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Normal, Illinois
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Science and Technology Committee
U. S. House of Representatives

Hearing on
"Using technology to reduce digital copyright violations on campuses"
June 5, 2007

Chairman Gordon, Congressman Hall, and members of the Committee:

Good afternoon. I am Cheryl Elzy, Illinois State University's Dean of University Libraries and our designated agent for notification of claims of infringement under Section 512(c) of the Digital Millennium Copyright Act (DMCA). In other words, I am the DMCA agent on campus. Thank you for the invitation to appear today to share with you Illinois State University's plans to address peer-to-peer downloading on our campus. The overall project has come to be known as the Digital Citizen Project. In the hearing today I will share with you ISU's story of how this program came to be, what we've learned, and where we're going.

But first, I'd like to thank the Committee for its word choices in titling this hearing. *"Reducing"* violations is realistically probably as much as any of us can hope for whether it's from an industry perspective or a technology view or a cultural bias – at least at this time. While this is a hearing before the Science and Technology Committee, with all respect -- technology is only a means to an end in a whole lot of ways. Illegal peer-to-peer downloading is NOT solely a technology problem. It doesn't have a "technology" solution alone. The discussion should be about legal access to materials and other information resources. We should be talking about connecting users with the right tools. An added focus has to be on education and changing behaviors. How we do that is what the Digital Citizen Project has been exploring for the past twenty eight months and will describe for you today.

ILLINOIS STATE UNIVERSITY AS AN INSTITUTION

By way of background, Illinois State University is an institution of about 20,000 students with nearly 18,000 of those being undergraduates. The first public university in Illinois, Illinois State University was founded in 1857 as a teacher education institution, a tradition still very much in evidence today as Illinois State is among the top five producers of classrooms teachers in the nation and has more alumni teaching in classrooms today than any other university in the country. Our institution is a comprehensive University offering more than 160 major/minor options in six colleges delivered by around 700 outstanding faculty. Students benefit from "the small-school

feeling they get from this large university, and the incredible opportunities they encounter." (Yale Daily News Insider's Guide to Colleges, 2000)

We are a typical campus: great students, great faculty, never enough money or space or time. Like every other campus across the country, our students, our faculty and staff are not inherently bad people. They don't carry off armloads of CD's from the local music store. They aren't ripping through Blockbuster with dozens of movies under their jackets. But studies continue to show that college students everywhere share music, a good deal of it without copyright permission. Add to that movies, videos, and television programs. And games. And software. Our campus is no different.

Technology today makes sharing movies and music easy. Everybody's friends and colleagues download, or so users believe. They think it's not hurting anyone really. It's anonymous, quick, direct, and easy. There is no one easy solution, no shrink-wrap fix that will make the students stop or make this problem or the DMCA complaints go away. We at ISU believe the solution to this overwhelming and all-pervasive problem lies in education coupled with enforcement of existing laws and direct avenues to legal ways of getting the tunes, the tracks, the games, and the movies that are an integral part of today's student and faculty lives.

The scope of the problem is national. It's worldwide. It's not just higher education. It's junior high and high schools. Sometimes even grade school, as early as 3rd grade according to what we've finding. My purpose here today is not to talk about the global landscape or the national picture. I'm here to share what one typical university with typical students is trying to do to address not just the symptom of the problem -- the illegal downloading of digital media, but its comprehensive root cause.

THE HISTORY OF THE DIGITAL CITIZEN PROJECT

I described the history, background, and varied parts of the Digital Citizen Project in extensive detail in my first Congressional Testimony before the House Education and Workforce Committee's Subcommittee on 21st Century Competitiveness in a hearing entitled ***"The Internet and the College Campus: How the Entertainment Industry and Higher Education are Working to Combat Illegal Piracy"*** **on September 26, 2006**. (http://republicans.edlabor.house.gov/archive/hearings/109th/21st/piracy092606/elzy.htm) I would be honored and pleased if you would check that testimony if you need more information than is presented here.

To describe the project briefly, though -- During the winter of 2005 we at ISU became progressively more dismayed as the number of copyright complaints began increasing dramatically. In 2001, 2002, and 2003 we received a few scattered complaints throughout the year, but nothing particularly overwhelming. By 2004 Illinois State was seeing a little more DMCA activity, but in 2005 everything just seemed to explode across our screens. Sometimes there were days when we were getting 20 or 30 notices a day, several days a week, primarily from entertainment industry associations. In the fiscal year ending in June 2005, Illinois State University had received 477 formal DMCA

complaints from the Business Software Alliance, the Entertainment Software Association, Sony, Fox, NBC, HBO, MPAA, and RIAA. The problems on campus were stemming from activity in the residence halls, Greek houses, other places on campus, and dial-up access. Staff time to manage these increased exponentially. Our student judicial office saw much heavier traffic referred to them for discipline. Follow-ups and tracking seemed to take forever.

Naturally we began asking questions among those working in the appropriate use areas on campus. Why the sudden rise in numbers? Were our students doing more illegal downloading or were they just getting caught? Were we somehow targets of new enforcement campaigns? Why the rise at universities when the problem is so much more widespread? What was all this costing us? How much costly technological bandwidth was this taking besides the obvious investment in staff? How could we possibly be satisfied with simply reacting, instead of being proactive on the part of our students?

The pivotal moment for me personally came when we received four subpoenas for information on some of our Illinois State University students who were going to be sued in federal courts for copyright infringements. At that moment my campus was faced with decisions with no options particularly attractive. Do we comply (as other campuses had) or do we fight release of the information (as still other campuses had)? Do we warn the students about the subpoenas or do we stand aside? I think I felt this whole situation more deeply because I myself have a son attending Illinois State. What would I think or how would I react if this was my child? The truth is I'd be raising hell with the University for not protecting my son! Why did they let him do this? Why did they make it possible for him to get into this mess? Why didn't they block this kind of thing? Why wasn't someone watching?

The university complied with the subpoenas and provided the information. Then we stepped back to think and to plan. What could we do to protect our students while still complying with the law? How could we educate and direct our students? What could we do to police ourselves? The rather simple solution seemed to be, literally and in the exact words I used back in February two years ago, "Why don't we go ask them what they want us to do?" "Them" in this case was the Recording Industry Association of America. So we did. Though no one, no institution had actually come to them before, the good news is that they were willing to talk. And that, 28 months ago, marked the beginning of our Digital Citizen Project.

One of our first steps was to find out what other institutions were doing to combat illegal downloading and reduce DMCA complaints through scholarly literature, through conferences, through the press. Today, over two years later, more and more colleges and universities are taking significant steps to tackle the illegal downloading issues. But judging by what we could find in the professional literature 28 months ago, the answer then appeared to be: not much. We knew anecdotally that some institutions were actually throwing the complaints away. A number of institutions were delivering educational or public service campaigns, often with a unique local twist. There were a

few that were putting up a legal music or movie service or two and hoping students, in particular, would be attracted to the legal approach. A few other universities simply shut down all bandwidth available for peer-to-peer activities of any kind, legal or not. Some reported limiting the amount of bandwidth available to peer-to-peer applications. All of these programs reported little or varying degrees of success. From our perspective, most universities and colleges seemed to be waiting for someone to prove to them that the problem was real and needed attention. Others were waiting for "the" solution.

THE PROJECT DESIGN

Rather than confronting campus piracy with a single approach, we worked with RIAA and ultimately MPAA to develop a multi-faceted approach to combating piracy on campus. Early on the discussions focused on three things – monitoring and enforcement, legal services, and education -- but subtle changes began to emerge very quickly. The first was to move education to lead the list. That was significant to us as educators. A critically important aspect for me as a librarian was a crystal clear definition of fair use of media in the classroom along with easier paths for copyright clearance of media we needed to use. Another addition to the program focused on K-12 education and ethics. It is widely accepted that downloading behaviors start much earlier than when a student arrives on a college campus – and in fact student behaviors are learned in high school or before, at home from their parents, at school, and at play. Finally, to attract students to a comprehensive program of legal, ethical online behavior we wanted to offer some sort of rewards for good digital citizenship.

Overall, the long-term goal of ISU's Digital Citizen Project is to create a nationally recognized program that could be cost-effective, that is based on comparison and research of the products currently available, and that is replicable on other college campuses. We are far from there, but we're laying a solid foundation. And we absolutely know that there is no one-size-fits-all institutional solution. Nor is there a one-size-fits-all technology solution. Not at all. But if a central place for education, conversation, trial, and admittedly error can get a foothold, then all of higher education benefits. We would like to be that central place to serve as a resource for higher education, a bridge between education and the entertainment community, a funnel for positive feedback and advice to vendors, and a repository for educational materials on cyber-ethics, legal downloading, and system or software implementation. We want to provide a "consumer report-like" study, if you will, on the services and systems that are out there and just coming on the scene so higher ed will be able to make informed, fiscally responsible decisions on what to do on each of the 4,000 campuses across the country.

THE PROJECT PARTICIPANTS AND CONTACTS

From the first days of this project 28 months ago the project leaders felt it was crucial to work with everyone – literally everyone – in solving this issue. We contacted associations. We talked to vendors. We went to conferences to make other contacts.

We came to Capital Hill in search of support. We have talked with or partnered with RIAA and MPAA as our main long-term project advisors and supporters. We are also working closely with EDUCAUSE and the American Council on Education, and we have talked with the American Library Association and the Association for Public Television Stations. From the monitoring and enforcement industry we've had Packeteer on campus for a long time, and we have talked to or worked with Audible Magic, Red Lambda, enterasys, e-Telemetry, Allot, SafeMedia, and others. We've investigated still more, like Branford Networks. Legal digital media services we've met with include CDigix, Ruckus, Apple, Napster, Pass Along, and XM Satellite Radio. New ones surface almost every day. We came to Capital Hill on five occasions and met with the staffs of dozens of congressmen, senators, and committees both Democrat and Republican. We've gone to almost a dozen agencies looking for funding, and are still looking. We've even talked at some length with the Electronic Freedom Foundation (EFF). They gave us what we considered high praise when they said, after a long conference call, that our project sounded "as good as [they] could hope for."

DIGITAL CITIZEN PROJECT FUNDING

As to funding – The biggest financial supporter of this project to date is Illinois State University itself. The University has contributed staff time for a wide range of people working on the Digital Citizen Project from CIOs to network engineers to researchers and staff, salaries, space, equipment, supplies, and more with an estimated value of over $450,000. Beyond that we've gotten formal research grants from the University, federal funds in the form of a $68,000 Library Services and Technology Act (LSTA) grant through the Illinois State Library, and substantial support through the entertainment industry. Specifically, funding has come to the project from Viacom, Time/Warner, NBC/Universal, a research conglomerate called MovieLabs, RIAA, and MPAA. We are aggressively seeking public or higher ed funding to balance the support base of the project to avoid even the appearance of being a "bought-and-paid-for study." The data we produce and the findings we share must be real and must be defensible academically. We must remain balanced, unbiased, and neutral in order to work productively with all the project partners – some of whom hate each other, and some of whom are suing each other. Funding is hard to find because new and different approaches – like ours -- to rapidly emerging and changing challenges – like campus piracy – don't fit neatly into existing grant categories. It's also hard to find funding because most find it easier to talk about the symptoms (downloading) than to fix the root problems – changing behaviors and culture while adapting different business and marketing models. In a nutshell, we need more funding and we need more time.

THE PROJECT TIMELINE

Regarding time, our project timelines were originally based on a 3-year project. However, it's taken us 2 years to get started. We've only now begun to get to the heart of the research and analysis. Technically and specifically, our project was supported under our current research agreement, for 18 months. The clock began 5

months ago. Without new dollars, the project will end July 1, 2008. To date, the Digital Citizen Project has captured network data using Audible Magic's technology in August 2005, August 2006, and April 2007. Last summer, we surveyed high school seniors coming to Illinois State about their downloading habits and preferences, and we're doing that again starting the week of June 4. We have completed and have reports on a number of focus groups organized and analyzed by professors on our marketing faculty. We've just completed an extensive, in-depth survey of campus faculty, staff, and students on their attitudes toward downloading – and we're planning two more studies in the fall. Perhaps most interesting – we're journaling the problems, issues, and surprises surrounding the implementation of the project, the systems, and the research. And if anything highlights the changing landscape of this project, it is our experiences. For example – One firm changed its business model five times in the last 28 months, moving from charging our campus $40,000 for its service to being free and directly marketed to students. Another leader went out of the downloading business all together. A supplier of monitoring systems wanted us to change how we register our students on the network rather than adapting to the existing environment. We discovered in working with another vendor that to get the data we wanted with one company's network monitoring system, required not a single box but multiple ones – multiplying the projected expense beyond what any campus could afford. One system initially needed another to work, so a campus would have to buy two systems – not one – to be effective. Misunderstandings on conference calls and emails occurred regularly. A classic misunderstanding occurred when one vendor told us we needed to install their "secret kernel" on our network. Our engineers freaked! We weren't going to put anything on our live production network that we didn't fully understand, let alone something SECRET!! As we learned later in probably the 10th conference call – the vendor wanted us to load their cGrid kernel, their software! But that shows the mistrust, the misunderstandings, and the huge amount of time it takes to resolve even simple issues in this project. These examples may seem silly or incidental to you – but they all take time, explanation, resources – and they impact what we should expect to tell our colleagues about ease of implementation or our vendor partners about what they might want to change.

THE PROJECT'S FUTURE

What we expect to do over the next thirteen months covers a huge spectrum of activities. We are testing the data gathering capabilities of network monitoring right now in anticipation of a major, in-depth, comprehensive study in September. We are, at this moment, conducting very detailed interviews with student downloaders to get a better understanding of what they do and why so we can design educational programs that might have an impact on campus piracy. We'll be conducting two more behavioral research studies in the fall, designing what we are calling "birdtrax" (named for our mascot Reggie Redbird), which will outline the options for legal digital media services, sorting out a financial plan to recover some costs long term, and implementing some public relations options. We'll pilot and launch an escalated response monitoring and enforcement system in late fall. "birdtrax" will become a live site that students can use to learn about and navigate to legal digital media services. As varying layers of

enforcement are employed, impact on downloading traffic will be studied. All through the next thirteen months in order to continue the study, the project leaders will be writing grants and seeking funds to extend and expand the project capacity.

As stated above, the Digital Citizen Project's long-range goal is that we will serve as a kind of "consumer's reports" on the digital media scene, testing, reviewing, and implementing new services as they emerge in the market while serving as a resource to higher education on the education side of this equation. We absolutely know that we very well may provide evidence of what DOES NOT work as much as what does. Illegal downloading may need far more effort and much broader approaches than we can bring to bear on the problem as a single institution.

Working with vendors to secure participation in our "consumer's report" approach to the downloading issues has had its challenges and successes. An advantage we have that also becomes a concern is that we are doing our research on a live network. It's an advantage because it provides real-world evidence. It's a concern because any missteps can bring our campus network down. So we are now developing a proposal that will fund a test network so we can work with some of the softwares and systems outside of our live production network. We're also working on a plan that will compartmentalize various systems on the live network – such as using different dorm complexes to analyze the effectiveness of different systems at the same time. Another challenge in the consumer report-like model is convincing most of the vendors that they won't be the ONLY service or software at Illinois State University. However, testing as many systems and services as we can is something we must do for the comprehensiveness and integrity of the Digital Citizen Project and its research goals. At one extreme – notably with our fellow witness, Audible Magic -- our project and our expertise has been so valued that we are working in complete partnership to develop new modules and releases of that company's product. At the other end of the spectrum, we have been completely ignored in our repeated attempts to bring one of the leaders in the downloading field into our project. Some vendors who really want to be a part of ISU's Digital Citizen Project and birdtrax just aren't ready for complete implementation and roll-out yet, so we hope to include those in the next phase of the research and offerings. Your assistance in urging vendors to participate in our study for the benefit of higher education is as important as urging higher ed to do something about campus piracy. Higher education needs this kind of comparative information.

RESULTS OF THE DIGITAL CITIZEN PROJECT SO FAR

Downloading is a complex issue. Universities are complex operations. Testing and implementing new technologies is an extraordinary undertaking. Research is a complex task. There are privacy issues, financial issues, legal issues, practical issues on a live network, and cultural issues. But to be effective, the Digital Citizen Project must be comprehensive. So the entire spectrum of what we're looking becomes exponentially complex.

However, we do have some early results to share.

Illinois State did begin limiting peer-to-peer traffic very early – back in 1998 as Napster and other downloading services began to take off. We use Packeteer to shape the bandwidth on our campus so that not more than 5% of our capacity can be used for any kind of peer-to-peer application. It's important to stop here and state our project's strong opinion that a campus cannot unilaterally block all peer-to-peer. There are too many legitimate uses of P2P – cooperative research file transfers, software upgrades, library digital files, distance education requirements, and more. By shaping our bandwidth and implementing a more selective monitoring system, we believe we can meet two needs – supporting legitimate peer-to-peer uses while blocking the sharing of copyright media.

- Our work with the technology available so far has shown us several things already, and one of the most important is understanding how network tools and appliances work within our network The twists, and turns, and varying demands of each system make getting real, accurate, comprehensive data on real peer-to-peer traffic extremely difficult. There are problems with encryption of illegal files. Some files are sent over different parts of our network, making them more difficult to capture. The volume of data we have to analyze from our network overall is staggering, even in just one month's capture. Very preliminary results showed that Audible Magic captured 23 million files of all kinds – legal, illegal, encrypted, and more -- on our network in April 2007 alone. The amount of recognizable P2P – even with all the recognition problems – is sizable, though probably not at all out of line with activity on other campuses. In only the first five days of the month individuals downloaded copyrighted files ranging from 1 file to 466 signatured files.

- Most problematic for the monitoring technologies overall, though is the lack of identifiable tags or electronic signatures on digital files. While the percent of signatured – and therefore, findable – unique titles has grown over the last two years from 11% to 51%, there is much more to be done. Signatured titles right now are almost exclusively music files. Virtually no movies have the electronic signature. To find movies takes elaborate analysis and actually LOOKING at the tags, descriptors, or metadata. We can't stop what we can't find. We are working with the industry to devise an electronically, automatically recognizable system of coding files. The monitoring systems will be more effective and comprehensive.

- We're finding that our students are well-versed in prime sites for downloading copyright material. 46% use Bittorrent, followed by Gnutella, Limewire, and Morpheus. Darknets – or sharing files within the campus network – account for about 16% of the traffic we can identify in the network snapshots we've done. Industry sources pegged this at 45% while our own network engineers estimated maybe 5%. The actual data proved that both ends were off a bit.

- In our early snapshots we found not as many computers on our network use peer-to-peer applications. Of the 13,000 computers on our network, only 26% used peer-to-peer services, legal or illegal. That is a little less than 3,400 machines, a figure that is lower than any of us had expected. Apparently the anecdotal evidence of "everybody's doing it" may be off base. But of the 3,400 computers using peer-to-peer, 97% of the traffic originated in the residence halls, indicating that we may be able to concentrate our educational efforts on those groups.

In addition to what we've found out about the technology and what it can do, we've learned more about our students and their behaviors.

- We surveyed high school seniors who were coming to campus to register for classes at ISU last summer. Notice, please, I'm not calling them college freshmen, but rather high school seniors. Their attitudes and behaviors had been established before any exposure to our campus. We probed their use of digital media and what kind of mobile players they used. Of the 217 responding students, 89% reported they had a portable music player. 67% of those devices are Apple iPods with the rest scattered among 26 different kinds of players. 93% played music and 51% watched movies/TV/videos from their computers. When asked how these incoming students acquired their music and movies, the responses demonstrated an extreme range of sources from actually buying CDs to commercial services like iTunes. Various P2P networks such as Limewire, Bearshare, and Bit Torrent were mentioned by 39% of the seniors. While not testing the legal vs. illegal use of these networks, the naiveté we've seen elsewhere shown through as we found comments such as "Not legally", "pirate from XXXX" or "illegally downloaded". To us, this absolutely shows that our new students come with habits entrenched in a digital lifestyle.

- In our surveys and focus groups this spring, we learned that many students started downloading in 6th grade, or when they are about 10-13. 55% in the focus group study downloaded often, averaging 23 songs per day. They believe downloading saves them time and money, but that they would use legal alternatives if they were easy to use, had the kind of media in their digital libraries that the students wanted, and they were free. When asked, though, if the students could name any legal digital media services, they could not. In fact, many seemed to assume that iTunes might be illegal when it is not. Most aren't going to quit until there is some deterrent.

More on these studies will be published in the coming months in the academic literature.

One of the most important things we feel we've learned in the course of the last 28 months is that no monitoring or blocking system will completely eliminate DMCA complaints. As we said, learning what DOESN'T work in our project may be as

important as what does – particularly on this point. Nothing appears to be effective enough to stop all copyright violation notices at this point. We're getting there, but not yet. And while no system has to be 100% effective before it is implemented, it is premature to ask all college campuses to invest tens of thousands of dollars in systems that aren't ready yet. We've all heard from other hearings that "the hammer is coming". But if the hammer drives nails that break or bend, the construction project is ineffective. Leaks will occur. And certainly, if Congress asks all 4,000 colleges and universities across the country to implement monitoring systems over a very short period of time – from our experiences it would seem impossible for vendors to supply our needs, let alone the tech support we all will absolutely have to have to make the systems operational. We've been working with one industry-leading vendor for 16 months to try to bring them to campus for a test – and we're still not there.

CONCLUSIONS

If campus decision makers came to the Digital Citizen Project today – and they've already started – to find out what to do, we wouldn't have an answer for them. It's too early. The monitoring technologies don't seem to be fully ready to do what Congress or the entertainment industry wants. Yet. Yes, they may REDUCE campus piracy. From our early experiences and data, we believe the technologies do not yet do what higher education wants – to STOP the DMCA complaints completely.

The other technological equation is legal digital media services. iTunes is not the only answer. 30-40% of the students have some other sort of player not compatible with iTunes. Legal services need to market their services more effectively so student can at least name one. They need to listen to their customers and be comprehensive, easy, and – of course you would expect this -- free. Studios have to help them by supporting digital distribution systems. Movie studios need to get in the game because we're suspecting from early findings on our campus that far more bandwidth is used in downloading movies, videos, TV shows than songs. Video may be just as pervasive a problem as music. Right now it's far harder to track.

Higher education needs more information. A consumer study like we're proposing is desperately needed so side-by-side comparisons, benefits, and features can be determined. Both monitoring systems and legal digital media services need to be evaluated. And this all needs to happen now.

The consumer study can help the entertainment industry as well by providing feedback, gaps, strengths, needs, and more. Audible Magic, an early and strong partner in our Digital Citizen Project, was very open to taking our feedback and both modifying their product for our network environment, but also adding new functionality. They ran with our wishes to develop a new product in conjunction with our ISU programmers that we believe will be very useful to other campuses. This is an example of the kind of partnership that should be promoted and rewarded.

But again – technology is not THE answer. The 9/11 Commission Report says that "Americans love affairs with [technology] leads them to also regard it as the solution. But technology produces its best results when an organization has the doctrine, structure, and incentives to exploit it." (http://www.911commission.gov/report/911Report_Ch3.htm) What is needed is "the doctrine, structure, and incentives" -- a comprehensive program of education and ethics on campus and in the schools, cultural change, enforcement, high quality legal avenues for entertainment, and some sort of positive reinforcement for good digital citizenship That's what we believe must be developed and tested for effectiveness. Think of seat belts. In 1963 Congress passed its first seatbelt law – 44 years ago. In 2006, seat belt usage was determined to be 81% (http://www-nrd.nhtsa.dot.gov/nrd-30/NCSA/RNotes/2007/810690.pdf). We've worked over 40 years to get people to change a behavior that will save lives, and we're still at only 81% compliance. How long will it take to change the behavior, the ingrained culture of illegally downloading copyrighted materials? Early education and great technologies hold the key. We have proven at Illinois State that we can be effective in researching the problem. We are certainly successful in being able to work with everyone – higher ed, industry, vendors, associations, Congress, and more. We need funding and time to create a true test environment and a living laboratory on our campus to work with the technologies and track what works and what does not.

Your help is essential in directing the conversations toward improvements in and testing of new technologies. Your assistance is critical in directing all of us to focus on education starting with the nation's very young, and your involvement in a national conversation on practical fair use and copyright permissions, can point the way to creating great role models. Your support for comprehensive efforts like our Digital Citizen Project, with funding and by utilizing us as a knowledgeable resource for Congress and higher education in general, will be invaluable.

For more information visit www.digitalcitizen.ilstu.edu