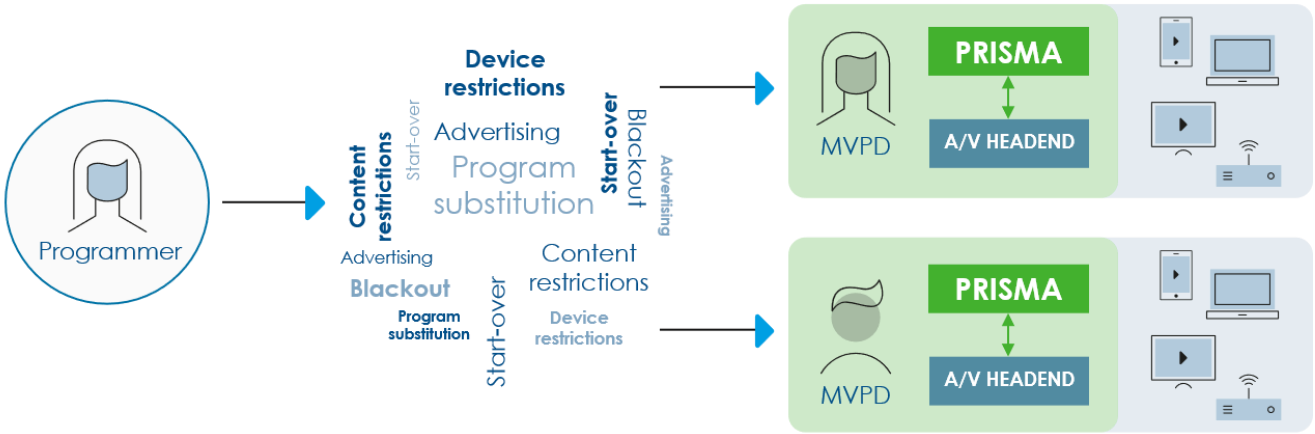
PRISMA

For Alternate Content & Blackout

Linear Rights Enforcement

When it comes to managing contractual obligations (between programmers and their respective distribution partners) and local regulations such as sports blackout and legally mandated program substitution, delivering content has become increasingly complex for operators especially given the rise of IP consumption.

PRISMA has been designed to provide content distributors, operators with a modular, and convergent solution, enabling linear rights management for both broadcast and IP/OTT delivery.



DEFINE	NORMALIZE	ENFORCE
Distribution rights for each operator	*SCTE-224 ESNI*	*Distribution rights from each TV programmer*

Unified solution for Broadcast &

PRISMA has been designed for MVPD/operators and service providers with the following objectives in mind:

- Provide a flexible API interface to provision programmers' **viewing restrictions** for **global, zone or audience-based** type of delivery restrictions.
- Map ingested events/restrictions over control and commands towards the video head-end, leveraging **industry standards.**

PRISMA overlays your video head-end and provides necessary control and commands, as well as processing to securely enforce programmers' business rules.

- **Unified control & command** for broadcast and IP/OTT alternate content & blackout.
- Manage content substitution processing using PRISMA **playlist manipulation** or **linear stream switching** to deliver the right content to the right viewer based on programmers' rules and delivery network.

Interfacing with Programmers

Sport blackout, alternate content switching, start-over enablement, program substitution etc. are programming events service providers need to enforce either contractually or by law.

PRISMA implements a flexible programming rules ingest API, starting with SCTE-224. In addition to SCTE-224, PRISMA supports custom file-based ingest (.csv), as well as ESNI-I02, Disney (PCC) interfaces.

Blackout and Alternate Content

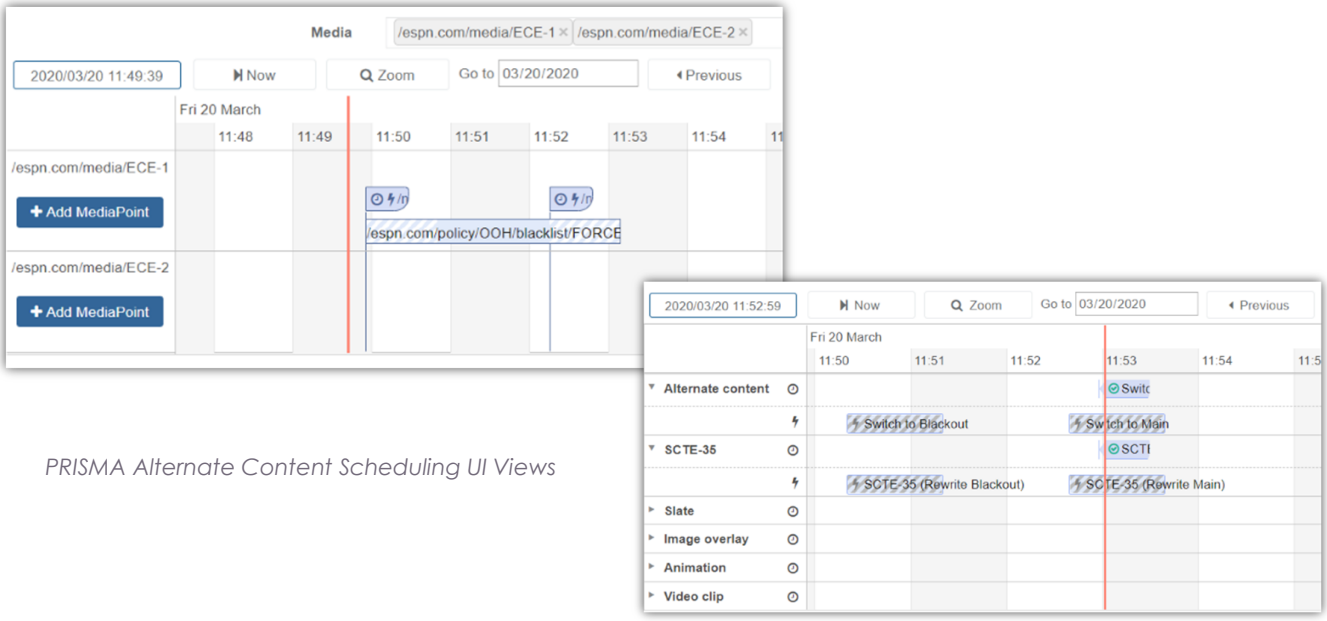
From ingested schedule events describing blackout or alternate content rules for instance, PRISMA provides operators with an holistic solution to manage cross-screen delivery restrictions.

- **Channel-based:** Interfacing with ESAM-compatible Encoders to enforce blackout at channel level.
- **Zone-based:** Interfacing with ESAM-compatible TS Processors to enforce blackout at the TS stream level (per market area). Includes mapping from programmers' geo restrictions (VIRD for instance) with distributor's delivery topology (zone).
- **Audience-based blackout:** Geo and/or device-based rules enforcement on a per user/audience level, interfacing with ABR encoders, packager, and playlist manipulator (such as 3PP or PRISMA *stream personalization* playlist manipulator).

Advanced scheduling options

Programming events such as blackout & alternate content may be triggered in different ways.

- **Time-based:** For programmers who do not have the ability to decorate their linear channels with in-band SCTE-35.
- **Signal-based:** When program information is conveyed via SCTE-35, PRISMA manages decisioning based on received signal (from encoders/TS processors) and provisioned event (in-band flow).
- **Signal-based & fallback:** PRISMA implements time-based fallback in the event SCTE-35 signaling is not detected while a blackout or alternate content is scheduled.

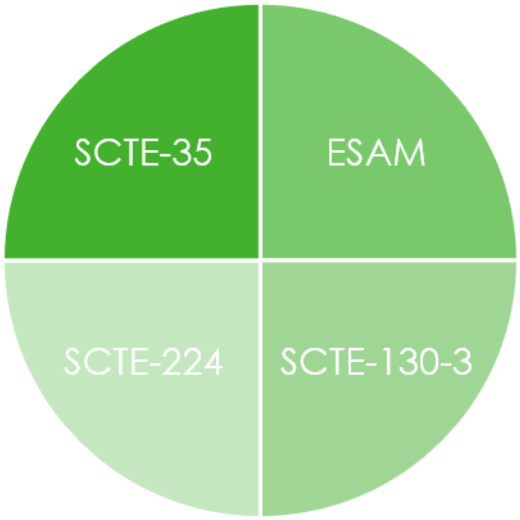


PRISMA Alternate Content Scheduling UI Views

Leveraging the Standards

PRISMA has been designed around key industry standards.

- **SCTE-224:** Native ingest, including the method of stored events regardless of the ingest format type. Those events define what will happen and under which conditions.
- **SCTE-35**: In-band signaling provisioning information about upcoming ad break, program start etc.
- **ESAM:** CableLabs ESAM interface normalizes how encoders, TS processors, and packagers interface with PRISMA (aka "POIS").
- **SCTE130-3**: Prisma IP blackout decisioning interface with a third party Compliant Manifest Manipulator.



Modular Architecture

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

- **Control & Command:** PRISMA ingests business rules and maps them over control & commands within a video head-end, by leveraging industry standards such as CableLabs ESAM and SCTE-130-3.
- **Processing:** PRISMA features scalable playlist manipulation to deliver the viewing experience aligned with programmers' rules on a per audience level.

Legacy & IP Viewership

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.

- **Legacy broadcast:** Blackout and alternate content scales on a per channel (global) or blackout zone level. The number of channels/streams to control or process is known and fixed.
- **IP delivery**: When delivering OTT, scaling depends on multiple criteria. This can be device type, zip code etc. for audience-based blackout.

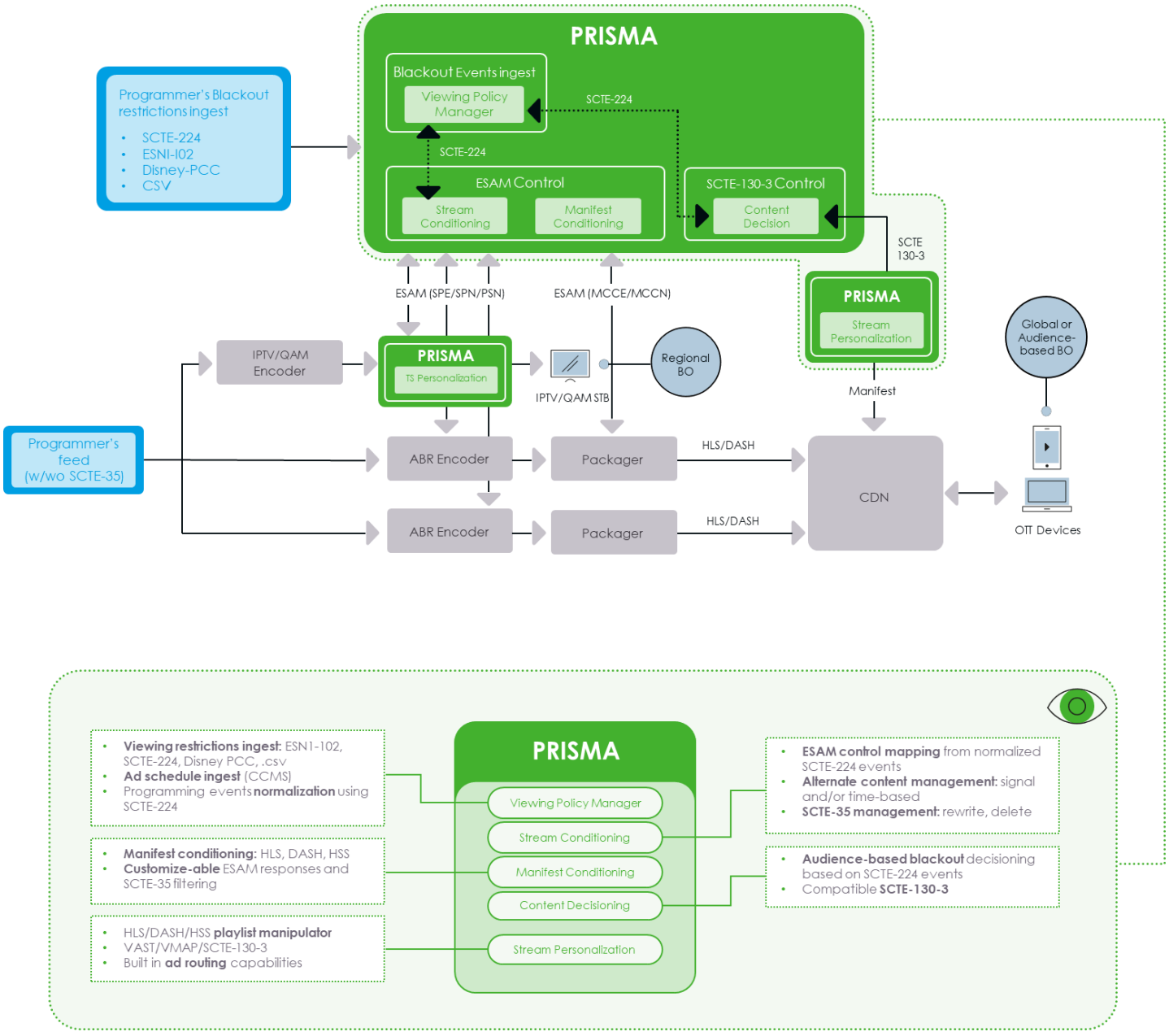
Virtualized and Standard Server Deployments

PRISMA can adapt to multiple deployment contexts, such as:

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

This versatility delivers more flexibility to manage operations and deployment based on your business and operational needs.

PRISMA Workflow



PRISMA Functions (expanded from diagram above)

Alternate Content & Blackout Events Ingest

	Broadcast Alternate content & Blackout	IP/OTT Alternate content & Blackout
Ingest Format	• **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. • **CSV:** CSV ingest support (manual file upload or via API).	
Events Management & Audit	All programming & schedule events are normalized and stored using SCTE-224 data model. Those events are accessible to other PRISMA SW components for: • **Alternate Content & Blackout Decisioning.** • **Placement management** (IP/OTT decisioning). Audit management to report on activity (using SCTE-224 audit)	

SCTE-35 Control

	Broadcast Alternate content & Blackout	IP/OTT Alternate content & Blackout
SCTE-35 Management	Based on provisioned viewing restrictions, PRISMA can control SCTE-35 insertion or modification/deletion: • **SCTE-35 confirmation**, **rewrite**, **delete, repeat** (in-band). • **SCTE-35 insertion** (out-of-band for time-based operations). • Interface: compatible **ESAM** (ESAM-SCC). • **Advanced SCTE-35 variable management** for rewrite operations or policy triggering	
Manifest Conditioning	N/A	• **ESAM-MCC** support with packager. • Control **in-manifest SCTE-35** information to be used downstream by playlist manipulator (**PRISMA *Stream Personalization*** or 3PP).
Alternate Content decisioning	Mapping of provisioned events over **ESAM** control with **alternate content switching, coupled with SCTE-35 rewrite**, out-of-band insertion, and delete signal.	Mapping of provisioned events over SCTE-130-3 control: • Placement decisioning via SCTE-130-3 (**PRISMA** or 3PP playlist manipulator, as well as media back-end like **MediaFirst**), • Configure-able placements URLs per programmer and channel.
Scheduling control	ESAM control can be triggered via advanced scheduling control options: • **Time-based**: out-of-band control, used when no in-band signal is present in the source. • **Signal-based**: based on submitted SCTE-35 signal (with 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 (time-based or signal-based only, with configureable validity window for in-band).	

Alternate Content & Blackout Processing

	Broadcast	IP/OTT
Ingest Format	Linear stream switching: • **MPEG-TS over IP (SPTS)**	Server-side alternate content & blackout manifest manipulation for: • **HLS** (TS and CMAF) • **DASH** (CMAF)
Alternate Content Decision Interface	**ESAM** interface to compatible POIS component such as **PRISMA**	**SCTE-130-3 placement management** towards compatible (ACDS) Alternate Content Decision Server such as **PRISMA**
Routing capabilities	Configure-able **ESAM/placement request routing** based on incoming SCTE-35 signal characteristics.	

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 configurable 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's deployment framework as containers. Specialized deployment per SW component/type of application.