or may not buy this argument, but it's at least making the road activities that the content provider wants to prohibit, slightly more difficult. I think the more prominent effect that DRM technologies has is on the shape of the marketplace. Because of the anti-trafficking provisions of the DMCA, adding DRM to a product essentially means that any legitimate business that wants to build a technology that interoperates with yours has to seek your permission. And this is a strategic matter for companies that make DRM systems and really has little to do with the actual strength of the DRM since the law provides a great deal of recourse to them if someone else does circumvent the technology. If that entity doing the circumvention is a business that has assets that they

can go after, as opposed to some anonymous hacker who is difficult to track down.

>>MALE SPEAKER

Let me address that. First of all, you know, this is a specific audience that we have here on the webcast. A lot of you probably know how to circumvent DRMs. Some of you may have done it. I think most people are like me. They are not up on some of these things. They just like to consume works and patronize artists. But you do have to keep in mind, I think it is a speed bump. I think if you got rid of DRM, you can inflate the business models. Last week on the public knowledge blog, one of your colleagues, Curtis, was writing about a video on demand service for the movie "Hancock." He was upset at the idea if you pay the \$4.99 and you download it on your TV, it's not downloaded, you're getting it instantly on TV, he didn't want restrictions on just having it on his TV. He said, we think that when you pay for a movie, you should be able to watch it on any TV you want, on your device of choice. It's fundamentally wrong for someone else to tell you when, where, and how you watch it. So he's talking about a \$4.99 video on demand download and he wants full rights with it. Now, if he wants it on his portable device, he could go to tunes, I checked this out, and for \$3.99 you could get a rental of "Hancock." For \$14.99, you can get a download of Hancock for your hand-held device or

for your computer. For \$18.49, you can get an Amazon -- a DVD from Amazon, \$22.99, the DVDs with lots of extra features. DRM is involved in all of those, but we don't want to have a situation where DRM goes away, and then you have a \$4.99 download that has all rights. The video on demand won't exist anymore.

>>FEMALE SPEAKER

The point Alex is trying to make, if you buy something as a rental, it's a rental but that doesn't mean you can't watch it on different devices, and you have to pay again and again and again, just for portability to watch it on different devices. Home networks, people who have a home network should be able to watch their rental or video on demand.

>>MALE SPEAKER

Why would you?

>>MALE SPEAKER

Because they are not owning the product. They are still watching it for a limited amount of time and giving up control.

>>MALE SPEAKER

If there is a business model for every device why do you have to port it from one device to another?

>>MALE SPEAKER

Because it's fundamentally unfair to ask consumers to pay again for the ability to watch on different devices. It's

the same content and they are not getting the product as --  
to keep and watch in the future. It's just a limited amount  
of time that they are watching it. You shouldn't have to pay  
every time.

>>MALE SPEAKER

I'm sorry. I'm confused, if I do a video on demand on my  
television I should also straight separately be able to  
watch it on my iPod. I thought you were paying for a 24-hour  
period?

>>FEMALE SPEAKER

If you're able to watch it for 24 hours, within those same  
24 hours should you be able to watch it on the device of  
your choice.

>>MALE SPEAKER

I want to watch "Hancock" twice on two devices.

>>FEMALE SPEAKER

Watch it twice.

>>MALE SPEAKER

If there is a demand for that, we can develop a business  
model for that.

>>FEMALE SPEAKER

You can't dictate where they watch it within those.

>>MALE SPEAKER

Actually, you can dictate --

>>MALE SPEAKER

I appreciate that Patrick pointed out that all of these different price points are protected by DRM. One thing that I think wasn't mentioned is that the only way that a consumer can match up or make fair use of those works across the entire board is to circumvent that DRM. In fact, only way that a consumer can take that "Hancock" movie and take a five second clip is to download from it a peer-to-peer network. Your clients have failed to make these works available unencumbered at any price point.

>>FEMALE SPEAKER

You can videotape it and replay it.

>>MALE SPEAKER

So a year after it's made, I can tape it off the TV.

>>FEMALE SPEAKER

Or point a video camera at it.

>>MALE SPEAKER

That's illegal.

>>FEMALE SPEAKER

For your clip, not in the movie theater. There is a way to make fair use for comment, criticism, or --

>>MALE SPEAKER

Okay. We can discuss this over lunch. If you would like. But for now, we're going to break until --

>>STACEY FERGUSON

There is a list of places to eat in your folder. Thank you

very much for participating in this panel.

>>MALE SPEAKER

You might want to read that someday.

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