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FOR IMMEDIATE RELEASE

Cryptography Research System Thwarts Feature Film Piracy

New Digital Cinema Distribution Prototype Protects Content While Cutting Costs

SAN FRANCISCO, Calif., October 29, 2002 – Cryptography Research, Inc. today announced the successful completion of a prototype system for securely distributing high-resolution feature-length films to digital cinemas. The system is now undergoing commissioned testing at the Digital Cinema lab at the historic Hollywood Pacific Theater, part of the University of Southern California's Entertainment Technology Center (ETC).

In designing the system for Digi-Flicks International, engineers at Cryptography Research took the unique and cost-effective approach of encrypting the digital content and distributing it on standard hard disk drives. The drives are then shipped to theaters by conventional delivery services, avoiding the use of awkward multi-DVD packages or expensive broadband or satellite digital distribution methods. Operators insert a smart card before each performance and get online authorization to unlock the disk and show the film in much the same way a shopper gets credit card approval for a purchase. To safeguard against piracy, movies are completely protected in transit from the time they leave the content provider until they are decrypted and viewed in real-time using conventional digital projection equipment.

"High-quality digital movie distribution is especially challenging not only because of the sheer volume of information that needs to be transmitted, but also for the high level of security required to protect such obviously valuable content," said Paul Kocher, president of Cryptography Research. "Our experience working with financial institutions, anti-piracy

systems, and credit card networks allowed us to apply mature risk management techniques to digital cinema."

A digital file for a 90-minute theater-quality film requires roughly 45-gigabytes of data. According to industry estimates, US distributors currently spend more than \$5 billion annually to print, transport, store, replace, insure and dispose of traditional 35-mm feature film prints. Proponents of digital cinema say they could reduce these costs by up to 90 percent. At the same time, the MPAA estimates the film industry currently loses more than \$2 billion to movie piracy each year.

By using end-to-end encryption, the Cryptography Research prototype shifts the problem of securing large, unwieldy files to the more practical problem of managing a small key. A central security element of the design requires live cryptographic authorization prior to each playback. To ensure theater uptime, live viewing authorizations are sent via a standard phone connection, with a first fallback to a digital cellular data network and a final backup that allows a human to key in numbers received over the phone. Without much additional overhead, the design team was able to add important features including enforcement of embargoed showing times and effective methods for revoking compromised theater equipment.

Even though the system is a prototype, Cryptography Research utilized production-quality cryptographic protocols and used fast in-house software implementations of the AES encryption algorithm. Similarly, to achieve high system throughput and avoid dropped video frames, Cryptography Research optimized elements of the FreeBSD SCSI interface.

About Cryptography Research, Inc.

Cryptography Research, Inc. provides consulting services and technology to solve complex security problems. In addition to security evaluation and applied engineering work, CRI is actively involved in long-term research in areas including tamper resistance, content protection, network security, and financial services. This year, security systems designed by Cryptography Research engineers will protect more than \$40 billion of commerce for wireless, telecommunications, financial, digital television, and Internet industries. For additional information or to arrange a consultation with a member of our technical staff, please contact Jennifer Craft at 415-397-0329 or visit www.cryptography.com.

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