

VERIMATRIX/HARMONIC JOINT SOLUTION BRIEF

Satellite Video Distribution Solution

THE CHALLENGE

Distribution networks delivering broadcast content to operators and affiliates usually span across thousands of reception sites, where remote devices receive, decrypt and process the content. As video networks grow more intricate, the processing tasks performed by these devices increase in scope, and managing them becomes more complex. The need for content security is particularly vital, and requires a strong conditional access system (CAS).

While management and security systems exist to handle distribution networks, these legacy systems have often been proprietary to a particular vendor. The closed nature of these solutions severely limits the options for content providers using them. Users are restricted to a single vendor, making any changes very prohibitive. Given the rapidly evolving nature of the video market, such limits place providers at a competitive disadvantage.

The ongoing evolution of how video is consumed has also increased the demands on edge devices, which now need to support features such as multi-service descrambling and remultiplexing. Whereas traditional integrated receiver-decoders once handled a single service each, one device might now process an entire transport stream—or multiple transport streams. The transition from MPEG-2 to MPEG-4 AVC has also introduced the need for transcoding. With this increase in content comes an increase in security challenges, as providers must ensure that all of their content, in all of its various formats, is protected from unauthorized or malicious access.

With more complex devices comes an increased need for monitoring, to ensure that the myriad of services on a particular device are functioning correctly. For one-way distribution networks such as satellite this was previously impossible, but the increasing availability of Internet access has created new monitoring opportunities. Many reception sites are now capable of providing a return IP channel to a central control system, enabling compatible management systems to monitor edge devices for alarms, reception conditions and transaction reporting, and to receive acknowledgements from remote devices on over-the-air (OTA) commands.

In light of the changing nature of the distribution network, providers need a solution that is both technically sophisticated and easy to manage. This is especially true for unidirectional networks, which must rely on OTA management of their reception devices.

THE SOLUTION

Harmonic and Verimatrix offer an integrated solution to address the challenges posed by the increasing complexity of the distribution network. Incorporating cutting-edge reception and management from Harmonic and leading content security from Verimatrix, the system uses open standards—putting the choice of hardware back in providers' hands.



Harmonic's leading IP headend system provides high-quality content distribution, reception, OTA management and edge processing, while Verimatrix ensures content security with an advanced security system approved by all major content providers.

Included in this solution are:

- **Electra™ X2 advanced media processor:** a fully converged platform for encoding SD/HD MPEG-2/AVC/HEVC video, delivered with superior video quality at minimum bandwidth, and featuring unparalleled function integration and operational flexibility.
- **ProStream® X IP video stream processor and gateway:** a compact, highly versatile platform for multiplexing, scrambling, statistical multiplexing and advanced processing of SD/HD MPEG streams.
- **ProView™ 7100 IRD, transcoder and stream processor:** a compact, highly customizable platform for digital turnaround processing, decoding and descrambling while preserving pristine video quality.
- **DMS™ video distribution management system:** a software-based solution for centralized, OTA control and management of large populations of Harmonic ProView IRDs.
- **Video Content Authorization System (VCAS™):** a complete security solution from Verimatrix, accomplishing the highest levels of digital TV security, as confirmed by several independent technology audits. VCAS for DVB/BCSM manages authentication, key distribution and user control, and includes entitlement control message generation and a high-performance dedicated hardware component that ensures operational network and physical security. This encapsulates all cryptographic operations needed to protect ciphers and control mechanisms, as well as the set of used keys.

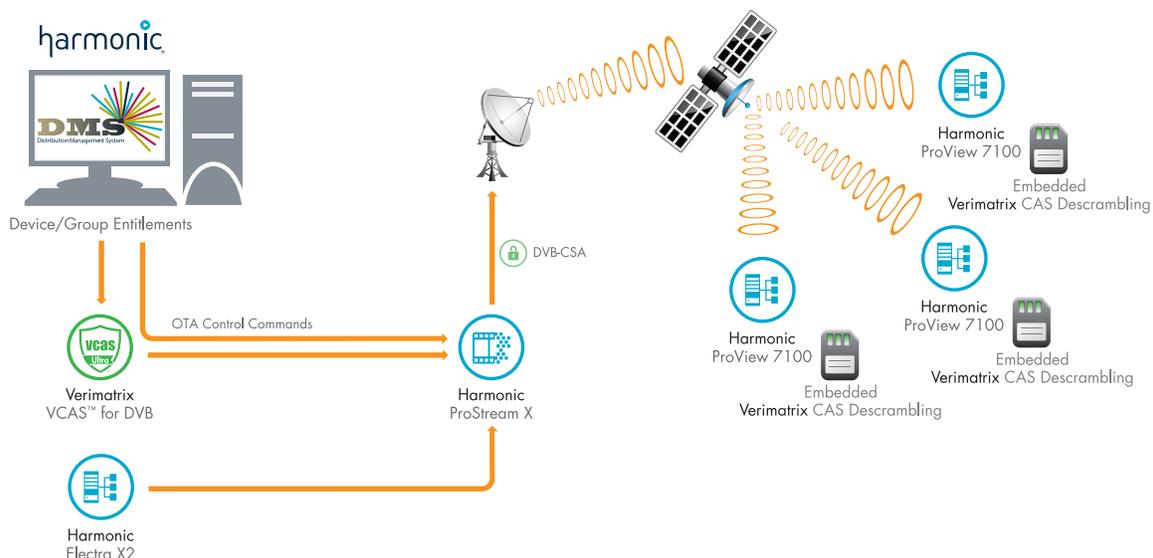


Figure 1: Solution Architecture



Figure 1 illustrates how the integrated solution by Harmonic and Verimatrix provides content distribution, security, management, reception and edge processing. The headend system features Harmonic's industry-leading Electra encoders and ProStream stream processors for multiplexing and scrambling. DMS provides OTA control, upgrades and even monitoring of receivers, as well as subscriber and entitlements management for individual or groups of devices. This includes functions such as regional blackouts and content localization. The DMS can receive input from a return IP channel sent by the reception site, enabling much finer control over remote devices. For unidirectional networks such as satellite, this represents significant cost savings, as the ability to remotely monitor devices reduces the need for expensive site visits.

To secure the content against unauthorized access, the Verimatrix VCAS™ provides end-to-end content protection. VCAS for DVB, powered by the third-generation VCAS 3 platform, provides a complete digital TV CA solution for pay-TV as well as B2B video distribution.

The DMS acts as a subscriber management system (SMS) for VCAS for DVB, and the integrated solution therefore allows maximum operational flexibility and security.

Recognizing the expanding demands on the reception devices, Harmonic offers an advanced, multi-featured solution in the ProView platform. The ProView offers digital turnaround processing, descrambling and decoding capabilities beyond traditional IRDs, enabling the more sophisticated processing tasks demanded by today's distribution networks. Verimatrix ViewRight® Professional single-service or multi-service DVB-CI (Common Interface) CA modules (CAMs) are used for descrambling one or more services.

Summary

As distribution networks increase in complexity, the need for more sophisticated management and reception devices becomes increasingly pronounced. Many existing management systems are proprietary to a particular vendor, reducing the device and architecture choices of users, and are designed for legacy edge devices without the capabilities of a modern network. Harmonic and Verimatrix offer a modern solution to the distribution network problem, featuring an open, standards-based system of OTA management of remote devices, advanced reception devices designed for increasing stream processing demands and top-notch security approved by all major content providers for the protection of premium content. Proven and pre-integrated, this solution offers providers a simple, cost-effective means to meet their distribution challenges.