Utimaco enables revolutionary step in digital sound quality and authenticity

Motivation: improving the user experience while authenticating the artist's work

MQA has chosen Utimaco to enable their revolutionary technology that delivers master quality audio in a file that is small enough to stream or download. MQA music guarantees the highest recording quality, as well as the provenance of the file. Utimaco's role was to provide the hardware backend – the root of trust – in which the cryptographic keys, which are used to encrypt and sign MQA audio files, are generated and stored.

The challenge: improving the listening experience without sacrificing convenience

A start-up with the highest credentials in quality audio production, MQA recently announced their Master Quality Authenticated (MQA) technology, an industry-first solution to capture and share high quality music. With traditional, compressed music files, sound quality has been continually sacrificed for convenience. With MQA technology, there is no sacrifice. MQA captures and preserves the missing 90 percent currently obscured or discarded in an MP3 file, and delivers it all in a file that is small enough to download and stream easily.

The solution: authentication to prove provenance and identify master recordings

To ensure the integrity of the artist's music from the original source to the end listener, MQA needed a codec solution to securely encode and decode the music file. Authentication is critical to MQA technology which must work end-to-end, from the studio all the way to the music fan. An advanced cryptographic solution was the best option to fingerprint the musical file. MQA turned to Utimaco, a leading manufacturer of hardware-based security solutions that provide the root of trust to keep cryptographic keys safe, secure critical digital infrastructures and protect high value data assets.

The technical solution: Symmetrical keys to protect consumer data.

Utimaco provides a FIPS-certified hardware security module (HSM) that generates and stores secure encrypted signatures required for executing commands between the encoder and decoder. Each permit contains a cryptographic signature, generated via true random number generation, so that the communication between the two can be verified for authentication and integrity before executing any command.

The implementation: hardware to secure the end-to-end process of music recording

In the case of MQA, the Utimaco hardware module will be deployed at the artist studio, the encoding house, as well as at the mastering house when the mastering engineers finalize the product. Once the master recording is finalized, the artist and sound engineers sign off on the musical file and when it is downloaded to the decoder – the user's playback device – an indicator lights up (e.g. an LED on hardware or an icon on-screen) as proof of the file's provenance and to ensure that the sound is identical to that of the source material. Only by controlling this entire process can the optimal MQA performance be achieved; with Utimaco's codec solution, the integrity of the artist's master recording can be maintained all the way from the studio to the listener.

The success criteria: hardened encryption, empowering the revolution

Critical to the continued success and monetization of the streaming and download services of the entertainment industry, is the ability to secure and safeguard end-to-end transmission of intellectual property. A market leader in hardened encryption, Utimaco is at the forefront of enabling the authenticated delivery needed to drive next-generation entertainment consumption.

More resources:

https://hsm.utimaco.com/

http://www.mqa.co.uk

About Utimaco

Utimaco is a leading manufacturer of hardware based security solutions that provide the root of trust to keep cryptographic keys safe, secure critical digital infrastructures and protect high value data assets. Only Utimaco delivers a general-purpose hardware security module (HSM) as a customizable platform to easily integrate into existing software solutions, embed business logic and build secure applications. With German precision engineering, tamperproof Utimaco HSM offers scalable performance with the highest level of physical security and self-defense for hostile environments.

About MQA

Using pioneering scientific research into how people hear, the MQA team has created a technology that captures the full magic of an original studio performance. MQA is a revolutionary end-to-end technology that delivers master quality audio in a file that's small enough to stream or download easily. It is also backwards compatible, so your music will play on any device – the days of sacrificing quality for convenience are finally over.

Visit www.mqa.co.uk for further information.