



ICE & Morpheus Multiscreen Delivery

May 2018

APPLICATION NOTE



ICE Multiscreen Delivery

Flexible Architectures for Streaming Services, OTT, VOD & C3/C7 Catchup

The demands of delivering content onto many new viewing platforms are causing a proliferation of systems for the broadcaster to manage. However, you can reduce the complexity for your engineering and operations teams by unifying live streaming services under the control of ICE channel-in-a-box as well as Morpheus playout automation from Grass Valley, a Belden Brand.

Now you can ensure services are always in sync by maintaining only one master schedule instead of multiple, parallel systems. This provides the seamless experience viewers expect today and prevents potential customer complaints.

ICE and Morpheus systems can efficiently manage the triggers required for streaming and VOD systems, allowing you to deliver the exact same performance you expect from linear playout control.

By making the playout automation system the heart of the delivery strategy, you can focus on a single, reliable media management system to deliver assets across all platforms, reducing network complexity and file duplication.

Plus, you can interface to Grass Valley's Momentum MAM and Workflow Automation system to reliably reformat, track and deliver assets for VOD consumption.

Ensure services are always in sync by maintaining only one master schedule instead of multiple, parallel systems. This provides the seamless experience viewers expect today and prevents potential customer complaints.

Reduce the risk to high value live events by using the system with the best reputation for live operational reliability.

ICE and Morpheus systems can efficiently manage the triggers required for streaming and VOD systems, allowing you to deliver an equivalent performance as you can expect from linear playout control.

By making the playout automation system the heart of the delivery strategy, you can focus on a single, reliable media management system to deliver assets across all platforms, reducing network complexity and file duplication.

Interface to Grass Valley's Momentum MAM and Workflow Automation system to reliably reformat, track and deliver assets for VOD consumption.

Playout Automation

- Make a change once and it's implemented on all services simultaneously
- A common user interface for ease of operation
- Simple operation ensures fewer mistakes during high pressure periods, especially during high value live events
- Directly trigger streaming servers over IP from your linear automation playlist
- Keep linear output, streaming output, and VOD encoding frame accurately in sync with your single master schedule

Video Output Signals

- Automatically insert VANC triggers into the outgoing channel to flag to streaming servers where to switch content
- Automatically insert audience measurement signaling that can persist through both live and catchup viewing

Media Management

- Well proven tools can:
 - Manage the transfer of assets between video servers, stream servers and archives
 - Transcode and QC the assets to new platform specific formats
 - Deliver with appropriate metadata to each platform

Control & Monitoring

- Grass Valley can provide an overarching control & monitoring solution offering a single interface to monitor the health of all the traditional video servers, origin servers, stream encoders, and VOD servers
- This system also provides advanced schedule aware exception monitoring of the playout automation to ensure today's high channel to operator ratio can be effectively handled. This concept can easily be extended to cover multiplatform operations

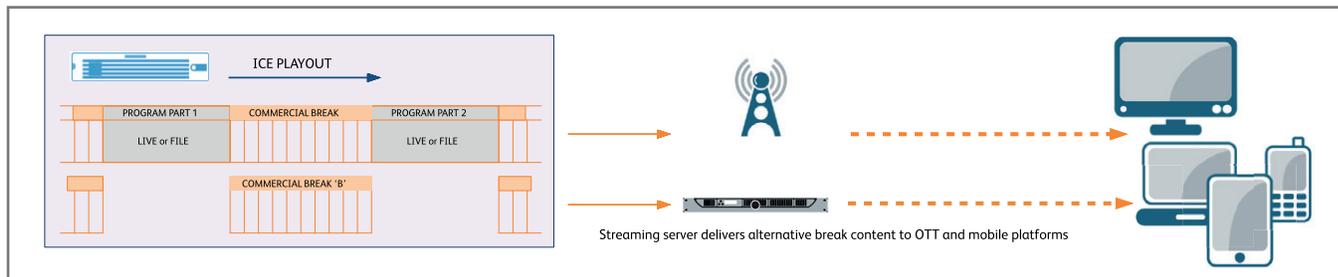
System Examples using ICE Automation and Media Management

Switching content at the source

Extending out from the familiar linear playout channel, a platform opt-out running in the same system allows alternative content to be played out at the same time.

Main programming is shared and the operational control is much simpler than two full independent channels.

Alternative channel branding can be inserted for the B platform, while the platform opt-out can be SDI or IP streamed from ICE.

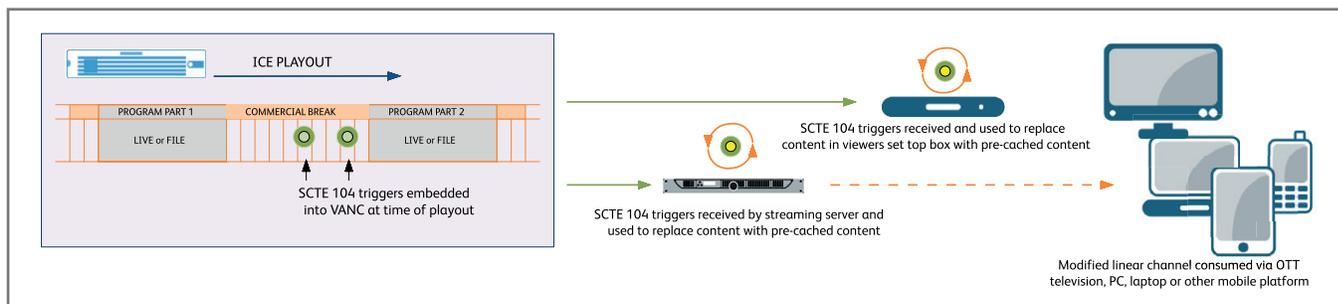


Embedding signaling for switching content at set-top box or streaming server for OTT delivery

The automation inserts remote triggers into the outgoing video signal based on scheduled events. These can be used by downstream devices to replace the flagged content with locally cached alternatives.

Streaming servers and some set top boxes now have this capability.

SCTE 104 and user bits are both available as trigger types that can be added to the VANC of ICE's output video signal.

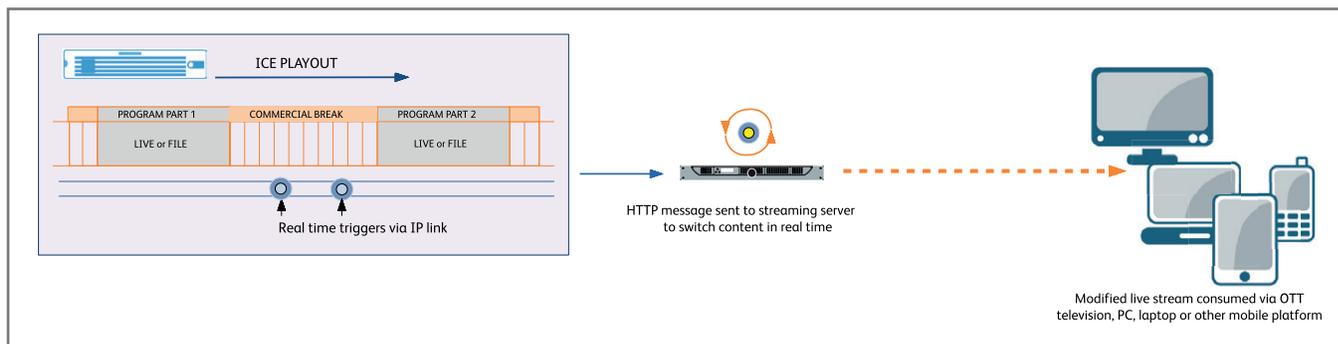


External signaling for downstream content switching at streaming server

Playout automation sends a message over IP directly to the streaming server when flagged events in the schedule go to air. The streaming server can react to these signals to switch out content for locally cached alternatives.

The delivery of this cached content can be managed using the primary media management system.

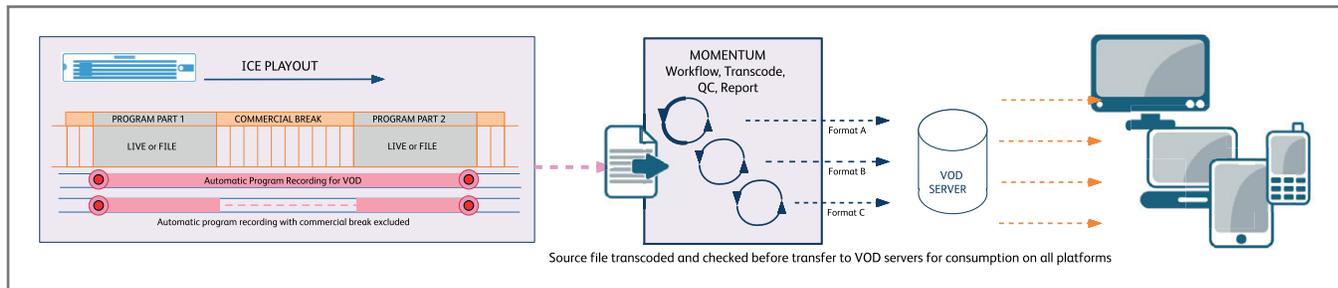
Frame-accurate offsets can be used to adjust the timing needed to keep services in sync.



Encoding live playback at source for video-on-demand consumption

The playout automation system automatically records either the whole event or just the program content and copies this file for processing so it is ready for the VOD platforms.

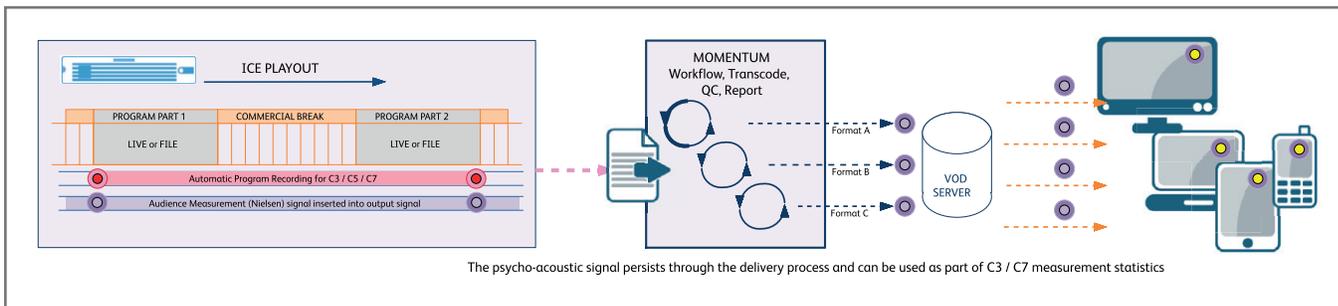
Momentum is used to manage the re-versioning and packaging of the asset using its highly flexible workflow automation.



Embedding audience measurement signals for linear and VOD

By inserting ICE's audience measurement signaling, viewing figures for both linear and on demand consumption can be accurately collated.

ICE's insertion of Nielsen watermarking, for example, can persist through the encode, reformat and delivery process so that OTT and mobile consumption is included in C3 measurements.



The options shown above can be combined in any order to maximize the effectiveness of multiplatform operations. For example, add the encoding option to the STCE 104 triggers and ensure your VOD asset is self-contained with remote triggers. Or have a combination of all options; with a completely differently branded alternative break structure, SCTE 104 and IP signaling all in a single system.