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COSTS OF INTERNET PIRACY FOR THE MUSIC AND SOFTWARE INDUSTRIES

HEARING

BEFORE THE

SUBCOMMITTEE ON
INTERNATIONAL ECONOMIC POLICY AND TRADE

OF THE

COMMITTEE ON
INTERNATIONAL RELATIONS
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COSTS OF INTERNET PIRACY FOR THE MUSIC AND SOFTWARE INDUSTRIES

WEDNESDAY, JULY 19, 2000

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON INTERNATIONAL ECONOMIC
POLICY AND TRADE,
COMMITTEE ON INTERNATIONAL RELATIONS,
Washington, DC.

The Subcommittee met, pursuant to notice, at 2 p.m., in room 220, Rayburn House Office Building, Hon. Ileana Ros-Lehtinen (Chairman of the Subcommittee) presiding.

Ms. ROS-LEHTINEN. The Subcommittee will come to order.

Thank you so much for being here this afternoon.

The great expression of talent, innovation and ingenuity which Americans have exhibited since the early days of the republic have endowed upon the United States the unenviable position, yet heavy responsibility of global leadership.

This global leadership has also permitted the United States to more easily adapt and build upon emerging technologies and social transformations and herald in a new development and possibility propelled by brain power industries and sectors built upon ingenuity and imagination, not railroads and petroleum.

These new ideas will redefine the landscape of not only our domestic economy but, indeed, that of the global marketplace. Yet as more information and business is converted into code and downloaded into the Internet, the ability for Internet pirates to inflict even greater damage upon legitimate trade only grows.

According to the International Intellectual Property Alliance, in their recommendation to the Office of the U.S. Trade Representatives for the year 2000, the total losses attributed to so-called content industries top $8.5 billion in 1999, and the Business Software Alliance, represented today by Mr. Eric Koenig of Microsoft, calculated a $7.3 billion loss in revenue by the year 2008 just for the software industry alone.

The BSA further estimates that software piracy cost the United States over 100,000 jobs in 1998 and by the year 2008 that number could rise to more than 175,000 jobs lost.

While the accuracy of these numbers maybe open to debate, it is difficult to dispute that by reducing revenues, Internet piracy will reduce employment opportunities for Americans in the music and software industries. The potential of the Internet is limitless. As band width continues to grow and the ability to compress increasing amounts of information into smaller space continues to im-

prove, the Internet will evolve into a vital tool for business, education, entertainment, and unfortunately piracy.

The American advantages which make our industries the envy of the global marketplace lead many around the world to emulate our experiences through stealing, pirating, and counterfeiting, and we must take immediate steps to insure that we are doing our best to protect the unauthorized use of American products.

This is not to say that actions taken to combat the scourge of on-line piracy should be solely an American initiative. On the contrary, concern spans international borders, and it is, in fact, an end epidemic problem far beyond the scores of our own country.

In nations such as Russia and China, the Interactive Digital Software Alliance has suggested that some 90 percent of entertainment software is pirated. The United States must impress upon our neighbors the seriousness of these crimes and advocate for the greater enforcement of both local regulations and international norms.

One positive example of such multilateral support can be found in the Uruguay Round agreement on trade related aspects of intellectual property right, TRIPS, which took effect in 1996.

By pursuing international support for the increased security of intellectual property rights, the United States not only develops forums for dispute resolution, but endorses the possibility of future dialogues. It cannot be said often enough without allies in this battle, the United States stands to become the proverbial boy with his finger in the dam, placing American interests before an ominous trickle in a futile attempt to restrain the oncoming flood.

Yet this does not mean that the United States should stand idly by waiting for the initiatives of others. Specific industry based solutions, such as digital watermarking and spider programs, must be employed alongside increased vigilance, improved enforcement measures in order to create an environment which is more hostile to the efforts of Internet pirates.

However, attention must also be paid to the advice offered by the National Research Council of the National Academies, which has urged legislators to delay any overhauling of intellectual property laws and public policy until markets have had ample time to adjust to new models of doing business and until sufficient research on the issues is conducted.

Finally, it is necessary to address certain commercial features which some analysts suggest may precipitate the trafficking and the use of printed materials. Pricing is foremost on this list.

For example, it has been estimated that a compact disk costs as little as 60 cents to manufacture, and depending on where you live, a new CD will cost you around $15. When CDs were first introduced in the early 1980's manufacturing costs represented $3 to $5 per CD and retailed for $15 to $20. As the manufacturing price per CD has fallen, there has not been a parallel drop in the retail price.

When compared to the prices offered for music and software by Internet counterfeiters, there can be little doubt as to why many ordinarily law abiding citizens are swayed into breaking the law. This is not an excuse or a justification for on-line piracy, but merely one example of the need to look at all sides when approaching a problem as insidious as piracy.

Real jobs, real company, and real lives ultimately depend on our ability to protect ourselves from on-line piracy, and as our witnesses today will state, this is not only a global issue or a national issue. It is also a local problem in our own communities.

And I would like to recognize Mr. Rothman. Mr. Menendez, our Ranking Member, has a vote in the Transportation Committee, and he will be right back to make his opening statement.

Mr. Rothman.

[The prepared statement of Mrs. Ros-Lehtinen appears in the appendix.]

Mr. ROTHMAN. I would like to thank Chairwoman Ros-Lehtinen for holding this hearing. I do not have any questions at the moment, but I am glad to be here and ready to learn.

Ms. ROS-LEHTINEN. Thank you so much.

Mr. Manzullo.

Thank you, Mr. Delahunt.

Mr. DELAHUNT. Yes. Thank you, Madame Chair Lady.

I see many familiar faces in this audience since I serve on the intellectual property subcommittee of the Judiciary Committee, and I want to welcome Commissioner Dickinson.

As I am sure most are aware, or in the last session of Congress, both the Digital Millennium Act was passed, as well as the so-called NEF Act. Hopefully that has had a salutary impact on the issue that we are discussing here today, and I would be interested in terms of your initial impressions of the effect and hopefully deterrence impact of those particular pieces of legislation.

And I yield back to the Chair.

Ms. ROS-LEHTINEN. Thank you so much.

I would like to take this opportunity to introduce the two Administration witnesses who will share their views on the impact of Internet piracy on the music and software industries with us this afternoon.

Let me begin with Mr. Todd Dickinson, the Under Secretary for Intellectual Property and Director of Patent and Trademark Office for the U.S. Department of Commerce, a former Assistant Secretary of Commerce and Commissioner of Patents and Trademarks.

Mr. Dickinson serves as principal policy advisor to the Administration and to Congress on all domestic and international intellectual property matters.

He will be followed by Mr. Joseph Papovich, the Assistant Trade Representative for Services, Investment, and Intellectual Property in the Office of the U.S. Trade Representative [USTR]. A former employee at the Department of Labor, Mr. Papovich was the chief U.S. negotiator on safeguards at the World Trade Organization's Uruguay Round on trade negotiations.

Thank you both for being with us today, and it looks like we have some vote. So as soon as we get back, we will get right back at it, and I will ask Mr. Manzullo if he would chair the remaining time of this hearing because I have a bill coming up after this vote.

So thank you. We have suspended for just a little bit. Thank you.

[Recess.]

Mr. MANZULLO [presiding]. Before we get started, there are about five or six students outside the door, and if there is any room in

here or if they want to sit on the floor, could somebody welcome them in?

Mr. Menendez, did you have an opening statement?

Mr. MENENDEZ. Yes. Thank you, Mr. Chairman.

I regret that I had to go to a mark-up that had a roll call vote. So I regret that I was delayed, and then of course, we had a vote.

I am looking forward to today's hearing. Clearly the problem of Internet piracy grows as fast as the computer and the Internet are used itself, if not even faster. Today about 327 million people in the world have access to the Internet. Of those, 130 million of them are in the United States, where nearly 50 percent of citizens are Internet users.

When the rest of the world catches up to the United States, Finland, Norway, and a handful of other developed nations with the highest per capita Internet use, the numbers will be staggering, and it will not take long. When nearly 3 billion people have access to the Internet, they will also have access to pirated music, software, and other copyrighted materials.

Pirates will increase the supply to meet the exploding demand. Clearly the industry, trade associations, and some governments led by our own recognize the need to work toward reducing both demand for and supply of pirated material. Public-private efforts have succeeded in strengthening copyright protection and enforcement.

The Clinton-Gore Administration has worked diligently to implement the TRIPS agreement, and within the WTP and the WIPO, push for the adoption of two WIPO treaties that respond to the rise of cyber network based deliver of copyrighted materials.

Secretary Daley, before he left office, made ratification of these as a top priority of his, and I understand we are halfway toward getting the signatories we need to fully implement these.

Congress and the President worked during the 105th Congress to pass the important Digital Millennium Copyright Act, which I was glad to support. However, government is aided by an army of acronymed industry associations fighting to protect intellectual property rights. The IIPA, the International Intellectual Property Association; the IIPI, the International Intellectual Property Institute; and the other IIPA, International Intellectual Property Alliance—and I would like everybody to say that five times——

[Laughter.]

Mr. MENENDEZ [continuing]. Alone could fill another panel today.

They and many others, the IFPI, the Business Software Alliance, the Recording Industry Association of America, and the Interactive Digital Software Association are some of the most prominent, are testament to the amount of money that is at stake.

The IIPA and the BSA estimate that between eight billion and 15 billion a year of lost revenues from music and software hard goods alone is a reality. It has been so far impossible to accurately gauge losses from Internet piracy, and that, of course, is the subject of today's hearing, and I look forward to hear from our expert panelists about their work to measure the losses and combat the problem.

But let me just highlight a few thoughts as the Ranking Democrat on the Subcommittee, and I would love to hear as you give

your responses, and possibly some of your answers may be in the question and answer period.

Internet piracy will clearly get worse before it gets better as the Internet use explodes, outpacing efforts to restrict unlawful infringement of intellectual property rights. The problem is probably exacerbated by a feeling among individuals, societies, and even governments of the developing world that, quote, we are poor, they are rich; we have a right to download this free.

We have got to impress upon our trading partners the importance of strengthening and adhering to the rule of law because that is what works best for everyone in the long term for an investment in their countries and overall trade relations will be adversely affected by lack of will , the judicial infrastructure, and the ability to combat privacy.

I encourage and applaud efforts by the Patent and Trademark Office and other U.S. Government agencies to provide technical assistance to developing nations in their effort to enforce intellectual property rights, and I wonder if the associations are doing the same.

We must work toward increased transparency of Internet commerce at the same time that we respect the privacy of Internet users. The industry rightfully argues that the individual who in the privacy of his own home and meaning no harm trades or shares unauthorized music, video or software files is just as pernicious for the producers of intellectual property.

But can we truly treat the individual who is not making money through their actions the same way we treat the organized crime syndicates that are involved in piracy in a massive and increasingly violent scale?

How do we seek to strike the balance in the freedom of Internet commerce through the legitimate claim of protective rights of the producers?

And I think one of the greatest difficulties in the government's efforts here is that someone, for example, in the creative genius of performing, creating music, ultimately they wish to be heard. They wish to share their creativity. So long as that is the burning desire of the creative genius of an individual, to be heard, it is also one of the great challenges in this process of assuring the rights that they deserve as a result of their creativity as their burning desire to be heard by an incredible number of people.

I am not sure how government does the best job of reconciling those interests, and I look forward to seeing how the panel addresses it.

Thank you, Mr. Chairman.

Mr. MANZULLO. Does anybody else have an opening statement?

Mr. Delahunt.

Mr. DELAHUNT. I would just make one observation. When it comes to the issue of piracy and the music industry, particularly, and obviously software, it is clear that we have a substantial issue to deal with when it comes to the burgeoning balance of trade deficit, and the one account that I think now exceeds any other account in terms of the positive side of that ledger is our intellectual property account.

And I know I speak for many who are concerned about this piracy issue in that it is absolutely critical and essential that we take every step possible to protect our commercial interests on a national security basis and our national economic interests to do what we can to allay and assuage the problem of Internet piracy.

Mr. MANZULLO. Mr. Rothman.

Mr. ROTHMAN. Thank you.

I, for one, am at a little bit of a loss, and I look forward to the panel addressing this: an elaboration of what fundamental American value we put in jeopardy if we do not enforce the private property rights of those artists who created the music and those who supported the artists to enable them to create and market their work.

I know my Republican colleagues passed the Private Property Rights Act to streamline the ability of people to make claims about the government taking their property without just compensation, and I voted for that. As far as I am concerned, the overwhelming burden of proof is on anyone who would compromise in any way the private property rights of the artists who created the music and those who supported them to enable them to market the music. So each should hear what the other side has to say.

Mr. Dickinson.

STATEMENT OF THE HONORABLE Q. TODD DICKINSON, UNDER SECRETARY FOR INTELLECTUAL PROPERTY AND DIRECTOR, PATENT AND TRADEMARK OFFICE, U.S. DEPARTMENT OF COMMERCE

Under Secretary DICKINSON. Thank you, Mr. Chairman.

Mr. MANZULLO. Could you put the mic a little bit closer to your mouth?

Under Secretary DICKINSON. I sure will.

Mr. MANZULLO. Thank you.

Under Secretary DICKINSON. It is a pleasure to be back before this Subcommittee again today to discuss, in particular, what the U.S. Patent and Trademark Office and this Administration are doing to help protect American intellectual property from piracy at home and abroad, particularly on the Internet.

As was suggested, the Internet has exploded. The President likes to say when he came into office that there were something like 100 Web sites, and now there are probably on the order of 100 million.

As the title of the hearing indicates, two of the U.S. copyright industries most intensely affected by piracy and the unauthorized use of their works on the Internet are the software and the music industries. The losses in these areas easily total in the tens of billions of dollars, translating into lost jobs, revenues, and foreign royalties for American workers and businesses.

Given the explosive growth of the Internet and the increasing use of intellectual property on Web sites, the problems of piracy are not going to go away on their own. That is why the Administration has been tackling these problems head on.

Here at home we have worked with Congress to equip American intellectual property owners and law enforcement authorities with better legal tools to fight piracy through the passage of measures,

such as the Digital Millennium Copyright Act and the No Electronic Theft Act.

At the same time we have partnered with international associations, such as the World Intellectual Property Organization [WIPO] and the World Trade Organization [WTO] to provide similar legal norms at the international level. For example, we are working with our colleagues at the U.S. Trade Representative and the Department of State to ensure that our trading partners implement the protections provided in the 1996 WIPO Internet treaties, as well as the Agreement on Trade Related Aspects of Intellectual Property Rights or the TRIPS agreement.

Adopting these legal norms is not enough, however. Our trading partners must also have the technical means and the political will to put these legal tools into practice. In that regard, the USPTO is receiving more requests than ever from our trading partners. These requests are for technical assistant in reviewing IP legislation and developing an integrated enforcement system consisting of civil, criminal, and administrative procedures and remedies, as well as border measures.

Many of these requests are in response to the January 1, 2000 deadline for all developed and developing countries who are WTO members to have domestic laws and enforcement mechanisms that are TRIPS compliant.

Because of the growing problem of Internet piracy, many of these countries are also seeking assistance in developing enforcement mechanisms to deal with technological advances in IP protection and enforcement.

They also need assistance in understanding and implementing the WIPO Internet treaties to establish the legal framework to combat these problems. Accordingly, the focus of our Internet oriented efforts has been to assist countries in adapting the enforcement models appropriated for conventional hard goods—CDs, cassettes, floppy disks, and the like—to the realities of cyberspace transmission of copyrighted works.

In particular, we are targeting our enforcement training efforts to focus on problems of Internet enforcement in areas where Internet usage is rapidly expanding, namely, Latin America, Africa, and Asia.

This past May, the USPTO and WIPO provided a week long program on developing a TRIPS compliant and effective enforcement regime for law enforcement and other government officials from a number of developing countries. These included China, Hong Kong, India, Thailand, the Philippines, Israel, Egypt, and Nigeria.

Next week we're going to partner again with WIPO to provide a similar training program in Senegal for government officials from several African nations, which builds on a similar program we offered last year in Kenya.

In September we will sponsor two regional conferences to explore the practical problems in developing and implementing effective IP enforcement mechanisms in today's rapidly changing digital and technological environment. The first event, which is actually the second Intellectual Property Symposium of the Americas, will be held here in Washington on September 11 and 12. It will be attended by judiciary officials, public prosecutors, domestic enforce-

ment agents, and private rights holders from throughout North, Central, and South America.

The second forum, an Asian-Pacific regional conference, will be held in Thailand on September 18 and 19.

As you know, Mr. Chairman, the music software and other core U.S. copyright industries are a key growth sector for our economy, accounting for nearly $400 billion in value added to the U.S. economy and generating an estimated $67 billion in foreign sales and exports in 1997 alone.

Accordingly, the USPTO and this Administration are dedicated to ensuring strong protection and enforcement of these IP products in the global economy. In fact, with Congress' recent enactment of the National Intellectual Property Law Enforcement Coordination Council we now have a formal inter-agency coordination effort for domestic and international IP law enforcement among Federal and foreign entities. We believe the Council will help us partner with industry to develop effective strategies for addressing Internet piracy, which is a key challenge for the 21st century.

Thank you very much, Mr. Chairman, and I am pleased to answer any questions which you or the Subcommittee might have.

[The prepared statement of Under Secretary Dickinson appears in the appendix.]

Mr. MANZULLO. I appreciate that.

Mr. Papovich.

STATEMENT OF JOSEPH PAPOVICH, ASSISTANT U.S. TRADE REPRESENTATIVE FOR SERVICES, INVESTMENT, AND INTELLECTUAL PROPERTY, OFFICE OF THE U.S. TRADE REPRESENTATIVE

Mr. PAPOVICH. Thank you, Mr. Chairman, Congressman Menendez, Ms. Chairwoman, and the other Members of the Subcommittee.

We appreciate the opportunity to speak to you about the cost of Internet piracy for music and software and other industries in the United States dependent on intellectual property and USTR's role in this.

We are a small agency. We have only four of us, including myself, who work directly or primarily on the implementation of our intellectual property policy. Therefore, we very much appreciate the support and interest received from Congress and from other agencies, including the Patent and Trademark Office with whom we work very closely.

Our main function or our main policy, as we see it, is to press other governments. This is USTR's main activity, to press other governments to provide adequate and effective intellectual property protection and enforcement, and we focus particularly on commercial levels of piracy.

That means we press countries to have modern laws and to enforce them by making available to U.S. right holders administrative, civil, and criminal sanctions. We use the tools provided to us to obtain these results.

Our principal focus now, or at least one of our principal focuses, is securing full implementation of the WTO's so-called TRIPS agreement, which is the intellectual property agreement in the

World Trade Organization. This agreement requires members to enact and enforce copyright and other intellectual property protection.

Obligations for developing countries came into effect on January 1, 2000, after a 5-year transition period. We have achieved considerable success obtaining compliance with the substantive obligations of the agreement. However, compliance with the enforcement provisions remain a problem in certain developed countries and in many developing countries, and that has become increasingly the focus of our attention.

First we focus on insuring the countries changed their laws to reflect modern intellectual property standards or the standards of the TRIPS agreement.

Another aspect of our WTO strategy relates to the WTO work program on electronic commerce. For example, we are seeking recognition by WTO members of the applicability of existing WTO rules to electronic commerce. In the context of intellectual property, this means recognition that the standards established in the TRIPS agreement are as applicable on the Internet as they are in the physical world.

We are actively consulting with industry to develop the best strategy to address Internet piracy. An important first step in this, of course, was achieved at the World Intellectual Property Organization when they concluded their two copyright treaties in 1996.

We are pursuing this in several ways. We are seeking to incorporate the highest standards of protection for intellectual property into every bilateral and regional trade agreement that we negotiate. We are negotiating now with our trading partners in the Western Hemisphere in an attempt to conclude a free trade area for the Americas.

The United States is submitting proposals in this negotiation that incorporate the substantive provisions of the WIPO copyright treaties. So in this regional agreement we would seek to have standards higher than those now in the TRIPS agreement.

Our proposals in the so-called FTAA would also update copyright and enforcement obligations to reflect other technological developments.

More immediately, we are engaged in a bilateral negotiation of a free trade agreement with Jordan. In this negotiation on the IPR Chapter, the Intellectual Property Chapter, we are insisting that the Jordanians agree to implement these WIPO copyright treaties and put provisions in their law that allow the enforcement of those provisions.

Finally, one of our longer term objectives is to bring the substantive obligations of the WIPO copyright treaties into the WTO as obligations for all members under the TRIPS agreement. At that time, we would intend to further update the TRIPS agreement to insure that it provides adequate and effective protection for intellectual property in light of the latest technological developments.

We also have a fairly active bilateral program. One of the most effective tools we have is the annual special 301 review mandated by Congress under the 1988 Trade Act. This tool has vastly improved intellectual property standards around the world.

Each year at the end of April, we publish a list of countries that we believe do not provide adequate and effective intellectual property protection. The mere publication of that list warns countries of our concerns and warns investors that that country may not be a safe place for them to put their investment money.

In many cases, our actions under special 301 leads to permanent improvements. We have had some meaningful successes recently in Bulgaria where there had been serious optical media CD piracy that has largely been closed down; even more recently in Hong Kong, which has taken significant steps legislatively and enforcement-wise to combat optical media.

Perhaps the biggest effort we have made in the second half of the 1990's was with respect to China. In 1995 and 1996, persistence tolerance of piracy there led us to threaten China with $1 billion in trade sanctions. These sanctions helped us achieve the closure of pirated optical media production in China.

Our followup work has been to insure that all relevant Chinese agencies, including trade, customs, judiciary police, and senior political officials stay involved.

Enforcement of intellectual property rights now has become part of China's nationwide anti-crime campaign. During 2000, they are conducting a coordinated anti-piracy campaign involving a number of enforcement agencies.

As we begin to move our efforts into Internet related piracy issues, we have been raising this issue increasingly with countries. While most of our efforts remain with the problem of physical piracy, which still is very large, we have begun encountering countries' Internet piracy issues.

My boss, Ambassador Charlene Barshefsky, recently wrote to one of the Chinese Vice Premiers, urging him to insure that as China amends its copyright law, which they are doing now, and in doing so that they make amendments to address Internet piracy, including implementation of the WIPO copyright treaties.

In any case, Chinese courts have ruled in a number of recent cases that unauthorized uses of sound recordings in the on-line environment are acts of infringement under their existing copyright law.

Similarly, with Hong Kong, a number of U.S. agencies recently provided for a training program for Hong Kong's Department of Customs and Excise. Hong Kong sent members of its Internet Anti-piracy team to the U.S. Government's Cyber Smuggling Center in Virginia for a week-long training session on ways to curb Internet piracy.

On June 22, just a month ago, after Hong Kong's people returned, they smashed a syndicate there in Hong Kong which had been soliciting orders for pirate CDs over the Internet. Those people are now training others in Hong Kong in how to conduct such enforcement activities.

We need to do much, much more training, and that is something that we will cooperate with other agencies to do, in terms of just teaching other governments how to move from dealing with the still very large physical piracy problem to trying to tackle the Internet piracy problem.

Intellectual property protection remains one of our most important and challenging tasks. We protect U.S. intellectual property rights to encourage research, investments, and ideas of some of America's leading artists, authors, private sector and academic researchers.

Congress, through passage of the special 301 law, the passage of the Digital Millennium Copyright Act, implementing the WIPO treaties and other actions, including hearings like this, deserves great credit for bringing public focus to these issues. We look forward to continuing this effort together as we move forward.

Thank you very much.

Mr. MANZULLO. Thank you.

Mr. ROHRABACHER. Todd, good to see you again.

Under Secretary DICKINSON. Congressman, and you.

Mr. ROHRABACHER. You are doing a good job over there.

Under Secretary DICKINSON. Thank you.

Mr. ROHRABACHER. I would say you guys have got your job cut out for you on this one. I do not know what the answer is, but it is getting more complicated every day, and that is all I've got to say.

[Laughter.]

Mr. MANZULLO. Congressman Menendez, can you follow that one?

Mr. MENENDEZ. Well, that is the start. So, you know, to get a compliment from Mr. Rohrabacher and just to say that is as little as he has to say on the subject is historic. I do not know that I can——

Mr. MANZULLO. You know, we do not have to ask questions. They gave good testimony.

[Laughter.]

Mr. MENENDEZ. I do have some questions that did not get answered.

Mr. Papovich, let me ask you. You mentioned, I think, in your testimony that only 4 of the nearly 200 employees at USTR are dedicated to the implementation of intellectual property policy, which is only about 2 percent. Is 2 percent the amount of—does that represent USTR's work overall on intellectual property right issues? And do the trade losses of U.S. businesses represent only 2 percent of the overall issues that USTR faces?

Mr. PAPOVICH. Actually, my statement may have been a bit of a misstatement in that sense. First, I included secretaries, support staff in the 200, and that is some significant number.

But I said primarily involved, and, in fact, the way we organize ourselves, at least half of our units at USTR are regional staffs. We have an office for Japan, an office for China, an office for Europe, and each of those people has as part of their portfolio the protection of American intellectual property interests in other countries.

In fact, I will share this with you. A few years ago as I was sitting with an OMB official talking about our budget proposal, this person said, "You know, we ought to change the name of this institution from USTR to USIPR because you are spending entirely too much time on intellectual property issues, or let's put it this way. You are spending an awful lot of time, not too much time, but an awful lot of time on intellectual property issues."

We, the four of us, are responsible for overall policy. We then, if you will, direct our regional officers to raise intellectual property issues with the countries that they interact with on a daily basis. So it is not just the four of us.

Mr. MENENDEZ. But the question still stands. Are you expending the resources that are commensurate with the losses to American industry in this regard? Is it something that should be reallocated or that your department should be added to?

I mean obviously we all talked in your statements, as well as ours, about the explosive nature that is going to take place as a result of greater Internet use, and therefore, the potential for piracy is only going to grow. Getting the respect of countries to respond, those who are on the 301 list, developing countries who have no excuse other than political will, and developed countries versus developing countries; it seems to me that you are not by design or desire, but it seems you are shortchanging what, in fact, we should be doing in this regard.

Do you think you have all of the capacity to deal with this?

Mr. PAPOVICH. It is a tough question for me to answer because the 200 of us, or the 120 or so who do the substance of the work, have to cover our entire trade policy for the United States. Our job is to coordinate trade policy, including international intellectual property enforcement policy, with those in our building.

We then have to rely heavily on other agencies to make that happen, and that is the way the system is set up. So we rely on PTO, State Department——

Mr. MENENDEZ. By way of example, let's look at China. You spoke of the huge problem of piracy in China, and the government's efforts beginning in 1995 and 1996 to curb those activities.

The question is: when are we going to see a drop-off in piracy? Because if you look at the IIPA and BSA statistics, they show little positive change from 1998 to 1999. So, you know, that is by way of example, one example, of what I am concerned about in this regard.

When do you see some positive changes moving in the context of China?

Mr. PAPOVICH. I do not know when we will see that. I hope we see——

Mr. MENENDEZ. I can understand, sir.

Mr. PAPOVICH. I hope we see it this year, but it is not easy. It is not easy.

Mr. MENENDEZ. What do the 301—I mean, I know what they are supposed to do. What do we actually do when we have the 301 list that we promulgate? I mean, what do we do to move countries?

I mean, developed countries in my mind have even less reason to be in the midst of not enforcing and providing the rule of law, enforcing the rule of law, and creating the infrastructure that they have committed themselves to in international agreements.

Developing countries might have some arguments about their technical abilities. Developed countries do not. What are we doing with, for example, developing countries that are not meeting their responsibilities?

Mr. PAPOVICH. Well, we are using the WTO dispute settlement system. We have brought disputes against Sweden, Denmark,

Greece, and Ireland over parts of their IPR system that are in noncompliance with the TRIPS agreement.

In the case of Denmark and Sweden, the problem was that they did not permit ex parte searches of otherwise legitimate business operations that are using pirated software. This is very important to the software industry to be able to have these surprise searches.

In both instances Sweden already changed its law after we challenged them to comply. Denmark is in the process. In the case of—I did not mention Portugal—Portugal was in noncompliance. We challenged them in the WTO. We started the formal dispute settlement process, and then they complied. One of the biggest problems we have is in the enforcement side where countries have less stringent penalties than the United States might have.

A good example is Greece and Italy where crimes of very severe magnitude committed there do not receive the punishments that would be allocated here. For economic crimes, like intellectual property, penalties are also considerably less than what we would consider appropriate to deter, and we have been putting pressure on these countries, and it has been a challenge because they have a hard time seeing that the economic crime of intellectual property piracy rises to the level that deserves the punishments we deserve.

But we have used a variety of pressures to get them to change this, but it is not easy. The Italian government has legislation, an anti-piracy law, that we hope they will pass this summer, but we have been working on it for about 4 years now using different pressures to get that done.

But it is often just a case of perception. The countries, even developed countries, do not always see intellectual property as a form of private property even though their own citizens create a lot of intellectual property. They still are learning the importance of it as a form of property that needs to be protected.

Sorry for the long answer, but I wanted to elaborate.

Mr. MENENDEZ. I have other questions that I will submit for the record. I hope you will answer them.

Mr. MANZULLO. I was going to ask you a question about Macau. I was over there in December 1997 just before the turnover. Your mentioning of Portugal explains how Macau's transition from Portugal to the PRC, reminds me of just a wonderful hand-off to people who do a great job of preserving intellectual property rights.

But my understanding is that one of the biggest areas of CD pirating in the world taking place in Macau. Is that still going on?

Mr. PAPOVICH. Yes. It has begun to improve, and I am not sure quite what to make of it, but I——

Mr. MANZULLO. I will not ask the question to what extent is it improving because it cannot go anywhere but improve, I understand.

Mr. PAPOVICH. I have made several trips to Macau on this problem, and in one meeting I had with one of the chief prosecutors, I had the impression he was afraid for his life; that if he prosecuted these people, he would put his life in danger. This was a Portuguese origin person.

The last time I was there I met with one of the Chinese prosecutors who did not look very frightened to me, and he talked about how he was going to clean this up, and I hope he does. I worry a

little bit about insuring the rule of law. I do not know what tactics he is going to use, but I have noticed in the past few months that the Macanese police have become more aggressive about attacking pirates than they were before.

So I see some improvement, and I do not know how much to attribute that to the hand-over, but I just will note that I have seen some improvements in recent months.

Mr. MANZULLO. There is supposed to be a 5-year period of time during which developing countries were supposed to phase in agreements or statutes that would be in compliance with TRIPS. What is going on there?

Mr. PAPOVICH. As I said in my testimony, there has been fairly good performance by developing countries in changing their substantive standards, in modifying their copyright, patent, trademark laws to make them TRIPS compliant. It is not perfect by any stretch of the imagination, but pretty good, and we have a long list that I would be happy to submit if you would like to have it for all the countries, developing countries that have amended their intellectual property laws in the last year in an attempt to comply.

The bigger problem is going to be on the enforcement side. If a country has a poor judicial enforcement system generally or a corrupt judicial enforcement system generally, it is going to be an uphill battle for us to get them to adequately enforce the intellectual property components of their law.

Mr. MANZULLO. Are we mostly talking about piracy here in terms of reproducing CDs?

Mr. PAPOVICH. That is a big part of it.

Mr. MANZULLO. What other aspects are there besides that?

Mr. PAPOVICH. Well, software piracy is often called corporate end user piracy, where an otherwise legitimate corporation will buy one piece of software, get no licenses, or licenses for 1 or 2 machines, and then copy it onto 500 machines.

Mr. MANZULLO. Well, that is done in this country.

Mr. PAPOVICH. That is against the law, and that is a priority for BSA.

Mr. MANZULLO. That was a good answer.

Mr. PAPOVICH. I will let them speak to that, but we put a lot of pressure on countries to act against this.

In the trademark area, of course, counterfeiting is just a gigantic problem, whether it is footwear or blue jeans or whatever. That is a problem, too.

Mr. MANZULLO. Well, you have both been very candid here. Is there any hope? All it takes is one country to be a pirate, and that is enough to destroy intellectual property rights around the world.

Mr. PAPOVICH. Well, I am an eternal optimist, and I believe we have been making progress. My bigger fear, despite my eternal optimism, is that we chase this problem, particularly this optical media one. We chased it out of China. China was the central production center for optical media piracy.

Mr. MANZULLO. Explain what you mean by that.

Mr. PAPOVICH. Optical media, these are CDs, CD–ROMs, VCDs, DVDs, all of those, the optical things that go on disks.

We put enormous pressure on the Chinese to stop this in the mid-1990's. They did shut down the production of these products.

They fled to Macau and Hong Kong first and Taiwan. We put pressure on all three of them, and we are seeing progress, particularly in Hong Kong.

The Hong Kong and Macanese police have raided factories where the machinery was boxed up with addresses like Malaysia, Thailand, where the product, the machinery was being shipped because the police pressure was getting too hot on them.

So then I have been traveling to Thailand and Malaysia doing the same thing and hopefully will see progress, but two problems loom out there. One is these pirates could move to places I do not have very easy access to, some place like Burma, let's say, or it goes to the Internet, which is going to become much more difficult for everyone to police. It is one thing for people to have a factory that the police can raid. It is another thing to have a computer in their house, when they are facilitating the transfer of all of these CDs.

Mr. MANZULLO. Thank you.

Steve, I think it is your turn.

Mr. ROTHMAN. Thank you, Mr. Chairman.

I have a couple of questions. How big is this problem? What is it costing the American industry? And what does it cost the American consumer? Do we have any numbers on that?

Mr. PAPOVICH. The only numbers we have are ones that industry has provided to us. We do not have any capability ourselves to estimate this, but our annual special 301 review, each spring the IIPA, the alliance of copyright alliances, submits a very comprehensive set of estimates to us of the losses they suffer and the piracy rates and the number of countries, not every single country, but in many countries so that we have a feeling for that.

I do not remember the numbers off the top of my head, but it is something like $4 billion. It was in your testimony.

Mr. PAPOVICH. Yes, we are getting around $4 billion.

Mr. ROTHMAN. And it would be interesting to know $4 billion out of how many.

Under Secretary DICKINSON. Well, the same estimate from the same entity of how much the contribution to the GDP that the copyright industry makes is somewhere around $530 billion. Probably a little over 6 percent of our GDP is dependent on copyright industries.

Mr. ROTHMAN. $4 billion out of $5 billion?

Under Secretary DICKINSON. $530 billion.

Mr. ROTHMAN. $530 billion; $4 billion out of $530 billion. I do not need to do the calculation. I just want the raw number.

Under Secretary DICKINSON. Now, there is about $66 billion of foreign sales that are generated, as well. That is all in the number of domestic and foreign.

Mr. ROTHMAN. OK. I have another question. Do you have sufficient legislation from us to help you? Do you need anything from us?

Mr. PAPOVICH. No. The special, from my side——

Under Secretary DICKINSON. Let me make a correction, by the way. That 4 billion represents industry estimates from just one industry, the recording industry. Software industry estimates are somewhere on the order of $12 billion in just their industry.

Mr. ROTHMAN. Well, each of those is——

Under Secretary DICKINSON. The $530 billion is all copyright industries all together.

Mr. ROTHMAN. OK. So now we have got recording is $4 billion, and the other one is what?

Under Secretary DICKINSON. Software is, according again to BSA, the Business Software Alliance, and the Software Industry Association, $12 billion.

Mr. ROTHMAN. Twelve. So we are up to $16 billion out of $530 billion. I am not saying whether that is big or small.

Under Secretary DICKINSON. And the estimate, and I apologize for looking down a little further here, the IIPA estimates the U.S. copyright industries worldwide losses are $22 billion total.

Mr. ROTHMAN. $22 billion on top of the $16 billion?

Under Secretary DICKINSON. I think the total is the $22 billion.

Mr. ROTHMAN. Is the 22. So it is $22 billion out of $530 billion.

Under Secretary DICKINSON. Yes.

Mr. ROTHMAN. OK.

Under Secretary DICKINSON. Out of $67 billion.

Mr. ROTHMAN. $22 billion out of $67 billion?

Under Secretary DICKINSON. Let me just check.

Mr. ROTHMAN. No, because if 16 is the domestic out of 530—well, you know what? We can get those if you have them.

Under Secretary DICKINSON. We can get those numbers back for you, Congressman. It is a lot of money. Let's put it that way.

[Laughter.]

Mr. ROTHMAN. It is a lot of money, but you know, we can to get a sense of the scale of the problem.

Under Secretary DICKINSON. We do.

Mr. ROTHMAN. What do cigarettes cost us? What do car accidents cost us? What does alcohol cost us? It runs into the billions as well.

Under Secretary DICKINSON. Indeed.

Mr. ROTHMAN. Again, I do not mean to minimize the extent of the danger of this particular bill, and it is a big one, and it bothers me greatly, but what bothers me is the sense I get, and I hope I am wrong that the Internet being free, that everything is for free, and I am not sure all Americans yet have a feeling for the value of intellectual property, and I think they should because what is a capitalist society, aside from general fairness, sense of fairness that one owns, you know, the product of one's own labor; people have made a great deal of investments in these intellectual property items, and they want to be able to be assured of whatever return is due to them and that some of the proceeds will not be stolen from them.

So what can we tell the average American young person or average citizen about what their role should be in a world where they may have a great exposure, greater exposure to these ill-gotten gains, this stolen property? Should there be some national campaign or is there one already from the industry?

I think I have seen some of those saying, you know, there is no such thing as a free lunch or something like that, and I have had young people say, "Oh, it is just for free."

And I said, "When you go into the candy store and steal something, that is shoplifting. There is no difference if you steal someone else's property."

Do you have any thoughts on that?

Under Secretary DICKINSON. Congressman, I think you have stated the case very well. I think one of the challenges we face is that intellectual property is an intangible thing, and being so easy to copy, it is often perceived as something which is fair game, and if you can get away with it, it is OK. And so that creates some obvious problems.

We have also seen that problem enormously enhanced by the rise of the Internet and technologies which have been developed on the Internet that have allowed for the copying, in some cases fair use, but in many cases not, of copyrighted works. That has become a major problem.

And there has been hearings both here and on the other side of the Hill to deal with this recently and to deal with this question.

Mr. ROTHMAN. Well, maybe it's up to the people whose goods are being stolen to do that, and they may very well have programs to talk about, but I would be interested in that. You know, as a father, as a member of the community, it is our job to educate our young people about what is right and what is wrong.

Under Secretary DICKINSON. There is no free lunch. Sometimes this is perceived, for example, as very wealthy individuals in the recording industry losing a little bit of their wealth. What that fails to overlook is the number of people who are genuinely in that industry at all levels, from the people who run the pressing machines to the people who run the recording studios, the people who just have regular jobs in those industries that are not glamorous and exciting as the stars might be. Those are real jobs that are lost and real wages that are affected.

Mr. MANZULLO. Mr. Delahunt.

Mr. DELAHUNT. Thank you, Mr. Chairman.

To attempt to quote Everett Dirksen, I think, it was a bit in here, a bit in there, and after a while you are starting to talk about some serious money.

Mr. MANZULLO. He is a good Republican.

Mr. DELAHUNT. I understand that. I know that there are some good Republicans, Mr. Chairman.

[Laughter.]

In fact, some of my best friends are Republicans.

Mr. MANZULLO. Not enough. Well, your time is up.

[Laughter.]

Mr. ROTHMAN. Mr. Chairman, he includes you among them.

Mr. DELAHUNT. Just let me pursue a little bit because I really think it is important to underscore that in terms of our economy and its relationship to the global economy, how significant the intellectual property account is in terms of the trade deficit.

Are we talking about a $4 billion loss or a $22 billion loss, in terms of exports? I think we can agree, you know, that we have a balance on the export side of some $67 billion, and what is the best estimate you have in terms of domestic piracy overseas as opposed to domestic piracy because they really do present, you know, different problems, if you have it.

Under Secretary DICKINSON. I do not happen to have it. Do you have it, Joe, in terms of the——

Mr. PAPOVICH. No.

Under Secretary DICKINSON. I have worldwide estimates by some of the entities who make these estimates. We can try to get the breakdown for you.

Mr. DELAHUNT. OK.

Mr. PAPOVICH. But there is a further complicating factor. It is not all lost exports. Some of this work would have been produced in the markets that it is intended to serve. You know, not every CD that is sold in Asia that is legitimate is not made—that has, as we say in America, a recording artist on it—the CD itself is not made in the United States. The CD may be made in a country where the market is. So it is lost revenue opportunities, but it is not necessarily exports.

Mr. DELAHUNT. In terms of the legislation that we passed last session, the so-called Net Act and the Digital Millennium Act which dealt with the issue of these anti-circumvention devices, the prohibition thereof, if you will, and I am sure that maybe our next panel can respond to it and maybe they have some experience, have we been able to determine or make any evaluation as to the effectiveness of what we did last session?

Under Secretary DICKINSON. My understanding, Congressman, is that both of these acts have only recently begun to be used. We have not had extensive experience with them yet, but my understanding, for example, is that some parts of them have been used extensively so far. Under the DMCA, for example, the notice and take-down provisions that the ISPs and the OSPs use to bring down Web sites which are inappropriate have been used rather extensively. Some of the defenses in the DMCA, I understand, have also been used.

So we will have to wait and see what the ultimate result is, and some of the other witnesses may have some insights.

Mr. DELAHUNT. OK.

Mr. PAPOVICH. There is an indirect value, too, and that is the example that we set for other countries. If we were to delay, if we had delayed in implementing our requirements under the WIPO copyright treaties, it would have made it all the harder for a person like me to go to another country and say, "You need to do something to implement those WIPO treaties."

Mr. DELAHUNT. Right.

Mr. PAPOVICH. The same with the Net Act.

Mr. DELAHUNT. Well, I think we have got to do that to be in compliance with the EU and with the TRIPS Act.

Mr. PAPOVICH. Right.

Under Secretary DICKINSON. Well, actually the contrary is the case, Congressman. We have taken the lead internationally. We were one of the earliest nations to ratify those treaties and pass the implementing legislation. The EU and European countries have not yet ratified the treaties, and one of our biggest jobs is trying to convince our colleagues and friends in Europe that they need to move forward in a timely way.

Mr. DELAHUNT. Right. I think you responded, you know, in terms of what we can do, in terms of legislation and substantive law. You

have the books that we have just alluded to at your disposal, and again, I think maybe it was Mr. Menendez that was talking about, you know, there are four of you in the USTR that are working in terms of intellectual property, but I think your coordinating role or mission, if you will, is really the key here, and maybe you can list for us the agencies that are dealing with this particular issue.

I think, if my memory does not fail me, I think the Attorney General, Ms. Reno, has established a task force in terms of dealing with the issue of piracy and intellectual property.

But I guess the bottom line, after you look at that, is: are we spending enough resources at this point in time in your judgments, and not, again, just simply from your agency perspective, but in terms of what we need to do to protect American intellectual property in the global marketplace?

Under Secretary DICKINSON. Congressman, let me start off. Among the agencies that are involved, and these are the ones which are members of the National Intellectual Property Law Enforcement Coordination Council that we mentioned, the Assistant Attorney General for Criminal Enforcement, the Under Secretary of State for Economic Affairs, the Deputy USTR, the Commissioner of Customs, the Under Secretary of Commerce for International Trade, and the Register of Copyrights.

Mr. DELAHUNT. Commissioner, I think it is important to enumerate them, but I guess what I am saying is what kind of resources, for example, is the Department of Justice allocating to this particular initiative. I mean, how many FBI agents are dealing with this issue? Do we have enough personnel from whatever Federal agency is involved to really do this job and to start to make a difference in terms of sending out a deterrence message?

Under Secretary DICKINSON. I think we do not do enough yet. We do not have enough resources. I think that you would have to ask the Justice Department the magnitude of their——

Mr. DELAHUNT. I am not just picking on the Justice Department.

Under Secretary DICKINSON. No.

Mr. DELAHUNT. But I am talking about all of these, whether it is Commerce or Customs or whatever.

Under Secretary DICKINSON. Well, as you know, one of our biggest issues this year is gaining access to the fees that are paid to our office to make sure we have the resources to do the job.

Mr. DELAHUNT. I do, and you know that you have a strong advocate in me in that particular undertaking.

Under Secretary DICKINSON. Yes.

Mr. DELAHUNT. If I can just have one additional question, in the end in terms of Internet piracy, I was very pleased to see that the Administration has issued some new guidelines in terms of the export of encryption technologies, and I would be eager to hear from the next panel in terms of what the industry is doing in terms of incorporating into our intellectual property products the necessary technologies so as to prevent, if you will, piracy, and maybe either one of you can comment on that.

Mr. PAPOVICH. I am sorry. I cannot.

Under Secretary DICKINSON. I cannot comment directly, but I think you have obviously hit on a key issue. Besides traditional law

enforcement activities and training activities that we work on, there are certainly technological mechanisms for dealing with this.

Mr. DELAHUNT. I think this is really, really critical, and I am sure there is a role for government there somewhere in terms of assisting the private sector because this is about law enforcement, which I suggest is a government role, and we ought to be, you know, really working with the private sector to develop the kind of technologies that they need.

Mr. MANZULLO. Mr. Chabot.

Mr. CHABOT. Thank you.

I will be brief so that we can get to the next panel, but would you address the wisdom of going against pirating either through criminal law, whether it is international agreements, etc., versus just allowing those that have been harmed, the private sector, the companies or whomever, to go civilly against the folks that are involved in this either in other countries, and I assume you are going to say we need to do it criminally and here is why, but I would just like to hear the philosophical and efficacies of going one way versus the other.

Under Secretary DICKINSON. Well, I think one of the challenges on the criminal side that Mr. Papovich mentioned is making sure that the law enforcement actors who were responsible for it raised the priority up high enough. They have to deal with violent crime and other major criminal issues. That is a concern here both in the United States and overseas.

On the civil side, it is often in the United States, for example, a matter of a very long, often dragged out enforcement proceeding which does not always get the same priority in the court system. So I think there is some room there.

Another activity which we also engage in, which I think should not be overlooked, we do it when we do our training, is to cause developing countries, in particular, to understand how important intellectual property can become in their own economies.

As the very large and growing component of our economy demonstrates, reminding and assuring and educating developing countries on how important IP can be to their own country, I think also as an economic incentive will go a long way toward helping, too.

Mr. PAPOVICH. Civil remedies are almost always inadequate in many developing countries. So from my perspective, which is just an international one, far too often the outcome, first of all, can be many, many years, but then the outcome is some very modest sanction, a slap on the wrist.

Mr. CHABOT. OK. Thank you very much. I yield back the balance of my time.

Mr. MANZULLO. Well, thank you. We appreciate your coming this afternoon.

If we could get our second panel seated as soon as possible before some more votes come off that would be appreciated. I see someone is handing out some CDs. I presume those were made legally.

[Laughter.]

Did not even catch it, did he?

OK. To complement the expertise of our first panel, I would like to introduce two gentlemen who are quite sensitive to the implica-

tions of Internet piracy and know first hand the problems and prospects which face the music and software industries.

First, I would like to introduce Mr. Jack Krumholtz, Director of Federal Government Affairs and Associate General Counsel in the Law and Corporate Affairs Department at Microsoft Corporation. Jack is a graduate of Georgetown University School of Foreign Service and the University of Pennsylvania Law School.

He is Vice Chairman of the Microsoft Political Action Committee—these are not my notes—and also serves on the Advisory Council to the Congressional Internet Caucus.

Finally, I would like to introduce Mr. Tom Tyrrell, a Senior Vice President and General Counsel and Secretary for Sony Music Entertainment. He is a former head of CBS Records' Law Department. Mr. Tyrrell served as Senior VP of Administration in North American Operations for Sony Music International until 1991.

You know, I was talking to a friend several years ago. He said at one time knowledge was discovered, but today it is invented, which leads to this incredible technological revolution that continues.

Mr. Krumholtz, do you want to lead off, please?

STATEMENT OF JACK KRUMHOLTZ, DIRECTOR OF FEDERAL GOVERNMENT AFFAIRS AND ASSOCIATE GENERAL COUNSEL, MICROSOFT

Mr. KRUMHOLTZ. Thank you, Mr. Chairman.

Good afternoon, Mr. Chairman and Congressmen Menendez and Members of the Subcommittee. On behalf of Microsoft and the other members of the Business Software Alliance, including Auto Desk and Lotus, I appreciate the opportunity to appear before you today to speak about the challenges confronting software publishers in protecting their intellectual property against theft in this age of electronic commerce.

I want to thank Ambassador Barshefsky, Secretary Dickinson, and Assistant USTR Papovich for their leadership in protecting copyright protection on a global scale. Software publishers and technology companies not only are among the chief architects of electronic commerce. They recognize the tremendous potential of offering their own physical intellectual property based products electronically.

Forester Research estimates that E-commerce among businesses will reach $1.3 trillion worldwide by the year 2003. The software industry is one of the fastest growing sectors of the U.S. economy, each year creating thousands of new jobs and unlimited opportunities for entrepreneurs and small businesses.

I would like to submit for the record a copy of a report that outlines the industry's contributions to the global economy. In the 61 countries covered by this report, the packaged software market reached $133 billion in 1997. In non-U.S. countries, the industry provided 740,000 jobs. In the United States in 1998, the industry employed over 800,000 workers.

In addition, the industry contributes significantly to tax revenues, in the billions of dollars to governments around the world.

Despite its significant economy contributions, the U.S. software industry has not reached its potential due, in part, to global piracy.

Software theft cost the industry an estimates $12 billion on a global basis in 1999. This translates into thousands of lost jobs and billions of dollars in lost tax revenues.

The Internet creates tremendous opportunities. However, it makes no distinction between legitimate businesses and criminals who want to exploit E-commerce to market their stolen products. You will hear today about the latest tools Napster and Nutella from Mr. Tyrrell.

Recently BSA member companies' software has been found on Napster. We anticipate that this trend will only continue as broad band technologies become more readily available. Today I would like to just highlight two types of theft on the Internet, Web sites and counterfeit goods.

Many thieves today simply set up brazenly illegal Web sites on any given day by typing in "wares," which is the pirate slang for stolen software. You can find 2 million Web pages offering illicit software. These sites are easy to find and are in every language.

I think you have before you a copy of a site that actually appears in Spanish, and we would like to submit that for the record as well.

Hard statistics on the financial losses via the Internet are not readily available. We estimate that the losses can be in the billions of dollars.

In terms of the second for of theft on the Internet, counterfeit, the Internet is used by pirates to advertise, market, and coordinate the distribution of pirated software CDs. I have got an example here. These are two of Microsoft's more popular products, Office 2000. This is a genuine Office 2000 and this is a counterfeit product. I think you would agree that it would be very hard for a consumer to know what the difference is, but there are some very important differences.

On the pirated CD there will not be any product or technical support, any warranties or any discounted or free upgrades, and in addition, the pirated product is often plagued by viruses.

After the sale is complete on the Internet, CDs like the one I just held up are delivered by mail. Developments in CD replicating technology have made it possible to manufacture very large volumes of near perfect copies. Here is another example of Office '97, which is also a counterfeit product.

There are many other types of Internet theft which are highlighted in my testimony. For example, these include bulletin boards, news groups, Internet relay chat channels. To appreciate the Internet's potential impact, one need only to contrast the number of people who can crowd around a flea market card table that offers pirated software and the number who can simultaneously access a pirated Web site.

What can government do? Worldwide governments can help promote legitimate electronic commerce and fight Internet piracy by doing a number of things.

First, by insuring that they fulfill their obligations under the WTO TRIPS agreement by adopting and implementing laws that provide for effective enforcement.

Second, by ratifying and implementing the WIPO treaties that insure copyright protection in the digital age.

Third, by putting strong software management policies in place.

And finally, by dedicating resources to the investigation and prosecution of Internet piracy.

In closing, Mr. Chairman, electronic commerce promises a new revolution in development, distribution, and use of products and services protected by intellectual property. I appreciate the Subcommittee's interest in these critical issues and for holding this hearing today. I would be happy to respond to any questions.

Thank you.

[The prepared statement of Mr. Krumholtz appears in the appendix.]

Mr. MANZULLO. Mr. Krumholtz, the two documents to which you referenced will be made part of the complete record without objection.

Mr. Tyrrell.

STATEMENT OF THOMAS C. TYRRELL, SENIOR VICE PRESIDENT, GENERAL COUNSEL, AND SECRETARY, SONY MUSIC ENTERTAINMENT

Mr. TYRRELL. Thank you.

I would like to thank Madame Chairwoman in absentia and her fellow Subcommittee Members.

I want to begin by describing Sony Music. Sony Music is the lead global producer, manufacturer and marketer of recorded music, video, music publishing. We are headquartered in New York.

We employ approximately 7,000 people in the United States in our many record labels, including Columbia and Epic, in our disk manufacturing plants and our state-of-the-art recording facilities in New York, and we generate significant U.S. revenues from our record music publishing business worldwide.

I am here before you today representing the Recording Industry Association of America, the trade association of America's record companies, large and small.

The United States is the greatest single source for copyrighted music exported worldwide. The music business is very much a U.S. driven business. Whether you are a large record company like Sony Music or a small, independent company, all record companies share a common thread, a fragile existence wholly dependent upon the protection of our intellectual property.

It is copyright protection upon which so much creativity, ingenuity and commerce rests, and this protection is under constant attack. You have before you an unparalleled opportunity to strengthen this protection by leading the global fight against piracy. In every instance, whether on the Net or in the physical marketplace, defeating piracy means the creation of market opportunities and the expansion of our cultural and economic well-being.

Given the tremendous stakes for our country, none of us can afford to permit ourselves to be daunted by the natures of the obstacles that we confront. The record industry and other copyright industries currently confront a piracy phenomenon with two faces, or should I say at least two faces?

For the record industry, I have submitted to the Subcommittee our current report on worldwide state of piracy, which I think will address many of the statistical questions and country-by-country breakdowns referred to earlier.

One face of piracy is in the physical marketplace, which we confront increasingly organized and multinational criminal enterprises involved in massive production and trafficking of pirated CDs and other optical media.

Long gone are the days when piracy music was either accomplished by die hard fans devoted to recording and distributing every conceivable bootlegged product of their favorite band or by some small, underground Mom and Pop operations making a few dollars from the production and sale of poorly reproduced pirate cassettes.

Today's pirates operate through multinational criminal syndicates simultaneously involved in trafficking around the globe. For example, in today's environment a pirate CD found in the streets of Sao Palo, Brazil is likely to have been mastered in Singapore, manufactured in Taiwan, shipped on spindles, meaning that it has not even been placed into jewel boxes yet, by air to Uruguay, transshipped to Paraguay where the product is finally assembled and then literally trucked over the bridge into Brazil, where it goes to central distribution centers, and then sub-distribution throughout the country, and all of this is with little worry about anyone facing criminal charges.

With the advent of the CD, the pirate has gained access to the equivalent of a master recording. It does not degrade no matter how many times he copies it. The pirate now has a new tool for his trade, CDRs, recordable CDs.

With CDRs the pirate now has the ability to tailor his pirating according to demand. No need to worry about inventory. As much as we have improved the quality of our product over the years, these same improvements have been accompanied by new risks.

Today's pirates also rely on traditional means of avoiding punishment, such as bribery and other forms of corruption, but they also have new tools in their arsenal relating to their increased stature: force and threats of violence, the ability to rapidly change the location of various components of their enterprises when confronted with governments prepared to tackle the piracy issues.

Pirates actively seek out jurisdictions in which either the law lacks enforcement or for relative safety for their operations. Our job is to decrease, if we can't entirely eliminate, these zones of safety.

The second face of piracy could not look for different. It involves not criminal syndicates, but generally law abiding citizens that mean in some sense no harm and who, in the privacy of their own homes, are now actively involved in anonymously unauthorized trading of massive numbers of recorded music files.

Appearances aside, the impact of this activity on the copyright owner is no less prejudicial than the other more obvious forms of unauthorized activities.

The response to these two forms of piracies may be quite different, but the need for forceful response is no less pressing. The fight against piracy has been increasingly more complex with developments in technology that permit the instantaneous and global reproduction and distribution of materials with the touch of a button.

In a global information network, protection of the creative materials that are such a critical part of our country's economic back-

bone is only as strong as the weakest link in the information communication exchange.

Thus, there is an absolute need to eliminate existing gaps in international legal structure that undermine the protection enjoyed by copyright holders in national and international channels of commerce. The WIPO treaties adopted in 1996 set the stage for fair international digital distribution of music. These treaties represent significant and necessary improvements in the international legal structure and contain necessary provisions relating to the ability to effectively enforce rights in the digital age.

These global improvements are critical to the ability of record companies and other copyright owners to do business in a global information society. These treaties accomplished a number of extremely important economic objectives.

First, the treaties make it absolutely clear that copyright holders are granted exclusive rights to control the electronic delivery of their works to individual members of the public. This both anticipates and responds to the realities of the electronic marketplace where copyright owners are likely to rely increasingly on the communication of signals rather than the delivery of physical products to meet consumer demand.

This level of copyright protection in conjunction with technical protections also dealt with in these treaties is indispensable to the willingness of copyright owners to make their works available through these new media.

Second, the treaties confirm that existing national copyright laws and the international copyright system apply in a generalized manner to all technologies and media and not in a technology specific manner.

Third, the treaties require countries to effectively prevent the circumvention of technical measures in interference with rights management information used by copyright holders to protect or identify their works. Such technical measures and rights management information will play an increasingly important role in the protection and licensing of copyright in the digital age.

Technology must play a critical role in solving some of the same problems created by technological developments. These technological solutions which simultaneously protect intellectual property and foster technological innovation in the expansion of commerce must be protected.

A great deal of work is being conducted around the globe to develop technical systems of protection and viable information systems to facilitate the administration of rights. These systems of protections and rights management information will be meaningless unless countries effectively deter and punish circumvention or interference.

These WIPO treaties will require countries to do this, thus establishing key elements of security for global electronic commerce. The treaties represent an essential building block for the development of E-commerce and the cultural and economic development that will ensue if we create the right conditions for promoting local creativity and its global distribution.

Mr. MANZULLO. Could you summarize?

Mr. TYRRELL. Sure. I am almost done.

Mr. MANZULLO. You are a fascinating reader. I would love to have you read to my kids.

Mr. TYRRELL. OK. The position we are in right now is one where if we look from here backward, I think we have a certain level of comfort and support, and we believe that in the executive agencies, such as the USTR, have been wonderful partners. We believe the WIPO law, this treaty, will provide us with the protections we need.

But we are not looking backward. We are looking forward, and in looking forward, we see the whole world changing and at an accelerating pace, and we feel that we are going to be facing technological challenges that we did not anticipate even a few years ago.

And traditional thoughts of what piracy means to us are not a road map for the future.

[The prepared statement of Mr. Tyrrell appears in the appendix.]

Mr. MANZULLO. So you come to us for a solution.

Mr. TYRRELL. Maybe we come to you at this point to say we are not an industry that likes to cry "wolf," but we see wolves on the horizon, yes.

Mr. MANZULLO. We appreciate your testimony.

Mr. TYRRELL. Thank you.

Mr. MANZULLO. I have a couple of questions. There was a statement made by the prior panel that all copyright revenue or market is about $530 billion a year. Does that include written material, books, etc.? Does anybody want to jump in with an answer?

I do not know how you can possibly quantify the amount of piracy unless the people put out disks like that that have—could you hold that up again? The other one—yes, that has "counterfeit" stamped on it. I guess that is the only way you would know.

Mr. KRUMHOLTZ. We added that.

Mr. MANZULLO. Presumably.

[Laughter.]

How can you possibly know how much junk is out there that is counterfeited? How do you measure it?

Mr. KRUMHOLTZ. Well, speaking for the software industry and the Business Software Alliance, what we do, we take what we think is a very conservative approach to estimating the rate of piracy in various countries where we have operations, and we look at the number of computers, the hardware that is shipped, and then we take an average. For each computer we assume that there are five software programs that are located on that computer, which is very conservative if you have ever purchased a computer, increasingly conservative, and through that then we compare that number with the number of software programs sold, and that is how we reach our estimate for piracy rates.

Mr. MANZULLO. That is pretty good. What about music CDs? How would you possibly estimate the impact?

He sounded pretty scientific.

Mr. TYRRELL. Right.

[Laughter.]

In the case of music, starting in some countries, it is fairly simple. We are not operating there, and all of the markets and all of the stores are selling our products.

[Laughter.]

Moving up the food chain, we do monitor the more mature markets. We go into stores, and we buy and we sample and we do AB tests. We typically find that in the more mature markets the sales are not taking place in the legitimate stores, but they will be taking place right next door or right on the corner.

We do keep track of the factories that are out there. I must admit we are now starting to lose track because with the introduction of the CDR, it is not—and as I speak of the future—it is not these big factories that are fairly easy to locate that are going to represent our future. It may be little operations in the back of someone's garage where he has 15 or 20 CDR machines set up and he can custom pirate to order.

But to spot a pirate CD is not that hard.

Mr. MANZULLO. Let me ask you a question.

Mr. TYRRELL. Yes.

Mr. MANZULLO. If someone is found, say, in this country with a music CD or a business application CD that goes on your computer and you determine that the person who has that is carrying around or using it illegally, what do you do? What do you enforce? What laws are there?

Mr. TYRRELL. We try to go after the source, not somebody with one or two CDs.

Mr. MANZULLO. The same with somebody dealing drugs. It is wrong in both cases, but you want to get the dealer out. Then how do you go about tracing it?

Whatever you would like to share with us. I understand this is very sensitive when it comes to——

Mr. TYRRELL. Well, traditionally we have tried to locate the factory and shut that down. And also, if somebody has CDs, they have bought them. So you go after the person who is selling them.

In the United States right now CD piracy is something that is relatively under control compared to other countries of the world.

Mr. MANZULLO. Piracy under control.

Mr. TYRRELL. Relatively.

Mr. MANZULLO. Relatively.

Mr. TYRRELL. Relatively. It is a constant threat, as I said in my remarks.

Mr. MANZULLO. With the next technological breakthrough where you may be a business application or a music on something that is the size of a fingernail, no one knows how this is going to be controlled.

Mr. TYRRELL. We have it on something smaller than the size of a fingernail now, on Napster.

Mr. MANZULLO. OK. Mr. Menendez.

Mr. MENENDEZ. Thank you both for your testimony.

Let me start off by saying we support your interests and seek to work with you on your concerns. I think that intellectual property is incredibly important to use as a country. It is important to those who create whatever the medium is to create and whether it is here in this country or anywhere else in the world, and it needs to be rewarded.

So I start off with that, but I do want to ask you some questions in terms of public policy. What is our ability, and I have a greater

focus, Mr. Tyrrell, in the industry you represent, not because I am not interested in the software industry——

Mr. TYRRELL. Sure.

Mr. MENENDEZ [continuing]. But some of the questions really posed are in part generational, in part questions of understanding whether or not the industry in some respects is over reacting.

For example, in my statement I quoted what you said, that the private citizen in their home is as, in fact, dangerous and damaging to the industry as organized criminal piracy, and in principal you are right, but practically and even politically speaking, how do you expect the Congress to address that?

Also, there are those analysts of the industry who say, for example, that the industry needs to figure out a way to work with Napster and others like it on new bands and albums. They say that the record labels might be, quote, a little too busy retaliating right now instead of thinking how they could use it, in reference to Napster in this case, to their advantage. There obviously has been a real lack of understanding the value and marketing potential of this type of software.

And many artists seem to also welcome the increased exposure of the Internet. On the RIA Web site, for instance, Thomas Dolby writes about his own experience and that of other musicals from David Bowie to an amateur folk singer-song writer with regard to increased creativity and sales as a result of Internet use.

So in that total, I have given you a lot there, but it is also the things that we hear from a lot of our constituencies and also questions about what is the role of the government in this regard in trying to help you, but in balancing what is clearly a continuously evolving set of technological challenges that I am sure even your industry has been looking at and saying, "Well, how do we deal with it?"

But is the analyst wrong? Should you be looking at ways of turning what is a negative into a possibly a powerful force for yourself, or is it just protective to do so now and say, "Well, we are getting hurt badly, and let's go after them"?

Mr. TYRRELL. Well, first of all, I think one thing that Sony Music and Sony cannot be faulted for is being technological leaders. We were the original Columbia company that introduced the cylinder, the LP, the CD. So we are always more than interested. We can to be technological leaders in finding new technologies that will allow us to combine new technology and our products.

In terms of—I may not be heeding these questions in order—in terms of the Internet's ability to create a wider environment for artists who want a wider exposure, we have no disagreement with that at all. That is a wonderful feature of the Internet.

An artist who wants his product to be on a Web site or on Napster, he has got our complete support. Where we start to encounter problems, and this is not negativism on our part, but a business model that is built on the assumption that if you do not secure any of the rights from the artist or from the song writer, you pay nothing for the recording, you pay nothing for the marketing, and then you make it available for free; why aren't you more open to that business model?

It starts to sound like, well, if there is a pirate duplicating CDs, why don't you find more of a way to deal with them?

When I got on the plane to testify today, I have not even read the article myself. "Mac World. MP–3, say goodbye to your CD collection. Napster lets you steal your songs. Free music, CD–RIP."

Now, maybe Mac World is a little extreme, but——

Mr. MANZULLO. Did you want that made part of the record?

Mr. TYRRELL. Yes, yes.

Mr. MANZULLO. Or just the article?

Mr. TYRRELL. It is on all the newsstands.

Mr. MENENDEZ. Can you explain to me then your answers in the context of the USA Today article of this past May.

Mr. MANZULLO. Just 1 minute. It will be just the article.

Mr. TYRRELL. Yes, yes.

Mr. MANZULLO. Do you have that?

[The magazine article appears in the appendix.]

Mr. MENENDEZ. USA Today on May 15 had an article that said that despite the recording industry's "concern that digital music would kill the business, music sales rose 8 percent in 1999, the first full year of the boom in the MP3 digital music format used by Napster, from $13.7 billion to $14.6 billion."

Mr. TYRRELL. That is a classic case of apples and oranges. I am sure you can find very popular department stores who, as their year to year performance increases, have had shoplifting, I mean, or thefts. It has been our experience, in fact, that in areas where Napster has been most prevalent, such as college campuses, it is almost like a black hole. You will see increased sales, and the closer you get to Napster users.

But, no, we are in the business of being interested in marketing our music. We are not adverse to things that help our music, and people who steal our music, while our business may be up, to see the cause and effect there is something we have missed.

Mr. MANZULLO. OK. Mr. Rothman.

Mr. ROTHMAN. Thank you.

Thank you for your testimony, Mr. Tyrrell.

I do not know. Maybe I am too old for this. Maybe I am a fuddy-duddy about this, but there is just something fundamentally wrong with the notion that you can take someone else's property and not pay for it, and I cannot it has anything but a horribly chilling effect on business people, those who want to invest their capital in computer software or in the record or in the careers of budding young artists. It can only be a bad thing.

And the other part, the fuddy-duddy part is the moralistic side of it. I do not think this helps the country in terms of our sense of right and wrong if we do not send a clear message to young people and old people, whoever is participating in this activity, that this is wrong; that there is no positive spinoff.

And in my opening remarks I asked somebody to give me the other side. What is good about people stealing someone else's work and not paying for it? And I think I would look to you folks to help us help you or get the message out to the people of our country that this is stealing. This is wrong, No. 1. And it has a bad effect on the economy.

So I welcome that, and again, I welcome your own public service announcements, self-interested as they may be, in helping educate our young people about this. You know, it just takes my breath away when people say, "Work with the people who are stealing your goods."

Somebody breaks into your house and steals your most valuable possessions, and the cops say, "We are not going to arrest him. Why don't you make a deal with him?"

I mean it just blows my mind.

Mr. TYRRELL. The truth is in between.

Mr. ROTHMAN. So any thoughts about these things?

Mr. KRUMHOLTZ. No, I absolutely agree. I think there is tremendous potential in this new channel distribution, but at the end of the day, a fundamental cornerstone of electronic commerce has got to be copyright protection, protection for intellectual property. It has been, you know, a foundation in our legal system since the country was founded over 200 years ago.

You know, that does not change in an electronic environment. I think we, speaking for the software industry, we certainly have embraces this channel of distribution, and as Mr. Tyrrell mentioned, I think, you know, the other copyright industries are as well, but you need to do that within the ambit or within the parameters of the existing laws.

At the end of the day it is stealing.

Mr. ROTHMAN. OK. Well, I think what everybody is saying is we think it is a bad thing, too. We are worried about it, but to some degree we are going to look to you, the most interested in this, arguably, for some ideas as to how we can help you, how we can do our job enforcing the laws that are so important to our nation. So we will look to you and look to law enforcement as well.

But, you know, we are just mostly lawyers up here, and so we're going to look for some ideas from you. I think we get it. It is a big problem, and I am not romanced by the notion of steal this video. Abbie Hoffman used to say, "Steal this book." He used to be somebody——

Mr. MANZULLO. Would the gentleman yield?

It occurred to me that people videotape TV shows to show back later on. What is the difference between videotaping the TV show and copying the CD?

Mr. TYRRELL. A perfect example.

Mr. MANZULLO. I did not mean to preempt you.

Mr. ROTHMAN. No, that is OK.

Mr. MANZULLO. I will give you more time if you want.

Mr. TYRRELL. I hope I have a great answer.

The motion picture company, when they make the movie, know that, first, there is going to be a front worldwide premier in the top theaters for top dollars, and they do not have to worry about somebody taping off the air.

Then it goes to the neighborhood theaters. Then maybe it comes out on DVD. Then it goes to video rental. Then maybe it is pay per view, and maybe at that point somebody makes a copy and watches it later in the day, there are all of these multiple opportunities, and for one thing, the decision to put that product on the air where it can be taped and watched later in the day is 100 percent in the

control of the movie company. They know even the day it is going to be shown and the time because they can contract.

Nobody is coming in and doing this to them.

Mr. ROTHMAN. To reclaim the last 30 seconds that I have.

Mr. TYRRELL. Yes.

Mr. ROTHMAN. And I am repeating myself, but I am concerned about the detrimental effect on the young people who believe you can get something for nothing. I mean our Republican colleagues will say that——

Mr. TYRRELL. I agree.

Mr. ROTHMAN [continuing]. About society in general. Years ago the Democrats, we got it. We get it. It would be a real step backward if people excused the theft of intellectual property as some kind of a cool, romantic way of living.

It is pure and simple theft, and we have got to get that message out there, not just for the economic well-being of the country—I sound like a 47-year-old fuddy-duddy—but for the moral well-being of the country.

Mr. MANZULLO. Mr. Delahunt.

Mr. DELAHUNT. I guess I would, you know, obviously concur with the sentiments expressed by Mr. Rothman and others.

What I find very fascinating is that there is an argument that I guess it was Mr. Menendez who was reading from USA Today that would appear to be a credible position, and when you pause and think that this is a fine newspapers, but putting that opinion out there, again, really does go to an erosion, if you will, of, for lack of a better term, values.

Gee, you know, it is really not stealing because look what the benefit is. It is enhancing, if you will, creativity and an increase, if you will, in terms of commerce.

But, you know, this is only a piece of a larger picture, and I think I would make this observation, I think, more to Mr. Krumholtz because he represents the software, if you will, the Software Alliance, and what has happened is that we have become, and it is picked up in sound bytes, you know. Do not regulate the Internet. Freedom, freedom on the Internet, unbridled freedom.

Well, this is part of the public debate today. We are having a debate in Congress, and it is interesting because some interesting alliances have occurred between very conservative and very liberal members in terms of not taxation of the Internet, but how do in America today the brick and mortar stores that we are accustomed to deal in a commercial world where they have to pay a sales tax and remote sellers are free from that particular burden, putting them at a competitive disadvantage.

And those of us who have no interest in taxing access to the Internet say, "Gee, we ought to do something about it."

Do no regulate the Internet. You know, do not interfere with the Internet, and I really think that the high tech. community really has to pause and think about what makes sense and what is balanced and what is right in terms of public policy because this is feeding into exactly that mindset, if you will, of value system that Mr. Rothman, myself, and others have alluded to.

So it is a real problem.

Mr. KRUMHOLTZ. Mr. Delahunt, if I could just comment and perhaps some of my colleagues in the high tech. community might disagree with me on this, but I absolutely think there is a role for government in this space, and I think perhaps side stepping the issue of taxation and focusing on intellectual property, I think the Congress has done a tremendous job in providing the authority and raising the threshold in terms of copyright protection in a digital environment through the WIPO implementing legislation, the Net Act.

And I think one thing that Congress could do now is make sure that the various enforcement agencies have the funding, the resources that they need to really adequately enforce those statutes.

Mr. DELAHUNT. I think one thing that you can do in terms of your constituency and whom you represent here today is really, you know, go out and lobby and advocate because we are not spending the kind of resources that are necessary to do the job, and we cannot continue to cut government, on one hand, in these agencies and expect and anticipate that we are going to enforce or insure compliance with the statutes that we pass.

On the one hand, we talk about doing something, and then on the next, where it is most critical, which is in the enforcement end, we said, you know, "That is government fat."

Well, we cannot have it both ways, and it is really the business community and the high tech. community that has to step up and say, "You know, it has got to happen. It is a good investment. Let's not be penny wise and pound foolish," because with the additional tax dollars that go into providing these resources, we will reap a good return in terms of America's investment in the global economy.

Got to do it.

Mr. MANZULLO. I appreciate that.

You know, I took a quick look at this article.

Mr. TYRRELL. Yes.

Mr. MANZULLO. And I find something that is just absolutely astounding. It says, "Tell me why you support Napster."

Answer—I do not know. Chuck D, front man for Public Enemy. I do not even know who these people are.

Mr. TYRRELL. Right.

[Laughter.]

Mr. MANZULLO. You talk about pirates.

Mr. ROTHMAN. You are a fuddy-duddy.

Mr. MANZULLO. Evidently.

[Laughter.]

But the Napster is the radio of the 21st century. That is not true because radio stations determine what goes on and they pay royalties for it and get licensing from the FCC.

Mr. DELAHUNT. The public, the people own the airways in that case.

Mr. MANZULLO. But, Bill, what you and Steve were talking about is exactly what Jefferson studied at William & Mary. He read Coke. Coke was a revolutionary because that was at the time when property went from estate tail to absolute fee. In other words, the king owned everything, and people would have an opportunity to participate in it, but everything was owned for the public good.

And then along came Blackstone with his commentaries that really settled the issue that private property is an absolute right, including intellectual property. What the mind could think was also subject to copyright protection.

And the whole idea of copyright protection is only about 250 years old. The fact that what man can think has a right to be copyrighted and protected. I find the greatest assault on private property occurring in people simply making the assumption that just because it is for the public good, it overrides private property.

That sends us back to Marxism, and that wipes out 250 years of legal history.

Mr. DELAHUNT. If you would yield, Mr. Manzullo, I do not think that. The public good here, OK, is to protect copyright laws so that creativity, the genius, if you will, of the American people continues to flourish and, at the same time, allow us to benefit from that creativity in terms of our role in the global economy.

There is no conflict between public good here and copyright law. Copyright law and protection is about the public good.

Mr. MANZULLO. Perhaps I could have used the word "public."

Mr. DELAHUNT. I mean, what Napster is doing in my judgment here is absolutely outrageous.

Mr. MANZULLO. Well, this is very interesting. I do not know if we have resolved anything.

Mr. TYRRELL. And Chuck D, part of his image is that he is always out. I mean, the group he performs for is Public Enemy.

Mr. MANZULLO. I used to play in a rock and roll band when I was in high school. It was called the Vantrells.

[Laughter.]

We had a very small—this is true. We had a very small speaker with a Gibson electric guitar. It was one of the first Gibson electric basses ever made. It was cherry red. It was back in 1960, and we did not——

Mr. DELAHUNT. What was it like that far back, Mr. Manzullo?

[Laughter.]

Mr. MANZULLO. This was a very interesting hearing. I really want to take this opportunity to thank you for a very enlightening hearing. I do not know if we accomplished anything except to show how bad the problem is and to bring it to public view, but again, I thank you for coming here.

I will look forward to working with you. We are obviously extremely open to anything that you would have Members of the U.S. Congress do to protect the right of private property, including those industries that you represent.

This Subcommittee is adjourned.

[Whereupon, at 4:13 p.m., the Subcommittee was adjourned.]

A P P E N D I X

JULY 19, 2000

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Statement by Cong. Ileana Ros-Lehtinen
July 19, 2000
"The Cost of Internet Piracy on the Music and Software Industry"

The great expression of talent, innovation, and ingenuity which Americans have exhibited since the early days of the Republic have endowed upon the United States the enviable position, yet heavy responsibility, of global leadership. This global leadership has also permitted the United States to more easily adapt and build upon emerging technologies and social transformations, and herald in a new era of development and possibility propelled by brainpower industries and sectors built upon ingenuity and imagination -- not railroads and petroleum. These new ideas will redefine the landscape of not only our domestic economy, but indeed that of the global marketplace.

Yet as more information and business is converted into code and downloaded onto the Internet, the ability for Internet pirates to inflict ever greater damage upon legitimate trade only grows.

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According to the International Intellectual Property Alliance, in their recommendations to the Office of the United States Trade Representatives for the year 2000, the total losses attributed to so-called "content" industries topped $8.5 billion in 1999, and the Business Software Alliance (BSA), represented today by Mr. Eric Koenig (cain-egg) of Microsoft, calculated a $7.3 billion loss in revenue by 2008, just for the software industry alone.

The BSA further estimated that software piracy cost the United States 109,000 jobs in 1998, and that by 2008 that number could rise to 175,700 jobs lost. While the accuracy of these numbers may be open to debate, it is difficult to dispute that by reducing revenues, Internet piracy will reduce employment opportunities for Americans in the music and software industries.

The potential of the Internet is limitless. As band-width continues to grow and the ability to compress increasing amounts of information into a smaller space continues to improve, the Internet will evolve into a vital tool for business, education, entertainment,and, unfortunately, piracy.

The American advantages which make our industries the envy of

the global marketplace lead many around the world to emulate our experiences through stealing, pirating, and counterfeiting, and we must take immediate steps to ensure that we are doing our best to protect the unauthorized use of American products.

This is not to say that actions taken to combat the scourge of online piracy should be solely an American initiative. On the contrary, concern spans international boarders and in fact is an end endemic problem far beyond the shores of our own country. In nations such as Russia and China, the Interactive Digital Software Alliance has suggested that some 90 percent of entertainment software is pirated.

The United States <u>must</u> impress upon ~~its~~ our neighbors the seriousness of these crimes and advocate for the greater enforcement of both local regulations and international norms.

One positive example of such multilateral support can be found in the Uruguay Round Agreement on Trade Related Aspects of Intellectual Property Rights (TRIPS), which took effect in 1996. By pursuing international support for the increased security of intellectual property rights, the Unites States not only develops forums for dispute

resolution but endorses the possibility of future dialogues.

It cannot be said often enough, without allies in this battle the United States stands to become the proverbial boy with his finger in the dam, placing American interests before an ominous trickle in a futile attempt to restrain the oncoming flood.

Yet, this does not mean that the United States should stand idly by ~~awaiting~~ waiting for the initiative of others. Specific industry based solutions, such as "digital water-marking" and "spider programs," must be employed alongside increased vigilance, and improved enforcement measures in order to create an environment which is more hostile to the efforts of Internet pirates.

However, attention must also be paid to the advice offered by the National Research Council of the National Academies, which urged legislators to "delay any overhauling of intellectual property laws and public policy until markets have had ample time to adjust to new models of doing business and until sufficient research on the issues is conducted."

Finally, it is necessary to address certain commercial features which some analysts suggest may precipitate the trafficking and use of

pirated materials. Pricing is foremost on this list.

For example, it has been estimated that a compact disk costs as little as 60 cents to manufacture, and depending on where you live a new CD will cost you around $15. When CD's were first introduced in the early 1980's manufacturing costs represented $3-5 per CD, and retailed for $15-$20. As the manufacturing price per CD has fallen, there has not been a parallel drop in the retail price. When compared to the prices offered for music and software by Internet counterfeiters, there can be little doubt as to why many ordinarily law-abiding citizens are swayed into breaking the law.

This is not an excuse or justification for online piracy, but merely one example of the need to look at all sides when approaching a problem as insidious as piracy.

Real jobs, real companies, and real lives ultimately depend on our ability to protect ourselves from online piracy, and as our witnesses will state today - this is not only a global issue or a national issue, it is a local problem. in our own communities

STATEMENT OF

Q. TODD DICKINSON
UNDER SECRETARY OF COMMERCE FOR INTELLECTUAL PROPERTY AND
DIRECTOR OF THE UNITED STATES PATENT AND TRADEMARK OFFICE

ON

THE COSTS OF INTERNET PIRACY FOR THE MUSIC AND SOFTWARE INDUSTRIES

BEFORE THE

SUBCOMMITTEE ON ECONOMIC POLICY AND TRADE
COMMITTEE ON INTERNATIONAL RELATIONS

JULY 19, 2000

Madam Chairman, Members of the Subcommittee, it is a pleasure to be here today to discuss what the U.S. Patent and Trademark Office (USPTO) is doing to help protect American intellectual property here and abroad.

The Computer Industry Almanac predicts that worldwide Internet usage will grow to 349 million users by the end of this year, with more than 120 million users in the United States and Canada alone. This trend brings significant opportunities for expanding electronic commerce and for providing an ever wider variety of public and private information sources. Clearly, the impact of the Internet's growth on the U.S. economy and jobs will be immense. The intellectual property intensive information and entertainment industries are already large users of the Internet for electronic commerce. As their usage increases, they stand to reap significant benefits from worldwide commerce in their goods and services.

According to a 1999 report, prepared for the International Intellectual Property Alliance (IIPA), the core copyright industries accounted for $348.4 billion in value added to the U.S. economy, or approximately 4.3% of the Gross Domestic Product (GDP) in 1997. The total copyright industries accounted in 1997 for $529.3 billion in value added, or approximately 6.53% of GDP. Employment in the core copyright industries grew three times the rate of national employment growth between 1977 and 1997, and more than 6.9 million workers were employed by the total copyright industries, about 5.3% of the total U.S. work force. The core copyright industries generated an estimated $66.85 billion in foreign sales and exports in 1997 and preliminary estimates for foreign sales and exports for 1998 is $71.0 billion.

As the title of this hearing indicates, two of the U.S. copyright industries most intensely affected by piracy and the unauthorized use, reproduction and distribution of their works on the Internet are the software and music industries. For example, the Business Software Alliance and the Software and Information Industry Association estimate losses to the worldwide software industry of $12 billion from all types of piracy, while the Recording Industry Association of America reports losses of $4.1 billion. Overall, the IIPA estimates the U.S. copyright industries worldwide losses to piracy at $22 billion. These losses mean lost income for creative Americans - authors and composers - as well as lost jobs, revenues and foreign royalties for American workers and industry.

These problems are not just going to wither away. The growth of the Internet and the use of intellectual property on many sites is continuing to increase. Moreover, this growth does not come without controversy. The matter of how U.S. copyright law applies to such uses, how fair use is to be determined in cyberspace, and other related questions are presently before the courts. Just last week, on July 11, the Senate Judiciary Committee convened a hearing to discuss the issue of the use of copyrighted sound recordings on the Internet through technologies like MP3, Napster and Gnutella. The sense of those hearings seemed to be that business models are still evolving and the market should have more time to develop licensing mechanisms to ensure that consumers would have easy access to music without imposing unreasonable burdens on the technology and still ensuring that the creative community continues to receive the incentive they need to continue to create new music.

Usage of the Internet is growing not only in the United States and Europe, but also increasingly in Latin America, Africa and Asia. For example, Newsbytes Asia estimates that internet users in Asia will increase by 422% over the next six years. The International Data Corporation estimates that Internet usage in Latin America will "skyrocket" to 29.6 million users by 2003, and SangoNet estimates that there are 1.72 million people on line in Africa.

Given these trends, the Administration has determined to challenge the pirates by working with Congress to equip American intellectual property owners and law enforcement authorities with better legal tools to address piracy here at home. For example, we have worked with Congress to ensure the passage of the Digital Millennium Copyright Act, which brings our copyright law into the 21st century, and the No Electronic Theft Act, which addresses a variety of illegal actions on the Internet.

Through our work with international organizations such as the World Intellectual Property Organization (WIPO) and the World Trade Organization (WTO) we are moving to provide similar legal norms at the international level. We cooperate with other agencies including the United States Trade Representative (USTR) and the Department of State to ensure that our trading partners implement these norms reflected in the recent WIPO Copyright Treaty (WCT) and the WIPO Performances and Phonograms Treaty (WPPT) - known as the WIPO Internet Treaties - and the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPs Agreement). Each of the new WIPO Treaties requires 30 countries to ratify the treaty before it becomes effective. As of

today, including the United States, 19 countries have ratified the WCT and 16 countries have ratified the WPPT. Secretary Daley committed the Department of Commerce to working internationally to reach the 30 country threshold for each treaty, and the USPTO will continue that effort in coordination with the State Department and USTR.

Legal norms alone are not enough, however. Therefore, let me describe some of our efforts to ensure that our trading partners have the technical means and the political will to use these legal tools in practice.

International enforcement has become even more critical because, as of January 1, 2000, all developed and developing countries who are members of the WTO are required to have domestic laws and enforcement mechanisms that comply with the international standards set forth under the TRIPs Agreement. Consequently, we are receiving even more requests for technical assistance in reviewing intellectual property (IP) legislation and assisting countries in developing an integrated enforcement system -- consisting of civil, criminal and administrative procedures and remedies, and border measures.

The assistance provided by the USPTO includes training enforcement personnel and conducting workshops sponsored by international organizations. These workshops aid countries in meeting their obligations from both a structural point of view (by having the laws and procedures in place to conform with TRIPs requirements) and from an effective enforcement point of view (by having the experience and capability to enforce IP rights using the structural mechanisms established in compliance with TRIPs.)

In addition, because of the growing problem of Internet piracy, many of these countries are also seeking assistance in developing enforcement mechanisms to deal with technological advances in IP protection and enforcement, including IP protection in knowledge-based economies. These countries will also need assistance in understanding and implementing the WIPO Internet Treaties to establish the legal framework to combat these problems. Accordingly, the focus of our Internet-oriented efforts has been to assist countries in adapting the enforcement models appropriate for conventional hard goods (CDs, cassettes, floppy disks) to the realities of cyberspace transmission of copyrighted works.

To meet our technical assistance requirements under TRIPs and to continue to assist developing countries in establishing IP protection regimes, we have built on the strength of our activities discussed at the hearing you held on IP Protection last October and expanded those activities to meet the heightened need for technical training generated by the Year 2000 deadline for TRIPs compliance and other bilateral and multilateral treaties. We are also targeting our enforcement training efforts to focus on problems of Internet enforcement in other regions where the usage is rapidly expanding - Latin America, Asia and Africa. We are doing this by conducting the programs discussed below.

USPTO INTELLECTUAL PROPERTY ENFORCEMENT PROGRAMS

On May 22 – 26, 2000, the USPTO worked with WIPO to provide law enforcement and other government officials from a wide range of developing economies with a Washington-based, week-long program on developing a TRIPs compliant and effective enforcement regime. This program built on the highly successful similar program offered in 1999.

On July 24 - 27, 2000, we will partner with WIPO to provide law enforcement and other government officials from Africa with a week long program in Dakar, Senegal on developing a TRIPs compliant and effective enforcement regime. This program, like the Washington-based effort builds on a similar program offered last year in Mombassa, Kenya.

The goals of these programs are:

- To provide government officials with an in-depth review of the TRIPs standards for enforcing intellectual property rights.
- To assist government officials in developing effective IP enforcement systems based on an interdisciplinary approach in which civil, criminal, administrative and border measures work both together and separately; and
- To expose government officials to the challenges posed by enforcing intellectual property on the Internet and building the requisite legal framework in their domestic laws to meet the Internet challenge, including through implementation of WIPO Internet Treaties. This will include a heavy focus on practical applications in the digital universe.

On September 18-19, 2000, the USPTO in cooperation with WIPO will hold an Asian Pacific regional conference in Phuket, Thailand for officials from the judiciary, the public prosecutor's office, administrative offices charged with domestic enforcement, and private rights holders. This conference will explore the practical problems in developing and implementing effective intellectual property enforcement mechanisms in today's changing digital and technological environment. The goals of this program are:

- To strengthen regional and international cooperation for the improvement of the enforcement of intellectual property rights in order to meet international treaty obligations, including those under TRIPs;
- To provide Asia Pacific countries with a detailed review of the emerging intellectual property regimes of the digital age, emphasizing their use in protecting the products of a knowledge-based economy;
- To assist government officials from Asia Pacific countries in developing effective enforcement systems in which civil, criminal, administrative and customs measures will work together and separately to assist in protecting and growing a knowledge-based economy;
- To provide government officials with the opportunity to cooperate in exchanges of information, training and technical assistance regarding the

enforcement of intellectual property rights in a knowledge-based economy, in order to meet international treaty obligations;

- To discuss ways to improve the enforcement of intellectual property rights generally throughout the region; and
- To encourage strong industry participation in digital piracy and trademark/domain name infringement, including the development and implementation of investigatory techniques.

On September 11-12, 2000, the USPTO will convene the second Intellectual Property Symposium of the Americas here in Washington. This is a hemispheric conference for officials from the judiciary, the public prosecutor's office, administrative offices charged with domestic enforcement, and private rights holders. The conference will explore the practical problems in developing and implementing effective intellectual property enforcement mechanisms in today's changing digital and technological environment. This conference will also build on the highly successful similar conference offered in 1996. The goals of this conference are:

- To strengthen regional and international cooperation for the improvement of the enforcement of intellectual property rights in order to meet international treaty obligations, including those under TRIPs;
- To provide government officials from the Western Hemisphere with the opportunity to discuss the challenges posed in developing workable methods for protecting and growing a knowledge-based economy utilizing intellectual property laws as the keystone;
- To provide Western Hemisphere countries with a detailed review of the emerging intellectual property regimes of the Digital Age, emphasizing their use in protecting the products of a knowledge-based economy. Included among the topics are the WIPO Copyright Treaty, the WIPO Performances and Phonograms Treaty, database protection, pharmaceutical patents, business methods patents and "traditional knowledge;"
- To assist government officials from the Western Hemisphere in developing effective enforcement systems based on an interdisciplinary approach in which civil, criminal, administrative and border (customs) measure work together and separately to assist in protecting and growing a knowledge-based economy;
- To provide government officials from the Western Hemisphere with the opportunity to cooperate in exchanges of information, training and technical assistance regarding the enforcement of intellectual property rights in a knowledge-based economy, in order to meet international treaty obligations; and
- To discuss ways to improve the enforcement of intellectual property rights generally throughout the Hemisphere.

INTERAGENCY COOPERATION

While the USPTO and other Federal agencies regularly consult on intellectual property-related enforcement activities, the Treasury/Postal Appropriations bill (P.L. 106-58) establishes a formal inter-agency coordination effort. The law creates the National Intellectual Property Law Enforcement Coordination Council with the mandate of coordinating domestic and international intellectual property law enforcement among Federal and foreign entities.

The Council membership consists of USPTO and our colleagues at the Justice Department, State Department, USTR, Customs, and the Department of Commerce. The Council is directed to consult with the Register of Copyrights on copyright-related issues and must report annually on its activities to the President and the House and Senate Committees on Appropriations and the Judiciary.

We look forward to working with our colleagues on this important effort. We believe that, in the future, the Council will serve as a vehicle through which Federal agencies can coordinate their enforcement efforts and also partner with industry to develop effective strategies for addressing Internet piracy.

CONCLUSION

Thank you, Madam Chairman, for this opportunity to discuss how the USPTO is working to ensure the protection and enforcement of intellectual property and promote trade in products protected by intellectual property rights. I will be pleased to answer any questions that you or the Subcommittee may have.

Testimony of

Jack Krumholtz
Director of Federal Government Affairs
and Associate General Counsel
Microsoft Corporation

on behalf of
the Business Software Alliance

before the
Subcommittee on International Economic Policy and Trade
of the House International Relations Committee

July 19, 2000

Internet Music and Software Piracy

Introduction

Good afternoon. My name is Jack Krumholtz, I am the Director of Federal Government Affairs and Associate General Counsel for Microsoft Corporation. Today, I am testifying on behalf of Microsoft and the Business Software Alliance* ("BSA"), an association of the leading software and e-commerce companies in the world. I appreciate the opportunity to appear before you today to speak about the challenges confronting software developers and other copyright owners in protecting their intellectual property against theft in this age of electronic commerce.

I intend to show you some examples of the nearly epidemic problem that the software industry is facing with respect to piracy over the Internet, and describe how our industry is taking very practical steps to tackle this problem. I will also summarize the important lessons we've learned as to the legal rules needed to ensure the healthy functioning of electronic commerce.

Let me begin by thanking the members of this Subcommittee for hosting this hearing. BSA and each of its member companies commend you for recognizing the software industry's important contribution to the global economy, as well as the serious threat posed by software piracy.

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*Since 1988, the Business Software Alliance has been the voice of the world's leading software developers before governments and with consumers in the international marketplace. Its members represent the fastest growing industry in the world. BSA educates computer users on software copyrights; advocates public policy that fosters innovation and expands trade opportunities; and fights software piracy. BSA members include Adobe, Apple Computer, Autodesk, Bentley Systems, CNC Software/Mastercam, Compaq, Corel Corporation, IBM, Intel, Intuit, Lotus Development, Macromedia, Microsoft, Network Associates, Novell, Sybase, Symantec and Walker Digital. BSA websites: www.bsa.org; ww.nopiracy.com.

The Promise of E-Commerce

Let me just say at the outset that the software industry is one of the principal proponents of electronic commerce. Software developers and technology companies not only are among the chief architects of e-commerce, they recognize the tremendous potential of offering their own physical and intellectual-property based products electronically.

We see tremendous opportunities for all types of products and services to be provided and distributed more quickly, more efficiently and more cost-effectively worldwide. We see increased opportunities for small and medium sized players in every country to provide their products and services to the international marketplace. Forrester Research estimate that e-commerce among businesses for all types of goods and services reached **$109.3 billion in 1999**, and will increase to **$1.33 *trillion* worldwide by 2003**.

Economic Contribution of the Software Industry

Economic Growth in the United States

The software industry is one of the fastest growing sectors of the U.S. economy, each year creating thousands of new jobs and unlimited opportunities for entrepreneurs and small businesses. According to a recent BSA survey of industry CEO's (the "Delphi survey" which is attached), the software industry will grow at an average rate of 17.3 percent annually between 2000 and 2005. The average annual growth rate between 1990 and 1998 was 15.1 percent (three times the growth rate for the U.S. economy). This predicted increase will raise total receipts of U.S. business software establishments from $51 billion in 1998 to approximately $148 billion in 2005 - almost tripling receipts in less than 10 years. At this point, I would like to submit two studies for the record, highlighting these points. (*Opportunities and Growth: A Vision for the Future 2000-2005; Forecasting a Robust Future –An Economic Study of the US Software Industry)*

Increased productivity

For more than 25 years, the software industry has made important contributions to the nation's employment growth, tax base and trade balance (each of which is detailed below). However, the industry's most significant contribution is its positive impact on worker productivity. According to a recent report by the U.S. Labor Department, worker productivity rose at a 5 percent annual rate in the second part of 1999, the fastest growth rate in seven years. Experts attribute these productivity gains primarily to investments in computer software and other information technology, which have reduced the costs of doing business, while at the same time increasing worker output.

As a result of increased productivity, U.S. businesses are able to increase profitably their output of goods and services, despite tight labor markets that would otherwise cause inflation. Without these productivity gains, fueled by information technology, labor shortages would normally lead to higher wages and higher costs. However, increased worker output has enabled businesses to increase salaries without sacrificing profits. The end result is the longest period of economic expansion in U.S. history and a higher standard of living for the entire country.

Job growth

Software industry growth, fueled by the ever-increasing demand for software, has generated a significant number of U.S. jobs. According to a study by Nathan Associates, a Virginia-based consulting firm (the "Nathan study"), the U.S. software industry employed more than 800,000 U.S. workers in 1998, with aggregate wages of $55.6 billion. By the year 2008, the software industry is expected to employ more than 1.3 million workers in the United States. No other industry is providing employment opportunities at such a rapidly increasing rate.

Fiscal impact

The economic contribution of the U.S. software industry can also be measured in terms of federal and state tax dollars benefiting a host of national and community programs. In 1998 alone, the software industry contributed over $28 billion in tax revenues to federal and state governments. This tax contribution is expected to reach $50 billion by the year 2008.

Balance of payments

Another key indicator of the software industry's increasing importance to the U.S. economy is its contribution to the U.S. balance of payments. U.S. software publishers earn more than half of their total revenue from overseas sales of software. BSA estimates that the U.S. software industry supplies 70 percent of the world's demand for legitimate packaged software.

According to the Nathan study, ***the U.S. software industry in 2000 is projected to contribute more than a $20 billion surplus to the total U.S. trade balance.*** The U.S. software industry's trade surplus (equivalent to exports minus imports) indicates that the industry's economic activity in the United States far exceeds its economic activity abroad, resulting in more jobs, higher wages, and a better standard of living for U.S. workers.

The software industry's trade surplus reflects a historic trend of increasing export activity. Since 1990, the industry's trade surplus has grown at an average rate of 17.9 percent annually. In contrast, the U.S. economy has posted increasingly large trade deficits throughout the past decade, as a growing number of major U.S. industries moved manufacturing facilities and jobs offshore.

Global Contributions

The high tech industry is, by its nature, global. This includes the software industry. Global sales of packaged software reached over $135 billion in 1997, according to the estimates made by IDC, a market research company. I would like to submit to the Subcommittee a report by PricewaterhouseCoopers entitled *–Contributions of the Packaged Software Industry to the Global Economy.* In the 61 countries covered by this report, the packaged software market reached $133 billion in 1997. In non-US countries, in 1996/7 the industry provided 741,258 jobs,

directly and indirectly; and generated $21 billion in tax revenues in non-US economies. The report gives details in all regions of the world.

Economic Impact of Piracy on the Software Industry

Despite its significant contribution to the U.S. economy, the software industry has yet to realize its full economic potential because of global piracy. Although most countries have taken some steps to curb piracy, many still lack the legal protections, remedies, resources, and political will needed to achieve significant reductions in software theft. The result is an average global piracy rate of 38 percent, and a U.S. rate of 25 percent. In terms of lost revenues, software theft robs the U.S. software industry of several billion dollars each year ($11 billion in 1998 alone). The economic impact of software piracy extends far beyond the confines of the software industry. According to Nathan Associates, software theft in 1998 cost the U.S. economy 109,000 jobs, $4.5 billion in wages, and $991 million in tax revenues. If the United States were to eliminate software piracy by the year 2008, the U.S. economy would gain more than 175,000 new jobs, $7.3 billion in wages, and $1.6 billion in tax revenues.

The Internet -Economic Opportunities and Challenges

The Internet creates tremendous opportunities for products and services to be provided and distributed more quickly, more efficiently and more cost-effectively worldwide. Forrester's Research estimates that e-commerce among businesses for all types of goods and services will reach $109.3 billion in 1999, and $1.3 trillion worldwide by 2003.

Electronic commerce promises an exciting revolution in the way that works protected by intellectual property are distributed and used. Technology products, and software in particular, are leading the way in on-line distribution. IDC, one of the major research firms in the information technology sector, predicts that the market for electronic sales of software will grow exponentially over the next few years. According to IDC's estimates, the worldwide market for electronic commerce in software will reach $3.5 billion in 1999 and grow to $32.9 billion by 2003, as more businesses and consumers become familiar with shopping on the Internet.

The Internet, however, makes little or no distinction between legitimate businesses and the criminals who exploit electronic commerce to market and distribute every conceivable illegal product or service. Internet pirates, like other criminals, have fully embraced electronic commerce as an effective medium to advertise, market and distribute pirated software on a global basis. At present, there are close to 1 million web pages that offer, link to, or otherwise reference "warez", an Internet term for pirated software. 281,900 web pages reference "appz", another term for pirated application programs. Internet auction sites provide a forum to reach consumers who might not otherwise frequent a pirate software site. On any given day, these electronic flea markets host thousands of auctions that purport to offer legitimate software at a fraction of the retail price. In 1999, a BSA member company test-purchased almost 300 of its most popular software products from leading Internet auction sites.

Forensic analysis of the copies confirmed that 63 percent were outright counterfeits, and all additional 34 percent were sold in violation of the company's licensing agreement. In other words, 97 percent of the software purchased in this investigation were found to be illegal. Thus, the economic opportunities of electronic commerce are accompanied by daunting challenges. Given the volume of illegal software currently offered and distributed via the Internet, piracy could result in even greater losses for the U.S. economy unless concrete steps are promptly taken to strengthen protection and enforcement of intellectual property rights in the digital environment.

Internet Piracy: Defining the Problem

Categories of Internet Piracy

The term "software piracy" usually refers to the unauthorized reproduction or distribution of copyrighted software programs. Until recent years, the problem of software piracy was largely confined to unauthorized copying, installation or physical distribution of disks and CDs. However, the emergence of the Internet has added a new dimension to software piracy by permitting electronic sales and transmission of illegal software on a global scale.

Internet piracy broadly refers to the use of the Internet (i) to transmit and download digitized copies of pirated software; (ii) to advertise and market pirated software that is delivered on physical media through the mails or other traditional means; and (iii) to offer and transmit codes or other technologies used to circumvent copy-protection security features. Within these broad categories (which can, and often do, overlap), there are various methods used by software pirates to offer and distribute pirated software, including:

Bulletin Boards

Dial-up bulletin boards presented the first real problem of on-line piracy. These were individual computers that could be dialed up by modem, where software could be posted and made available for download to other users of that bulletin board. Often these sites operated free of charge. Some of these sites required a form of barter -one first had to post a software program for others to download in order to have the right to download programs already posted. The David LaMacchia case -which led to enactment of the NET Act -is perhaps the most famous example of a pirate bulletin board site. ~ U.S. v. LaMacchia, 33 U.S.P.Q.2d 1978 (D.C. Mass. 1994).

E-mail

Electronic mail enables computer users to communicate with and transmit digital material to other users or groups of users. Unfortunately, the uses of e-mail extend to the exchange of pirated software and the advertisement, solicitation and subsequent sale of pirated software by mail. E-mail users can distribute software by attaching files to their messages or by encoding it into the text of their messages. As with other forms of Internet piracy, electronic mail transmission eliminates the need to copy programs onto physical media as well as the necessity of trading in person. Moreover, pirates increasingly use e-mail to spam millions of consumers throughout the world with fraudulent offers of counterfeit software.

News Groups

News groups are established Internet discussion groups that operate like a public e-mail in-box. While most news groups serve legitimate purposes, they can also be used as vehicles for the distribution of pirated software. Participants can encode pirated software into the body of messages they post. The software is often broken up into small (1-to-1.4MB-sized) files to make downloading easier. Newsgroups devoted solely to software piracy have been established. Since many newsgroups are archived, they act as storehouses of illegal software.

Internet Relay Chat (IRC)

IRC is a real-time, interactive Internet chat system -you see what others type as they type it. Because of its immediacy, IRC can be a popular way of spreading the word about new "hot" pirate sites which permit downloading. Like news groups, IRC discussion groups (called "channels") can be used to bring together interested buyers and sellers. Some have been established as marketplaces to advertise recent or temporary pirate software sites.

File Transfer Protocol (FTP)

FTP is the standard that allows disparate computers to exchange files quickly and easily. Such exchanges include the uploading and downloading of software programs. Computers established as FTP sites can contain enormous quantities of program files, along with other information. When exploited by software pirates, they facilitate the distribution of large volumes of copyrighted software programs. Pirates sometimes penetrate computers at corporate, government and educational entities and use their FTP capability to copy and make programs available for downloading. At one time, users required knowledge of Unix and FTP commands to find and access FTP sites and to download files. Today, however, FTP-capable browsers on the Internet permit point-and-click navigation and downloading.

Site Links

The graphical and trend-setting nature of the Worldwide Web has inspired pirates who once operated underground and within small groups to create brazenly illegal web sites and engage in extensive acts of self-promotion. One popular species of web site provides links to other sites from which software can be downloaded. The creators and operators of these on-line pirate directories hunt for new or interesting links to make their site the biggest and the best. The sites are updated constantly -book-marking a "Top 10 Warez Sitez" page is an easy way of finding all the illegal software you could ever want.

Direct Links

Some pirates make software available on the Internet by housing a web page and an FTP site on the same computer. Such a one-stop shop reflects the increasing sophistication of Internet pirates given the large amount of computer resources, storage space, and maintenance effort required to operate such a system.

Remote Links

Remote-linked sites retrieve software stored elsewhere, e.g., on an FTP site on a remote computer. Often their web pages contain links directly to the remotely-located file. By clicking on the link, the user initiates a file transfer and can download a program directly to his or her computer without visiting the site itself.

"Elite" Activities

Notwithstanding the public nature of web piracy, a "warez underground" still exists behind the scenes. It is comprised of so-called "elite" pirates, self-anointed experts who traffic heavily in pirated software and usually engage in related activities, such as creating "cracks" to circumvent copy protection, acting as couriers to move pirated software about, warehousing large quantities of pirated software, and supplying counterfeiters with material.

Circumvention Information

The Internet has become a repository of information for circumventing software protection devices. Hacker sites offer serial numbers, access codes and software program "patches" that bypass or circumvent encryption or other technical protections that the software publisher may have applied to its products. Using a search engine and the key word "crackz" (the code word for circumvention sites), BSA recently found more than 368,000 web pages that offer unauthorized "patches" -many of which are specifically designed to defeat these technological protection measures.

Internet Auction Sites

Internet auction sites -which provide an electronic forum to sell, and bid upon, virtually any consumer product or collectible -are an increasingly popular venue for software pirates. Unlike traditional pirate software sites, the leading Internet auctions are primarily markets for legitimate products. Moreover, the auction sites are used only to link buyers and sellers and not to download software. Instead, software is delivered to the winning bidder in CD format by mail or other traditional mean. Because of their apparent legitimacy software is delivered to the winning bidder in CD format by mail or other traditional means. Because of their apparent legitimacy and growing popularity among cost-conscious consumers, Internet auction sites afford software pirates a unique opportunity to reach a much broader pool of software users, most of whom would not knowingly purchase illegal software: The pirates typically defraud bidders by claiming that the illegal software is genuine product obtained at a deep discount through wholesale channels. However, test purchases indicate that a high percentage of business software offered through auction sites is counterfeit or otherwise infringing.

The Evolution of Internet Piracy

At least three converging phenomena have contributed to the explosive growth in Internet piracy:

- The growing accessibility and popularity of the Internet as a commercial marketplace;
- An increased demand for software coupled with technological developments have made it possible to replicate cheaply and profitably large volumes of counterfeit CDs; and;
- Inadequate enforcement against Internet piracy.

Internet Access

Internet access has become a staple in many offices and homes. According to Nathan Associates, nearly 150 million people throughout the world are linked to the Internet, including one out of every three people in the United States age 16 or older. The Internet's growing popularity is due in large part to technological advances that have eliminated the barriers to entry that once limited Internet use to sophisticated computer experts. The "World Wide Web" triggered a revolution in Internet accessibility, making it possible for virtually anyone to "surf" the Internet with point-and-click maneuverability. Today, we have a host of search engines, online directories, security technologies and other innovations that have transformed the Internet from a communication and research tool to a global marketplace for products and services.

The result is a vast, borderless, sleepless network that links software pirates to an unprecedented number of software users. To appreciate the Internet's potential impact on piracy, one need only contrast the number of people who can crowd around a flea market card table offering pirated software with the number who can simultaneously access a pirate web site.

Large Scale Production and Distribution of Pirated Software

The Internet's emergence as a global marketplace has occurred alongside technological developments that have made it possible to cheaply and profitably replicate and distribute massive volumes of pirated software. Computers now have the capacity and speed to store, transmit and download unlimited digital copies of pirated software at virtually no cost to anyone other than the software publisher. David LaMacchia's bulletin board site, for example, allegedly caused $1 million in losses by allowing users to upload and download illegal copies from a server linked to MIT's network. LaMacchia's site operated on a "non-profit" basis, freely permitting the exchange of digital copies of pirated software among users. However, for other pirates, software piracy has become an extremely profitable criminal enterprise.

These commercial pirates use the Internet to advertise, market, and coordinate distribution of, pirated software CDs. After the sale is completed on the Internet, the pirate CDs are typically delivered by mail or other traditional means. Developments in CD replicating technology have made it possible to manufacture very large volumes of near-perfect pirated copies at a relatively low per unit cost. The technology used to replicate pirated CDs ranges from the very sophisticated and expensive equipment used by legitimate manufacturers and "high end" counterfeiters to the relatively inexpensive and widely marketed CD recorders. The sale of pirate CDs is extremely profitable because the pirate replicator bears none of the publisher's R&D, marketing, or support costs that primarily determine the retail price of legitimate software. Accordingly, the pirate is able to sell pirated CDs at a price that is significantly lower than the software publisher's costs, but far higher than the per unit cost of replication. The accessibility of CD replicating technology, as well as the profitability of pirate sales, have made the production of pirated CDs attractive to large organized crime syndicates and petty criminals alike. In general, pirated CDs fall into two broad categories: (i) counterfeit "look alike" CD- ROMs, and (ii) "compilation" CDs. Counterfeit CD-ROMs: Counterfeit "look-alike" CD-ROMs are replicated using highly sophisticated and very expensive technology to resemble genuine software products.

Counterfeit CD-ROMs bear reproductions of the manufacturer's logo and other labeling, and are often distributed with counterfeit packaging, manuals, security features (e.g. ,holograms), and other documentation. Sophisticated counterfeiters replicate counterfeit CD-ROMs with the same type of equipment and materials used by legitimate software manufacturers. A single CD-ROM replication facility can produce more than a million discs every day, at a per unit cost of less than two dollars. In the United States, most CD-ROM replication occurs at fully dedicated "pirate" replication facilities, using equipment purchased by counterfeiting rings.

However, some counterfeit CD-ROMs have been traced to "legitimate" replicating plants, which have contracted with counterfeiters to produce counterfeit CD-ROMs. Compilation CDs typically contain a large selection of software programs published by different software companies. For example, a compilation CD may contain a full set of the most popular business software applications of the day - Microsoft Office 97, Novell Netware, Adobe Publisher, and Autodesk AutoCAD, for example. Compilation CDs are typically sold for very little money (relative to the value of the legitimate software) at swap meets, flea markets, outdoor fairs, mail

order houses, and Internet auction and software web sites. Compilation software can be replicated using a relatively inexpensive (i.e., less than $1000) CD recorder, which, when connected to a personal computer, employs a laser to "burn" installed software programs onto a blank disc.

Although compilation CDs do not exactly replicate the packaging and logos of genuine software, unsophisticated consumers are often led to believe that compilation CDs are legitimate promotional products. The Internet provides a convenient market for pirates who replicate high-volumes of counterfeit CD-ROMs and compilation CDs. High-volume replicators use the Internet both to build a distribution channel for pirated CDs and also to coordinate deliveries to distributors. The relative anonymity of Internet transactions; the opportunity to reach a global pool of distributors and consumers; and the ability to pass off counterfeit software as genuine product with little fear of reprisal combine to create a dream scenario for pirates -and a nightmare for software publishers.

Inadequate Enforcement against Internet Piracy

Any type of crime -be it child pornography, financial fraud or Internet piracy -will proliferate in an environment where demand and profits are high and the risk of enforcement low. U.S. enforcement efforts have failed to keep pace with the proliferation of pirate web sites and marketing schemes, despite the fact that the United States boasts the world's most complete arsenal of anti-piracy enforcement tools, as well as the most sophisticated law enforcement resources. As a result, the incidence of Internet piracy, and its attractiveness to criminals, have increased dramatically in the past few years.

The Role of Government

The success of the U.S. software industry is due in large part to this country's historical commitment to strong copyright protection. As noted above, piracy severely limits - and in some countries virtually blocks – development of a strong local copyright industry.

The ability of countries to reap high economic benefits from e-commerce is highly dependent on their ability to promote protection and enforcement of intellectual property rights. Multi-lateral and bilateral trade alliances must be fully backed by governments' firm commitment to respect and enforce intellectual property rights within the public and private sectors; to treat the manufacture and sale of counterfeit software as a crime warranting tough enforcement and penalties; and to ensure that its laws and enforcement regimes adequately address Internet piracy. Worldwide governments can help promote this commitment to intellectual property protection and fight Internet piracy by:

- ensuring that they fulfill their obligations under the WTO TRIPs Agreement by adopting and implementing laws that provide for effective enforcement against piracy;
- encouraging ratification of the WIPO Copyright Treaty and strong criminal enforcement;
- advocating government legalization policies and other reforms that will fundamentally reduce piracy rates; and
- Dedicating resources to the investigation and prosecution of Internet piracy, training, technical assistance and mutual cooperation.

The critical importance of TRIPs implementation

Given the emergence of organized criminal counterfeiting operations, it is imperative that all governments fulfill their obligation under WTO TRIPs to enact and enforce strong criminal remedies against piracy, including tough, effective penalties. Moreover, to combat rampant piracy among end users, these criminal laws must be supplemented by civil remedies that allow software publishers to obtain civil ex parte search orders and adequate damages, without significant judicial delays or overly burdensome bond requirements.

The TRIPs Agreement is the first major international treaty to recognize that intellectual property rights are meaningful only if accompanied by adequate enforcement procedures and remedies. In addition, TRIPs requires that intellectual property right enforcement regimes meet specific "results-oriented" performance standards. Specifically, each member's enforcement regime must "permit effective action against infringement" and "constitute a deterrent to further infringements." Moreover, enforcement procedures cannot be "unnecessarily complicated or costly," or "entail unreasonable time limits or unwarranted delays." Thus, in assessing TRIPs compliance, it is critical to review and monitor all aspects of a country's enforcement regime, including the adequacy of procedural remedies and penalties, as well as their effectiveness in deterring piracy.

Implementation of WIPO Copyright Treaty

In order to promote a safe, legal environment for e-commerce, it is critical that governments implement laws that guard against piracy on the Internet. In direct response to the growing threat of Internet piracy, the international community in 1996 adopted the WIPO Copyright Treaty to ensure protection of copyrighted works in the digital age. Among other things, the WIPO Treaty (i) makes clear that a copyrighted work can be placed on an interactive network only with the consent of the relevant rightholder; (ii) makes clear that the Berne Convention's reproduction right applies to electronic uses of works; (iii) protects all forms of expression of computer programs; and (iv) prohibits "hacking" of technical protections that have been applied to works.

The United States was one of the first countries to implement the WIPO Copyright Treaty by enacting the Digital Millennium Copyright Act. In addition, Congress has enacted legislation that criminalizes online distribution of pirated software and increases penalties for Internet piracy. To ensure that these laws have real impact, U.S. law enforcement agencies have elevated the priority given Internet piracy and other copyright offenses, resulting in important prosecutions against criminal pirates and counterfeiters.

Similar measures are urgently needed need on a global basis. Nineteen countries have ratified the WIPO copyright treaties: Argentina, Belarus, Bukina Fasco, Costa Rica, Costa Rica, Croatia, Ecuador, El Salvador, Hungary, Indonesia, Japan, Kyrgyzstan, Latvia, Mexico, Panama, Republican of Moldova, Saint Lucia, Solvakia, Slovenia, United States of America. The European Union is presently considering WIPO an implementing directive.

Government Software Management

Government agencies and public institutions are typically among the largest users of computer software. As such, government leaders have an obligation to establish legalization policies and procedures that both prevent software piracy within the public sector and set an

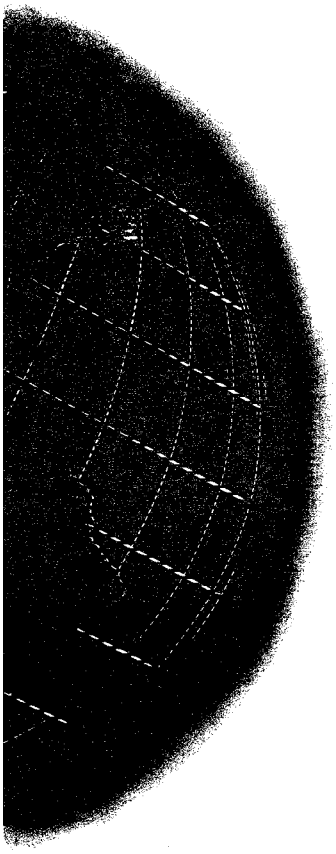
example for the private sector to follow. At a minimum, a government legalization policy should require government agencies and recipients of government funds to (i) comply with software copyright and licensing requirements; (ii) establish systems and controls to manage software use; (iii) ensure that adequate funds are budgeted for software procurement; and (iv) require all recipients of government funds to comply with software copyright and licensing requirements in connection with government-funded projects and government grants.

The U.S. Government has recently stepped up its efforts to promote government legalization and on September 30, 1998, President Clinton signed an Executive Order on Computer Software Piracy, which for the first time clearly articulates legal software use and procurement requirements for federal agencies and recipients of federal funds.

Several governments have either adopted, or are considering, decrees modeled after the U.S. Executive Order (the most notable example being China's "Red-Top Decree"). BSA urges other governments to follow suit and adopt policies that mandate legal software use by government agencies and public institutions. Moreover, to ensure that these policies have more than symbolic value, each government should designate a system for oversight and explicitly require agencies to implement a software asset management program. To assist in these efforts, BSA has published an international "Government Guide for Software Management," which is designed to help foreign governments adopt and implement software asset management programs.

Electronic commerce promises a new revolution in the development, distribution and use of products and services protected by intellectual property. It also poses monumental new risks. The WIPO Treaties, full implementation of the WTO TRIPS agreement, strong government management software policies and commitment of resources to investigation and prosecution of Internet piracy will provide a healthy environment for the development of e-commerce.

Thank you for the opportunity to testify.



Opportunities and Growth:

A Vision for the Future, 2000-2005

Business Software Alliance

www.bsa.org

Overview

There is no question that the booming U.S. economy is being fueled by high technology. The U.S. software industry in particular has had a tremendous and lasting impact. Now, in a survey of industry leaders, responding Chief Executive Officers (CEOs) of the Business Software Alliance (BSA) member companies predict that the software industry's rapid rate of growth will not only continue but will accelerate over the next five years. More jobs and increased tax revenue will accompany this growth.

But along with these advances, the CEOs predict that we will also face significant challenges. As the Internet becomes the dominant means of distribution, indications are that software piracy will become even more prevalent, stealing revenue and jobs from the U.S. economy. Stronger protection and enforcement of copyright laws will be critical. Gaining access to new and emerging markets will also present a challenge. Finally, if we are to experience continued growth, industry experts cite the need to educate and secure skilled workers.

Methodology

Given the relative youth of the U.S. software industry and therefore the lack of precedent, future industry conditions can only be projected using expert judgment. Using an outside economist, BSA surveyed its member company CEOs in April 2000 to solicit their confidential views on a range of questions about their industry's future. This technique is often referred to as a "Delphi survey." The results presented here are the average or most frequent responses of the BSA CEOs.

Survey Conclusions

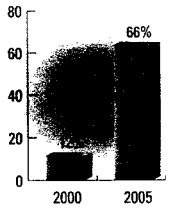
Via the Delphi survey, the BSA member company CEOs identified three factors that they believe will have the greatest impact on the future of the software industry: (1) strong copyright protection, (2) open markets free of regulation, and (3) availability of a world class workforce. These are the areas in which policymakers can help pave the way for future innovation and growth.

Strong Copyright Protection

Internet connectivity is growing by leaps and bounds, and is changing the way the software industry does business. By 2005, the CEO experts anticipate that a compelling 66 percent of software will be distributed over the Internet—compared to only 12 percent today. The number of households with Internet connections, as well as those with broadband access, is also expected to rise dramatically in the next several years. Similarly, there currently are more than 72 million Internet hosts on the World Wide Web. This number has increased at an annual rate of 61 percent in the last five years and will continue to grow at a rapid pace. Taken together, these predictions reveal the growing importance of Internet-based distribution in the worldwide market for packaged software (non-customized business software).

The increase in Internet distribution and the growing number of users raises the possibility of even greater losses due to piracy in the coming years. According to a May 2000 study by the International Planning and Research Corporation, the estimated global software piracy rate was 36 percent in 1999. In some individual countries, the piracy rate was more than 90 percent. Software theft is vastly easier on the Internet, and detection is more difficult. Pirates have easy access to all potential markets, including literally thousands of sites that offer illegal copies. In order to shut down websites that offer pirated software and curb these copyright violations, stronger protections and effective enforcement mechanisms must be implemented around the globe.

Internet Distribution of Software

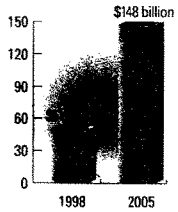


Open Markets Free of Regulation

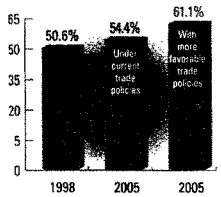
According to the CEOs surveyed, the world packaged software market will continue to grow, and the growth rate will accelerate to an average of 17.3 percent annually between 2000 and 2005. The average annual market growth rate between 1990 and 1998 was 15.1 percent. This predicted increase will raise total receipts of U.S. business software establishments from $51 billion in 1998 to about $148 billion in 2005—almost tripling receipts in less than 10 years. These projections also indicate that the software industry's growth rate will exceed that of other related services in adding jobs and tax revenues to the U.S. economy.

In estimating changes in the growth rate, the most significant factor identified by the CEOs was expansion into new and emerging foreign markets. The U.S. software industry is truly global. As the Internet becomes the dominant method of distribution, geographical borders become even more irrelevant. The CEO experts estimate that, today, their companies receive 50.6 percent of their revenue from sales abroad. Like the domestic market, these foreign sales stimulate our economy, generating U.S. jobs and tax revenues.

World Packaged Software Market Receipts



Percentage of Software Industry Revenues from Foreign Sales



However, international trade and economic policies have a dramatic impact on the industry's ability to penetrate foreign markets. In the current international environment, the CEOs anticipate that 54.4 percent of software industry revenues will come from foreign sales by 2005. With more favorable trade policies around the world, they estimate that foreign sales could jump to 61.1 percent of total revenues by 2005—correlating to as much as an additional $30 billion.

In terms of new and emerging markets, the CEOs most often identified Asia (China in particular), Latin America, and the Middle East as having the most potential. However, some barriers currently exist in terms of trade with these regions. If the software industry is to realize its market growth potential and our economy is to continue to flourish, lawmakers must establish trade policies that ensure access to these markets. This includes approval of permanent normal trade relations (PNTR) for China and other similar agreements, a global commitment to strong copyright protection, and a lifting of restrictions on ownership and content requirements.

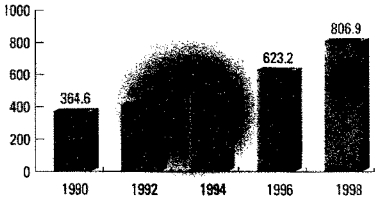
Availability of a World Class Workforce

The software industry is unique in that it has created a large number of highly skilled, high paying jobs in a short period of time. According to a June 1999 Nathan Associates study, the core software industry employed 806,900 workers in 1998, a dramatic increase from 364,600 workers in 1990. The average annual wage in the core software industry was $66,500 in 1997. In contrast, the average annual wage in all private industry, excluding the core software industry, was $29,700 that year.

However, despite the high pay and growth in the number of jobs, the core software industry has always experienced a shortage of qualified applicants. Industry leaders predict this will remain a challenge in the coming years. In fact, the CEOs project that, on average, 9 percent of the openings for skilled workers will go unfilled in 2000.

Not only is this a workforce problem but it also has a significant impact on the U.S. economy. The CEO experts estimate that each skilled worker accounts for roughly $800,000 in prospective annual sales. For every job that goes unfilled, revenue to the company is lost, as well as the corresponding tax revenues that would have been generated from the sales and from each worker. In addressing this issue, a long-term approach is needed that takes into account not only immigration but also education policy, particularly in regard to providing incentives for and increasing the interest of our nation's youth to study math and science.

Core Software Industry Employment at Establishments in the United States



SOURCE: Forecasting a Robust Future: An Economic Study of the U.S. Software Industry, June 1999, Nathan Associates

Conclusion

The software industry is at the center of the U.S. economy, and policy decisions that affect the industry play a critical role in our future prosperity. Decisions made today will also have important implications for the future of innovation. Industry leaders agree that favorable public policies in the areas of copyright protection, trade opportunities, and workforce development will be essential to ensuring our nation's continued economic growth in the years to come.

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This Delphi survey was conducted by Everett M. Ehrlich, President of ESC Company, an economic consulting firm. Ehrlich is the former Under Secretary of Commerce for Economic Affairs.

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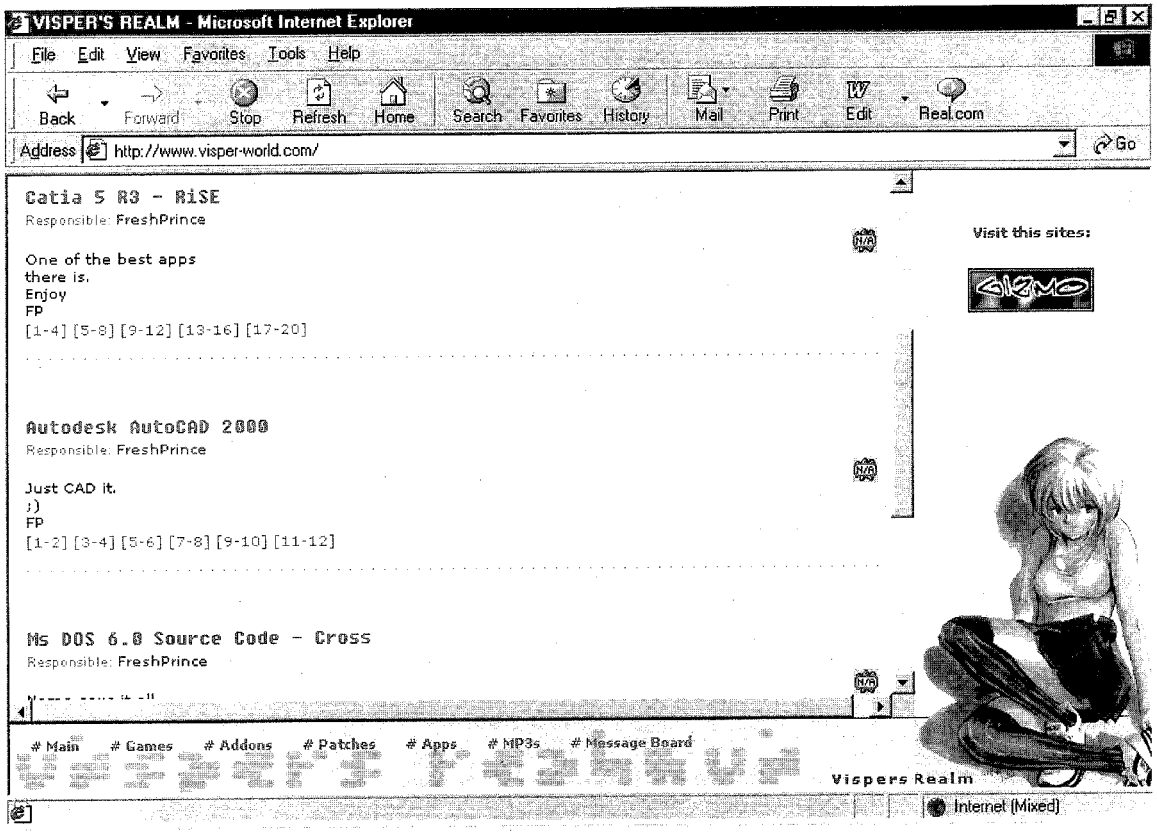
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Business Software Alliance
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News Release

FOR IMMEDIATE RELEASE
Wednesday, July 19, 2000

FOR ADDITIONAL INFORMATION
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Software Theft Cost the Industry Billions

WASHINGTON, DC (July 19)—Jack Krumholtz, Microsoft's Director of Federal Government Affairs and Associate General Counsel, testified on behalf of the Business Software Alliance, an organization of the leading software companies, before the Subcommittee on International Economic Policy and Trade of the House International Relations Committee today. Krumholtz's testimony stressed the importance of the Internet and the global marketplace to U.S. high technology industry and the detrimental effects of software theft to both the U.S. and other nation's economies.

"Software developers and technology companies not only are among the chief architects of e-commerce, they recognize the tremendous potential of offering their own physical and intellectual property- based products electronically. Forrester Research estimate that e-commerce among businesses for all types of goods and services reached **$109.3 billion in 1999**, and will increase to **$1.33 *trillion* worldwide by 2003**. According to a study done by Nathan Associates, the U.S. software industry is projected to contribute more than a $20 billion surplus to the total U.S. trade balance. We see tremendous opportunities for all types of products and services to be provided and distributed more quickly, more efficiently, and more cost-effectively worldwide. We see increased opportunities for small and medium size players in every country to provide their products and services to the international marketplace," said Krumholtz.

Krumholtz cited the software industry's contributions to worker productivity, job growth, fiscal impact, balance of payments (U.S. software publishers earn more than half of their total revenue from overseas sales of software) and the industry's impact on the world. "The high tech industry is by its nature, global. Despite its significant contributions to the U.S. and other nation's economies, the software industry has yet to realize its full potential because of global piracy. Although most countries have taken some steps to curb piracy,

many still lack the legal protections, remedies, resources, and political infrastructure needed to achieve significant reductions in software theft. The result is an average global piracy rate of 38 percent, and a U.S. rate of 25 percent. Software theft robs the industry of several billion dollars a year," said Krumholtz.

While the Internet creates opportunities for products and services to be sold, it also poses a tremendous challenge concerning stolen software which can easily and readily be distributed. "The Internet, however, makes little or no distinction between legitimate businesses and the criminals who exploit electronic commerce to market and distribute every conceivable illegal product or service. Internet pirates, like other criminals, have fully embraced electronic commerce as an effective medium to advertise, market, and distribute pirated software on a global basis," said Krumholtz.

"The ability of countries to reap high economic benefits from e-commerce is highly dependent on their ability to promote protection and enforcement of intellectual property rights. Multi-lateral and bilateral trade alliances must be fully backed by governments' firm commitment to respect and enforce intellectual property rights within the public and private sectors; to treat the manufacture and sale of counterfeit software as a crime warranting tough enforcement and penalties; and to ensure that its laws and enforcement regimes adequately address piracy," added Krumholtz answering the question of what can be done about how to combat the problem of software theft.

###

Since 1988, the Business Software Alliance has been the voice of the world's leading software developers before governments and with consumers in the international marketplace. Its members represent the fastest growing industry in the world. BSA educates computer users on software copyrights; advocates public policy that fosters innovation and expands trade opportunities; and fights software piracy. BSA members include Adobe, Apple Computer, Autodesk, Bentley Systems, CNC Software/Mastercam, Compaq, Corel Corporation, IBM, Intel, Intuit, Lotus Development, Macromedia, Microsoft, Network Associates, Novell, Sybase, Symantec and Walker Digital. BSA websites: www.bsa.org; ww.nopiracy.com.

Editor's Note: Full text of testimony and studies available at www.bsa.org
or by contacting Patrick Mellody at 202-530-5127.

STATEMENT OF THOMAS C. TYRRELL
SENIOR VICE PRESIDENT, GENERAL COUNSEL AND SECRETARY
SONY MUSIC ENTERTAINMENT INC.
BEFORE THE HOUSE COMMITTEE ON INTERNATIONAL RELATIONS
SUBCOMMITTEE ON INTERNATIONAL ECONOMIC POLICY AND TRADE
Wednesday, July 19, 2000

Thank you, and good afternoon. I want to thank you for permitting me this opportunity to address the Subcommittee on an issue of such great importance not only to the RIAA membership, but also to the US economy, and to US society as a whole. My name is Tom Tyrrell, and I am General Counsel of Sony Music Entertainment. Sony Music is a leading global producer, manufacturer, and marketer of recorded music, video, and music publishing, headquartered in New York. Sony Music employs approximately seven thousand people in the United States in our many record labels (which include Columbia and Epic), and at our four disc manufacturing plants and our state-of-the-art recording facilities in New York, and generates significant U. S. revenue from our record and music publishing businesses worldwide. I am here before you today representing The Recording Industry Association of America, the trade association of America's record companies. The RIAA's member record labels range from large companies with major distribution systems to small independent companies who average just a few recordings a year, and are responsible for producing and distributing over 90 percent of the legitimate sound recordings sold in the United States.

When it comes to copyright, particularly in the music business, the U.S. is the greatest single source for copyrighted music exported worldwide. The music business is very much a US-driven business. Whether you are large record company like Sony Music or a small independent company, all record companies share a common thread -- a fragile existence wholly dependent upon the protection of our intellectual property. It is copyright protection upon which so much creativity, ingenuity and commerce rests, and this protection is under constant strain. You have before you an unparalleled opportunity to strengthen it by joining, and leading, the global fight against piracy. In every instance, whether on the Net or in the physical marketplace, defeating piracy means the creation of market opportunities, and the expansion of our cultural and economic well-being. Given the tremendous stakes for our

country, none of us can afford to permit ourselves to be daunted by the nature of the obstacles that lay ahead.

The record industry and other copyright industries currently confront a piracy phenomenon with two faces, or I should say, with at least two faces. One is with respect to the physical marketplace in which we confront increasingly organized and multinational criminal enterprises involved in massive production and trafficking of pirate CDs and other optical media. Long gone are the days when piracy of music was either accomplished by die hard fans devoted to recording and distributing every conceivable bootlegged product of their favorite band, or by small underground mom and pop operations making a few dollars from the production and sale of poorly reproduced pirate cassettes. Today's pirates operate through multinational criminal syndicates, simultaneously involved in replication, printing and distribution around the globe. In today's environment, a pirate CD found in the streets of Sao Paolo, Brazil is likely to have been mastered in Singapore, manufactured in Taiwan, shipped on spindle -- meaning that it has not yet been placed into jewel boxes -- by air to Uruguay, and it is then transshipped to Paraguay where the product is finally assembled (that is, where the CDs are placed into packaging along with the insert cards featuring the recording's cover art). From Paraguay's city of Ciudad del Este, this hypothetical CD is trucked over the bridge into Brazil where it goes to central distribution centers for sub-distribution throughout the country--ALL OF THIS WITH NARY A WORRY ABOUT FACING CRIMINAL CHARGES. With the advent of the CD, the pirate gained access to the equivalent of a master recording which will not degrade no matter how many times he copies it. We now face a new threat - that of CDR's. With CDR's the pirate now has the ability to tailor his pirating according to demand - no need to worry about inventory. As much as we have improved the quality of our product over the years, those improvements have been accompanied by new risks.

Today's pirates rely on traditional means of avoiding punishment, such as bribery and other forms of corruption, but they also have new tools in their arsenal relating to their increased stature: force and other threats of violence, and the ability to rapidly change the location of the various components of their enterprises when confronted with governments prepared to tackle the piracy issues. Pirates actively seek out jurisdictions in which either the

law, or lax enforcement, or the general inefficiency and corruption of the judicial system, offer relative safety for their operations. Our job is to decrease, if we can't entirely eliminate, the size of their zone of safety.

In this battle, we rely greatly on the intelligence and anti-piracy operations of RIAA and its international affiliates, and the support of the US Government -- in particular the Office of The United States Trade Representative, the State Department and Embassies, the Patent and Trademark Office, the Department of Commerce, and the Copyright Office, as well as the Department of Justice, FBI and Customs. The tools that Congress provided to USTR in the 1988 Omnibus Trade and Competitiveness Act of 1988, most notably the enactment of Special 301,have proven to be extremely influential in effecting global change in legislation and enforcement practices, although a great deal remains to be done.

The negotiation and coming into force of the TRIPS Agreement also has particular relevance on this question, in particular given that TRIPS specifically requires countries to not only provide adequate legislation, but to ensure that enforcement thereof is effective. The operative provisions of TRIPS only came into force for LDC's in January of this year, and we look to aggressive and constant monitoring of this Agreement by the US to ensure compliance with the obligations of the Agreement. Congress can continue to play a role in helping to ensure that our trading partners meet their obligations to provide adequate and effective copyright protection by ensuring that all trade bills, for example, CBI or GSP, require beneficiary countries to provide such protection. These bilateral tools crafted by Congress continue to play a key role in providing incentives to countries to meet their IPR obligations, even in the post TRIPS environment.

The second face of piracy couldn't look more different. It involves not criminal syndicates, but generally law abiding citizens that mean, in some sense, no harm, and who, in the privacy of their own homes, are now actively involved in trading or sharing unauthorized recorded music files. The irony is that, appearances aside, the impact of this activity on the copyright owner is no less prejudicial than other, more seemingly pernicious forms of unauthorized activities. The mechanisms for resolution are quite different, but the need for such resolution is no less

pressing.

Global sales of recorded music last year exceeded $40 billion. Creating opportunities for expansion is now a primary imperative to sustain the growth of one of the world's most vital, diverse and competitive industries.

The ability to sustain this growth is wholly dependent upon achieving adequate and effective copyright protection for our recordings in global markets. While this task has traditionally been fraught with difficulty -- witness the well-known piracy problems in China, Ukraine or Brazil -- it becomes increasingly more complex with developments in technology that permit the instantaneous and global reproduction and distribution of materials with the touch of a button. In a global information network, protection of the creative materials that are such a critical part of this globe's economic backbone is only as strong as the weakest link in the information communication chain. Thus, there is an absolute necessity to eliminate existing gaps in the international legal structure that undermine the protection enjoyed by copyright holders in national and international channels of commerce.

The WIPO treaties adopted in 1996 set the stage for fair international digital distribution of music. While incomplete, these treaties represent significant and necessary improvements in the international legal structure, and contain necessary provisions relating to the ability to effectively enforce rights in the digital age. These global improvements are critical to the ability of record companies and other copyright owners to do business in a global information society.

Substantively, the treaties accomplish a number of extremely important economic objectives. First of all, the treaties make it absolutely clear that copyright holders are granted exclusive rights to control the electronic delivery of their works to individual members of the public. This both anticipates and responds to the realities of the electronic marketplace, where copyright owners are likely to rely increasingly on the communication of signals rather than the delivery of physical products to meet consumer demand. This level of copyright protection, in conjunction with technical protections (also dealt with in these treaties), is indispensable to the willingness of copyright owners to make their works available through

these new media.

Second, the treaties confirm that existing national copyright laws, and the international copyright system, apply in a generalized manner to all technologies and media, and not in a technology-specific manner. This has particular relevance with respect to the right of reproduction and its limitations in digital media.

Third, the treaties require countries to effectively prevent the circumvention of technical measures and interference with rights management information used by copyright holders to protect or identify their works. It is widely anticipated that such technical measures and rights management information will play an increasingly important role in the protection and licensing of copyright in the digital age. Technology can play a critical role in solving some of the problems created by technological developments, and these technological solutions which simultaneously protect intellectual property and foster technological innovation and the expansion of commerce must be protected.

A great deal of work is being conducted around the globe to develop technical systems of protection and viable information systems to facilitate the administration of rights. These systems of protection and rights management information, however, will be meaningless unless states effectively deter and punish acts of circumvention or interference. This treaty will require states to do so, thus establishing key elements of security for global electronic commerce.

I urge all of you to do everything you can to bring these treaties quickly into force and to ensure their truly global application. Already the strains of technology and realities of the marketplace are beginning to reveal the limitations of certain aspects of the Treaties, as I will briefly describe in a moment. In the meantime, let's get going on the tremendous start achieved in the WCT and the WPPT, even when we are mindful that much more remains to be done.

When I speak of the limitations of the Treaties, I am primarily referring to the limited scope of exclusivity provided to performers and phonogram producers under the WPPT. While the grant of exclusive rights with respect to

interactive transmissions represents a huge advance from the standpoint of international law making, it fails to capture a sufficiently broad range of services that are likely to constitute core mechanisms for making recorded music available to the public.

At the Diplomatic Conference in Geneva in December of 1996, there were a number of proposals relating to extending exclusivity beyond merely on-demand services. In recognition of the fact that digital communication media are likely to transform the way in which recorded music reaches the public and will facilitate alternative means for the acquisition of such recorded sounds through downloading, the Latin Group proposed that record companies and performers should enjoy exclusive rights when their works and performances were transmitted through any digital media. The United States, in line with the then recently adopted Digital Performance Right in Sound Recordings Act (DPRA) of 1995, proposed a narrower formulation of exclusivity centered around whether any fee was required for the reception of the digital signal. Unfortunately, as described in an Agreed Statement to the WPPT, the Parties were unable to reach consensus on a formulation of exclusivity going beyond on-demand services, although it was recognized that the final agreement failed to provide an adequate and appropriate framework for the rights of record companies and performers in the age of digital communication.

In the three and one half years since the conclusion of the WIPO Treaties, the recognition of the limitations of the treaty's provisions relating to digital transmissions has proven to be quite understated and prescient.

Today's environment finds broadcasts on the Internet, including the creation of genre specific internet-originated programming (so called "webcasting") as well as retransmissions of terrestrial broadcasts. New digital services offering subscription narrowcasts (niche based targeted programming), delivered through cable or satellite, are coming on line daily, and the world prepares for the launch of digital over-the-air broadcasting. Compression technologies and other technological developments have transformed the capacity of digital storage media, and have revolutionized the ease and speed of communicating and downloading from the Internet. The result of these developments is that a "limitation" of a

treaty concluded in 1996 represents a legal vacuum in 1999.

The formulation contained in the WPPT -- that is the grant of exclusive rights with respect to on-demand services -- was based on the perception that it was such services that posed the greatest risks to the economic vitality of record companies and performers. Given the traditional reliance of the industry on the sale of physical goods, it is completely understandable that much of the discussion centered on the likelihood of unauthorized reproduction of transmitted materials. The WPPT was largely based on two key judgments: (1) that transmissions created the greatest risks to performers and record companies in instances where such transmissions were likely to replace the sale of physical carriers, and in particular in those instances where transmissions were likely to be copied; and (2) that policy makers in 1996 could effectively determine which transmissions were most likely to have such an impact--i.e. would replace sales or were likely to be copied without authorization.

As is generally the case in trying to make such specific predictions about the development of technology, market conditions and consumer usage, these assumptions have proven to be largely misplaced. First of all, as the development of a plethora of communication services have made access to recorded music nearly inescapable, it has grown increasingly less clear that there will be any need or desire on the part of consumers to make their own reproductions. In large part, we have reached a point where consumers have such broad access to distant databases of recorded music that it no longer makes commercial sense to create (or own) your own personal database. Why own a book when you can just tap into the library at any time? The assumption that communications only, or even primarily, threaten the interests of performers and record companies only when they are copied or when they are available on-demand and therefore substitute for sales is not a viable theory about market behavior. The promise of technology is not merely that it will transform the manner in which products will be delivered to consumers, but that it establishes a way of satisfying consumer demand through services rather than through products.

Secondly, given developments in technology in which home recording can be programmed to be triggered by digital subcodes in the bit stream, and accomplished automatically

without human presence, it has become folly to assume that we can predict the form of communication and programming most likely to lead to home copying. All digital transmissions will compete on relatively equal footing for place on the personal copier's recordable media, and the digital transmission of recorded music should require the authorization of the copyright owner, regardless of the nature of the communicating entity. The WPPT was based on the assumption, sensible at the time, that consumers were more likely to engage in unauthorized reproduction, or that services would otherwise result in product displacement, when consumers determined what was being communicated (on demand services). Since consumers can tune into genre specific programming and set their own recording devices to record specific artists and/or songs, this assumption has become seriously outdated.

Again, let me reiterate that, notwithstanding these limitations on the completeness of each and every provision of the Treaties, the Treaties represent an essential building block for the development of e-commerce and the cultural and economic development that will ensue if we create the right conditions for promoting local creativity and its global distribution. In particular, protection of rights management information and of technological measures employed by copyright holders to guard against unauthorized access to, or use of, their works, is a critical part of the security that copyright holders will need to persuade them to undertake the risks connected to making their works available through the net and to therefore stimulate the growth of legitimate e-commerce and reduce piracy. I urge you to do everything in your power to convince other Nations to move with all possible speed to bring these Treaties into effect.

Effectively addressing piracy in all of its variants is a key economic and cultural objective for the United States, and Congress, the Administration and the private sector must work together to achieve this essential goal.

Trade pressure continues to be a primary mechanism for getting foreign nations to address either legislative or enforcement related inadequacies, and I urge the Subcommittee to ensure that the Administration has all the possible tools at its disposal to exert such pressure. In addition to providing the necessary tools, I also recommend

that the Subcommittee demonstrate its abiding interest in this subject by holding oversight hearings such as this one. In this regard, it is also critical that the Administration be funded in such a way as to permit them to use their powers to the maximum extent.

I urge you to ensure that each of the agencies that plays a role in promoting the adequate and effective protection of intellectual property in global markets is adequately funded, and I caution you to not be penny wise and pound foolish in your appropriations involving the protection of some of America's most creative, vibrant and profitable industries.

It is also important to recognize the limitations of a sanction-based trade policy in effecting IPR reforms, and I urge you to find mechanisms for rewarding good practices as well as to sanction bad ones. I also encourage each of you to use your personal influence to encourage more effective protection of IPR. You should call upon Ambassadors of relevant countries to express your concerns, and, where appropriate, convey your concerns to visiting foreign delegations and/or use the occasion of your own presence on Congressional delegations to express such concerns. Finally, address not only the ugly face of piracy, but also the gentler face, and encourage the global ratification of the WIPO Treaties that will provide us with a better legal platform from which to address on-line piracy, and will minimize the risks associated with entering this currently anarchic marketplace, thereby directly encouraging the growth of electronic commerce.

We can and must prevail in these initiatives. Once again, I thank you for inviting me here today, and I look forward to your questions.

ifpi

representing the recording industry worldwide

IFPI Music Piracy Report 2000

june 2000

Introduction

Music piracy is proliferating, driven by increased traffic in mass-produced audio CDs, an alarming surge in illegal sales of CD-Recordable discs and an exponential spread of pirate music files on the internet. Underpinning these trends has been a huge increase in global optical disc manufacturing capacity, far outpacing the growth of legitimate demand. There is also increasing evidence of the link between CD piracy and organised crime.

Against this background, IFPI's recently-created global anti-piracy structure has made substantial headway in 1999 and 2000. Several modern plants, operating covertly, were put out of action in Latin America, Europe and South East Asia in 1999. There have also been a number of ground-breaking cases of litigation against pirate operators, both physical and online.

There have been some encouraging steps to fight piracy by a number of governments, with notable initiatives in Hong Kong, Bulgaria, parts of Latin America and by the European Parliament in Brussels. In most high-piracy territories, however, the response by government and enforcement agencies falls far short of what is required to tackle the problem.

The spread of piracy, both of CDs and on the internet, is the greatest threat to the legitimate music industry. The future of a dynamic creative sector, of artists' livelihoods and of hundreds of thousands of jobs are all at stake. The need for governments worldwide to provide strong laws, effective enforcement and adequate deterrent penalties against piracy has never been greater.

Summary

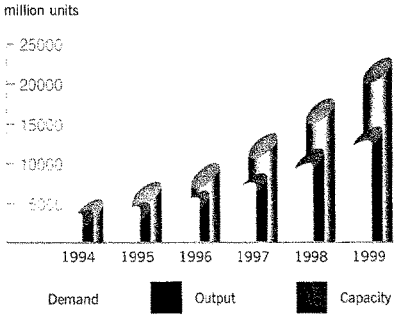
The global pirate music market is estimated to have totalled 1.9 billion units in 1999, with an increase in CD piracy partly offsetting a worldwide decline in sales of illegal music cassettes, which fell to 1.4 billion units. Total sales of pirate music CDs topped 500 million units for the first time, with pressed pirate CDs (as opposed to CD-Rs) rising to an estimated 450 million units, from 400 in 1998.

Pirate CD-Recordable discs are making a significant impact. IFPI's first estimate is that pirate music CD-R sales amounted to at least 60 million units in 1999. Further research showed seizures worldwide of more than 1 million CD-R discs annually. This is unquestionably the tip of the iceberg. Total CD-R sales in all formats worldwide (audio and non-audio) more than doubled in 1999 to 1.5 billion units.

The total value of the pirate music market in 1999, including sales of audio CDs, cassettes and CD-Rs, is estimated at $4.1 billion – less than the estimated value in 1998, reflecting falling prices of illegal recordings and the decline in pirate sales of cassettes, particularly in Latin America, South East Asia and eastern Europe, where poor economic conditions prevailed.

Underlying these trends was another year of dramatic growth in global optical disc manufacturing capacity. World capacity of all disc formats (including audio, CD-ROMs, CD-Rs and Video-CDs), rose 28% to 23 billion units in 1999. Over the past five years manufacturing capacity has increased by 340%. The number of known CD plants increased by 75 during the year, to 660.

Optical Disc Manufacturing (all formats)



Region by region, South East Asia remains a huge source of pirate CD production despite a fall in pirate sales in Hong Kong. In Europe, Ukraine poses the greatest threat to legitimate markets, although illegal manufacturing by disc plants in western Europe is also a substantial problem. Brazil and Paraguay stand out as the markets most under attack by CD and cassette pirates in Latin America.

The following table lists those countries where known overcapacity is thought to be driving very high levels of pirate production:

Current Estimated Pressing Capacity

Country	Current estimated capacity – all formats (million units)	Total legitimate demand for all discs 1999 (million units)
Taiwan	3,900	190
Hong Kong	2,800	140
China	680	620
Singapore	490	50
Macau	340	negligible
Malaysia	280	50
Czech Republic	90	25
Russia	90	30
Israel*	90	9
Ukraine	70	5

*Not including Palestine Authority
Paraguay – there are believed to be underground CD plants, but no known legitimate ones

Internet piracy spread dramatically during the year, through file-sharing services and on websites, but it is impossible to quantify the extent of the problem accurately. An estimate by Forrester Research puts the number of illegal downloads of music files at more than 1 billion in 1999. IFPI estimates that several million music files are available on the internet through file-sharing services such as Napster alone.

CD Piracy and Organised Crime

Evidence of the link between music piracy and organised crime became apparent in the late 1990s as the CD format offered crime syndicates a simple, cheap and highly lucrative entry into a mass-scale illegal trade. In 1999 and early 2000 a number of cases were uncovered showing the convergence between CD piracy and other forms of serious and organised crime.

They include the arrests by London police of members of a Russian crime ring charged with being involved in large-scale credit card fraud as well as in the traffic of pirate CDs; arrests by anti-mafia police in Italy and reports from the General Attorney of Naples that 100 Camorra gangs are involved in piracy as well as in drugs, firearms and extortion; and the crackdown by Dutch police against a US$50 million CD pirate ring in raids which seized firearms and large amounts of cash.

Other seizures in the year showed the growing scale, sophistication and audacity of the international pirate traders – exemplified by the seizure in Frankfurt in January of half a million CDs manufactured in Ukraine and bound for Uruguay. The flood of international pirate traffic from South East Asia into Latin America, which began in 1998, continued in 1999. A new phenomenon of wholly "underground" pirate CD plants also emerged for the first time in 1999 (*see next page*). Illicit plants have been uncovered in Latin America, Asia and Europe. The trend reflects a move by the largely South East Asian-based pirate syndicates into local manufacturing

The music industry responds: enforcement and litigation

In 1998 IFPI established a new enforcement structure to match the global proliferation of CD piracy with a commensurate global response. That structure is now operating through a network of regional offices throughout the world. Its takes a "zero tolerance" approach to piracy, an approach that has reaped results.

In November 1999 IFPI's Main Board granted new resources to the enforcement structure, which will double the team's headcount to around 50 in the year ahead. The expansion reflects the rapid growth of IFPI's investigative and litigation activity. There are presently more than 100 cases involving cross-border pirate traffic under investigation, and more than 20 cases of litigation in progress. IFPI's anti-piracy resources now include a training section to work with enforcement authorities worldwide, a central forensic facility and state-of-the-art intelligence processes.

There were significant anti-piracy successes in 1999. Total seizures of optical discs were roughly on a par with 1998 at 60 million. Some 15 million illegal CDs were seized in Latin America, largely sourced from South East Asia, taking the total to 34 million CDs seized in that region over the past two years.

Even more significant in 1999 were the actions against entire underground CD plants in Holland, Philippines and Paraguay. Most spectacular were raids in Paraguay which uncovered two plants with an annual production capacity of some 50 million CDs. Syndicates based in Hong Kong were behind these illegal businesses.

Enforcement successes have set in motion a series of litigation cases by IFPI, its national groups and its US affiliate, the RIAA. These have a major deterrent effect on future would-be infringers. In November RIAA won record damages of US$13.7 million against Global Arts Productions and Danny Jordan who had engaged in back catalogue piracy internationally; IFPI reached a US$1 million settlement – the largest in Europe – with a mastering plant in Switzerland over unauthorised mastering of IFPI members' sound recordings for Bulgarian and Ukrainian clients during 1997 and 1998.

Another litigation case, involving Golden Science, taken jointly with the Motion Picture Association (MPA), exemplifies the increasing cooperation between IFPI and other optical disc based industries. This civil litigation followed the largest ever seizure of optical discs in 1998, a massive 22 million units in a case involving charges of corruption on the part of a senior customs official.

Government anti-piracy strategies: some highlights in 1999/2000

- Controlling optical disc manufacturing is a key part of governments' fight against piracy. There have been encouraging steps on this front. CD plant regulations have been introduced in Hong Kong and Bulgaria, and they are in preparation in Malaysia, India, Thailand and Macau.

- Hong Kong adopted legislation recognising copyright piracy as a serious and organised crime. This gives stronger powers to enforcement officers and the courts. A newly-formed Special Enforcement Team has focused on raids against pirate outlets in shopping centres and street-level stores. Meanwhile, Hong Kong Customs now has a substantially enlarged IPR enforcement team, with over 300 officers that are actively taking action against pirates.

- Poland belatedly adopted a new anti-piracy law which should help lower one of the highest piracy rates in eastern Europe; Italy, with the highest piracy rate in western Europe after Greece, failed to deliver on years of promises to enact a new anti-piracy law.

- The European Parliament adopted a report on the EC Green Paper on Piracy and Counterfeiting in the Single Market calling for increased co-operation between rights owners and authorities in dealing with cross-border piracy in the EU and eastern Europe, higher deterrent penalties and controls to prevent the manufacture of pirate CDs.

- Ukraine failed, in 1999 and to date, to tackle its mounting pirate manufacturing levels and needs both legislation and effective enforcement. Ukraine is one of a number of territories coming under strong pressure from the US government through the "Special 301" provisions of its trade legislation.

- Israel, also under scrutiny by the US government, has seen an alarming increase in piracy reflecting a breakdown in the enforcement process.

- There was no sign of improvement in China for the whole of 1999. Piracy remained high and the figure released by the government suggested that the piracy rate was running as high as 90%. There were large-scale imports of pirated products from surrounding areas and the number of production lines has also increased. However, the government will be obliged to take more determined enforcement actions against pirates after the official WTO accession of China.

- Mexico enacted a new anti-piracy law in May 1999, allowing for better enforcement. This has helped reduce piracy in the country.

Internet Piracy

Internet piracy spread rapidly in 1999 and early 2000, but it is too early to quantify the economic impact on the music market. Online piracy poses exactly the same threat as its physical equivalent to the creativity of artists and the investment of record producers. Potentially its impact is far greater than physical piracy. Internet piracy hampers the industry's efforts to give consumers the benefits of a legitimate online music market. Record companies are making steady progress towards legitimate online business models, via a string of internet corporate investments and joint ventures, and through the technological forum of the Secure Digital Music Initiative (SDMI) and DVD-Audio.

IFPI's response to internet piracy is a combination of education of consumers and service providers and, where necessary, strategic litigation to remove infringing sites. A newly-formed dedicated internet piracy unit is developing a fully automated search and identification service, jointly with the Motion Picture Association (MPA).

Legislation also plays a vital role in the fight against internet piracy. In the USA the Digital Millennium Copyright Act (DMCA) was adopted at the end of 1998. In Europe, the Copyright Directive was first proposed in 1997 to allow rights owners adequate rights and technical controls to protect their works. These legislative measures are the implementation vehicle for the WIPO Treaties, concluded in December 1996. They provide the legal foundation for the development of a legitimate online music industry internationally, and need to be ratified in 30 territories worldwide in order to come into force. By early 2000, approximately 15 countries in Latin America, Asia, central and eastern Europe, and the US had already ratified the treaties.

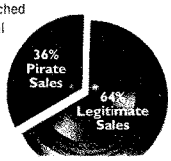
On the litigation front, the RIAA in the United States has spearheaded the industry's response against infringers such as MyMP3.com and Napster which have tried to build large-scale businesses based on breaching copyright. These actions have attracted strong support from artists. Internationally, IFPI and its national groups have taken action to close down thousands of pirate sites. A global internet piracy campaign launched in October 1999 drew support from hundreds of artists worldwide. There have also been successful legal actions against internet service providers (ISPs) and content providers, notably:

- Belgium: a court decision against an ISP and against a website operator who offered on his site links to 25,000 illegally posted sound recordings
- France: Criminal litigation against two individuals who operated illegal link sites. This litigation ended with damages of US$15,000 and suspended prison sentences
- China: a settlement between several major record companies and the leading TV portal operator MyWeb which had provided links to infringing MP3 files. IFPI filed a lawsuit against MyWeb in December 1999

Governments in the fight against piracy

Music piracy erodes culture, destabilises legitimate economic activity and nurtures serious crime. It also robs governments of hundreds of millions of dollars in unpaid tax revenues and lost investment. Governments have a key role to play in supporting the efforts of the music sector and other copyright industries in the fight against piracy. Legislation and enforcement strategies in many territories are woefully mismatched to the scale of today's international piracy business.

One in three recordings worldwide is pirate



The recording industry's two key priorities are:

- Adequate legislation: IFPI's anti-piracy efforts have shown that in many jurisdictions intellectual property protection is inadequate. New legislation is also needed to give governments tighter controls over the operations of CD plants.
- Effective enforcement: in many territories, enforcement agencies are inadequately resourced and ineffectively managed to tackle piracy. In particular they are unequal to the global spread of today's pirate networks. In many cases, fighting piracy is given a very low priority and penalties handed out by courts are often derisory.

IFPI's anti-piracy activities focus both on countries that are heavy producers of pirate CDs, and on territories where the levels of domestic piracy are excessively high. The following table provides information on the current priorities for IFPI in terms of domestic piracy:

Current IFPI priorities in terms of domestic piracy levels in 1999

Country	Piracy (US$m)	Piracy Level (Units)
China	620	90%
Russia	200	75%
Brazil	180	50%
Italy	115	25%
Mexico	75	40%
Taiwan	70	25%
Poland	55	50%
Israel	45	60%
Greece	45	45%
Hong Kong	25	50%

Regional View

North America

The level of piracy over all in the region remains low, which is to a large extent due to an aggressive litigation strategy against pirate producers. In the US, the RIAA reported an increase in CD-R seizures. Internet piracy has become a priority issue with lawsuits filed against MP3.com and Napster.

Europe

Domestic piracy rates are considerably higher in eastern than in western Europe, with the notable exception of Italy and Greece. Finland has been increasingly affected by pirate product entering from Estonia, with piracy rising to over 10% of the market. CD-R piracy is a growing problem. In eastern Europe, piracy levels remain stubbornly high in Russia, Ukraine, CIS, the Baltic States, Bulgaria, Romania and Poland, restricting development of those developing markets.

Asia

Asia remains one of the high-piracy regions in the world both in terms of domestic piracy levels and production of pirate material. China saw almost 100% growth in the pirate market with a proliferation of different disc formats. There has been an improvement in Hong Kong (piracy down from 70% to 50% in 1999) due to new laws and strong government action against pirate retail outlets. Other countries such as India, Pakistan and Malaysia also show very high piracy levels.

CD piracy is estimated at about 30% throughout the region. Cassette piracy has virtually destroyed the cassette markets of countries such as Brazil. In 1999 the piracy rate in Brazil grew from 45% to 50% as a result of a deteriorating economy and inadequate enforcement measures by the government. The value of pirate sales was down due to lower pirate prices. Mexico saw a slight improvement to 40% due to a new law and more effective enforcement action coupled with economic recovery. CD-R piracy is increasingly affecting Latin America, particularly Argentina, Colombia, Mexico and Peru.

One of the biggest concerns for the recording industry remains Paraguay, used widely as a transhipment point by Asian organised crime groups for distribution throughout Latin America.

Middle East

Israel's piracy sales value increased sharply in 1999 due to inadequate enforcement. The deteriorating situation also affects the territories of the Palestine Authority. The average level of piracy across the Middle East region was over 30%, running at a much higher rate in Egypt, Israel, Kuwait and Lebanon. Piracy levels fell in Bahrain and Oman and remain low in the UAE. Outside Israel, cassette sales continued to account for the bulk of pirate unit sales.

Africa

Piracy in South Africa and Zimbabwe is around 15%. Elsewhere in Africa, however, the figure is thought to be above 50%. CD-R piracy is a growing problem.

Australasia

Piracy in Australia and New Zealand has increased since the lifting of parallel imports restrictions, but remains at comparatively low levels.

Note

The value of pirate sales is calculated at local pirate prices, which fell in many of the high piracy regions – particularly Asia, Latin America and eastern Europe. If legitimate prices were applied, the value would be much higher.

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Level of domestic piracy 1999 (units)

	Over 50%	25-50%	10-25%	Less than 10%
North America				Canada USA
Europe	Bulgaria CIS (other) Estonia Latvia Lithuania Romania Russia Ukraine	Cyprus Greece Poland Slovenia	Finland Hungary Italy	Austria Belgium Czech Republic Denmark France Germany Iceland Ireland Netherlands Norway Portugal Slovakia Spain Sweden Switzerland UK
Asia	China Pakistan	Hong Kong India Malaysia Thailand	Indonesia Philippines Singapore South Korea Taiwan	Japan
Latin America	Bolivia Central America Ecuador Paraguay Peru	Brazil Colombia Mexico Uruguay Venezuela	Argentina Chile	
Australasia				Australia New Zealand
Middle East/Turkey	Israel Palestine Authority	Egypt Kuwait Lebanon Qatar Saudi Arabia Turkey	Bahrain Oman	UAE
Africa	Kenya Nigeria		Ghana South Africa Zimbabwe	

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SAY GOOD-BYE TO YOUR CD COLLECTION: NAPSTER LETS YOU STEAL YOUR SONGS

BY CHRISTOPHER BREEN

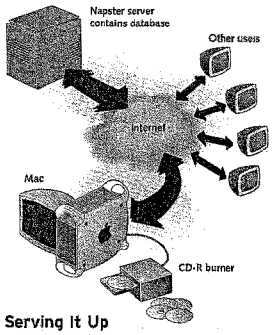
Will Napster change the way we buy—or don't buy—music forever?

steal this song

TONIGHT'S THE NIGHT. After months of indecision you've decided to offer your hand in matrimony to that special someone. You've purchased the ring and chosen the ideal spot to pop the question—the only remaining detail is selecting the perfect song to accompany your proposal. After scanning your record collection for Chad and Jeremy's *The Ark*—"Painted Dayglow Smile" is "your song"—you remember you loaned the record to your brother-in-law last week. What to do?

Illustration by Joyce Hesselberth

How Napster Works: The Pirate's Toolbox



Serving It Up

NAPSTER, the popular file-sharing service for swapping MP3s online, operates with the help of a centralized server that maintains a database of all the MP3 files that users with Napster clients make available to other Napster users. Here's how it works:

1. Long John Silver installs a copy of a Napster client—Macster is one such for Macintosh, although Napster is working on a Mac client as we go to press—and establishes a free account with Napster.
2. Although Macster doesn't currently support this capability, a PC-packing Long John can place MP3 files he's willing to share with others in a particular folder. When John logs on to the Napster server, the server software adds a list of these files to its database.
3. When John initiates a search—based on song title or artist—Napster's server scans the database and returns a list of computers where a song can be found.
4. Once John picks a computer to download the song from, a network link is established between his computer and the one that contains the song he's after, and the song is copied from the remote computer to John's hard drive.
5. With the MP3 file secure on John's hard drive, he can then play it with an MP3 player such as Soundjam MP, Audion, or QuickTime.
6. If John wishes to take his tunes with him when he travels the high seas, he can download them to a portable MP3 player such as the Rio 500, or convert the files into AIFF files and then turn them into audio CDs with the help of a CD-R writer.

Simply fire up your Mac, launch a copy of a program called Macster, type *Chad and Jeremy* into the Artist search field, and cross your fingers. Sure enough, you discover that "Painted Dayglow Smile" is available for download from three different computers. With a double-click, the song is delivered to your Mac in a matter of minutes—at no cost and just in time for its strains to be heard as your beloved crosses the threshold.

As romantic as this scenario seems, there's one minor catch: your actions may be illegal—illegal enough, in fact, that if the recording industry has its way, Internet services such as Napster (www.napster.com) that allow people to swap songs online could be shut down in short order. (See the sidebar "The Long Arm of the (Copyright) Law" for an analysis of the legal issues involved.)

This seemingly innocent act of trading music online has sparked a remarkable controversy that has pitted fans against bands, artists against the recording industry, and the recording industry against an Internet start-up. Yet if this trend continues, it's likely to change the way artists and their representatives make money and how you lay your hands on everything from music to software to movies.

The Way We Were

Most people still get their hands on music the old-fashioned way—by trooping down to their local retailer and buying it. Web-savvy folks might purchase CDs online, but it's fundamentally the same concept—paying for the right to use tangible media. But a number of factors are conspiring to change this model.

Means to an End The first, and most notorious, factor is programs such as Napster and Gnutella (http://gnutella.wego.com)—programs that allow you to download MP3 files from other people's hard drives without paying a penny to the artist or entertainment industry. (See the illustration "Serving It Up" to see how it all works.) With a Napster client such as Macster (or the Mac-compatible Furi client for Gnutella) and a broadband Internet connection, Mac users can download an album's worth of MP3 files in less than an hour. This leads us to the second factor: high-speed Internet access.

Fast Enough for You Downloading a file of a few megabytes used to take hours. With broadband connections such as DSL and cable modem—featuring download rates more than ten times faster than those of 56-Kbps modems—becoming more commonplace, however, you can now download multimegabyte media files in just minutes.

Cut Down to Size But even with high-speed Internet access, the trend to download large digital media files would be stymied without file compression. MP3, the most widespread audio-compression technology today (see "MP3 to Go," February 2000), allows you to compact a 3-minute, 31MB audio file into a 3MB song while maintaining a high level of quality.

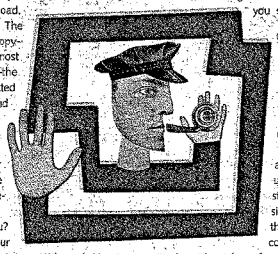
Holding On Although the recording industry would likely be loath to admit it, its reluctance to embrace online access to the material it controls plays a significant part in this digital drama. Even though most people would agree that artists and their representatives should be compensated for their work, many feel, for example, that there has to be a better way to obtain one song than paying as much as $18 to purchase an entire album on CD—prices which, according to the FTC, are artificially inflated. Were media more easily obtained online—and at a lower price—people might be more motivated to pay for content instead of pirating it.

While the ways, means, and motive are in place, they have

The Long Arm of the (Copyright) Law

THE WEB-SITE NOTICES GO SOMETHING LIKE THIS: "We respect copyright law and expect our users to do the same. You agree you will not use our service to infringe intellectual property rights of others." The chance that the average Web user knows whether she's infringing someone's copyright, however, is another story—it's a complex balancing act, especially when a site leads her directly to copyrighted work to download.

What Is Copyright, Anyway? The federal Copyright Act is the primary copyright law in the United States. Under most circumstances, copyright owners—the musicians or songwriters who created something or the record companies and music publishers that bought the rights from them—may prevent others from copying, distributing, and displaying or performing (playing) their work for the public. (See "Stay on the Right Side of Copyright Laws" elsewhere in this issue.)



What does this mean to you? When you download music or offer your MP3 files for others to copy over the Internet (through Napster, for example), you're copying and distributing *songs* (owned by the writers or music publishers) and *sound recordings* (owned by the record companies)—that's two copyrighted works for each recording. If you don't have permission from the true copyright owners, you're probably breaking the law. If they want to come after you, start counting your money—legal fees and damages could cost you more than $150,000. (Most penalties are civil and not criminal, so there's not much fear of being thrown in jail.)

Watch Your Step In general, you'll be safe downloading from a site that owns the music—such as a record company's or musicians' site that offers only their own recordings—or buying from big online retailers such as Amazon and CDNow. When sites or services such as Napster offer other artists' music, be wary.

Although sharing music with friends is considered to be personal use and is legal, sharing it with the public through big file-swapping sites means you're probably infringing copyright. If you draw attention to yourself by sharing thousands of files, copyright owners may come after you. You leave digital fingerprints on the Internet, namely IP and e-mail addresses, and your actions can be traced. But so far, the representatives of copyright holders, such as the RIAA, have targeted the people who *make* the tools that let you swap MP3s, rather than the people who *use* those tools.

Fair Game There are a few legal routes for online service providers such as search engines and portal sites to take. Most avoid prosecution from copyright infringement under the provisions of the Digital Millennium Copyright Act of 1998 (DMCA).

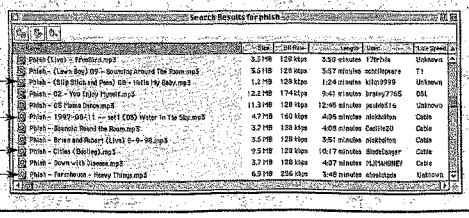
Online service providers are allowed, by this law, to refer or link users to copyrighted work or simply store it for users (such as hosting Web sites with MP3 files), among other things—as long as they meet certain conditions. They can do so—and this is critical—without fear of copyright infringement.

The DMCA generally defines online service providers as those who provide online services or Internet access. But to protect themselves from lawsuits, they have to follow rules such as terminating accounts of subscribers who are repeat copyright infringers.

Avoid Temptation Those who enjoy the challenge of coming up with new technology to get around online copyright protections should be careful. The DMCA prohibits anyone, including service providers, from interfering with the technology used to identify or protect copyrighted works (digital watermarks, for example).

What does this mean for Napster and similar technologies that may come later? Their future is uncertain, but if people continue developing technologies and learn to work with copyright owners, the Internet will offer more quality music that costs much less than traditional CDs. Now that's innovation. —SUSAN P. BUTLER

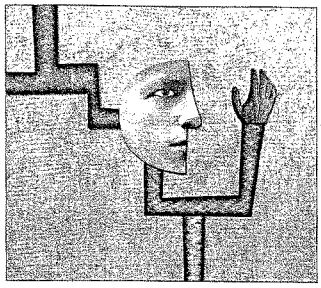
Is It Legal? Most of the music available via Napster is illegally posted. But some bands (such as Phish, used in this example) allow fans to record their concerts and trade those recordings freely. This still doesn't make their albums fair game, however. Here's a quick look at what can be legal and illegal in a single Macster search.



point

LARS ULRICH, DRUMMER FOR METALLICA, IS AGAINST NAPSTER

(See www.macworld.com/2000/05/12/metallica.html for the complete interview.)



Q. What made you file suit against Napster? A. This Napster thing came completely out of nowhere. We were recording a song for the *Mission: Impossible 2* soundtrack, and we got word that there were five or six versions, works in progress, playing on radio stations—and we weren't even finished with it. We found out our song was being traded on Napster, and we had to put our foot down. The Internet in general is not the issue; the issue is who dictates what goes on with your work.

Q. Do you think the Internet is a realistic way for new bands to get known? A. There's only so much attention each band could get on the Internet. The role of a record company is to promote and publicize one band over another. If somebody in a garage down the street from me wants to make their music available over the Internet, that's their choice.

Q. In your suit, you've asked for huge financial compensation from Napster. Has Napster really had any effect on your bottom line? A. We've sold about a thousand gazillion records and we're glad that we're set for life. The stuff that's being lost on the Internet, it's pocket change—it's meaningless. But where is it going to be in five years? This is something that could really be out of control.

We're paying more money to our lawyer—$500 an hour—than we're losing on the Internet. If people think this is about greed, then they should think again.

Q. What do you think of the bands—Limp Bizkit, the Offspring, Public Enemy—that have come out in favor of Napster? A. If they're saying, "Napster's my friend," I think they're shortsighted and they're ignorant to the big, big picture. I think they will find themselves on the short end when the tide starts turning. They're trying to make this Metallica versus the fans. But it's really Metallica versus Napster.

Q. Even if you take out Napster, there's Gnutella and plenty of other sites that are hopping on the free-music bandwagon. What difference is your suit really going to make? A. If you can knock a provider out of business, then you can send a message to the others. Somebody is spending a lot of money hoping Napster will be an IPO or will be bought out by AOL. The people who work for Napster are bringing home paychecks—they aren't working for free.

If free-music providers can get with the legislative community, I'm sure something can be worked out that would be OK for everyone. I think Congress will be holding big hearings that will make the 6 o'clock news—and there'll be this f****r from Metallica telling these Internet companies what they should do.

little to do with the furor surrounding this subject. We know the technology works, but what we haven't agreed on is whether using it is legal or morally justifiable—and if there's some middle ground that will satisfy everyone involved.

Whipping Post

Currently, Napster Inc., based in San Mateo, California, is the lightning rod for this controversy. Although an outfit called MP3.com was the first to be taken to court for allegedly storing MP3 files illegally on its servers, Napster has generated the bulk of the press. Here's why:

It's in the Way That You Use It As we stated, Napster created software that allowed people with a Napster client program—Macster is one of the most popular for the Mac—to download MP3s from another person's hard drive. (See the sidebar "How Napster Works: The Pirate's Toolbox" for more information.) You do this by launching the program, signing up for a free account, searching for an artist or song title by name—then downloading files that match your search. PC users can designate a folder on their drive for MP3 files they want to share—they just drop the MP3s into the folder and identify the location of the folder on the hard drive. The Mac software currently available doesn't allow users to share their files—although Napster says it's working on Mac software that will let you share files as well as play MP3s from within the program.

When someone shares files on his or her drive, the Napster client sends a list of those files to Napster's central server. That list is incorporated into a huge database of song titles and artists—no actual MP3 files are stored on the server, just a directory of the MP3 files that Napster users are offering for download.

You Can't Always Get What You Want

This process may sound innocent enough, but Napster's popularity has put a few burrs under the saddles of two groups—those who maintain computer networks at colleges and universities and representatives of the music industry.

counterpoint

CHUCK D, FRONT MAN FOR PUBLIC ENEMY, SUPPORTS NAPSTER

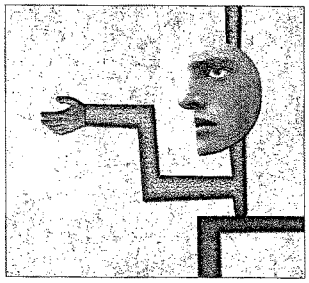
(See www.macworld.com/2000/05/12/chuckd.html for the complete interview.)

Q. Tell me why you support Napster. A. Napster's the radio of the 21st century. I just think it develops a whole new paradigm, and there's no legitimate proof it cuts into the traditional market for music. The industry has always prided itself on driving on the enthusiasm of the audience. Now they're having to fight against the enthusiasm of the audience.

Q. What do you think of Metallica and the other big acts that have filed suit against Napster? A. Metallica shouldn't be getting into that lawyer or accountant mentality. I think most of the people who download Metallica music online are fans who are also buying their music in the stores.

Q. How is free music on the Web going to change the music business? A. You're going to see the global distribution of music, which is something the music industry promised but never could deliver. I think you're going to see people selling music for a lot cheaper—and not a certain set price for music. Downloadable music is the biggest musical phenomenon since the Beatles, and the music industry is slow to come to grips with that.

You have more music on the outside of the industry than on the inside, so fans will find a lot more music. There will be more money in the pot than ever before and there will be millions of hands in it. Artists are going to have to work a lot harder and not expect things to fall in their laps. Fat and happy rock 'n' rollers are only a select few who are supported by the four major labels, and the power of those four hands will be diluted by the power of a lot more hands.



Q. Do you have any problem with a company like Napster making money off your music and not giving you a cut? A. I don't have any problem with that. I've signed with major labels and I haven't had any control over the money. At least this way, I know I can take advantage of the exposure.

Q. If everyone's giving your music away, how are you going to survive as an artist? A. There's a multibillion-dollar market for rap around the planet. I set up five major concert tours on the Web in the last two years. The day of the lazy artist is over, and I know how to make out. I have five studios. I have interests, so this all works out for me.

Campus Life Napster is extremely popular among people who tend to listen to lots of music and have access to high-bandwidth network connections—namely, college students. Because a large number of these students use Napster and transfer huge files back and forth across the Internet via campus networks, these networks can become clogged by an activity that some school administration officials maintain is recreational—and therefore unnecessary. For this reason, Napster has been banned on some college campuses.

Battle of the Bands Unlike files on MP3 Web sites such as the Internet Underground Music Archive (www.iuma.com), which carries files from artists who want their music downloaded, the majority of files found via Napster are pirated—commercial songs that have been posted in violation of copyright laws.

While some artists, such as Limp Bizkit, the Offspring, Public Enemy's Chuck D (see our interview with Chuck D elsewhere in this feature), and many independent bands, support having their music freely distributed, others—and the music industry at large—don't. For example, Metallica filed suit against Yale and Indiana University, in addition to Napster, alleging copyright infringement and racketeering. Once Yale and Indiana University banned Napster, the institutions were dropped from the lawsuit. (See our interview with Metallica's Lars Ulrich.)

The members of Metallica were concerned enough about the alleged music piracy that they tracked down more than 300,000 users who had posted or copied their music, and provided those names to Napster along with the demand that Napster discontinue these users' accounts.

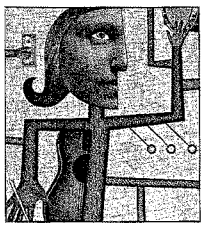
The Recording Industry Association of America (RIAA) (www.riaa.com), an industry group that represents major record labels, also filed suit against Napster. As we went to press, a judge had decided not to dismiss the lawsuit against Napster, leaving open the possibility of a trial.

Although Napster claims it has no control over the files that users make available—the software displays a request that you post only legal MP3 files when you first install the client—the

Metallica and RIAA suits maintain that because Napster retains a database of those MP3 files found on computers running Napster clients, the company knows that audio files are being pirated and is facilitating that piracy. Naturally, Napster disagrees.

Who Are You? How does this affect you? It might put Napster out of business, and if you're a devoted Napster user, this is certainly sad news. But Metallica's actions could bring the controversy closer to home. The fact that Metallica was able to obtain the screen names of these users should concern those who post and download files on Napster. Should the recording industry wish to get personal and go after individuals—and you engage in this kind of file trading—it's possible that you'll be taken to task for your actions.

It's All Too Much Napster isn't the RIAA's only target. MP3.com offers a service called My.MP3.com that allows you to listen to any music you own over the Internet from any computer. To register as the owner of a particular audio CD, you simply sign on to MP3.com and insert the CD in your computer's CD-ROM or DVD-ROM drive. The RIAA sued MP3.com, and in April, a U.S. District Court judge ruled that MP3.com violated copyright law with this action. At press time, MP3.com had removed all songs owned by the five largest record distributors in the United States.



Regardless of how specific legal issues are resolved—or whether Napster will have ceased to exist by the time you read these words—the battle over sharing files on the Internet has just begun. Though Napster and My.MP3.com, with their centralized servers, may be vulnerable to prosecution, those seeking to shut down Internet file sharing are likely to have a harder time targeting peer-to-peer technologies such as Gnutella.

The Direct Route Unlike Napster, Gnutella allows users to share files between individual computers without going through a central server. Instead, when a Gnutella user performs a search, the Gnutella software, rather than querying a database held on a central server, directly polls computers on a Gnutella network and returns a list of accessible files. Users then select the files they want, initiate a download request, and the files are transferred directly from one computer to another.

With no company hosting a central server, groups like the RIAA will have to target users who offer pirated music or software, rather than a specific company that facilitates that piracy. Obviously there are far too many people sharing these kinds of files to sue them all, but the RIAA may choose to make an example of large-scale pirates.

It Takes All Kinds . . . of Media Particularly troublesome to the entertainment and software industries is that unlike Napster, Gnutella also supports a variety of media formats, meaning that people can transfer not only music files but also video, pictures, and software. Users with enough bandwidth, patience, and hard-drive space will be able to download the latest feature films and copies of Microsoft Office—without paying for them.

Fixing a Hole

While prosecution of those who pirate copyrighted material may be a short-term solution, preventive measures may make Internet file sharing irrelevant. Specifically, the music industry is looking at ways to protect media—both online and in physical form—so that it cannot be copied.

DVD Is Not Free A company called Macrovision (www.macrovision.com), for example, has created a copy-protection scheme for DVD-Video—if you try to copy a DVD to VHS tape or a computer's hard drive, the video signal is scrambled, making the video unwatchable. This comes after the discovery that DeCCS, a utility originally intended to allow Linux users to view DVD movies, was being used to copy movies onto hard drives.

Such schemes, however, wouldn't work without some cooperation among entertainment and technology companies, and that cooperation came in the form of the Secure Digital Music Initiative—a coordinated effort by the entertainment and technology industries to copy-protect media. But the plan doesn't stop with just CDs, DVDs, and other digital recording media. Companies are working on ways to protect online media from being pirated as well.

Controlled Distribution Liquid Audio (www.liquidaudio.com) has created its own system for controlling online distribution of music. A song encoded with the company's Liquifier Pro software is encrypted in such a way that only the authorized listener can play it. Also, the software embeds an inaudible digital watermark into each song, allowing ownership tracking.

In-Store Appearance This isn't to say that the music industry is relying only on copy protection. There's already a move to plant music kiosks in record stores—places where you can burn music files onto your own CDs or download MP3 files to portable players such as Diamond Multimedia's (www.riohome.com) Rio 500. While this makes buying exactly the music you want easier, it doesn't address the fact that it's far more convenient to download music and media from the Web than to hop in your car to visit the local record mart. Napster and Gnutella have demonstrated that there's a huge demand for online access to media; it's now up to the recording industry to determine how to provide this kind of service while still making a profit. (Some record labels have announced plans to make albums and singles available for purchase and download online, at least on a trial basis.)

The Last Word

Where will this all lead? Moving copyrighted files across the Internet is both easy to do and easy to get away with—but it won't be for long. Though the RIAA and Metallica aren't likely to start getting people who download an MP3 or two tossed into the pokey, they will take steps other than prosecution to protect their rights and work. This means that stricter copy-protection schemes will be introduced in the near future. Yet this too is a short-term solution, though copy-protection measures will surely reduce piracy, savvy people will find a way to skirt them. With this in mind, the entertainment industry must eventually bow to the realities of this new wired world, shift its current distribution model, and seek alternative means of compensation—with actions such as advertising on online distribution centers, offering "bonus" material that can be purchased only online, and streaming "pay to play" content on demand. ■

When not engaged in journalistic pursuits, Contributing Editor CHRISTOPHER BREEN is a musician in the San Francisco Bay Area.