SMARTCASTER

WWW.HFCTECHNICS.HU

HFC
technics

UNLOCK SEAMLESS BROADCASTING WITH OUR DVB PSI/SI GENERATOR SOFTWARE

Are you ready to elevate your broadcasting capabilities to the next level? Introducing our state-of-the-art DVB PSI/SI Generator Software, the ultimate tool for broadcasters who demand reliability, efficiency, and precision.

Extensive Compatibility

Our DVB PSI/SI Generator Software is designed to work with a wide range of broadcasting equipment and systems. Whether you're operating a small local station or a large network, our software integrates effortlessly to enhance your workflow.

User-Friendly Interface

Navigate through our intuitive, easy-to-use interface designed for both seasoned professionals and newcomers. The software's streamlined design minimizes the learning curve, allowing you to focus on what matters most – delivering exceptional content.

Comprehensive PSI/SI Table Generation

Effortlessly generate and manage Program Specific Information (PSI) and Service Information (SI) tables with unparalleled accuracy. Our software supports all standard DVB tables, including PAT, PMT, NIT, SDT, EIT, TDT and TOT, ensuring comprehensive compliance with DVB standards.

Why Choose Our DVB PSI/SI Generator Software?

Reliability: Built on robust architecture to ensure consistent performance and uptime.

Expert Support: Our dedicated support team is always on hand to assist with any queries or issues.

Scalability: As your broadcasting needs grow, our software scales seamlessly to accommodate increasing demands.

Elevate your broadcast. Simplify your workflow. Deliver excellence.

SI TABLE STREAMING OVER IP

IPv4 UDP multicast output streams

Generated PSI/SI information is streamed via UDP multicast IP packets. The content can be forwarded to multiplexers either through L2 connections or standard multicast routing technologies.

EPG GENERATION

Fetching event informations, and EIT streaming

An EPG is an indispensable component of modern television services, providing a seamless and user-friendly interface for accessing a vast array of programming options. By leveraging the capabilities of an EPG, broadcasters and service providers can enhance viewer satisfaction, increase engagement, and stay competitive in the ever-evolving media landscape.

REMOTE FIRMWARE UPDATE

On-site update of deployed set-top-boxes

Smartcaster supports upgrading set-top-boxes and CA modules deployed in the field. The operator can upload software updates in TS file format, which are inserted into the playout according to the network settings.

DEPLOYMENTS

Smartcaster is used in several countries, mainly in Central Europe. Some of our customers also resell it as an OEM product under their own brand name.

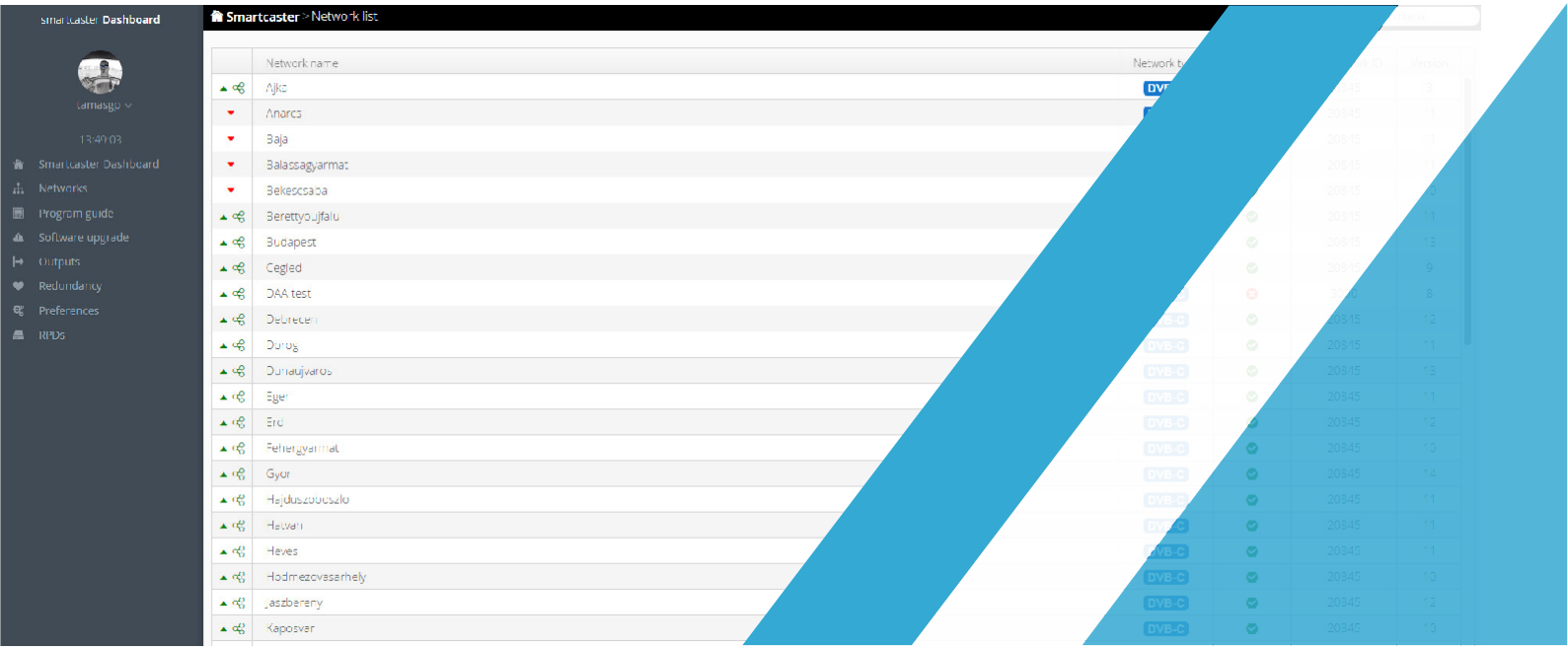
FUTURE ROADMAP

Although Smartcaster has been on the market for several years, its development has never stopped. In addition to the implementation of specific customer requirements that are constantly emerging, we are also working on introducing new features.

2024 Q3	2024 Q4	2025
» DAA Aux Video Core with optional Principal feature » RPD based parameter override groups (aka. flavors)	» RPD telemetry monitoring » Network inheritance	To be defined later

PRODUCT OVERVIEW

Elevate your broadcast. Simplify your workflow. Deliver excellence.



1. First official release of Smartcaster

HFC Technics began developing a proprietary PSI/SI generator software in 2010, primarily to simplify the operation of its subsidiary's DVB headend. Following successful implementation, our company began offering the solution to national television service providers. In 2012, we reached an agreement with an international system integrator, who then sold several systems as an OEM product.

2. Complete re-implementation of the UI

over time, the original user interface has become outdated, so we've redesigned it using more modern technologies.
We also enhanced the processing modules and incorporated many customer-specific requests, as this version was sold to multiple MSOs in Hungary.

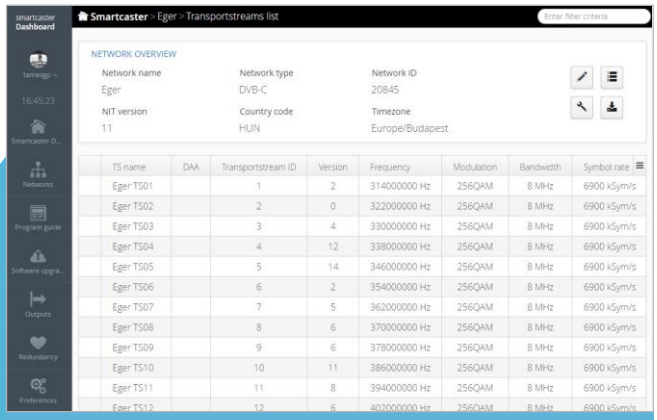
3. The beginning of the distributed architectures (DAA)

In 2023 and 2024, DAA (Distributed Access Architecture) was a prominent focus. Every large cable operator was considering upgrading their networks to a distributed mode. Since *Smartcaster* manages all the essential information required to bring up an RPD (Remote PHY Device), we decided to implement a *DAA Aux Video Core* module within Smartcaster.

2011
v1.0

2018
v1.5

2024
v2.0



Program once, use the data everywhere

Compared to other PSI/SI generators, our solution focuses on simplicity. You never have to set up redundant information; Smartcaster always references the necessary datasets.

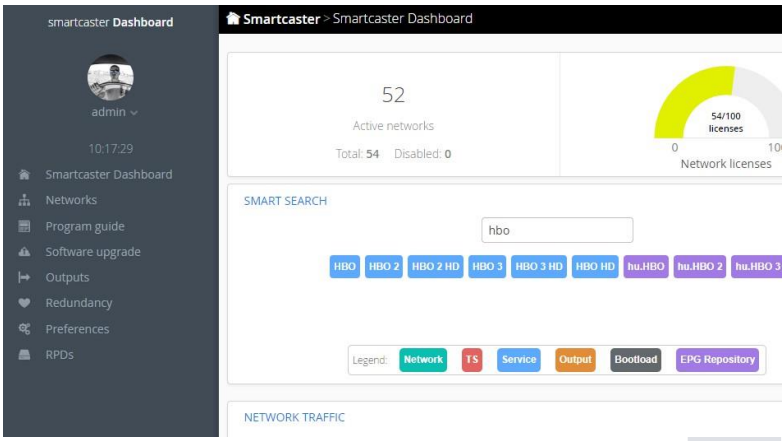
NO DVB EXPERTISE REQUIRED

You don't need to be a DVB expert to create PSI/SI data. Simply define a high-level structure of the network, and Smartcaster will automatically generate the necessary DVB tables based on your input. Any changes made through the graphical interface are instantly applied to the network, making adjustments easy and efficient.

ALL INFORMATIONS IN ONE PLACE

Manage all network information through a central UI. Smartcaster lets you create, modify, or remove transport streams and services with minimal effort.

Stay ahead with real-time data updates—our software ensures that your PSI/SI tables are always current, reflecting the latest state as declared on the UI.



FLEXIBLE LICENSING

Smartcaster's features are protected by individual licenses, each secured with a hardware key solution.

Various types of hardware protection keys are available, offering both trial and perpetual licenses. These keys can be remotely upgraded, making it easy and secure to change license levels.

PRODUCT OVERVIEW

Experience Effortless TV Navigation with the Electronic Program Guide

Electronic Program Guide (EPG) is an interactive on-screen menu that provides viewers with continuously updated schedules of television programming. It serves as a modern-day TV guide, offering detailed information about upcoming shows, movies, and events directly on the television screen.
EPG information can come from various sources:



Load from XML files fetched over HTTPS

EPG content can be ingested from different formats of XML files. On specific request we can implement custom formats as well.

Parse from satellite feeds

Data can also be fetched from satellite feeds. To use this feature, simply make the feed's MPTS available, and Smartcaster will join and parse the datasets.

Define manually on user interface

You also have the option to manually define content; however, this is only a fallback feature due to its lack of dynamism.

All the gathered event informations are being saved in the backend datastore for persistence and also loaded into the memory by the EPG maintainer process, which serves as a shared runtime database for all of the SI streaming processes. This makes the EPG management resource efficient and scalable.

FEATURES HIGHLIGHT

Effortless Control at Your Fingertips

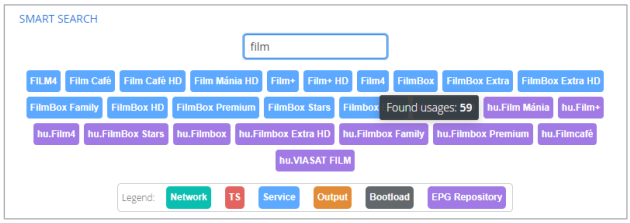
REORDERING CHANNELS NEVER BEEN SO EASY

With the drag-and-drop channel reordering feature, you can update your logical channel plan in seconds.
Simply use your mouse to move a channel, and Smartcaster will handle the rest.
Even if your channel plan is not contiguous, you can still use this feature by adding gaps between specific channels.

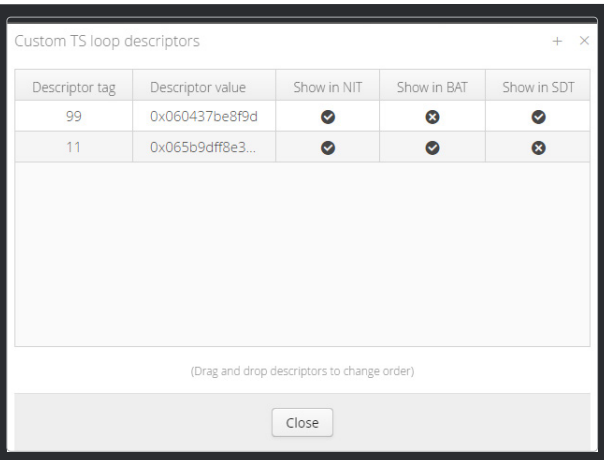
Logical Channel Number (LCN) is a unique identifier assigned to each television or radio service within a broadcast. This number determines the order in which channels are presented to the viewer on their electronic program guide (EPG) and the position of the channels on the user's device.

ALWAYS FIND WHAT YOU NEED

Smart searching makes it easy to find any information you need.
Simply start typing in the Smart Search bar, and Smartcaster will display all matching elements in the database.



Searching large datasets is a demanding task. By utilizing a smart search feature, operators can save valuable time.



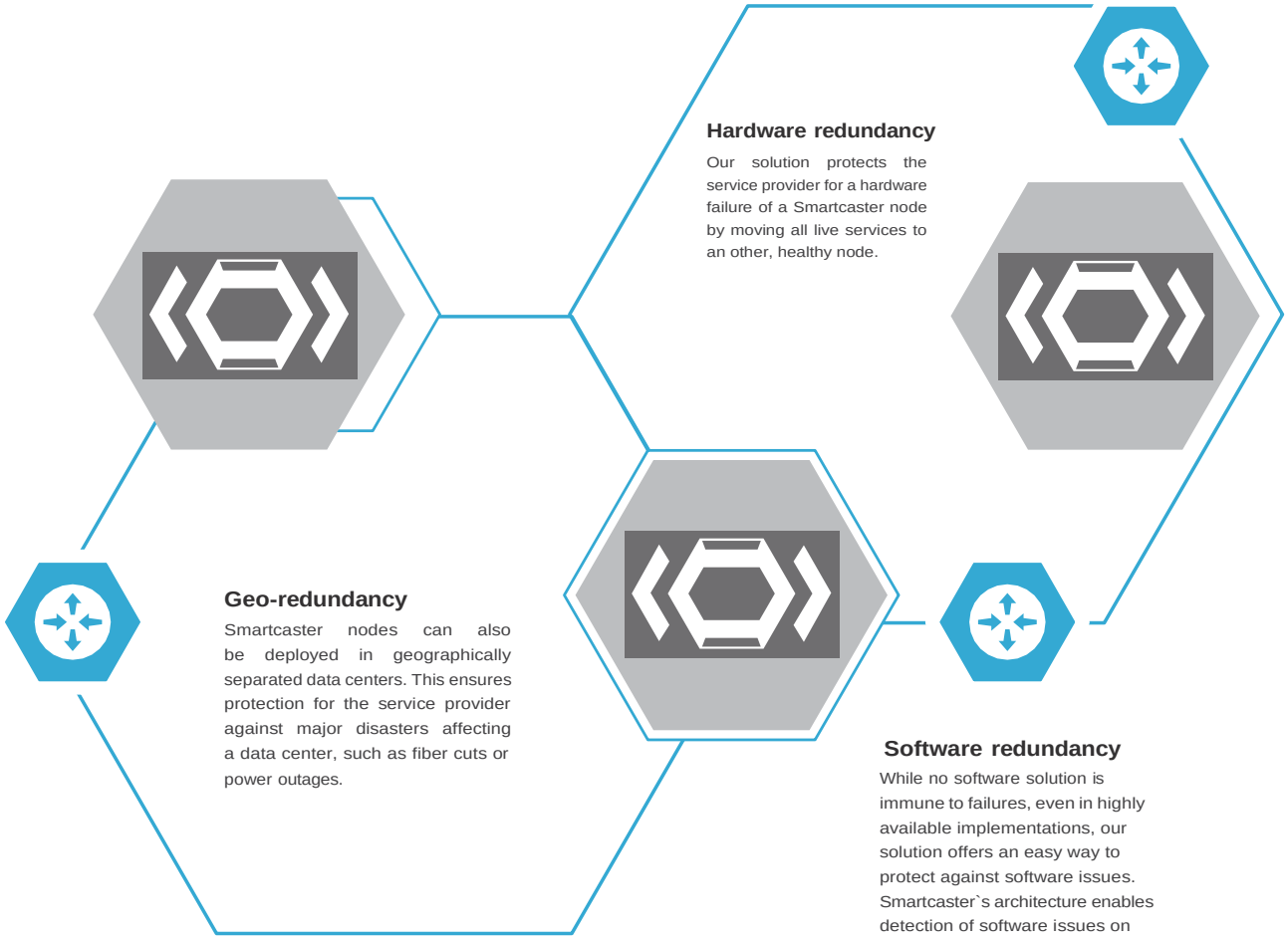
DEFINE EXPERT DATA

If you need to stream vendor-specific data not directly implemented in Smartcaster, you can easily define custom descriptors for NIT, SDT, and BAT tables in hexadecimal format.

REDUNDANCY

In live television service stability and high availability is a cruicual requirements. Smartcaster offers a special redundancy feature to ensure these needs are met.

In a fully redundant deployment, multiple Smartcaster nodes can be deployed. These nodes can be selected on a per-network basis as the streaming server for each specific network.



Hardware redundancy

Our solution protects the service provider for a hardware failure of a Smartcaster node by moving all live services to an other, healthy node.

Geo-redundancy

Smartcaster nodes can also be deployed in geographically separated data centers. This ensures protection for the service provider against major disasters affecting a data center, such as fiber cuts or power outages.

Software redundancy

While no software solution is immune to failures, even in highly available implementations, our solution offers an easy way to protect against software issues. Smartcaster`s architecture enables detection of software issues on a per-network basis, allowing redundancy to live-migrate specific network streaming to any active Smartcaster node.

Reliable Redundancy: Ensuring Uninterrupted Operations

DAA AUX VIDEO CORE

The rise of Distributed Access Architecture (DAA) has steered us in a new development direction. Although standard DVB features remain essential for operator networks, an increasing number of service providers are migrating to a distributed platform. To efficiently service these systems, a centralized Video Core is needed to program and maintain video services on remote PHY devices.

Since Smartcaster manages all the essential information (transport stream details such as TS IDs, frequencies, modulations and symbol rates) required to bring up an RPD (Remote PHY Device), it is a straightforward decision to use this element as a Video Aux Core.

The Video Aux Core is implemented as a separate backend module, which is connected to the same graphical user interface as the standard Smartcaster.

Our solution is vendor-agnostic, but we observe significant differences in CableLabs standard implementations across various remote PHY vendors. We strive to maintain high compatibility and are prepared to integrate new device types upon request.

DAA IS COMING

BASICS OF DAA

In a typical distributed access architecture the components of a centralized solution are separated into individual elements, which can be distributed across the operator's network into remote places. Usually this means that the digital/analog conversion is pushed as close to the customer as possible by utilizing digital optical connections instead of transferring RF signals over AM optical links.

BENEFITS OF CHOOSING A DAA SOLUTION

Better signal quality, better service

Utilizing digital optics instead of analog links we achieve better signal qualities on the network, which allows better throughput, and better service for the customers.

Less equipment in the central

No need for a separate edge-QAM: the same remote PHY device can provide DOCSIS and DVB channels. There is also no need for any analog combining in the headends.

Saving power consumption

With less devices operators can save significant cost by migrating to a DAA based technology.

SPECIAL ELEMENTS

OF A DISTRIBUTED ACCESS ARCHITECTURE FOR VIDEO

PRINCIPAL CORE

Principal core is a central and most important element of a DAA system. There is always 1 dedicated active principal core in the architecture (backups can be added). Principal core is responsible for initializing a remote PHY device by setting mandatory system parameters such as PTP clocks, and also for optionally receiving logs and telemetry informations from them. A principal core is usually CCAP which also configures DOCSIS services, but this is not q requirement.

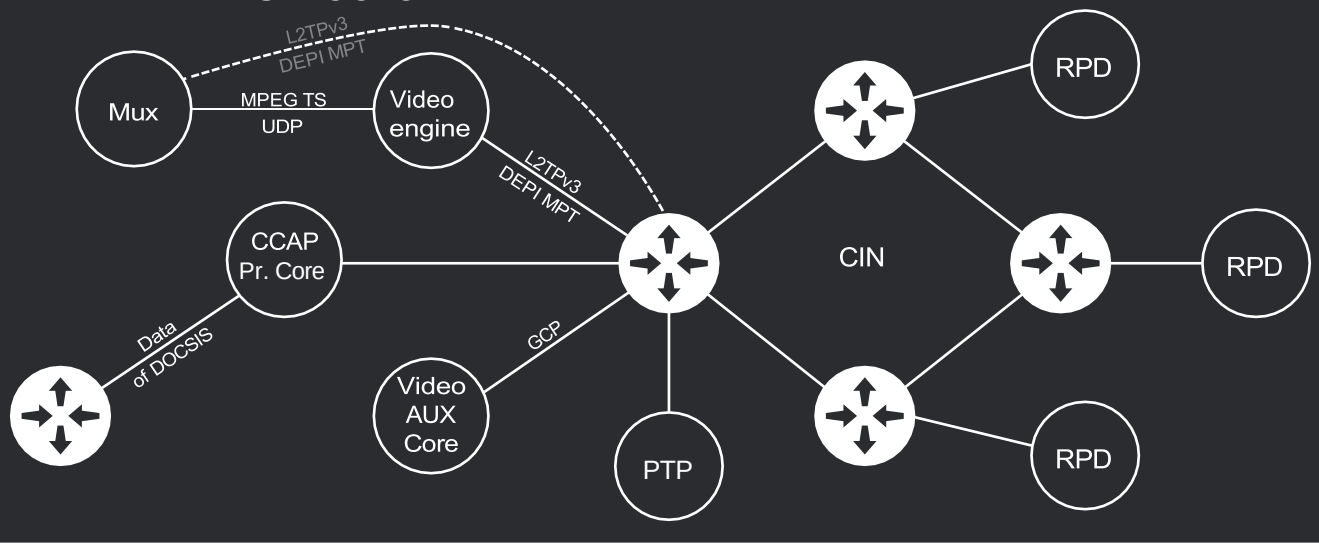
VIDEO AUX CORE

All other cores, other than the principal, are called AUX cores, which provide auxiliary functions for a system, such as video services.
A video AUX core is responsible to connect to a remote PHY device and provision the necessary RF channels and set up the networks streams which should be forwarded to those channels.
The video AUX core does't do any data stream processing, it is just a control plane entity.

VIDEO PIPE / ENGINE

The video input streams delivered to a remote PHY device must conform with the DOCSIS DEPI specifications. This means that all the widely used MPEG TS multicast UDP streams should be properly encapsulated into L2TPv3 format..
To do this encapsulation operators can use any kind of compatible 3rd party devices (some multiplexers have this functionality), or they can also use Smartcaster's own video pipe solution which will be available in 2024 Q4.

TYPICAL DAA INFRASTRUCTURE



OPERATION WITHOUT DOCSIS CCAP

UTILIZING SMARTCASTER`S PRINCIPAL CORE FEATURE

Under certain circumstances operators want to deploy a video-only DAA solution. Without a data CCAP (acting as a principal core) in the architecture a remote PHY device cannot get proper initialization. However with Smartcaster's Principal core module (licensed separately) the customer can provide the necessary startup configuration for the RPDs. Even a PTP grandmaster is also not required, in cast the remote device support this mode of operation.
To enable this feature, users can select principal core functionality on a network basis from the GUI.

STREAMLINE YOUR NETWORK CONFIGURATION WITH EASE

CONFIGURE ONCE, USE EVERYWHERE

Configure the network structure once using our intuitive graphical user interface, and save the settings as a template for use with as many remote PHY devices as you need. Assigning a network template to a Remote PHY Device (RPD) is a matter of a few clicks, and the device will be seamlessly configured with the necessary settings.

Whenever you want to make changes to the channel plan, simply select the relevant RPDs and let Smartcaster synchronize them with the new settings. Smartcaster minimizes service downtime during synchronizations by calculating the fewest configuration steps needed to achieve the desired state.

WHEN YOU ONLY NEED TO ADD A PINCH OF SPICE

ADD FLAVORS TO SPECIFIC REMOTE PHY DEVICES (2024 Q3)

Sometimes operators have very similar network regions with only slight differences between them. To support their setups Smartcaster supports parameter override groups, aka. flavors which can be assigned to a specific group of RPDs. These flavors can change the default settings read from the network structure database and customize a pre-defined set of details which should be different between the deployed RPDs.

VIDEO PIPE (2024 Q4)

Remote PHY devices require video streams in a specific format that can be easily forwarded to the output RF channels without extensive processing. The CableLabs DOCSIS standards define this format in the Downstream External PHY Interface (DEPI) specifications as an L2TPv3 datastream.

These streams, similar to DOCSIS data channels, are referred to as pseudo-wires (PWs). While they are typically unicast to the R-PHY devices, in the case of video, they can be multicasted to conserve network bandwidth.

Various third-party devices can generate L2TPv3 encapsulated MPEG TS streams. However, to offer a comprehensive range of DAA applications, Smartcaster includes its own Video Pipe device for this purpose.

Because MPEG stream processing demands significantly more resources on the server side, the Video Pipe element operates on a separate machine. However for a limited number of transport streams, it can be co-located with Smartcaster.

LICENSING MODEL

Smartcaster can be ordered with flexible licensing options. Licenses can be remotely updated.

License types	
BASE LICENSE	License for streaming SI information for 1 network
BASE LICENSE 10	Bundle of 10 base licenses
ADDITIONAL NETWORK LICENSE	+1 network streaming license
EVENT LICENSE	Streaming of EPG data (1 license / system required)
SSU LICENSE	License to stream system software upgrades for compatible STB-es
EIT REMULTIPLEXER	Parse EPG from satellite feeds (IP MPTS format)
NON-STANDARD-PID STREAMING	Output SI tables on non standard PIDs
PSIG LICENSE	Program multiplexers via PSIG connections
DAA LICENSE	Enable support for DAA based RPD setup
DAA NETWORK LICENSE	Network count based license for DAA

HARDWARE REQUIREMENTS

Architecture:	x86 64-bit
CPU:	Intel Xeon E5-xxxx or better
Memory:	> 8GB
HDD:	> 300GB (RAID-1)
USB slots:	min. 1 pcs
Eth. interfaces:	min. 2x 1 Gbps
Power supplies:	redundant

Our recommended hardware platform is HPE Proliant DL360 G9 or newer.

CONTACT US

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