The Standard in Revenue Security for Managed Network Services

VCAS™ for IPTV
## Video Content Authority System (VCAS™) for IPTV

### Challenges

The rapid growth of IPTV during the past several years has expanded the world of consumer entertainment and programming choices coupled with innovative interactive capabilities.

However, the very technologies that have made IPTV possible also pose a continuing threat to the business model underpinning such services. The threats of service theft and content piracy are legitimate concerns to rights owners and operators alike. It is of the utmost importance to the continued success of the IPTV industry that increasingly robust security technology can be developed and deployed in order to eliminate potential theft of service and content misuse.

Traditional conditional access (CA) systems were designed to combat security threats in one-way broadcast networks by using smart cards. However, the legacy CA design approach has been proven unsuitable for two-way, IP-based networks. Hence a different mindset and fresh approach was required for IPTV, as proven by Verimatrix while enabling many IPTV success stories around the world.

### Solution

VCAS for IPTV, powered by the multi-network VCAS platform, provides a complete digital TV content and revenue security solution for pay-TV services over managed IP networks.

VCAS for IPTV fully exploits the power and elegance of modern two-way IP infrastructure to provide a superior level of multi-screen content and revenue security for IP and hybrid set-top boxes (STBs), PCs/Macs and other connected devices.

VCAS for IPTV incorporates pioneering and proven features that provide the widest revenue security perimeter, thus enabling complete transparency for legitimate content consumption while significantly raising the level of protection against piracy.

The software-based solution is built on proven cryptographic and secure electronic transaction concepts used in e-commerce applications, accomplishing the highest levels of digital TV security as confirmed by several independent technology audits.

Verimatrix is the recognized global market leader with 500+ IPTV deployments and winner of several technology awards.

### Features & Benefits

VCAS for IPTV secures and enhances the revenue of IPTV networks as follows:

- Standards-based, two-way Internet security protocols ensure a solid foundation.
- ViewRight® downloadable, renewable security for IPTV clients, incl. connected TVs. It utilizes sophisticated security features of modern client device chip sets/SOCs.
- A Public Key Infrastructure (PKI) public/private key pair system plus X.509 digital certificates, featuring VCAS key management methods already proven in large IPTV deployments globally.
- Strong encryption using the robust AES-128 algorithm.
- ViewRight® Desktop for PC, which turns broadband-connected PCs into fully functional, interactive IPTV clients.
- VideoMark™ user-specific forensic watermarking, with a unique and highly robust identifier that is traceable to the last authorized recipient.
- Independently audited.

### Opportunities

The Verimatrix approach to IPTV content and revenue security for managed networks is ideal for:

- “Walled garden” IPTV services over managed networks with IP-based infrastructure: xDSL, FTTH, etc.
- Multi-screen services to IP-STB/DVRs, connected TVs, and PCs over managed networks.
- Operators planning hybrid services, extending IPTV services with over-the-top (OTT) delivery and v.v.
- Wholesale-retail content distribution, enabling a centralized, hosted service with local control options.
- Hospitality applications, supported by an optimized VCAS for Hospitality Appliance and pricing.
- Replacing legacy CA systems with cardless content security for IPTV and DVB hybrid networks.

Thanks to the system architecture and compact form factor, VCAS is inherently cost effective for the smallest hospitality deployment while scaling efficiently to tier 1 pay-TV operations with millions of subscribers.
• **Operator Management Interface (OMI)** – The core administrative component of VCAS, OMI provides a single VCAS integration point for customer care, billing and middleware systems through a set of content, device and entitlement management interfaces. OMI enables VCAS domain-based business models for multi-screen digital TV services by providing homogenous subscriber and rights management for heterogeneous networks and devices: DVB, IPTV, Internet TV/OTT, and hybrid combinations thereof.

• **Content Security Manager (CSM)** – Contains the VCAS security components for IPTV and DVB-IP hybrid networks to support authentication, key distribution and user control. CSM scales cost effectively to meet any deployment size by distributing components across clusters of servers and database engines.

• **Real-Time Encryption Server (RTES)** – Performs 128-bit AES encryption of multicast streams of encapsulated video content. RTES offers intelligent MPEG-aware stream encryption, selectable 1-100%. Key and management information is inserted in entitlement control messages (ECMs), which are used by the ViewRight device client to obtain the appropriate decryption key.

• **MultiCAST™/IP** (not shown) – An alternative to RTES, MultiCAST™/IP generates ECMs in conjunction with third-party, hardware-based AES scramblers supporting Digital Video Broadcast (DVB) Simulcrypt.

• **MultiCAST™/DVB** (not shown) – For DVB-IP hybrid networks, it generates ECMs in conjunction with third-party DVB Simulcrypt capable multiplexers/scramblers. The scrambling algorithm is typically DVB-CSA. MultiCAST/DVB also supports the EMMG interface, which is used for certain user- and device messaging.

• **VOD Encryption Manager (VEM)** – Performs faster than real-time AES-128 pre-encryption of VOD assets, in conjunction with CSM and third-party VOD servers, supporting manual or automated workflow. The MPEG-aware encryption process preserves key header fields used by VOD servers for “trick play.”

• **ViewRight® STB for IPTV** – A robust package of embedded code that implements VCAS cardles security functions within each IP-STB, DVR and connected/smart TV. It offers best-of-breed content security for two-way networks in a hardened implementation that utilizes the sophisticated security features of modern System-on-a-Chip (SoC) microcontrollers.

• **ViewRight® Desktop for PC** – A self-contained and highly secure player that turns any broadband-connected PC into a full-function IPTV client including video recording. The player GUI can be “re-skinned.”

• **VideoMark™** – Patented technology for user-specific forensic tracking, it inserts an invisible yet very robust watermark in the decompressed video stream prior to the content being output from the client device. This identifier can be used to track misappropriated content back to the last authorized recipient.
Key Partnerships

The Verimatrix business strategy includes building and sustaining a network of strategic alliances with a broad range of the most significant pay-TV technology providers and CE manufacturers. These relationships, which emphasize seamless technology integration, ease of operation and extended value, enable Verimatrix to offer pre-integrated best-of-breed solutions to our customers and their users. The range of established partnerships is very wide and includes companies that offer products and services such as content aggregation, system integration, video processing, VOD servers, subscriber management and middleware systems, connected TVs, set-top boxes, and mobile devices.

Verimatrix - Beyond Content Protection to Revenue Security

Verimatrix specializes in securing and enhancing revenue for multi-network, multi-screen digital TV services around the globe. The award-winning and independently audited Verimatrix Video Content Authority System (VCAS™) and ViewRight® solutions offer an innovative approach for cable, satellite, terrestrial, IPTV and OTT operators to cost-effectively extend their networks and enable new business models. As the established trend setter in cardless security solutions, the company has leveraged its innovative 3-Dimensional Security approach to provide a harmonized rights platform for premium content delivery to a range of devices over new hybrid network combinations. Maintaining close relationships with major studios, broadcasters, industry organizations, and featuring an unmatched partner ecosystem, enables Verimatrix to provide a unique perspective on digital TV business issues beyond content security as operators seek to deliver compelling new services.

- 3-Dimensional Security architecture for TV Everywhere applications
- Harmonized multi-network rights management across broadcast, streaming and file-based applications
- Market leading cardless security technology for broadcast and IP networks
- Enhanced HTTP Live Streaming (HLS) security
- Integrated MultiRights PlayReady License Server
- Cross-DRM device and domain entitlement management – VCAS Super Domains
- VerimatrixViewRight ONE multi-network embedded security client libraries
- Layered security regimes with rapid response and renewability options
- Video watermarking solutions for user-specific forensic tracking
- Award-winning and independently audited telco grade technology
- Extensive partner ecosystem enhanced by rock solid integrations
- Most widely deployed system among tier 1 telecommunications operators globally