laws with respect to intellectual property and the NII. For the last three years the IEEE has begun to publish scores of valuable technical information on CD–ROM and over the Internet. In the last year, IEEE's World Wide Web Home Page has greatly expanded. Technology has enabled IEEE to publish magazines, technical journals, and conference proceedings electronically. These publications all have valuable information contained within them. There is no question that we believe that strong intellectual property laws are essential to the future success of the NII.

Likewise, one of IEEE–USA's goals is to assure that the expression of our members' ideas continues to be protected—whether it is in written or electronic form. Our members are inventors, software developers and disseminators of valuable technical information. They deserve to receive the best possible intellectual property protection in order to maintain their own economic stability. We therefore applaud Congress for recognizing that present laws may not be appropriate for protecting one's intellectual property, in light of the many changes in technology.

FAST MOVING TECHNOLOGY

However, we believe that Congress should move very cautiously before implementing such legislation as H.R. 2441. It is not enough to merely recognize that new laws may be needed to be applicable to present day technology. We believe that this legislation, like the NII White Paper on Intellectual Property, may not have taken into account technologies that either have not yet been invented or technologies that have been invented but have not been introduced into the marketplace. We caution Congress to avoid enacting legislation that may not be applicable to emerging or fast-moving technology.

The NII as we know it today consists of the Internet which facilitates electronic mail, world wide web, telnet and other functions. These functions allow access to computers throughout the world. The technology associated with world wide web is relatively new but in the last year has greatly improved. The use of audio and video are now available over the Internet and are moving in the direction of video conferencing with full interaction including on-line document review through the Internet.

These are all very exciting technologies that will change the way education, entertainment and business is conducted. Although we can see the direction that the Internet is headed, we must recognize that the Internet is only one part of what the NII will be. That is why IEEE–USA believes that we must move slowly and analyze the language used in this or any future legislation to minimize the adverse effect that severe restrictions could cause. The IEEE–USA urges Congress not to pass legislation that will stifle technology or inhibit the general usefulness and flexibility of the NII.

THE USE OF THE WORD "TRANSMISSION" IN SECTION 2

There is no question that H.R. 2441 is much more narrowly focused than the NII White Paper on Intellectual Property. However, IEEE–USA believes that there may be some serious problems caused by the four occurrences of the words "transmission" and "transmit" in Section 2 of the bill.

While one might argue that these are minor changes that reflect an electronic publication rather than publication of hard copy, we believe that the use of the word "transmission" and its ramifications should be looked at more seriously. Specifically, Section 2(b)(2) of H.R. 2441, would change the way in which users of the Internet have been conducting business for a number of years.

Let us take for example the known technology of electronic mail. When a sender transmits his/her message, it is implied within this legislation and explicit in the enacting legislation for the Berne Convention that the sender has copyrights to his/her message. Does this mean that if the recipient of an email message responds to the sender with the sender's original message still attached, by using the automatic reply icon (that so many of today's email software applications have), that the recipient will be in violation of copyright law as proposed by this bill? Electronic mail also offers another almost automatic function known as "forwarding." If the sender sends a message to a recipient and the recipient then forwards that message on to several other people, the original recipient will also be in violation of copyright law as proposed by this bill.

An even more difficult situation arises when we view a world wide web page. When the user of world wide web enters a URL or world wide web address onto his/her web browser (application software that enables the user to view a web site), the graphical representation of information is transmitted into the user's computer and for that moment a copy has been made and is fixed in the user's computer. Most web browser software stores or "fixes" a copy of that web site into what is known

as a "cache" file that resides on the hard drive of the user's computer. The purpose of this of course is not to necessarily make a copy of the web site but to make it easier and faster to return to the same web site at a later date. If this particular bill were enacted into law, even casual users of world wide web would clearly be in violation of the law. The mere use of the word "transmission" without qualification may create new difficulties for the users and consumers of what is now the NII.

Another example of how the use of the words, "transmission" and "transmit" may impede one's use of the NII, is found in distance learning. As a result of the advancement of technology and the NII, individuals and companies seeking to improve their skills and knowledge base are increasingly learning from a distance. This fairly new form of education is conducted over the Internet. Courses can literally be taught over the Internet. Even interactive seminars are held. The information is distributed over the Internet and is received by students or learning institutions linked to the Internet. Under this bill the mere fact that the information was "transmitted," would make these students liable for copyright infringement. As in libraries and in schools, there should be an exemption of fair use for the act of learning at a distance.

Presently, it is not copyright infringement to go to a library and browse through books (hard copy). However, under this bill it would be infringement to browse through information on the world wide web. The act of browsing on the world wide web will by definition be a "transmission." If browsing for information becomes a copyright infringement, this will greatly diminish this country's research abilities.

Within five to ten years, the NII may be even more dramatically impacted by such legislation. How will parties have interactive communication if one of the participants wants to show a rightfully possessed copyrighted document to another participant at a remote location using the NII? The mere acts of scanning the document, so that it can be transmitted, and then transmitting the document would be an infringement of copyright under this bill.

We offer these illustrations to emphasize that Congress should be implementing laws that will protect individual's intellectual property rather than stifling innovation and hampering the use of the NII or innovation. IEEE–USA feels that one possible remedy to this concern is to limit the word "transmit." We have attempted to do this in our attached amendments to the language of the bill.

SECTION 1201. CIRCUMVENTION OF COPYRIGHT PROTECTION SYSTEMS

As one of the world's largest publishers of technical material, we realize that without a copyright protection system in place we would conceivably stand to loose a great deal of IEEE's intellectual property revenue. The technology that is presently available allows users to reproduce material with great speed and accuracy. Without a copyright protection system in place, hundreds even thousands of copies of IEEE's intellectual property could be reproduced and disseminated for free throughout the world.

However, IEEE–USA believes that Section 1201 will have a deleterious affect on the advancement of technology and is too broad in its provision of the necessary intellectual property protection for IEEE and others. Section 1201 will impede "legal" copying or legal forms of reverse engineering of computer programs as defined by the 9th Circuit Court of Appeals in *Sega* v. *Accolade*. Copying a computer program for the purpose of interoperability was defined by the 9th Circuit, as well as two other U.S. circuit courts, as legal fair use as long as the copying does not result in a competing product. Frequently engineers must reverse engineer software or hardware to understand how it works so that they can write a different piece of software that will operate on that particular system.

If the language in Section 1201 is enacted in its current form, it could have a devastating impact on the advancement of NII technology. For the NII to work effectively all software and hardware will eventually have to be able to talk to the other. If this is to occur the software and hardware systems must be compatible and interoperable. We urge Congress to revisit this issues.

IEEE–USA also wishes to point out that under Section 1201, an organization could conceivably take government data, that was once available to the public, and republish the information. Once it was published this organization would hold the copyright to this information, as a compilation, and lock up this data using a copyright protection system. If the original data was not easily accessible, the general public would be deprived of this information that was once available to them. Under Section 1201, this copyright protection system could not be circumvented, thereby making government data, paid for by the U.S. taxpayer, inaccessible to the public even under the Freedom of Information Act (FOIA).

Further, the bill tends to inhibit research and testing in this area by private entrepreneurs. Encryption is becoming a big business and testing one's decryption resistance becomes very important as the technology improves and the speed of these devices and computers increase. This bill would discourage such testing by the market place of third parties. We would loose our leadership role in encryption technology if decryption devices are considered to be an infringement of copyright. There are commercial businesses working with quasi-standard encryption methods and new "unbreakable" ones are being developed. The only way to test the strength of encryption technology is to attempt to decrypt the encryption through decryption devices prohibited by this bill.

Legislation should not impede the advancement of technology. Unfortunately, the current form of this bill does just that. Thus we have included changes to redirect the burden of proof to individuals who are unauthorized and intentionally seek access to copyrighted material that is not primarily government data.

Although Section 1203(c)(3)(B)(5) allows for "innocent violations," we believe by the time the judicial phase is reached, it is going to be very difficult for an individual or corporation to explain why their actions in circumventing a copyright protection system was an "innocent violation." Further the innocent individuals or corporations would be enmeshed in law suits with the burden on them to prove their innocence. Innocent decoding should be excused, especially if material that is generally regarded by others as unprotectable by copyright, is found to be protected by both copyright and a copyright protection system.

SECTION 1202 AND THIRD PARTY INTERNET PROVIDERS

While we are aware that there is pending legislation that would exempt third party Internet providers from liability in computer crime, we think it would be appropriate to include language in H.R. 2441 that would expressly exempt third party Internet providers from liability if copyright infringement were committed while using their Internet service. If we do not protect those third party providers, who may be accused of computer and copyright violations or distribution of altered copyright management information, we are going to stifle the NII's ability to progress. Thus we have suggested amendments to Section 1202 to exclude such third parties.

CONCLUSION

IEEE–USA believes that intellectual property protection for the NII must be addressed. We agree that it is time that intellectual property laws change to attempt to keep up with the pace of fast-moving technology. However, as we have pointed out earlier, we must advise Congress that there are technologies that have not yet entered the marketplace as well as technologies that are several years from full development. Technology is changing with increasing speed in this new but very viable field. Therefore, before Congress enacts any broad changes in copyright law, it should look at all of the technological ramifications for present and future technology that we can predict, to minimize the enactment of overly protective laws.

We have illustrated some of the negative impacts that this legislation, in its current form, may have on some of the technologies already being used and that can be foreseen. IEEE–USA is prepared to work with Congress in the future to develop language that will provide strong intellectual property rights for the United States and our members while not stifling the technological innovations for the NII. In an effort to assist Congress, we have included, with our testimony, a list of recommended amendments to H.R. 2441. We believe that these modifications will help to ameliorate some of the concerns that we have posed.

We also encourage Congress to take into account that the NII, as we know it today, is also a learning tool as we pointed out in our illustration on distance learning. Students and instructors must be able to have the freedom to transmit educational materials over the Internet, otherwise we will be wasting the valuable resources of the NII.

We also believe that it is essential to the future of the NII to exempt third party Internet providers from being penalized for the nefarious acts of subscribers. We do not hold the cellular telephone services responsible for computer break-ins—nor should we hold Internet providers liable for other illegal activities that they did not commit. Therefore, IEEE–USA encourages Congress to add language to H.R. 2441 that will exempt third party providers from being held liable for copyright infringement committed by one of their subscribers.

Once again we thank you for allowing IEEE–USA to share its perspective on the NII and intellectual property. These are exciting technological times. Our members are some of the individuals who have developed this technology that we are discussing here today. We do not want to lose the momentum that we have in utilizing

technology to move into the future. We ask that a law be enacted that will protect all of us but not stifle innovation and the future of the NII.

We look forward to working with Congress on these matters in the years to come. At this time I would be happy to answer any questions that you may have.

AMENDMENTS TO THE NII COPYRIGHT PROTECTION ACT (H.R. 2441)

SECTION 2

Rationale

The following recommended changes were made for a variety of reasons. The changes on page 2 line 13 narrow the definition of "transmit." With the current definition, browsing, distance learning, email interactive communication and the like would have been foreclosed solely for having a simple definition. Because there is little room here for great elaboration, only one example will be given. In the case of email, virtually all messages would be subject to copyright under the Berne Convention. Thus, if one is a recipient of an email message and wishes to make a reply to it, automatically attaching the original email, and then broadcasting it to several other people, under the current definition, the sender would commit copyright infringement because he or she would not have a license from the originator of the original email which was appended.

Amendments

Section 2(b)(2): page 2, line 13: add the following language after the word "sent." other than for re-transmissions or for education or for temporary storage, including storage by a provider or for interactive purposes, wherein the works are primarily not for entertainment with the amount of the work transmitted being greater than five minutes or ten pages in length.

SECTION 1201. CIRCUMVENTION OF COPYRIGHT PROTECTION SYSTEMS

Rationale

With regard to the amendments to Section 1201 of page 4, it appears to be overly broad with regard to intent. Technical advancement needs to have latitude to grow and the legislation of this sort would stifle such growth. Thus instead of "primary" (which would be dictated by the market), the words "substantially exclusive" were added together with the words "intended" and "knowingly" to only catch those individuals whose intent it is to circumvent rightful encryption for copyright purposes.

The other exceptions added in line 22 further emphasize this by making sure that this statute is not meant to overrule *Sega* v. *Accolade* or to permit the hiding of government information under the guise of it being a compilation of information for copyright purposes and then encoding it. The current language would permit what has long been forbidden under the Copyright Statute with regard to government documents encoding. Further, an exception was added because we now operate under the Berne convention where everything could be theoretically copyrightable that is the work of an author without any marking on it. Thus, we did not want to have inadvertent decoding suddenly falling under Section 1201.

Amendments

On page 4, line 14 insert the word "knowingly" after the word "shall."

On page 4, lines 16 & 17 strike out the word "primary" and put in its place the words "substantially exclusive"

On page 4 line 17 add the word "intended" after the word "is" and before the word "to"

On page 4 line 22 after the number 106 add: "for work protected by copyright other than (1) for compilations or works that contain primarily data of a federal state, local or other governmental agency or body or (2) exceptions permitted under law, or (3) works customarily not protected by the owner."

SECTION 1202. INTEGRITY OF COPYRIGHT MANAGEMENT INFORMATION

Rationale

Section 1202 was also changed primarily to protect providers who might not know that the copyright management information had been changed, but who certainly would knowingly distribute or import, i.e., did the act (1) to distribute or import, or (2) ran software which through an error removed or altered copyright management information.

Amendments

On page 5, line 4 strike out the word "knowingly" and replace it with the word "intentionally"

On page 5, line 5 strike out the word "knowingly" and replace it with the word "intentionally"

On page 5, line 5 insert the words, "known by such person to be" after the word "is" and before the word "false"

On page 5, line 7 insert the words, "known by such person to be" after the word "is" and before the word "false"

On page 5, line 10 strike out the word "knowingly" and replace it with the word "intentionally"

On page 5, line 11 insert the word, "information known by such a person to be" after the word, "any" and before the word "copyright"

On page 5, line 12 strike out the word "knowingly" and replace it with the word "intentionally"

On page 5, line 13 strike out the word "has" and replace it with "such person knows to have"

On page 5, line 15 strike out the word "knowingly" and replace it with the word "intentionally"

On page 5, line 17 strike out the word "has" and replace it with the words "is known by such person to have"

SECTION 1203. CIVIL RIGHTS

Rationale

Section 1203 was modified slightly to change language to clarify the test on appeal and to clarify when awards of damages could be made. Further, Section (5) on page 8, starting on line 15 was removed because all of the tests were knowing tests and now intentional tests under our proposed amendments, and therefore there cannot be such a thing as an innocent violation because the standard is knowing and intention to actually commit the wrong.

Amendments

On page 6, line 15 & 16 strike out the words "reasonable cause to believe was involved in a" and replace them with "reasonably found to have caused the"

On page 6, line 25 & 26 strike out the words "involved in the" and replace them with "that has been reasonably found to have caused the"

On page 7, line 5 insert the words "in an action brought under Section (a)" after the word "chapter"

On page 7, line 9 insert the words, "In an action brought under Section (a)," before the word "The" and change the letter "T" to a lowercase "t"

On page 7, line 19 insert the words, "in an action brought under Section (a)" after the word "entered"

On page 8, line 15–20 delete lines 15–20.

Mr. MOORHEAD. Thank you.

The gentleman from Virginia, Mr. Boucher.

Mr. BOUCHER. Thank you very much, Mr. Chairman.

Mr. Black, let me propose a series of questions to you. As was noted in the discussion that we had with Mr. Valenti earlier, the administration's white paper, in the absence of any clearer instruction from the Congress, is now being cited by a number of courts and obviously is beginning to influence the thinking of courts as they resolve the liability questions associated with the online community.

Are you concerned that if the legislation now pending before the subcommittee is enacted into law without addressing the concerns of the online service community and clarifying that liability, that at some point in the not too distant future a court may finally decide that in the circumstance of the *Netcom* case or other cases similarly situated, that direct copyright infringement liability will be imposed, whether or not there is knowledge on the part of the online service provider with regard to the infringement?

Are you concerned about that?

Mr. BLACK. That is exactly a core element of our concern, Congressman. Even under current law, if this bill is not passed, this community of industry feels a great threat.

What I don't think has been said today is that the enactment of this bill enhances and increases the risk even beyond current levels. So it is not level, it increases it.

But even if it were not to pass, there is a high probability that there will be courts out there who will be inclined under current interpretations to move in that direction. And given the nature of the industry, which I haven't attempted to describe in great detail because, frankly, a witness you will hear tomorrow from CompuServe does an excellent presentation on how the industry operates, but when you read that, you will understand how absolutely impossible it would be to apply some of these rules and standards.

Mr. BOUCHER. Would your industry be willing to participate in a process originated and supervised by the subcommittee that would involve your industry, the content owners, other interested parties, whether that be the administration, members of the subcommittee, or staff—that would be designed to lead to a satisfactory addressing of the concerns of the online service community?

Mr. BLACK. Absolutely. We would welcome the opportunity. We have initiated a wide-ranging discussion with many people.

We have frankly, and why we are concerned about this piece moving—we have been relatively rebuffed in efforts to have serious discussions by some elements of the content community.

But we think it is important that all interested, reasonable parties who care and participate and will be affected by changes in this area ought to try to come together and come up with something which we can all support, because, frankly, that is the only way we are going to get our cumulative needs addressed and get legislation through the Congress.

Mr. BOUCHER. And so if the subcommittee were in fact supervising that kind of discussion, that would get up past the problem you have had where the content providers have rebuffed your efforts at serious discussions. Does that state your position?

Mr. BLACK. It would certainly pressure them to the table. It certainly does not guarantee what would be said. We would welcome that.

Mr. BOUCHER. Might be a better way to get a result.

Let me ask you this. Mr. Valenti, during his testimony, said, well, if we insert an actual knowledge standard with regard to content—with regard to online service provider liability, and say that only the providers who have actual knowledge of the infringement or, in some sense, participated directly in the infringement will have liability, then even though he had basically recommended that standard, he said if we do that, who is going to protect the content providers? I mean how are we then going to get our protection?

Why don't you answer that question.

Mr. BLACK. OK. I am actually very glad to, because right now our community, in a number of different ways, does in fact take actions, take reasonable actions, to ensure to notify people who are users of the copyright laws.