

APPENDIX: Macrovision Product Brief

Macrovision is focused on delivering intellectual property protection and digital rights management solutions to content owners and software developers throughout the world. Our core technologies are linked to a number of critical trends and growth drivers: increased availability of smart digital devices, expanding network connectivity, growing threat of software/content piracy and security vulnerabilities, and shifts in content consumption and software usage. Macrovision's technologies encompass Copy Protection, Digital Rights Management, Electronic License Management, and encryption.

COPY PROTECTION

Video Copy Protection

Macrovision's video copy protection technologies are designed to enable rights owners and program providers to protect their videocassettes, Digital Video Discs (DVDs), digital Pay-Per-View (PPV) and Video-On-Demand (VOD) programs from unauthorized recording onto VCRs. The technology is incorporated in virtually all DVD players, PC/DVD-ROM drives, DVD-based gaming consoles, and personal video recorders (PVRs/DVRs) and in almost 90% of all digital set-top boxes to protect against unauthorized recording of video programming. Macrovision's copy protection technology degrades unauthorized copies on approximately 95 percent of all VCRs.

DVD Copy Protection

The DVD copy protection process is activated during DVD authoring, when certain copy protection trigger bits are set to "ON." When the disc is played back in a consumer's home, these trigger bits activate a Macrovision-enabled digital-to-analog converter chip inside the player. The chip then applies copy protection to the analog output of the DVD player. This allows for transparent viewing of the original program, but causes copies made on most VCRs to be substantially degraded.

PPV/VOD Copy Protection

The increased availability of digital-quality movies and events on direct broadcast satellite and digital cable systems raises an important challenge for the PPV and VOD industry. Specifically, many consumers can now make commercial-quality copies of PPV/VOD movies with the simple press of their VCR record button. These copies, when passed onto friends, neighbors, and co-workers, can displace both video store rentals and initial and repeat PPV/VOD purchases.

To apply copy protection to a specific program, the direct broadcast satellite (DBS) operator or cable system operator transmits a software command from the uplink center or headend to its set-top decoders. An integrated circuit inside the decoder receives the command and adds the copy protection waveform to the analog video destined for the TV. The copy protected signal is transparent on original program viewing, but causes copies made on the majority of VCRs to degrade to the extent that they no longer have entertainment value. Currently, 32 system operators

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have licensed or specified Macrovision's video copy protection technology; 15 of the 32 system operators have activated the copy protection. Set-top decoder manufacturers provide copy protection capability by incorporating copy protection-capable integrated circuits in their decoders. Macrovision's copy protection is included in over 80% of digital set-top and PVR/DVR decoders distributed throughout the world. The technology is poised to play a key role in the growth of the PPV/VOD industry as content owners and system operators accelerate their copy protection activation.

Macrovision's video copy protection technology has been utilized on over 3.5 billion VHS videocassettes, on over 1 billion DVD discs, in over 85 million digital set-top boxes and PVRs and 100 million DVD devices. The technology has been licensed to 343 DVD authoring facilities, 98 replicators, 237 duplicators, 271 DVD device manufacturers, 68 digital set-top box and 9 PVR manufacturers and 58 IC component suppliers, worldwide.

Consumer Software Copy Protection

With the increased availability and reduced cost of CD-R writers, copying has never been easier. SafeDisc® protects CD-ROMs from unauthorized replication or copying, thus encouraging users to purchase legitimate copies. It is easy to apply by the publisher and is completely transparent to the consumer. It is currently the most widely used copy protection solution for Windows® and Apple® Mac® platforms. With over 200 million software CDs manufactured using SafeDisc, Macrovision's copy protection solution has established itself as the *de factor* standard in CD-ROM copy protection.

SafeDisc is a software-based solution that does not require any changes to the publisher's application code and is compatible with standard PC or Mac environments and CD-ROM hardware. It is comprised of authenticating digital signatures embedded on the CD-ROM disc, an encryption wrapper, and an anti-hacking technology, which is added at the time of encrypting the application and secures the CD-ROM executable. The patented SafeDisc digital signatures are added to each original disc during the mastering and replication process, and prevent copying by standard CD-R drives. For additional protection, developers can also use the SafeDisc API. The SafeDisc API has been developed to work in conjunction with the wrapper security. The publisher can use the API so that it ties the protected application closely with the SafeDisc security system. SafeDisc is available at over 110 mastering & replication facilities worldwide.

Music Copy Protection

Macrovision's Cactus Data Shield™ (CDS) is a comprehensive solution for protecting content on optical media, such as music CDs, against unauthorized digital replication and conversion to compressed files for on-line distribution. By preventing conversion of content to other digital formats that can be transmitted over the Internet, Cactus Data Shield restricts Internet-piracy.

Transparent to the music provider, the technology is easily implemented in the CD manufacturing process with no production machinery modification or changes to the pre-mastering process

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necessary. Transparent to the consumer, CDs protected by Cactus Data Shield play on commercial CD players while preserving the original quality of the content.

There are three versions of the Cactus Data Shield – CDS-100™, CDS-200™ and CDS-300™ – providing robust security for audio content and a number of options for additional consumer features.

CDS-100 provides copy protection for Red Book audio content and offers full audio CD playability on all standard audio devices, but restricts playing on all PCs. This makes it the ideal system for vulnerable pre-release CDs as well as certain countries facing rampant piracy.

CDS-200 allows audio CDs to play on all secure audio players and PCs, but prohibits recording to hard drives. Already in use on over 60 million CDs in Europe and Asia, this system continues to build on its unprecedented success with across-the-board functionality and nearly 100% playability with minimal customer complaints.

CDS-300 is our new best-of-breed breakthrough that takes security, exportability and enablement to a whole new level. CDS-300 enables labels to release one worldwide version of CDs without dangerous open source Red Book files and allows users to copy the original disc to any PC through the Macrosoft® Windows Media® Player. Any further duplication or Internet sharing is prohibited. Users may copy files to WMP Media Library for play without original CD. With CDS-300, music files will not play if distributed over the Internet or e-mailed. No Internet connection or additional plug-ins are necessary for the consumer.

CDS-300 uses our SafeAuthenticate™ technology, which is based on our patented SafeDisc technology, and enables controlled access and persistent copy protection for CD content. Macrovision uses the technology to conveniently authenticate and copy-protect pre-compressed audio and video content either locally on the CD or over the Internet. SafeAuthenticate adds persistent copy protection to traditional audio CDs without limiting the authorized usage of entertainment content on consumers' PCs. Consumers can conveniently enjoy their "pre-ripped" files either on the CD or by transferring them onto their computer hard drives and play them seamlessly using Microsoft Windows Media Player. In addition to the user-friendly, transparent local rights authentication feature (i.e., no Internet connection is necessary to authenticate the CD), the original SafeAuthenticate CD acts as a secure key that enables the consumer to gain access to exclusive offers and content on artists' websites as well as bonus materials on the CD, such as videos, lyrics, and photographs. Macrovision expects to extend the technology in the future to other types of optical media such as DVD.

DIGITAL RIGHTS MANAGEMENT (“DRM”)

Macrovision’s DRM technologies are designed to combat widespread casual piracy while offering solutions that enable our customers to electronically control the use of digital content and software, and to build significant new revenue models.

DRM for Video and Multimedia Content

MacroSafe™ is a multi-layered software solution for the secure distribution and management of video, audio, graphics, and other multimedia applications for PCs, as well as for a variety of non-PC devices including set-top boxes, PDAs, portable entertainment devices, and digital consumer electronics appliances. It is a complete security solution for electronic delivery of high value content — its transparent architecture causes little or no impact to the existing content creation work flow, neither to the electronic delivery infrastructure, nor to the consumer’s viewing experience. And because MacroSafe is based on industry standard, non-proprietary programming languages, interfaces and protocols, it can be quickly and cost-effectively integrated into embedded devices, consumer electronic set-tops, and into an existing e-commerce and delivery system. MacroSafe is in the market introduction and testing phase.

DRM for Software Activation and Flexible Distribution

SafeCast® offers software publishers and developers the opportunity to broaden their market reach and boost sales by distributing and promoting their offerings in a variety of innovative ways. It is an exceptionally flexible and highly secure Digital Rights Management system for software. It replaces expensive hardware “dongles” with reliable software-based security. With SafeCast protection, software publishers can deliver products via any physical (CD or DVD) or electronic (Internet transmission) digital medium, and still retain complete control over how and when they can be "unlocked" and used.

Product Activation is a technology that allows software publishers to reduce and control unauthorized use of their products. By requiring each customer to activate his or her copy of a software product before using it, Product Activation can effectively prevent that product from being “passed along” to other users in violation of its license agreement. SafeCast Product Activation system actively prevents unauthorized use of software, by adding several layers of security:

- SafeCast “locks” the protected/encrypted software so that it cannot be used until it has been properly activated.
- The serial number entered by the user is checked against a central database. The product is only activated once the serial number has been validated, and SafeCast ensures that only activated software will correctly “unlock” (decrypt) itself each time it is run.
- SafeCast links the protected product to the computer on which it is installed, using a technology called “System Binding”, to prevent the activated software from being copied and used on another computer.

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These security measures can be implemented so as to be maximally convenient for legitimate users (and, in fact, almost completely transparent to the Internet connections) while, at the same time, effectively guarding against unauthorized use of the protected software.

In addition to Product Activation, SafeCast enables a wide range of secure eCommerce and Electronic Software Distribution solutions. Publishers/resellers can create trial and demo versions of software applications in minutes, without recompiling, and allows "Try & Buy" customers to purchase the products with a few clicks and a credit card. SafeCast enables software subscription and rental models, providing publishers/resellers with an ongoing revenue stream.

SafeCast secures executable programs, DLLs and COM objects, and protects multiple executables within a single product. The SafeCast Wizard makes it easy to add security and rights management to finished products, without changing the code or recompiling.

ELECTRONIC LICENSE MANAGEMENT (“ELM”)

Expanding Electronic Licensing for Software Delivery

The software market is transitioning from physical packaged goods with tightly defined functionality to software delivered as a service. The availability of corporate bandwidth, always-on connectivity, the need to improve return on investment, and the desire to serve *all* potential individual users regardless of how casual their use pattern (or how little they are willing to pay) are factors leading software vendors to explore alternative methods of producing, valuing and selling software.

Macrovision’s leading FLEX lm [®] product enables electronic licensing compliance for any kind of application software either on individual computers or within a network environment. It has become the *de facto* commercial electronic license management (“ELM”) standard that has been licensed to over 2,500 software vendors worldwide. Macrovision has expanded the electronic licensing and license delivery “software service ecosystem” with FLEX $bill$ [™], a usage-based licensing technology that allows users to pay software vendors based upon authenticated usage reports generated at the user’s site and automatically transmitted to the vendor. FLEX $bill$ provides an easy and effective way to manage and track license usage and enables a variety of pricing and licensing strategies, leading to higher revenues for vendors *and* higher customer satisfaction for users. FLEX $bill$ is designed primarily for *trusted* customers. Additionally, software vendors that deploy FLEX $bill$ can obtain key business intelligence such as identifying which software components their customers value most thus leading to informed strategic business decisions, increased customer retention, deeper market penetration.

FLEX lm [®] is a software application toolkit that electronically enforces the software vendors’ licensing policies either on individual computers or within a network environment. FLEX lm is available for MS[®] Windows[®], Solaris, AIX and other UNIX variants, three Linux variants, and selected embedded operating systems, and supports over 100 different license types which, on a combined basis, enable thousands of unique business models. Its companion product, FLEX $bill$ [™],

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is a license management solution based upon FLEX lm , allows vendors to implement 'Pay As You Go' pricing models through analysis of authenticated usage log files.

Electronic License Delivery ("ELD")

One of the most effective ways for software vendors to distribute and for software customers to receive electronic licenses is via the Internet. Vendors can achieve lower cost of operations and increased sales, while their customers can gain access to new licenses 24 hours a day, 7 days a week. Macrovision's *GTlicensing*[™] is such a "Back Office" solution for the generation, management, tracking and delivery of FLEX lm electronic software licenses.

GTlicensing is a complementary product to FLEX lm . It is a highly scalable, enterprise-class software solution that supports a wide range of digital licensing functions, including the automatic generation and distribution of licenses over the Internet, 24 hours a day, 7 days a week. It provides software vendors the capability to support a wide range of licensing schemes, manage all the information pertaining to customers and their licenses, and permits the distribution of license certificates by various means. In keeping with industry trends, *GTlicensing* now uses technologies such as XML and JSP, making it easier for software vendors to integrate the product to better fit their licensing policies, and to modify customer license fulfillment web pages to provide a higher level of customer satisfaction. It is compatible with a host of the most popular network platforms and operating systems, including Windows, Solaris, and Linux.

Managing Unauthorized Digital Content in the Workplace

Unauthorized peer-to-peer networks are becoming a critical threat to the content and information industries. The Internet's growth and the associated expansion of high-bandwidth connections within workplaces has, unfortunately, exposed a lot of companies to employees knowingly or unknowingly swapping "unauthorized" music or video files, or downloading pirated software at work. Corporations have been increasingly held liable for allowing illegal copyrighted materials in their workplaces.

In October 2002, Macrovision and Websense announced a strategic partnership to combat the growing problem of unauthorized digital content in the workplace. Both companies – leaders in their respective markets – will develop complementary solutions designed to prevent the unauthorized storage, use and distribution of copyrighted content within enterprise, government and educational institutions worldwide. These joint solutions will benefit content providers and employers by providing a proactive defense against legal liabilities associated with unauthorized games, music, video, software and other digital content on company computing resources.

The solutions will combine Macrovision's proprietary technologies and long-standing expertise in the field of digital signatures and fingerprints and Websense's patent-pending content classification technologies to identify and control the downloading of "hacked" content and unauthorized redistribution of copyrighted material.

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The first product from the partnership is expected to be launched by Websense in the second half of 2003. The product, a Liability Protector add-on module for Websense Enterprise software, would help shield employers from potential legal liabilities by searching company servers and hard drives for copyrighted content found to have copy protection elements removed or bypassed from Macrovision's patented technologies for video, audio and software applications. Coinciding with the release of the Websense Liability Protector module, Macrovision will launch SafeScan™, a product allowing Macrovision's current CD-ROM copy protection customers to extend the copy protection ecosystem for those games that have been protected with Macrovision's patented SafeDisc® technology. SafeScan is designed to prevent downloading and file sharing of "hacked" content in workplaces.

The concept of content security has broadened from a point focus of isolating security breaches in one distribution venue to a broader solution to limit the damage from any potential breach across venues. SafeScan is an important step in expanding our content protection offerings into the enterprise space to encompass public and private networks, and to monitor and control copyright abuse such as unauthorized peer-to-peer file sharing.

About Macrovision

Macrovision Corporation (Nasdaq: MVSN) develops and markets copy protection, digital rights management, and electronic license management technologies for the consumer software, enterprise software, home video and music industries. Macrovision holds a total of 133 issued or pending United States patents and 832 issued or pending international patents, and continues to increase its patent portfolio with new and innovative technologies in related fields.

Macrovision has its corporate headquarters in Santa Clara, California with international offices in London (UK), Frankfurt (Germany), Tokyo (Japan), Taipei (Taiwan), Hong Kong and Seoul (South Korea). Macrovision provides its products and services in 35 countries across six continents.

Additional information on Macrovision and its products can be obtained from our Web Site at www.macrovision.com.

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