

Impact of Content Protection on the Home Media Ecosystem

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Agenda

- Background
- Trends
- Impact
- Developments
- Conclusion

Background

- Content protection space is fragmented
- Variety of content protection/DRM technologies deployed or in the works
 - CA, DTCP, CPRM, DVB CPCM, MPEG-21 IPMP, ISO REL, OMA DRM, WM DRM/ND/PD, BF, HDCP, AACs, Macrovision, TVAF, SMPTE ExCCI ...
- Designed to address specific needs
 - Pre-recorded physical media (optical, flash)
 - Connection mechanism (USB, 1394, Bluetooth)
 - Broadcast (FTA, Cable, Satellite)
 - Internet distribution
 - Mobile

Background

- Technical mechanisms
 - Encryption
 - Key Management
 - Trust management
 - Tamper resistance
 - Watermarking
 - Renewability
- Binding models
 - Device
 - Media
 - Link
 - Domain

Background

- Business models
 - Music, movies
 - Download, rental, subscription
 - Mobile, broadcast
- Regulatory environment
 - Regional (China, Japan, EU, US)
 - Industry (TV, Mobile)
 - Body (FCC, ITU)
 - Legislative context

Background

- The result is a fragmented content protection market and consumer confusion
- Consumers want digital media to “just work”
- Content protection is a feature with “negative intrinsic value” for consumers
- But without content protection there is no^(*) commercial content

Trends

- Broadband
 - Penetration growing at different rates
 - Enables new distribution models
 - WW broadband households 2007: 250M
- Home networking
 - Initially sharing Internet connection, printers
 - Digital media “killer app” for home networking
 - Correlation with broadband, 60M by 2007
- Consumer electronics
 - \$250B market in 2004
 - Growing % related to digital media
 - HD (TV, DVD, Recorders), Plasma/LCD, Mobile

Trends

- Convergence
 - Line between PC – CE blurred
 - Microprocessors, DSP, HDD
 - Connectivity
 - Look inside a DVR
- Consumer media
 - Transition to full digital production and distribution
 - Emerging business models
 - Content protection seen as business control point
- Content protection
 - Growing piracy, unauthorized use
 - Critical factor for introduction of new technologies and business models

Impact

- Digital media ecosystem more diverse
 - Need for interoperability to enable content flow
- Share of protected content will increase
 - More content will be distributed from the source in protected form, will remain protected throughout lifecycle
- No single content protection solution can meet all needs
 - World with multiple CP/DRM systems
- Need for interoperability between CP systems
 - Enable content to flow from one domain of trust to another

Developments

- Barriers not technical but business/legal
 - Content owners need to know their content will be protected throughout lifecycle
 - “Chain of trust” – secure hand-offs
- Bilateral agreements
 - Enable content to flow from one domain of trust (e.g. a content protection system for optical media) to another (e.g. protection on a PC)
 - “Authorized digital outputs”
 - Compliance and robustness rules
 - Rights mapping

Developments

- DLNA – Digital Living Network Alliance
 - Publishes guidelines to facilitate interoperability of implementations
 - Does not create new standards, but selects specific profiles, provides “glue”
 - Certification and logo program
 - Initial guidelines had no provisions for content protection
 - Use cases awkwardly avoid commercial content
 - Garage band, trip photos, baby’s first steps

Developments

- Future guidelines will include support for content protection
- Distribution to the home out of scope, but access to content in the home in scope
- Short term
 - Content Protection Subcommittee
 - Focus on link protection only
- Longer term
 - Co-existence and interoperability of content protection systems
- Get involved!
 - 150 companies

Conclusion

- Convergence finally happening
 - Content protection critical factor
 - Market fragmented
 - Interoperability is a business issue
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- Enabling flow of commercial content in the home media ecosystem will benefit CE manufacturers, IT vendors, content owners and most importantly consumers