

Normalizing Programming Events Ingest schedule

Blackout, alternate content switching, linear ad replacement, program substitution etc. are programming events operators need to fulfill/enforce either contractually, by law, or for ad inventory monetization.

PRISMA implements a **flexible events schedule ingest API**, starting with SCTE-224, as core foundation. In addition to **SCTE-224**, PRISMA support file-based ingest (.csv, CCMS, BXF), **ESNI 102**, **Disney (PCC)** as well as interface to **3rd party automation system**.

Blackout and Alternate Content

From ingested schedule describing blackout or alternate content events, PRISMA provides operators with a holistic solution to manage cross-screen delivery restrictions:

- **Channel/zone-based blackout or alternate content switching**, Interfacing with ESAM-compatible Encoders or TS Processors.
- **Audience-based blackout** (geo/device-based) when used in conjunction with PRISMA or 3rd party playlist manipulator.

Linear Ad Insertion

PRISMA can act as a standalone TS splicer, with legacy interfaces towards AD server using SCTE-30, but also implements VAST to unify ADS interfacing.

When combined with PRISMA linear ad schedule ingest, it provides a compact solution to manage **central and regional linear ad replacement**.

Server-Side Ad Insertion (SSAI)

PRISMA: DAI core component

- **HLS/DASH/HSS** ad replacement on a per user basis, live and non-live workflows
- Integrated with **market leading ADS** (VAST/VMAP or SCTE-130-3).
- PRISMA **Protects your audience value**, preventing audience data leakage.

- Proven integration with multiple Ad server or alternate content decision via **built-in routing policies**.

Further Applications

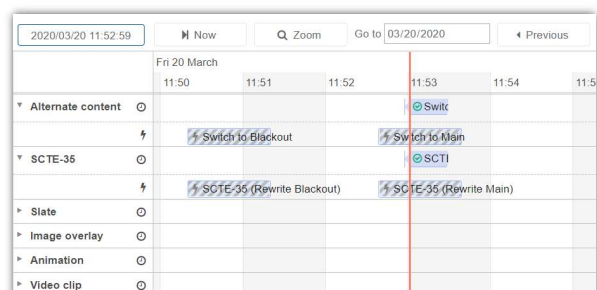
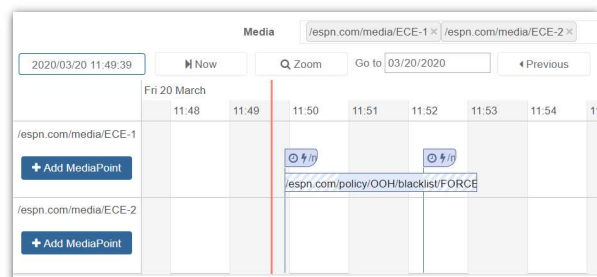
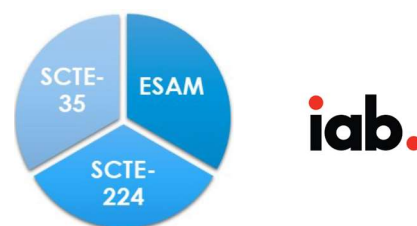
PRISMA is tightly integrated with MediaKind Encoding Live, enabling scheduling and control of applications such as:

- **EAS**: Emergency Alert System (EAS) with SCTE-18 ingest support.
- **Crawling text insertion and animation**: Advanced graphics support (with MediaKind Encoding Live).
- **Logo, Image overlay**: uniquely supported with MediaKind Encoding Live.

Leveraging the Standards

PRISMA has been designed around key industry standards:

- **SCTE-224**: native ingest, as well as the way we store events regardless of the ingest type of format. Those events define what will happen, under which conditions.
- **SCTE-35**: In-band signaling providing information about upcoming ad break, program start etc.
- **ESAM**: CableLabs ESAM interface normalizes how encoders, TS processors, and packagers interface with PRISMA (aka "POIS").
- **IAB (VAST/VMAP)**: becoming the de-facto ADS interface in the industry.
- **SCTE130-3**: largely leveraged for VOD Cable DAI, IP blackout decisioning



Modular Architecture

Unifying advertising and linear rights across broadcast & IP requires a modular architecture. PRISMA has been designed as a **collection of independent software components**, and provides you with the ability to deploy blackout or alternate content first, and extend later on to advertising later.

PRISMA components can be grouped in two categories:

- **Control & Command:** PRISMA ingests business rules and map them over control & commands towards your video head-end, by leveraging industry standards such as CableLabs ESAM and SCTE-130-3.
- **Processing:** PRISMA includes two major processing components to enable content or ad substitution in legacy broadcast (with TS splicing) and IP (with playlist manipulation).

may scale on a per channel (global) or blackout zone level. Similarly, linear ad replacement may be handled centrally, or distributed over so-called "ad zones". In the end, the number of channels/streams to control or process is known and fixed.

- **IP delivery:** when it comes to OTT, scaling depends on multiple criteria. This can be device type, zip code etc. for audience-based blackout, and down to the viewer for targeted advertising (DAI).

Thanks to its modular architecture, PRISMA can scale in relation to channels, or number of users/audiences connected by specializing instances deployed in your infrastructure.

Virtualized and Standard Server Deployments

PRISMA can adapt to multiple deployment contexts, such as:

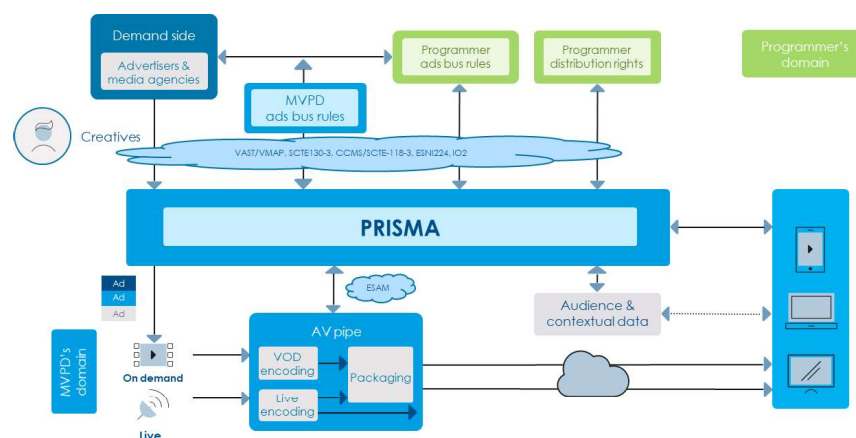
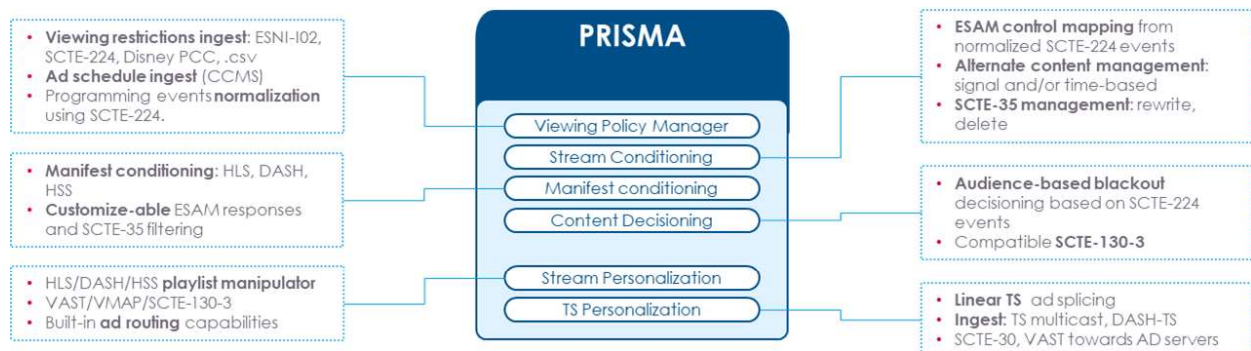
- Software on **COTS or blade servers**
- Virtual instances in the **cloud**

This versatility gives your team more flexibility to manage operations and deployment.

Scale down to the user

Linear rights and advertising do not scale the same between legacy broadcast and IP:

- **Legacy broadcast:** blackout and alternate content



Programming & Schedule Events Ingest

Ingest Format	<p>For Blackout & Alternate Content</p> <ul style="list-style-type: none"> • SCTE-224: Native PRISMA ingest. Allows ingest of Audience, Viewing Policy, Policy, Media and Media Point data from content providers. Audit support. • ESNI I02: Ingest compatible ESNI I02. • Disney (PCC): Disney Program Catalog/Calendar (PCC) REST API support for airing events blackout restrictions ingest. Real-time restrictions update support. • File-based ingest <ul style="list-style-type: none"> • .csv file ingest • BXF: identify relevant programming event, and map over SCTE-224 policy <p>For Linear TV Advertising</p> <ul style="list-style-type: none"> • CCMS: ad schedule file ingest for linear ad replacement applications • CSV: load ad break data using simple .csv • Playout System: Integration with third-party playout system to retrieve programming events such as ad break in real time. <p>For local regulations</p> <p>SCTE-18: ingest of Emergency Alert System information for downstream control</p>
Events storage	<p>All programming & schedule events are normalized and stored using SCTE-224 data model. Those events are accessible to other PRISMA modules for</p> <ul style="list-style-type: none"> • Alternate Content & Blackout Decisioning: leveraging ESAM and SCTE-130-3 protocols interfaces (PRISMA stream conditioning and content decision respectively) • Linear ad decisioning: leveraging ESAM coupled with PRISMA TS personalization • Placement management: SCTE-35 management (rewrite, delete)
Events distribution	<p>Provision centrally all schedule events, and distribute to remote sites using SCTE-224/ HTTP interface:</p> <ul style="list-style-type: none"> • Linear TV advertising: Convey linear ad schedule strategy on a per ad zone basis • Automate distribution to remote sites on a given frequency (daily, hourly etc.)

Placement Management & Decisioning

SCTE-35 Management	<p>Placement management of SCTE-35 signals submitted by transcoders or TS processors:</p> <ul style="list-style-type: none"> • SCTE-35 confirmation, rewrite, delete (in-band) • SCTE-35 insertion (out-of-band) • Interface: ESAM (ESAM-SCC) • Based on provisioned events schedule, or static configuration
Manifest Conditioning	<p>Convey in-manifest SCTE-35 information for Alternate content & blackout, as well as DAI application, using ESAM-MCC manifest conditioning interface:</p> <ul style="list-style-type: none"> • HLS, DASH and HSS compatible • SCTE-35 filtering, with differentiated conditioning • Fully customize-able conditioning, leveraging any SCTE-35 data field

Alternate Content decisioning	<p>Map provisioned programmers' (media) events over ESAM control for broadcast delivery (IPTV/QAM) and IP (OTT)</p> <p>Alternate content decisioning for broadcast</p> <ul style="list-style-type: none"> • Filter automatically (SCTE-224) events on a per programmer/channel (media) • Map over ESAM control <ul style="list-style-type: none"> • SCTE-35 rewrite/delete/insertion • Alternate content switching (transcoder/TS processor) • Follow SCTE-224 schedule (time-based, match signal, fallback) or manually configure SCTE-35 matching criteria <p>Alternate content decisioning for IP (HLS, DASH)</p> <ul style="list-style-type: none"> • Filter automatically (SCTE-224) events on a per programmer/channel (media) • Map over ESAM control <ul style="list-style-type: none"> • SCTE-35 rewrite/delete/insertion • Follow SCTE-224 schedule (time-based, match signal, fallback) or manually configure SCTE-35 matching criteria • Placement decisioning via SCTE-130-3 (PRISMA Stream Personalization or 3PP playlist manipulator), with configure-able placements URLs per programmer per media <p>Scheduling options (broadcast/IP)</p> <p>ESAM control can be triggered in different ways</p> <ul style="list-style-type: none"> • Time-based • Signal-based: based on submitted SCTE-35 signal (matching criteria) • Signal-based / fallback to time (SCTE-35 expected, but not present, fallback to out-of-band operations triggering) • Automate behavior based on SCTE-224 schedule, or force mode (only time-based on signal-based)
Linear Ad decision	<p>Use PRISMA as a "Ad Server" to ingest linear ad schedule (CCMS) from Traffic & Billing system (T&B), and map over ESAM control (proprietary extension) towards PRISMA TS Personalization component</p>
Advanced graphics	<p>With MediaKind Encoding Live only - Schedule advanced graphics (time-based and/or SCTE-35 signal-based):</p> <ul style="list-style-type: none"> • Crawling text / Animation (Flash SWF) • Logo, Image Overlay

TS Splicing

Input	<p>Legacy and next generation ingest support:</p> <ul style="list-style-type: none"> • MPEG-TS over IP (SPTS multicast) • DASH-TS <p>Audio & Video codecs</p> <ul style="list-style-type: none"> • MPEG2, H.264, HEVC • MPEG1-LII, AAC, AC3, E-AC3
--------------	--

Splicing	<p>Legacy Linear Broadcast Splicing</p> <ul style="list-style-type: none"> • Splicing based on SCTE-35 in-band signal • SCTE-30 support • TS splicing from Ad multicast <p>Next Generation Linear Splicing</p> <ul style="list-style-type: none"> • DASH-TS ingest with in-manifest SCTE-35 signaling • VAST 3.0 support, with HTTP unicast ad provisioning (HLS) • DMP integration • PRISMA Ad server (CCMS ingest) interface support via ESAM (proprietary extension), with file-based ad fetching
Output	<p>MPEG-TS over IP (SPTS)</p> <p>PID remapping</p>

Playlist Manipulation

Streaming Protocols	<p>Server-side manifest manipulation for:</p> <ul style="list-style-type: none"> • HLS (TS and CMAF) • DASH (CMAF) • HSS Microsoft Smooth Streaming (patented)
Workflows & insertion modes	<p>Live, near-live (time-shifting, restart-TV), non-live (VOD, catch-up, NPVR)</p> <p>Pre-Mid-Post roll ad insertion/replacement</p> <p>Compose insertion/replacement with commercial broadcast bumper</p>
ADS integration	<p>Integration with Ad Decision Servers (ADS)</p> <ul style="list-style-type: none"> • Configure-able ADS placement request using template • VAST, VMAP, SCTE-130 interfaces support
Routing policy management	<p>Configure-able placement request routing policies to manage integration with multiple ADS and/or Alternate content Decision system (like for instance PRISMA, see)</p>
Viewing reporting	<p>In-manifest VAST tracking events carriage</p> <ul style="list-style-type: none"> • Quartiles, impression, videoClick etc. <p>Server-side ad tracking: report ad viewing without dependency with the player</p>
Session Management	<p>Monitor and control PRISMA Stream Personalization playlist manipulation instance</p> <ul style="list-style-type: none"> • Monitor utilization per instance • Allocate session based on capacity, and CDN redirect
Commercial ADS supported	<p>Cadent/BlackArrow, FreeWheel, Google Ad Manager, Invidi, SpotX, Smart+...</p>

Playlist Manipulation

Streaming Protocols	Server-side manifest manipulation for: <ul style="list-style-type: none"> • HLS (TS and CMAF) • DASH (CMAF) • HSS Microsoft Smooth Streaming (patented)
Workflows & Insertion modes	Live , near-live (time-shifting , restart-TV), non-live (VOD , catch-up , NPVR) Pre-Mid-Post roll ad insertion/replacement Compose insertion/replacement with commercial broadcast bumper
ADS integration	Integration with Ad Decision Servers (ADS) <ul style="list-style-type: none"> • Configure-able ADS placement request using template • VAST, VMAP, SCTE-130 interfaces support
Routing policy management	Configure-able placement request routing policies to manage integration with multiple ADS and/or Alternate content Decision system (like for instance PRISMA, see)
Viewing Enablement	Client-side Beaconing: In-manifest VAST tracking events carriage <ul style="list-style-type: none"> • Quartiles, impression, videoClick etc.
Session Management	Monitor and control PRISMA Stream Personalization playlist manipulation instance <ul style="list-style-type: none"> • Monitor utilization per instance • Allocate session based on capacity, and CDN redirect
Commercial ADS supported	Cadent/BlackArrow, Freewheel, Google Ad Manager, SpotX

Monitoring and Control

Control Interface	Control and monitoring via Web GUI. Timeline of provisioned events and operations on a per service level. Each SW module is fully configure-able using REST-API
Redundancy Management	N+M redundancy scheme

Compatible Deployment Models

Software Only	Supported on Linux CentOS 7.3, 7.6 and 7.8
Deployment	PRISMA is integrated into MediaKind deployment framework as containers.