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Panel on Intellectual Property Protection

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Abstract

The advantages of the Internet as a medium for publishing information are manifold, but in many respects it defies the controls that make commerce in information (documents, pictures, etc.) commercially viable.Traditional forms of intellectual property protection cannot be easily extended to today's Internet environment, but there is a great deal of commericial motivation to develop new technology for this purpose. While most of us are familiar with privacy protection based on cryptography, intellectual property must be protected in a customer/provider relationship where copying, the most easily performed computer function, is a threat to the provider.

Fluid Intellectual Property

Information on the Internet flows rapidly and freely, in sharp contrast to traditional forms of dispersal based on printing technology. The legal protections due to authors, artists, and other information creators are not easily enforceable in this medium. This situation challenges the paradigms for protection, and it also challenges software technology to either support those paradigms or to replace them.

Some of the legal protections underly the ability to conduct commerce in intellectual property, and the potential of this commerce drives the formation of business ventures on the Internet. These businesses may need to rely on either making it difficult to promulgate purchased information without payment, or by making it possible to detect unauthorized copies and to institute payment enforcement procedures. A third approach would be to make it easy and desirable to purchase an authorized version.

It is interesting to note that the legal protections extended to information creators are enforceable for up to 75 years or more, which is more than the projected useful lifetime of almost all cryptographic protection schemes in use today. Although it is not necessary for the technology to match the letter of the law, designers might consider whether or not it is possible to do so.

As software and hardware represent considerable investments in intellectual effort, and are therefore an attractive target for unauthorized possession, protection technologists may face the recursive problem of either protecting their own inventions or accepting assimilation of them into the public domain.

The Internet is an enormously attractive medium for conducting business in all forms of information, and extensions of its use include to intellectual property with long-term value is a development that is awaited with great anticipation by potential consumers. The technology is in its infancy, and the panel members are positioned to offer insight into the developments that we will see in the near future.

The Panel Members

The panel members represent what might be regarded as three extrema in the current space of solutions: controlling the use environment (distributed operating system) with embedded payment services; using hardware to monitor, authenticate, and charge for access via the Internet; and *ex post facto* enforcement using non-forgeable, indelible information markers that indicate the authorized user. We are likely to see increasing use of some or all of these solutions as information commerce moves to the Internet.

David Bernstein is with Electronic Publishing Resources, vendors of Digibox. EPR's inventions include secure, distributed systems that allow electronic rights to be enforced as content containers, called DigiBox(tm), move amongst parties. Each successive participant can ensure that its rights will be protected according to its own, specified needs.

Russ Housley is with Spyrus, Inc., vendors of PCMCIA crypto hardware for metering remote use. Money can be associated with keys, and that money is spent over time or bytes.

Dan Boneh is a graduate student from Princeton University who has recently described a method of using public key cryptography to mark complex documents, such as images, in such a way as to allow the owner of the document to identify each authorized copy and its owner.

The moderator is **Peter Neumann**, of SRI International, well-known computer security expert, author, and moderator of the newsgroup RISKS (comp.risks).