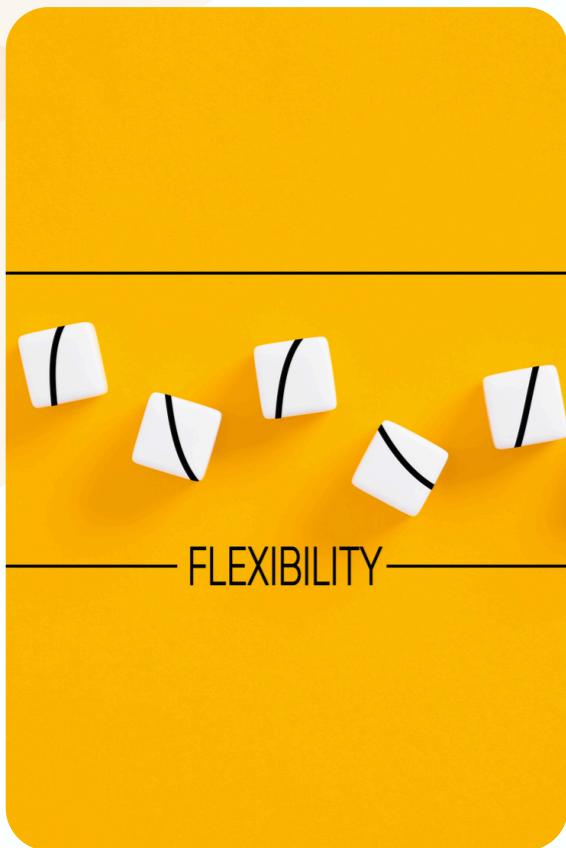# SIGMA FAST CHANNEL SOLUTION

ABOUT US

We are proud of over 10 years of experience in developing technology solutions for content providers and telecom businesses in Vietnam and international market. Our goal is to provide best-in-class solutions with the highest quality services for customers.

Thu Do Multimedia is Vietnam's leading company in digital TV solutions for content providers, service providers and streaming platforms. We are confident to bring the "Make in Vietnam" business solution chain completely built by ourself.

Leveraging a unique R&D team in the video industry, Thu Do Multimedia develops solutions that power sustainable TV services, protect the content digital rights, improve viewers' quality of experience, optimize the total cost of ownership of TV/VOD services, and generate new revenue streams based on personalization and ad insertion. Beyond technological agility, Thu Do Multimedia's value proposition is to partner with its customers by offering highly flexible engagement and business models that match their financial priorities.
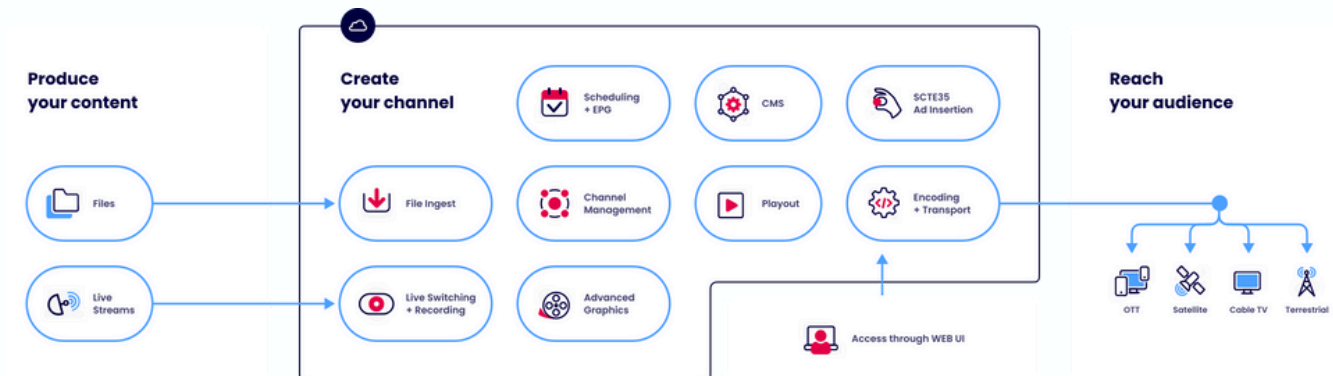
WHAT SIGMA FAST CAN DO?

FLEXIBILITY

- **Offer Free Content:** FAST platforms provide users with access to a wide range of free content, including movies, TV shows, news, sports, and more. Users can watch this content without needing to pay for a subscription.
- **Ad-supported Model:** These platforms generate revenue through advertisements that are displayed to viewers during breaks in the content. Users can enjoy free content while advertisers reach their target audience through targeted ads.
- **Variety of Content:** FAST platforms often partner with content providers to offer a diverse selection of content from various genres and categories. This includes both licensed content from traditional media companies and original content produced specifically for the platform.
- **On-demand Viewing:** Users can watch content on-demand, allowing them to choose what they want to watch and when they want to watch it. This flexibility is particularly appealing to viewers who prefer not to adhere to traditional TV schedules.
- **Live Streaming:** Many FAST platforms offer live streaming of TV channels, news broadcasts, sports events, and other live content. This gives users access to real-time programming without needing a cable or satellite subscription.
- **Cross-platform Compatibility:** FAST platforms are accessible on a wide range of devices, including smart TVs, streaming media players, gaming consoles, smartphones, and tablets. Users can enjoy their favorite content on the device of their choice.
- **Personalization:** Some FAST platforms offer personalized recommendations based on users' viewing history and preferences. This helps users discover new content that aligns with their interests.
- **Social Features:** Some platforms incorporate social features that allow users to interact with friends, share recommendations, and discuss content. This social aspect enhances the overall viewing experience and encourages community engagement.
- **Legal and Licensed Content:** FAST platforms ensure that the content they offer is legally licensed, providing users with a legitimate and safe way to access free streaming content.

WORKFLOW

Headend features

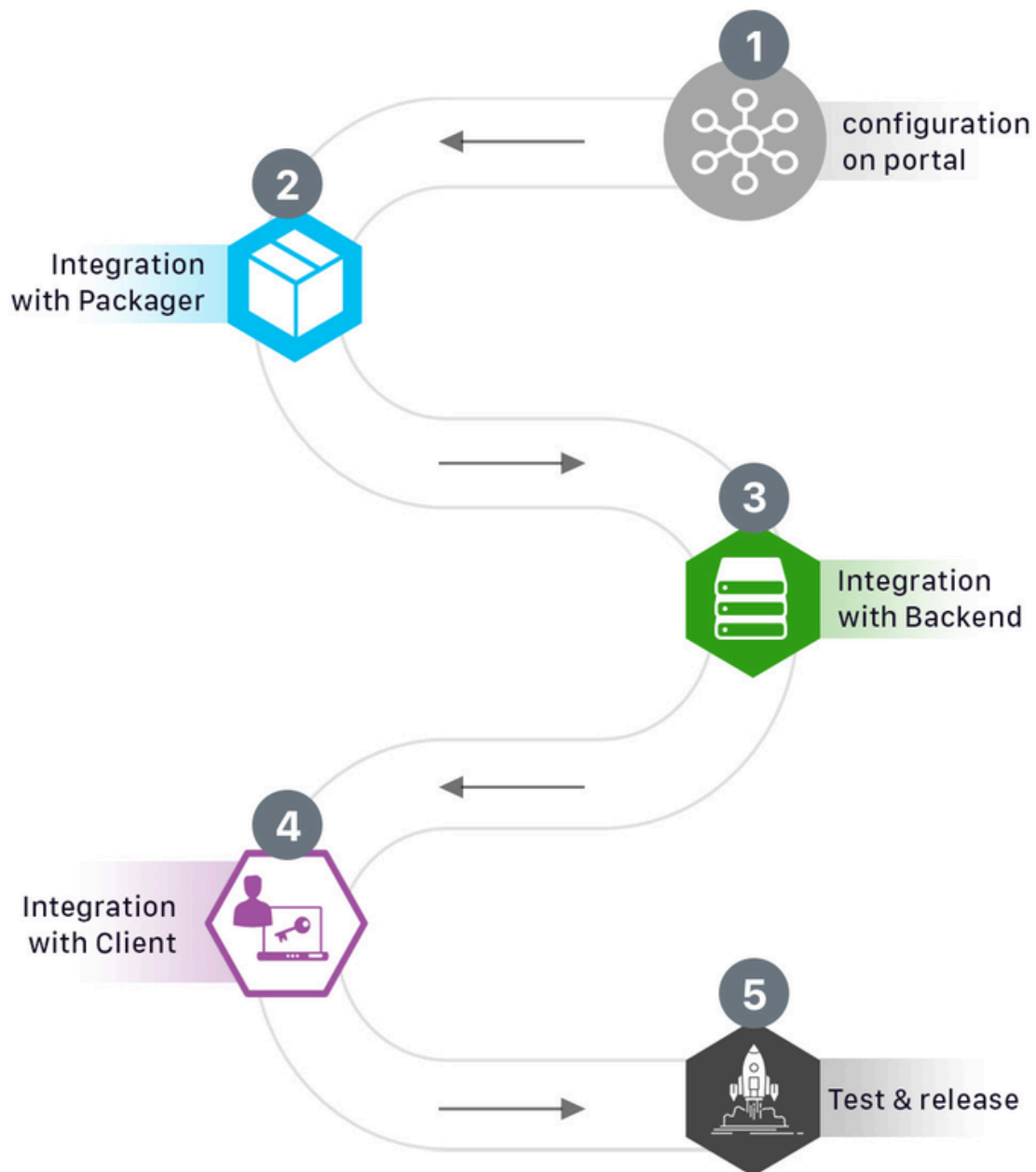|	
Output format	MPEG-2 TS over IP Multicast IGMP v2 and v3 / IGMPv2 or v3 SPTS CBR, VBR, and Constant Quality SD, HD
Ratio	Progressive: 59.94, 50 fps Interlaced: 29.97, 25 fps

Output profiles	• 4K Resolution:
	   ○ 3840x2160p@50 HEVC 10 bit
	   ○ 2560x1440p@50 HEVC 10 bit
	• System capacity:
	   ○ 1920x1080p@25, 30 H.264
	   ○ 1280x720p@25, 30 H.264
	   ○ 640x360p@25, 30 H.264
	   ○ 480x270p@25, 30 H.264
	HD to SD conversion: 720x576i@25,30 H.264
	HD VBR to HD CBR: 1920x1080i@25, 30 H.264

Video encode	HEVC 10 bit, H.264 Baseline H.264 Main Profile level 3, 4, H.264 High Profile levels 4, 4.1, 4.2, Supports HDR10, HLG10, PQ10
Audio encode	MPEG-1 Layer II, AAC/AAC-LC/HE-AAC, Can be upgraded to AC-3, E-AC-3
Audio format	Stereo (2/0), Can be upgraded to Multichannel (5.1)

OTHER FEATURES

Add Image/Logo	• Insert separate logos for each profile for many different profiles. • Manages signal interruption by inserting an image when the input signal is lost or interrupted. • HEVC Encode | Hardware supports 10-bit HEVC encoding.
HEVC Encode	Hardware supports 10-bit HEVC encoding.
System Performance	Maximum hardware CPU/GPU utilization according to the proposed solution must be <70%. RAM utilization should be <80%.

Packager	• Provides internal or separate packaging functionality for:
	    ○ UDP/RTP
	    ○ MPEG-2 TS (SPTS & MPTS)
	    ○ RTMP
	    ○ Apple® HTTP Live Streaming
	    ○ DASH
	    ○ DRM (Widevine, PlayReady, etc.)
	• Provides CMAF low latency feature for packager processing; format conversion supports low || | latency for OTT signal transmission.
	• Supports low latency packaging and streaming with Apple HLS Low Latency.

Ori	• Supported Viewing Modes: Live Channel, Catchup (timeshift TV), Startover TV. • Supports Trickplay Mode for Catchup TV. • Supports separate packaging and storage between Live and Catchup streams, ensuring they do not affect each other. • Supports manifest-based profile filtering mechanism for HLS and DASH. (e.g., filter profiles by bitrate, resolution, codec, to return to different clients).

OTHER FEATURES

Input	- A/V files: MPEG 2 TS (MPTS and SPTS), MPEG 2 PS (.ts, .mpg, .mpeg, .ps, .vob), MPEG 4 (.mp4, .m4v, .f4v), MXF OP1-a, Quicktime (.mxf, .mov). - Live Ingest: MPEG-2 TS over IP (SPTS and MPTS), RTMP (H.264 HD, ACC) Pull & Push, SRT Protocol Pull & Push.
Output	HLS, DASH, RTMP, SRT protocol.
Features	- Schedule VOD or Live Ingest content to TV channels, by day, week, month. - Automatically export program scheduling (EPG) content according to scheduled lists by day, week, month. - Schedule and mark SCTE35 advertising signal insertion according to EPG, or passthrough from live ingest. - Supports inserting predetermined ads in the middle of live or VOD streams (signal stream swap) - Supports inserting program title with corresponding program event. - Support inserting and scheduling overlay advertising in the form of (marquee, lower third, L-shaped corner banners). - Support subtitle in overlay and close caption. - Supports signal stream conversion (VOD-Live, Live-Live, Live-VOD, VOD-VOD) without affecting the end user. - Supports inserting overlays and logos according to the program's timing, with dynamic positioning on the screen.

HOW TO INTEGRATE WITH SIGMA FAST CHANNEL

1 configuration on portal

2 Integration with Packager

3 Integration with Backend

4 Integration with Client

5 Test & release

THANK YOU

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THU DO
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