



Projected industry adoption of Marlin DRM

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1. Executive Summary

Protection of internet delivered content remains a difficult issue for content owners and consumers alike. Content owners worry about piracy of content in the 'cloud', whilst protagonists of free access can be anti-DRM and see it as a denial of 'fair-use' freedoms. Can DRM keep all parties happy? An open DRM system that provides content protection but flexibility in the deployment that allows for diverse means of consumption would seem to address the concerns of both ends of the DRM debate.

Other influential factors include: an ecosystem of supporting technology and service organisations, multi-screen access, place-shifting content, time-shifting content, availability of 'connected' CE devices and the ability to make it personal to the user.

Marlin DRM ticks these boxes and it is starting to be selected in OTT TV deployments (e.g. YouView), has been selected as a core component of the OIPF and is actively used by Sony (for Sony Network) and Philips (for Net TV).

CE Vendors (and other OTT TV stakeholders) are becoming a huge competitive threat to the traditional Pay TV Operators. They are offering customers access to a rich source of content, often without subscription, by purchasing a CE device – typically a TV.

2. Purpose of this paper

This paper will describe the drivers in the adoption of DRM systems in OTT TV. The analysis focuses on the open source solution from Marlin and will attempt to identify its role now and how it is likely to fare in the future. Although there are many parallels with the music industry the paper will retain a video content focus.

3. Who this paper is aimed at

This paper is aimed at CXO's, Engineers, Marketers, Sales, just about anyone with an interest in the subject.

4. What is OTT TV

Over the Top Television provides a means to view content that is available over the Internet. It will typically be delivered via a broadband connection and so bypass the traditional providers of TV services - hence the term Over the Top Television. Examples of current OTT TV services include video hosting services like YouTube, films direct from the studios (e.g., Warner Brothers) or even niche content from micro-operators and individuals. Viewing this content will be achieved either via a PC (possible now) or through a more integrated approach via an Over the Top TV-enabled Set Top Box or 'connected' Television.

Whilst traditional linear TV will still continue to provide the backbone of home viewing for some time, it is likely to be increasingly demoted in the home in favour of OTT TV services as the primary means to watch your favourite content. Over the Top Television represents a fundamental shift in TV consumption and whilst it brings many opportunities it will also carry many challenges.

5. What is DRM and why do we need it?

DRM is a broad term used to describe a number of techniques for restricting the free use and transfer of digital content. DRM is used in a number of media files, but most commonly associated with Audio and Video files. The case for DRM is that without such a system in place to ensure that only paying consumers can access content, piracy will become commonplace, thereby drastically reducing profits for producers and distributors. Many

online stores that have adopted DRM have various schemes built in to limit the number of devices the content may be played on and even how many times it can be viewed.

DRM restricts access to, and usage of, content based on a set of rules. The 'rules' typically apply to users, location, devices, time/date, duration, repeat plays, etc. The content owner may require that some or all of the rules are applied to a certain piece of content.

Security issues, fair use issues, and issues of creative expression are all at the forefront of the DRM debate, and the DRM technologies will undoubtedly be a hot topic for many years to come.

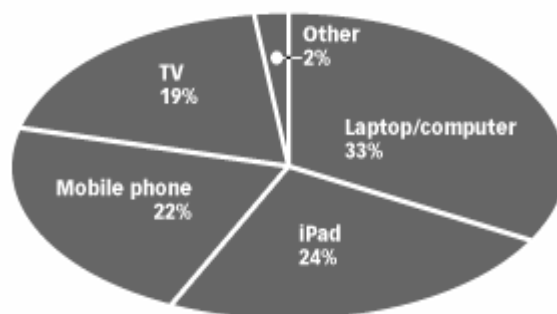
6. Likely drivers for Adoption of Marlin

6.1. Three Screens

3 Screens has been a big theme in recent trade shows (along with 3D). Most of the large vendors have viable demos and some of them have been based on Marlin DRM (example Ericsson). Marlin is particularly well suited to supporting 3 screens as access is not device dependant. The Pay TV Operators are starting to offer 3 screens (and multi STBs) in recognition of its significance. Figure 1 below shows the expected shift in how the content is consumed. In essence it shows a much more even split of how people will access Over the Top content.

Figure 1 - Content consumption by Device

Primary Entertainment Device Among UK iPad Owners, Aug 2010
% of respondents



Source: Cooper Murphy Webb, "iPad Consumer Usage Study," Aug 12, 2010
118846 www.eMarketer.com

6.2. Portability or 'place shifting'

Whilst consumption of content on large format TVs remains high, there is no doubt that more content is being consumed on a range of portable devices. Users increasingly download content from the likes of iTunes or the Sony Network (that uses Marlin DRM). Portable devices are increasing in popularity (look to iPad and all the soon to be clones) and much of the commercial incentive will be based on the ability to sell the user premium content. The trend is further driven by the availability of WiFi, mobile broadband, and other connectivity options.

6.3. Time shifting

Catch up TV or time shifting of content is considered as a staple function for the consumption of content where consumers have become accustomed to it via PVR devices for linear TV. Consumers love the fact that they no longer have to 'book an appointment' with their TV and, with our lives moving away from a standard '9-5', it's a trend likely to continue.

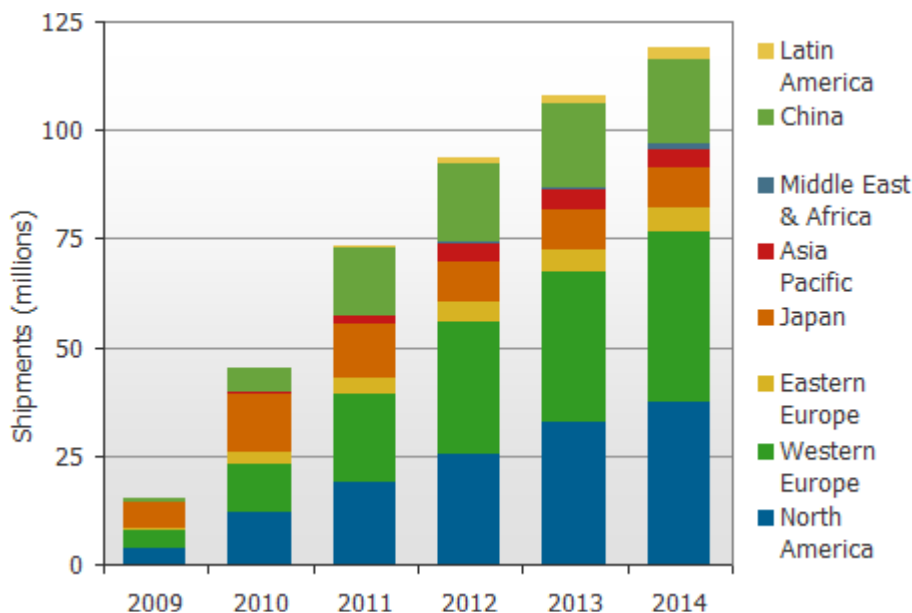
6.4. Availability of connected CE

CE vendors have not previously had access to a DRM system that was well suited to CE devices. All previous offerings were based on adaptations of PC-based standards or providing services via a STB. The Marlin platform provides a CE vendor-friendly DRM solution, given that 4 out of 5 of the Marlin founders are CE vendors (Sony, Panasonic, Philips and Samsung) you would expect that to be the case.

OTT TV presents a huge opportunity for the CE vendors. It seems clear that there is a play for them to grab market share based on bringing 'connected services' to the consumer. They are no longer just the means to view content but are now positioning themselves to be the conduit to channel and present content, albeit in a walled garden.

Sales of connected TV's are predicted to see incredible growth over the next few years, see figure 2 below. It would seem logical that all of this 'connected' ability will be used by consumers to access dynamic content and that there will be a vast infrastructure of vendors and service providers all trying to capitalise on the opportunity.

Figure 2 - DisplaySearch Connected TV Forecast



Source - http://www.displaysearch.com/cps/rde/xchg/displaysearch/hs.xsl/quarterly_tv_design_features_report.asp

6.5. Marlin – YouView (Canvas) DRM

YouView, the standard being developed for unifying the UK's 'catch up' TV services, has selected Marlin as the DRM provider. This has market significance as YouView is being closely followed by many stakeholders. A successful deployment of Marlin in YouView would add considerable credence as it is likely to be used as a reference site for many years to come.

6.6. Personalisation

One size no longer fits all. Consumers expect the ability to build (or have built through recommendations) dynamic content based on their preferences. There's a less obvious 'personalisation' link too. OTT TV systems will bring lots of content, perhaps too much without a means to filter it. This is a back office function more than a requirement of Marlin.

6.7. Diversification of Stakeholders

Traditional distribution of content has been based around FTA (Free to Air) from the national broadcasters and DTH (Direct To Home) Subscription Operators. OTT TV technologies are enabling many other entrants/stakeholders into this previously near monopolistic distribution chain. The 4 CE vendors backing Marlin are well placed to capitalise on these opportunities, especially ones with a combination of connected devices and content. Given the nature of OTT TV (internet delivery and open) there are likely to a huge range partnerships/alliances formed to take strategic advantage of this new paradigm – too many to list here.

7. How is Marlin organised

7.1. MDC & MTMO

Five companies — Intertrust, Panasonic, Philips, Samsung and Sony — joined together in 2005 to develop specifications for next-generation content and rights management technology. In early 2006, these Founders launched the Marlin Developer Community (MDC), an open standards community development initiative. Later that year, the Marlin Founders identified the need for a neutral trust management licensing organisation and started the Marlin Trust Management Organisation (MTMO). The Founders continue to promote the development of a Marlin-enabled content distribution ecosystem.

7.2. MTMO

The MTMO, which is an entity distinct from the MDC

- has a single trust authority to ensure maximum interoperability
- uses a "delegated trust" model to give adopters maximum flexibility
- allows multiple entities to provide keys if they meet certain criteria; Intertrust operates Seacert, one such trust service provider
- publishes compliance and robustness rules

7.3. MPP (Marlin Partner Program)

The Marlin Partner Program (MPP) is a forum for solutions providers. Today, over 35 partner companies provide expertise across the value chain. This includes Technology Solutions Providers and System Integrators who provide solutions for adopters, especially for Set Top Box and mobile phone solutions. MPP membership includes non-commercial access to SDKs.

8. What versions of Marlin are available?

- Marlin Broadband (Marlin BB)
 - Full-fledged DRM
 - Supports all business models
- Marlin Simple Secure Streaming (MS3)
 - Supports Linear and Live Streaming
 - OTT and Broadcast Services
 - Employs Content Protection (not link protection)
 - Highly Scalable
 - Minimizes Security Exposure of CDN
 - Uses Marlin BB Trust Infrastructure
 - Secure by design (vs by obscurity)
 - Example Applications:
 - TV Widgets
 - OTT Devices (e.g. Roku, BD-Live)
- Marlin IPTV Endpoint Service (IPTV-ES)
 - The standard for IPTV in Japan
 - Essentially a type of CA

9. Market Adoption

9.1. Deployments

Marlin is used for content distribution and protection and new business models in:

- Japanese national IPTV standard (IPTV-ES specification)
- Sony PlayStation Network, PS3, PSP, TVs, and other devices
- SyncTV catch up TV service
- Philips NetTV
- Ericsson (as part of an OIPF integration)

Marlin is the content protection technology selected by YouView (Canvas) and the Open IPTV Forum for 'Over the Top' IPTV delivery and is approved by DECE.

9.2. Standards

The Marlin specifications have been adopted by other standards development organizations.

- Marlin is the content protection technology selected as the "Terminal-Centric Approach" by the Open IPTV Forum (OIPF)
- DECE Approved DRM
- Bluewhale and Sushi have passed the China DRM Forum conformance test suite
- Japanese IPTV Standard

9.3. Studios

All major studios support Marlin to protect their content for rental, subscription and electronic sell through of their digital assets.



10. Why Marlin is well placed

Marlin technology enables competitive value-added content services and devices that are interoperable, consumer-friendly, and drive revenue. Today, consumers' access content from an increasingly diverse and complex array of services and devices; thus consumer demand is driving these opportunities in this distributed content world.

Marlin exists within an open community development environment, hence a community approach and with powerful features that are enabled by its unique capabilities in rights management. Marlin also recognises that in today's modern society, a successful media distribution strategy is one that works for all value chain participants (Content Providers, Service Providers, CE vendors and the consumers).

The Marlin architecture specifies technologies for building copy protection and digital management rights into consumer devices and services in a manner that is friendly to end users. Marlin technology allows users to acquire content through multiple distribution channels and to access it on any device that is part of their home domain. In order to accomplish this Marlin defines both client capabilities and service architecture so that the capabilities of the consumer electronic devices can be optimised. One of the most user-friendly features of Marlin DRM system is the flexibility it gives to users to transfer and consume content on all devices that they have access to. Unlike competition, Marlin gives users freedom to exchange and transfer content directly between any device that they own (without the need to transfer licences), allow multiple family members to share their devices and content, and even allows temporary use of their content on "guest" devices (those owned by other individuals). Marlin's unique approach permits this degree of user flexibility while still protecting content owners' interests and guarding against widespread copyright abuse and piracy. Consumers expect their content to flow freely amongst all their devices and Marlin enables that by providing the capability for persistent protection within a domain which can be enabled by the content or service provider. CA only provides link protection to some device such as a STB.

11. What's the downside to DRM?

DRM, like any technology, needs to be carefully implemented. A good and well tested customer experience needs to be provided for each use case that is provided. Early deployments of DRM were poorly planned and therefore provided for resistance from consumers.

DRM can also be difficult to deploy and will be beyond the scope of most stakeholders internal technology teams. Whilst adding DRM will bring content protection it will also add integration costs, learning curve issues and ongoing license costs.

12. Conclusion

Consumer trends are indicating huge changes in how content is consumed. Content is no longer consumed by just a single family unit in front of a single TV. Content is linear & non-linear, at home and on the move, streamed & downloaded, low resolution and high definition, it may be shared or kept personal. Open standards continue to play a factor in the platforms that currently deliver on demand services but open systems will be increasingly important for interoperability as these systems become more diverse. This is important – as OTT TV matures the number and types of entrants will change. Such diversity will need common, open platforms.

Sir Howard Stringer, CEO of Sony said in an interview last year; "A lot of people thought Sony's content download service was doomed, but it's in a pretty good place right now in the form of the PlayStation Network, available to PS3 users for network gaming, video, etc. The DRM is based on Marlin, an open scheme developed by consumer electronics companies and other companies. What does all this mean? Very simply, it means that Sony has begun the transition from a closed system to an open one."

13. How Can BCI help?

BCi considers itself Europe's leading OTT TV and VoD System Integrator. We have an impressive track record of delivering the architecture, integration and testing of large on demand platforms for many of Europe's leading Vendors and Operators. We have a range of experience in the deployment of CA and DRM based systems and are an active member of the MPP (Marlin Partner Program). We also provide niche Consultancy services where we work with the client on issues including due diligence, architecture review, Vendor selection and European support services.

14. Appendix

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