

IRDETO ACTIVECLOAK™ FOR MEDIA: OVER-THE-TOP

SECURELY STREAM CATCH-UP TV AND PREMIUM MOVIES OVER-THE-TOP TO THE DEVICES YOUR SUBSCRIBERS LOVE - PC, MAC, TABLET, SMARTPHONE, GAME CONSOLE AND CONNECTED DEVICES - TO ENABLE NEW OPPORTUNITIES, INCREASE SUBSCRIBER LOYALTY AND GENERATE REVENUE

Consumers can watch video on more screens than ever before, and they are embracing this new media experience with great enthusiasm. Your subscribers' demand for catch-up TV, live streaming and premium movies anytime, anywhere and on any device has increased accordingly. But deploying your media applications on these devices requires a new kind of protection to not only obtain the necessary content licenses, but also to ensure that your application won't be hacked, your content pirated and your brand image tarnished. However, the security challenges vary depending on your choice of platforms and technologies – operating systems, DRMs, adaptive bitrate streaming, media players and other APIs – and this all creates the potential for a very complex implementation. A good security partner must:

- Provide a robust, secure solution that does not impact the user experience
- Apply it to all of the most popular CE devices, as well as ones yet to come
- Be known and trusted by major content providers and help you get the content you need
- Have a long-term strategy for maintaining the security and integrity of your application and your brand when it comes under attack
- Ensure your application gets to market as quickly as possible with all necessary approvals

Only this way can you get your service to market quickly and stay one step ahead of the competition.

KEY BENEFITS

Irdeto ActiveCloak offers operators a smart solution to securely deploy any kind of Internet-based video services to any consumer device. Irdeto provides:

- Solutions for smartphones, tablets, connected TVs, set-top boxes, Media extenders, PCs, Macs and game consoles
- Core technology deployed on more than 2 billion devices and applications over ten years
- A DRM robustness solution recognized by Hollywood as the gold standard
- Protection of OTT content from every major studio on the world's largest cable operator (Comcast) and largest OTT operator (Netflix)
- Security for the broadcast and broadband content of more than 300 pay media operators worldwide
- The stability of being a wholly owned subsidiary of the internet and media conglomerate Naspers

REDUCE YOUR RISKS WITH A KNOWN AND TRUSTED SECURITY SOLUTION

Creating a media application for any platform that will stand up to the threat of piracy is no trivial matter, and many off-the-shelf security solutions may not meet your needs; especially your long-term ones. According to Yoav Schreiber, Senior Analyst, Digital Media Infrastructure, at Current Analysis:

“With the potential for more content being transmitted to more screens, addressing the systemic weakness in content security has become priority number one for content rights holders, their video service provider partners and solution vendors, all of whom have a shared interest in creating more robust content protection schemes to address evolving multi-screen environments.”

Being able to launch new products to market quickly with a minimum of risk is critical given the quickly changing marketplace. The media-enabled devices consumers love to buy and use are increasingly open and difficult to secure, and you never know which new ones are coming next. Content provider security requirements are also wildly in flux as new technologies come to market every week. Though PCs, Macs, tablets, smartphones, game consoles and other connected devices all have tremendous consumer interest, they also have significant security threats associated with them. As a result, security solutions must be proven and battle-tested, trusted by Hollywood and provide a range of options for integration with any device. Only by doing

this can you securely expand your brand and increase your subscriber-base, regardless of how the world around you changes.

PIONEERING SECURITY. SECURING PIONEERS.

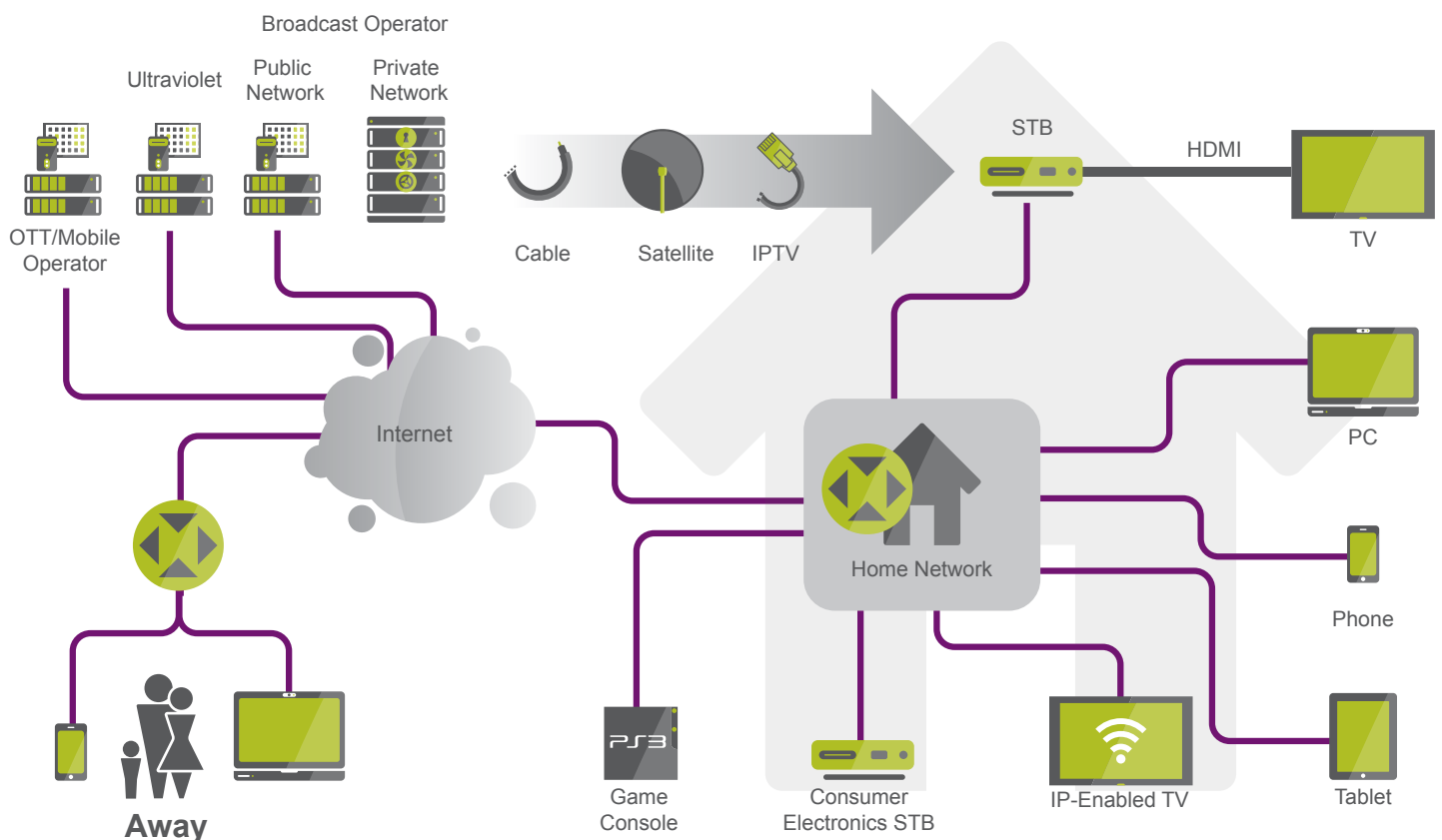
When people think of Irdeto, what typically comes to mind is our more than 40 years of experience protecting the world's broadcast pay TV operators with our conditional access security technology. What you may not realize is that we have also been quietly building and deploying pioneering new security technology in more than 2 billion consumer devices and applications for some of the world's most recognized content and consumer electronics brands, including:

- **Netflix**, the world's leading Internet subscription service for enjoying movies and TV shows
- **Comcast**, one of the United States' leading providers of entertainment, information and communications products and services
- **Toshiba**, a world leader and innovator in pioneering high technology, a diversified manufacturer and marketer of advanced electronic and electrical products including digital consumer products

IRDETO ACTIVECLOCK™ FOR MEDIA

Irdeto is the only company with the content security expertise and delivery track record to enable pay media operators to license and securely deliver content to any device their subscribers own.

OTT DELIVERY OPPORTUNITY



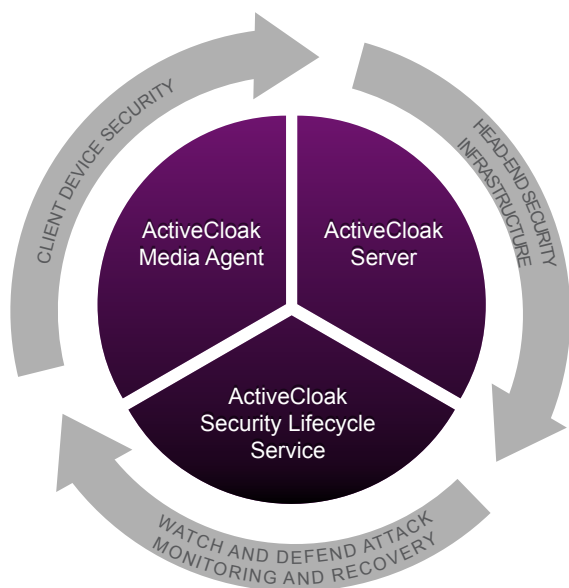
Irdeto ActiveCloak for Media protects everything from catch-up TV to premium movies for the world's leading studios as well as pay TV and Internet video providers, driving subscriber acquisition and loyalty and reducing churn.

ActiveCloak provides over-the-top security solutions with the following features and benefits:

- Provides a media framework SDK that any application developer can use to create applications that can securely receive premium content protected on a variety of platforms
- Securely implements adaptive bit rate streaming of content to any CE device
- Meets content provider requirements for catch-up TV and premium movie content playback on market-leading devices including PCs, Macs, tablets, smartphones, game consoles and connected devices
- Allows enforcement of changing content policies to account for new threats
- Meets robustness rules defined by studios and content creators
- Locks digital assets to a specific CE device
- Automatically identifies abuse or potential abuse, and implements pre-determined content policies such as denying access to content
- Protects content post-DRM all the way to the media player

THE SOLUTION

Irdeto ActiveCloak combines server-based software, client-device software agents and services to create an effective lifecycle security approach to protecting digital assets. The server-based modules provide the necessary infrastructure to create the security-hardened client agents which reside in consumer devices.



ACTIVECLOAK MEDIA AGENT

The ActiveCloak Media Agent implements clientdevice functionality and security for the media application. Its main functions are to:

- Provide a secure media framework SDK for integration into the application
- Secure digital assets, such as keys, certificates, and data by using a secure store
- Continuously monitor of the application's integrity and of the surrounding components it interacts with (anti-tampering)
- Provide a node-locking service to ensure that assets are bound to the unique device where the agent is running (anti-cloning)

The ActiveCloak Media Agent is hardened using Cloakware's core technology defenses (such as White-Box cryptography, source code transcoder and binary tools). It is available for deployment on multiple device platforms.

- Integration with a single, simple application programming interface (API)
- Client to support HLS and IIS adaptive bitrate streaming
- Robust client content protection for license acquisition, rights management, and if the license permits, decryption of manifest and content files as appropriate.
- Client-side Individualization to node-lock the content to the device
- Core security allows only authorized applications to access runtime functionality
- Prevent tampering or unauthorized access to the media path
- Verify platform, media player and operator UI
- Detect hacked and rooted devices

ACTIVECLOAK AGENT GENERATION MODULE

Diversity is an important way to make piracy economically unattractive, because it forces the pirate to divide their attention among many different code sets, with limited reward for breaking any individual code instance. This module produces diverse ActiveCloak Agents to meet your ongoing, enhanced security needs.

- The Agent Generation Module is an off-line utility which provides the following functionalities:
- It creates diverse instances of the ActiveCloak Media Agent, each with a unique random seed
- It customizes the Agent's features and capabilities by using a configuration file established for your environment (functions, platform and security profile)

ACTIVECLOAK RESOURCE PROTECTION MODULE

This module secures the cryptographic assets (keys, certificates, etc) and packages them by using patented Cloakware White-box cryptography and signing technologies. Assets can now only be used by the ActiveCloak Agent on the device.

The Resource Protection Module is an off-line utility providing the following functionalities:

- Enables the secure deployment of assets and data, such as DRM keys and certificates, to a device
- Protects assets and data in a secure store by using White-Box cryptography and data transformations
- Signs applications to enforce access control at runtime

ACTIVECLOAK INDIVIDUALIZATION MODULE

This module binds (node-locks) secured assets to an ActiveCloak Agent within a device, so that assets can only be used on the target device. This is implemented in the client device and executed at first run, thereby binding the assets to the device fingerprint.

The Individualization Module can be an online server, or client-side, based on the application and device. It is executed upon the first attempt to playback content and provides the following:

- Enables node-locking, which binds a secure store to a specific device or platform, so that it can only be used on that target device or platform (anti-cloning protection)
- Defines the access mode for a secure store (read/write or read only)

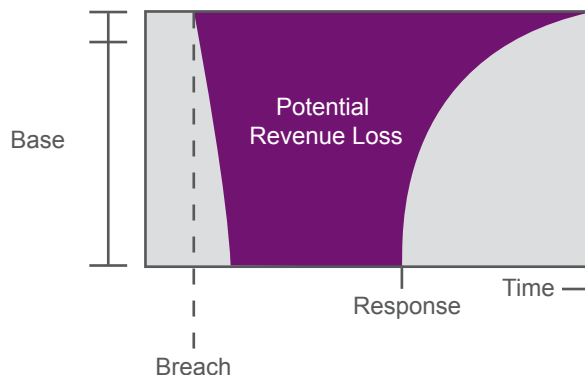
SECURITY LIFECYCLE SERVICES

The typical approach to application or device security is to assume that the initial design will remain secure over time. However, the reality is that, given enough time and effort, any security system can be compromised. For this reason, the Irdeto ActiveCloak solution is designed not only to provide the highest level of initial attack resistance available in the industry, but also methods to anticipate and mitigate attacks that occur over time. ActiveCloak Security Lifecycle Services provides an effective mechanism to react in the event of a breach, and includes unique elements to limit potential damages and enable quick deployment of countermeasures in order to ensure the ongoing integrity of the system and protection of content. This unique security lifecycle management approach enables you to stay one step ahead of the hacker community, extending the economic life of your licensed content to generate more revenue, to protect your business model and meet your ROI objectives.

TRADITIONAL SECURITY MODEL

In a traditional security model (without built-in security lifecycle measures), the lack of a recovery strategy leads to:

- Longer term piracy or loss of platform integrity
- Withdrawal of content provider licenses
- Platform obsolescence
- Impacts on the consumer and damage to your brand

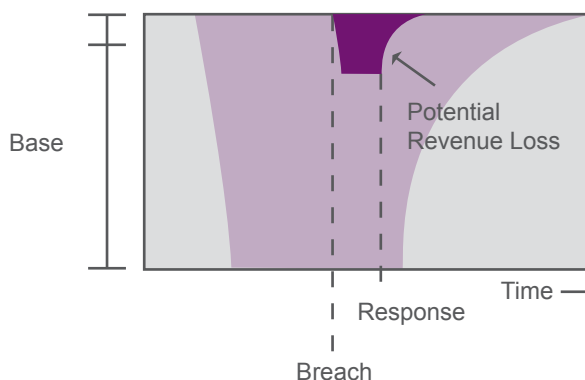


The loss of revenue over a sustained period is appreciable, and sometimes breaches are not even recoverable.

IRDETO SECURITY LIFECYCLE MODEL

In the Irdeto model, the impact of a security breach is mitigated because:

- Diverse instances of the deployed application code mean that a hack on a single version does not affect other versions
- Recovery can be rapidly achieved through ongoing monitoring and being prepared to respond BEFORE significant harm is done
- Countermeasures can be rapidly developed and deployed to disrupt potential hacks and rectify security breaches



This approach leads to a minimal disruption of your business in the event of a security attack.

Irdeto's Security Lifecycle Services provides a suite of services to ensure that the barrier for a security compromise is always maintained as high as possible at any given moment. These services protect your digital assets and associated business model over the full lifecycle of the product and the underlying platform.