



An Introduction to the Hosted Marlin Service (HMS)

The Marlin DRM standard provides protection technologies for monetizing digital content. New research indicates that the number of European households with a connected TV is expected to grow to 47 million in 2014.¹ The same report also estimates that the number of households with a connected Blu-ray player will jump to 66 million in 2014. Worldwide, 76% of HDTVs will be web-connected by 2015, generating \$8 billion worth of transactions that range from online purchases to gaming and video-on-demand (VOD) services.² For content store operators (used synonymously with service providers in this paper) this growth presents a significant opportunity.

Hosted Marlin Service (HMS) is a new cloud service operated by Seacert Corporation. HMS enables service providers to participate in the Marlin ecosystem without upfront fees and with low operational and integration costs. The service offers a complete solution for issuing rights to Marlin content using a pay-per-transaction model.

Until now, service providers were required to sign a Marlin Service Provider Agreement from the Marlin Trust Management Organization (MTMO) in order to operate a commercial Marlin service. They then had the choice of licensing a Marlin server solution from a technology solutions provider and integrating it with their own content distribution service or developing their own Marlin server infrastructure directly from the Marlin specifications. Both options required the service providers' Marlin-enabled server implementation to comply with the MTMO's robustness rules and regulations for service providers.

HMS offers an alternative to this approach. By leveraging economies of scale and Seacert's operational expertise, HMS is able to offer a cost-effective, high availability solution. This lets service providers focus on their core expertise and outsource the complex task of operating a Marlin-compliant solution to a well-known and trusted provider.

Service providers can leverage HMS to quickly monetize their content across the Marlin ecosystem. The immediate opportunity is content services targeting Net TV and YouView devices

Marlin Technologies

The Marlin architecture specifies technologies for building copy protection and Digital Rights Management (DRM) into consumer devices and services. Marlin supports two distribution models: the Marlin Broadband Delivery System and Marlin Simple Secure Streaming (MS3). The *Marlin Broadband Delivery System Specification* defines a full-featured DRM technology that easily scales from simple to complex business models; it supports downloading or streaming content, with subscription, rental, or purchase-to-own models, and it deploys to devices or to domains.

The *Marlin Simple Secure Streaming (MS3) Specification* defines an approach whereby services authenticate trusted clients and securely issue content keys and (authentication) tokens, thereby enabling these clients to access streamed content. An MS3 license is typically short-lived and is retrieved each time the content is played.

HMS supports content licensing for both the Marlin Broadband Delivery System and MS3.

Benefits

By averaging operational costs across multiple customers, HMS is able to offer a high availability solution that is hosted on multiple data centers and that can guarantee a high level of uptime and responsiveness.

¹ <http://www.parksassociates.com/blog/article/forty-seven-million-european-households-will-have-connected-tv-by-2014->

² <http://www.parksassociates.com/blog/article/connected-tv-market-to-hit-76--by-2015>



Hollywood studios have approved Marlin and are willing to make premium (including HD) content available for service providers that support the standard. This trust is based in part on the robustness requirements imposed by the MTMO on service providers and device manufacturers. HMS manages the Highly Confidential Information (HCI) required to issue licenses, and complies with the MTMO robustness criteria for Marlin Service Providers, thus relieving service providers from signing the MTMO Service Provider Agreement and meeting the robustness criteria themselves.

HMS subscribers purchase token redemption credits. Each time a subscriber requests HMS to issue a content license to a device, a token credit is charged. HMS is designed to scale efficiently and economically, enabling a tiered pricing scheme that translates into significant cost savings for high volume customers.

Marlin technologies were designed to support a wide range of business models in the digital domain, while addressing the security needs and concerns of copyright owners, device manufacturers and service providers. While existing Marlin solutions were designed to support the richness of the Marlin standard as well as to be easy to integrate into service providers' content distribution services, there are cases in which service providers seek to outsource the Marlin DRM service functionality in order to more easily meet deadlines, budget constraints, or architectural design approaches. HMS provides a streamlined means for accomplishing this, hiding traditional implementation complexities behind a simple and intuitive web services (REST) interface, designed with the business scenarios of service providers in mind.

Operating a Marlin backend entails upfront investments in technology, training, and development of operational processes and procedures. These translate into opportunity costs and delayed time-to-market. HMS enables service providers to go to market immediately without upfront costs and with a tiered pricing scheme that provides significant savings for high volume transactions.

Supported Platforms

Net TV

Net TV is a portal for online content applications for Philips TVs, Blu-ray players, and home theater systems. Sharp and Loewe have announced plans to support this platform. Net TV offers instant access to a wide selection of international films, TV, and radio programs. The platform is based on CE HTML, which enables a simple integration path for reselling content through a web-based content store. Net TV devices are Marlin-compliant and thus capable of processing content licenses generated through HMS.

YouView

YouView is a standards-based connected TV platform that will launch in 2012. The platform will enable consumers to access a range of third-party services (television channels, radio stations, on-demand services and Internet content) using a compliant device (such as a set-top box that is built to a common technical standard and with a broadband Internet connection). YouView has selected Marlin as the DRM standard for the platform. Several set-top-box makers, including Cisco, Humax, and Technicolor, have announced plans to build hardware for the platform.

Sample Deployment

The diagram below is a typical deployment for a content store for Net TV devices using HMS.

1. A user selects a video store from the Net TV portal. The Net TV device downloads the storefront from the content store and displays it to the user.
2. Once the user has rented content, the content store requests HMS to generate a license for the content, and HMS returns a token that can be used ("redeemed") to obtain the license.
3. The content store passes the token to the device, along with some CE HTML that describes the content.

4. The device redeems the token to obtain the content license from HMS.
5. With the license in hand, the device downloads the content from the CDN.

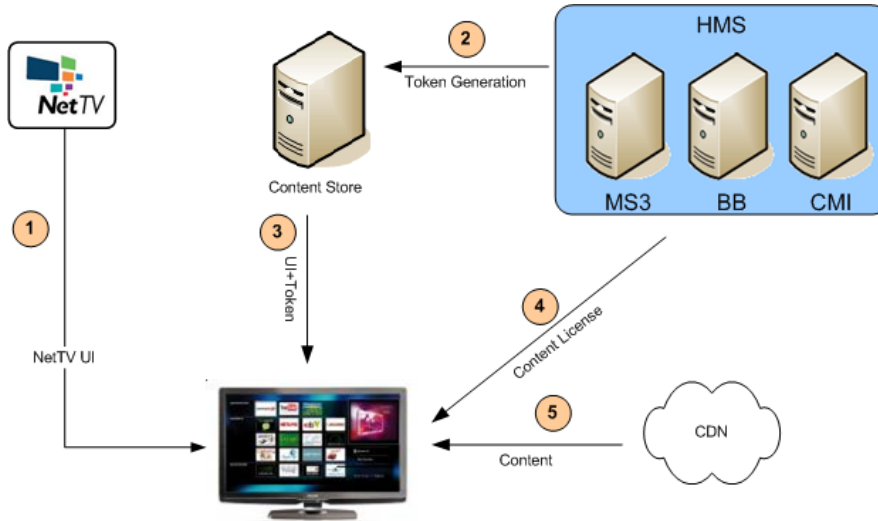


Figure 1 Typical Net TV deployment with HMS

For service providers, deploying a Net TV solution entails the following activities:

Content Store Development. The Net TV platform has built-in support for CE HTML, which allows service providers to develop a feature-rich store with traditional web technologies. The platform includes browser plug-ins that are used for interacting with the Marlin DRM client running on the device. Typically, as part of the content store UI, service providers will embed DRM objects (such as the license acquisition token) on the page and include some JavaScript code that will pass these embedded objects to the plug-ins. The plug-ins in turn will use the native Marlin DRM client to process these requests.

Token Generation and Redemption. HMS uses a token generation and redemption scheme. The content store requests HMS to generate a token for a DRM object (for example, a content license). This token is passed to the device, which in turn will redeem it for the DRM object. The token redemption logic is built into the Marlin DRM client, so all the content store needs to do is add the “glue” code which passes the token embedded in the page to the DRM client.

Content Packaging. An essential step in the content distribution process is encrypting and packaging content into a Marlin-compliant format such as DCF, PDCF, or BBTS. HMS includes downloadable packaging tools for subscribers to the service.

User Registration. Before content licenses can be issued to a user’s device, the device needs to be provisioned with store-specific credentials necessary to process content licenses. Typically, as part of the login workflow between the device and the content store, the device will provide some uniquely identifiable information. If the service provider determines that the device has not been provisioned, the service provider will use HMS to issue a token for Marlin credentials based on the device’s identifier and the user’s key. The content store will then pass this token to the device, which will redeem it from HMS.

Content Licensing. As part of the content rental/purchase workflow between the device and the content store, the service provider passes the user information, along with the content encryption key, to HMS and retrieves a token that can subsequently be redeemed for the license. The content store embeds both this token and the content location on the web page returned to the device . The script on the page will use the DRM plug-ins to acquire the license and the content.

Service Administration. Each subscriber to HMS has access to a personal administration console for the service, called a Customer Management Interface (CMI). From this console the subscriber can monitor token-related transactions, order additional credits, browse the tutorial and documentation, download packaging tools and try out the web services (REST) interface through an easy-to-use web UI.

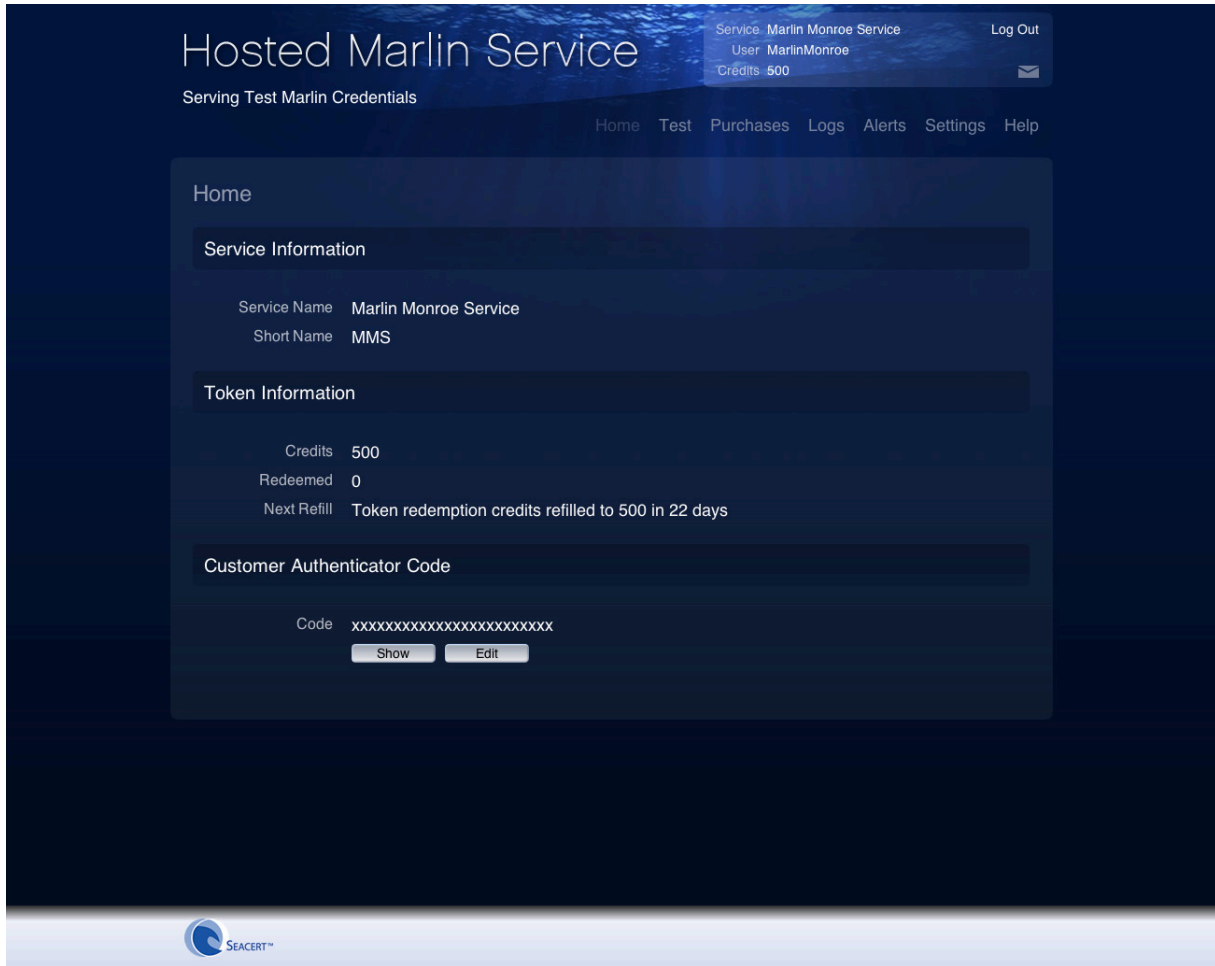


Figure 2: HMS Customer Management Interface (CMI)

Conclusion

The surge in demand for connected TVs is expected to generate significant revenue opportunities for service providers. Marlin DRM provides the essential elements for capitalizing on this opportunity. HMS greatly simplifies integration of Marlin into service providers' content stores, reducing costs, minimizing risk, and significantly reducing time-to-market. It's an ideal solution for content providers wishing to participate in the Marlin ecosystem, with immediate revenue opportunities through the Net TV platform.