



ENIGMA SYSTEMS
Perpetual Security Solutions

VIP Control® Conditional Access System

The Leading Software CAS for Broadcast TV

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The Technology

The aim of the VIP Control® technology is to provide a new generation of content protection systems adapted to the current needs of digital broadcasters & content owners. Enigma Systems security is based on a pure software mechanism: the Certex System®. This exclusive software approach constitutes a completely new way of thinking about content protection and a technological breakthrough. Furthermore, it presents the decisive advantages of being very cost effective compared to legacy systems which require specific hardware (e.g. smartcard) and offering at the same

time better visibility regarding security costs for content owners and broadcasters. Enigma Systems' contribution offers a security system in which smartcard (virtual) swaps are free of logistics and can be operated in a preventive way. These preventive smartcard swaps offer an incomparable business and asset protection to broadcasters, preventing the well known dramatic revenue losses experienced by some broadcasters when their legacy smartcard-based systems have been hacked.



Finally, the Enigma Systems' VIP Control® Conditional Access System is today deployed in several countries around the world and offers a true alternative to hardware based solutions especially for the mass analogue to digital migration due to its cost effectiveness and the high revenue protection offered by its Certex System® security technology.

CONTENT

Technology Survey	1
Functionalities	2
Product Description	3
Key Benefits	4
Worldwide Deployments	4



VIP CONTROL®

Versatile

Works on any media and codec

Irrefutable

Mathematically proven security mechanism

Perpetual

Highly secured with logistics free smartcard swaps

DVB®
C/S/T/H/IP

Packages / Functionalities

Functionalities / Package	Copper	Bronze	Silver	Gold	Platinum
VIP Smartcard Technology®	✓	✓	✓	✓	✓
Signal Partitioning (STB anti-steal)	✓	✓	✓	✓	✓
Servers Multi-Language Web / User Friendly GUI	✓	✓	✓	✓	✓
Servers Hierarchical operator management levels	✓	✓	✓	✓	✓
Automatic Backup/Restore Procedures	✓	✓	✓	✓	✓
Multi-Language Subscriber Messaging**	✓	✓	✓	✓	✓
Subscriber Messages (Mails / Forced Messages)	✓	✓	✓	✓	✓
Multi Transport Support (IP, DVB C/S/T/H, ...)	✓	✓	✓	✓	✓
Codec Multi Format Support (SD, HD)**	✓	✓	✓	✓	✓
Multi Codec Support (MPEG2, H264, ...)**	✓	✓	✓	✓	✓
DVB Simulcrypt Support	✓	✓	✓	✓	✓
"A la Carte" Subscription Mode	✓	✓	✓	✓	✓
Maturity Level Management	✓	✓	✓	✓	✓
Pin Code Management	✓	✓	✓	✓	✓
Cryptographic Keys Update	✓	✓	✓	✓	✓
Activity Logs		✓	✓	✓	✓
Fingerprinting		✓	✓	✓	✓
Multi Operator Support			✓	✓	✓
Output Copy Protection (Macrovision, HDMI)**			✓	✓	✓
Multi Tuner / Multi TV Support**			✓	✓	✓
Secured Return Path**				✓	✓
Local Usage Measurement**				✓	✓
Fault Detection and Tolerance Support				✓	✓
STB Functions Remote Activation				✓	✓
SMS & Mail System Alerts				✓	✓
SNMP Agent				✓	✓
Internet & Mobile Phone Programs Orders					✓
Right Tracing					✓
Servers Hardware Redundancy	Optional	Optional	Optional	Optional	Optional
FTA Channels Lock**	Optional	Optional	Optional	Optional	Optional
Over The Air Loader (OTA)	Optional	Optional	Optional	Optional	Optional
Web Services Interface		Optional	Optional	Optional	Optional
Prepaid Subscription (Mobile Phone SMS activation)			Optional	Optional	Optional
Billing System			Optional	Optional	Optional
Pay Per View				Optional	Optional
NVOD Support**				Optional	Optional
VOD Support				Optional	Optional
Rich Business Rules Support (DRM)					Optional
Watermarking**					Optional

* System successfully tested with 5 million subscribers.

** Subject to STB hardware capabilities.

*** Currently supported languages (English, Spanish, French, German, Slovakian, Chinese).

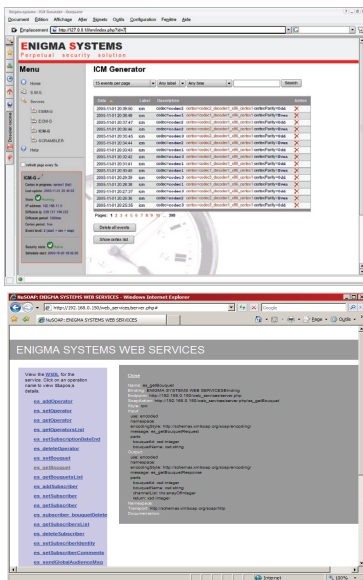
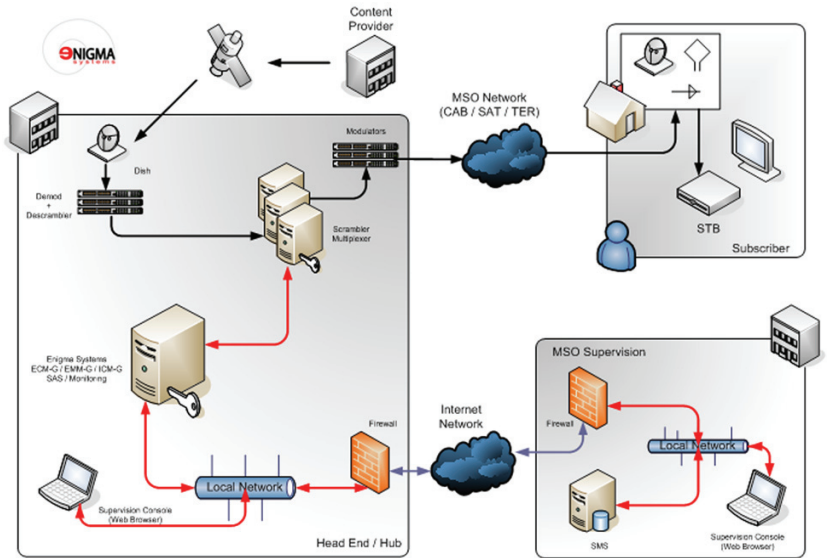
"The VIP Control®,"
the most secure
and featured
software-based
conditional access
system for digital
Broadcast and
Broadband TV™

The VIP Control® Conditional Access System

Beyond the benefits obtained by the use of the Certex System® technology for what concerns the security mechanism, the CAS solution offered by Enigma Systems has been designed in order to take into account most of the broadcasters and content owners technical and business constraints.

The wide application range of the VIP Control permits a Multi Service Operator to use a unique solution for any of its platforms (set top boxes, mobile phones, web-TV services, ...) with any kind of codec (MPEG2, H264, ...) and format (SD and HD).

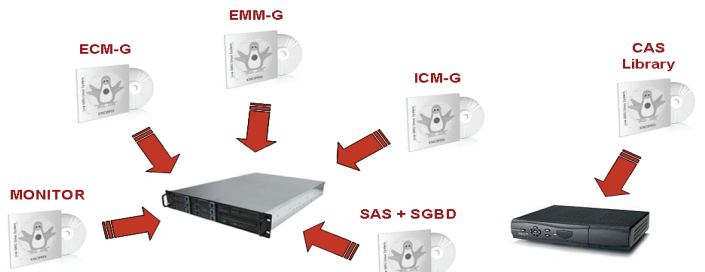
The Enigma Systems' encryption system is based on the DVB Common Scrambling Algorithm and the DVB simulcrypt protocol. It is for these reasons fully interoperable with most of the headend and receivers equipments available on the market.



The system management application supports many language (English, French, Spanish, Chinese, ...). The Enigma Systems applications make use of the most recent web technologies and offer web services API. This approach leads to very straightforward system integrations with SMS third-party providers and prevents many problems in head-end operations due to the absence of any proprietary protocol. As a consequence, the Enigma Systems' CAS applications (SAS, ECM-G, EMM-G and ICM-G) offer very low deployment and maintenance costs.

to finance the analogue to digital migration investment). As a consequence, it offers a much better visibility on security costs to TV broadcasters and maximizes revenues on the long term and not only on the short term as hardware based solutions.

The virtual smartcard (VIP Smartcard®) designed by Enigma Systems offers all the functionalities of a typical hardware based smartcard. Nevertheless, due to the availability of significant higher resources in the STB in terms of memory and CPU power compared to a hardware smartcard, the VIP



Note : Servers Hardware Provided by Enigma Systems – Receivers Hardware Provided by Third Party Companies

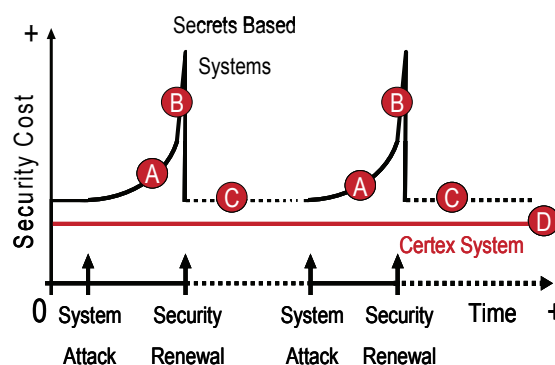
The highly distributed CAS architecture of the Enigma Systems' applications offers wide possibilities in terms of scalability and hot redundancy.

Smartcard® received significant improvements in terms of functionalities and security. Moreover, as directly integrated to the receiver, the VIP Smartcard® can operate a better control of the content processing operated by the receiver.

The integration process of the Certex System® technology in the set-top boxes has been highly simplified conducting to a safe and quick integration of the Enigma technology in the products of major set-top boxes manufacturers. Furthermore the optimized design of the Enigma Systems embedded software made possible the use of the Enigma Systems technology in basic and very cost effective set-top boxes .

Enigma Systems' solutions enable the service provider to have total control over subscribers and services in a cost effective manner.

Thanks to the Certex System® technology, the security renewal of the VIP Control® CAS can be done in a preventive way ("network vaccination" stopping any piracy deployment possibility) and not only in a curative way (as in the case of hardware security). Preventive security particularly important for asset protection (as for example in the case of broadcasters contracting a loan



- A Revenue impact due to Piracy
- B Direct and indirect cost due to security renewal
- C Lack of visibility about the time life of the new system
- D As security renewal is part of the Certex System, it ensures a constant and predictable security cost over the time



ENIGMA SYSTEMS
Perpetual Security Solutions

27/29 rue Raffet - 75016 Paris - France

t : +33 (0)1 55 26 43 57

f : +33 (0)1 55 26 42 03

e : info@enigma-systems.com

w : www.enigma-systems.com

VIP Control® Key Benefits

Versatility. This CAS solution allows multiple today's business models to take place: VOD, content distribution through broadcast media, IPTV broadcasting on set-top boxes or personal computers. Furthermore, the Certex System® technology not only permits to protect the access to the content but controls its use too.

Cost effectiveness. This CAS solution is hardware free regarding security; versatile smart card are swapped through DVB signal; hence, expensive logistics issues for smart card swaps are not a problem anymore.

Retail market control. Our Certex System® mechanism offers a complete control on unfair competition from the retail market and STB asset protection as well.

Security renewability. The security policy can be configured regarding broadcaster's

security needs. VIP Smart-card swaps can take place in a curative or preventive way. VIP Smartcard® swaps scheduling allows the security to increase with time !

No return path required. This unique CAS solution does not need either heavy cryptographic keys infrastructures required when using return path for reasons of safety nor dedicated secured hardware embedded on receiver main board in order to safely transfer critical data such as keys or entitlements.

Asset protection. The Enigma Systems' unique approach guarantees a complete visibility on costs dedicated to security issues and a complete control on piracy risks. The Enigma Systems' technology offers the best long term revenue protection to content owners and broadcasters.

Worldwide Deployments

