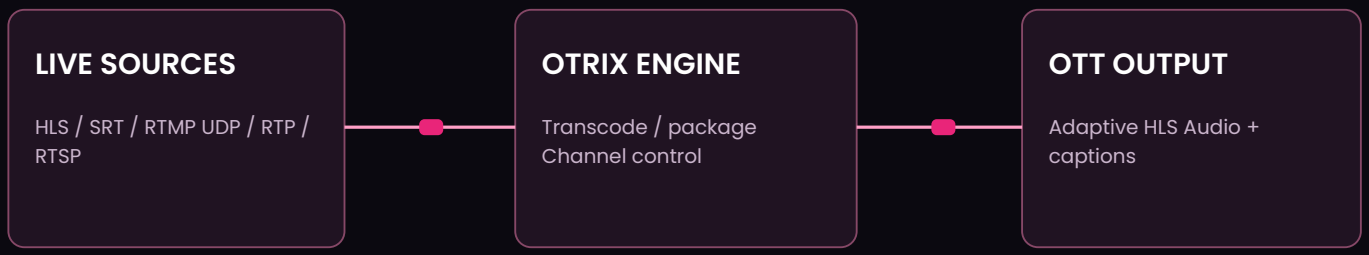
OTRIX MEDIA SERVER / OTT TRANSCODING & DELIVERY

Video transcoding. Built for OTT.

From live source to adaptive delivery.

Bring ingest, transcoding, HLS publishing and channel operations into one environment. Deliver adaptive video and WebVTT captions from infrastructure you control.



ILLUSTRATIVE PROCESSING FLOW

ADAPTIVE VIDEO

Multi-rendition HLS

CAPTION READY

CEA-608/708 to WebVTT

OPERATIONAL CONTROL

Channel + GPU resilience

Enterprise technical overview

Product capabilities, deployment scope and workflow design

01 / ONE OPERATIONAL ENVIRONMENT

Prepare video.
Keep operations in view.

OTRIX Media Server is an OTT transcoding platform for teams that need to ingest diverse sources, prepare adaptive output and manage channel behavior from a single operational layer.

INGEST + TRANSCODE

Bring sources together.

Receive seven live input types and configure encoding profiles up to 4K UHD. Choose CPU encoding, GPU acceleration or dedicated NETINT VPU processing.

PACKAGE + DELIVER

Prepare for OTT.

Generate HLS renditions and a master playlist. Add alternate audio and WebVTT subtitles to supported workflows.

CONTINUITY

Protect two failure points.

Channel fallback handles source loss. Separately, a standby GPU provides backup when the active GPU becomes unavailable.

OPERATIONS

Control each channel.

Inspect health and resources, manage channel processs and connect operational tools through REST and WebSocket interfaces.

Deployment model

Run on your own infrastructure. Capacity depends on source formats, resolution, frame rate, rendition count, encoding settings and available hardware. Size against representative workloads.

Designed for live OTT channels, contribution processing and file-based preparation. VOD and MPTS capabilities have separate validation and activation scopes, detailed in this document.

02 / SOURCE TO PROFILE

Flexible inputs. Deliberate encoding control.

Configure transport, connection behavior and video parameters around the requirements of each channel.

Live inputs	HLS over HTTP(S), RTMP, RTMPS, SRT, UDP, RTP and RTSP.
SRT connections	Caller, Listener, Rendezvous and Auto modes. Local/remote IP and ports, latency, Stream ID, automatic reconnect, keep-listening and wait-for-connection.
Encrypted SRT	AES-128, AES-192 and AES-256. Passphrases remain in a protected secret store, separate from browser-visible configuration. Configurable key length.
Processing engine	CPU encoding, GPU acceleration and dedicated NETINT VPU processing. H.264 is established in production; H.265/HEVC is implemented in the engine pipeline.
Video profiles	Up to 4K UHD (3840 x 2160), HD and SD. FPS, bitrate, GOP, NVENC preset, low-latency tuning, B-frames, Spatial AQ, Temporal AQ and VBV controls.
Audio compatibility	All audio formats supported, with multi-audio workflows and configurable audio processing.
Audio profiles	AAC encoding with configurable bitrate, sample rate and channel count.
Source normalization	Video/audio rate normalization, conversion and resampling, plus timeline normalization to stabilize irregular sources.

Keep contribution separate from delivery

Maintain the internal HLS output while optionally sending a selected rendition over UDP, SRT or RTMP. Choose the rendition that feeds the contribution output.

03 / ADAPTIVE DELIVERY

More than a video stream.

Package adaptive video, audio options and captions into an OTT delivery workflow your team can configure and inspect.

VIDEO INPUT
Live or file-based source

RENDITION SET
2160p / 1080p / 720p*

HLS MASTER
Video + audio + subtitles

* Illustrative profiles; actual rendition settings are configurable.

Adaptive HLS	4K UHD, HD and SD profiles per channel; primary rendition selection and high-to-low or low-to-high ordering. MPEG-TS segments, rendition playlists and master .m3u8.
Publishing controls	Independent HLS publishing service. Target duration, playlist length and initial segment index are configurable.
Alternate audio	Individual audio PID selection, ISO-639 language, default/autoselect flags and HLS EXT-X-MEDIA groups. End-to-end validated; activation remains controlled by channel.
Closed captions	CEA-608/708 detection and extraction with conversion to WebVTT. Confirmed operational in production.
VOD subtitles	SRT subtitle-file conversion to WebVTT is validated in the VOD engine. AUDIO and SUBTITLES groups are linked in the master playlist.

Make caption support part of the design

Confirm source caption carriage, desired languages, subtitle groups and target player behavior during workflow validation. Embedded CC and SRT subtitle files are distinct input paths.

04 / TWO INDEPENDENT SAFEGUARDS

Protect the channel. Back up the processing.

Source continuity and GPU redundancy address different failure conditions. Configure each as part of your operating model.

CHANNEL FALLBACK

When the source drops.

Switch to a custom PNG/JPEG image with silent audio. Configure timeout and recovery confirmations, then return to live after source recovery.

GPU BACKUP

When a GPU fails.

Configure a standby GPU to take over processing when the active GPU becomes unavailable. Validate reserve capacity and recovery behavior for the deployment.

Recovery behavior	Loss detection, automatic reconnection, configurable interval and maximum attempts, or unlimited retry.
Independent channels	Each channel has independent control, configuration and state. Restart or change one channel without restarting all channels.
GPU allocation	Manual or automatic selection, physical assignment, sticky reuse and NVENC session tracking.
Scheduling + admission	Evaluate sessions, encoder utilization and VRAM before admitting new jobs. Apply resource limits to control placement.
Hardware families	NVIDIA, AMD and Intel GPUs; Intel and AMD CPUs; NETINT VPUs. Device, driver and codec support determine the deployment configuration.
Reference environment	Current installation reports eight logical A16 GPU devices. This is a deployment reference, not a guaranteed channel-capacity specification.

Operational insight: source FPS before normalization, output FPS, encoded/pending frames and duplicated/dropped-frame counters help assess continuity during live/fallback transitions.

05 / EXTEND THE WORKFLOW

Prepare assets. Select transport services.

Use the same operational approach for file-based preparation and multi-program transport-stream workflows, with their validation scopes made explicit.

VOD / FILE-BASED PROCESSING

Video preparation	NVIDIA decoding, CUDA scaling and NVENC encoding. Up to 4K UHD with multiple renditions per asset; AVC/H.264 and HEVC/H.265 discovery and processing are represented in the VOD API/engine.
HLS output	VOD playlists with EXT-X-ENDLIST. Two or more audio tracks through AUDIO groups, SRT-to-WebVTT subtitles and linked AUDIO/SUBTITLES master groups.
Validation scope	VOD engine, HLS output, multi-audio and subtitle conversion validated. Confirm activation and asset characteristics for the target deployment.

MPTS / MULTI-PROGRAM TRANSPORT

Input + discovery	Receive MPEG-TS multiprogram streams over UDP/multicast. Discover PAT/PMT tables, programs and PIDs.
Service selection	Select a program/service and individual video/audio PIDs. H.264 and HEVC selection is integrated in the MPTS/API layer.
Audio + validation	Multiple audio PID extraction and alternate-audio HLS code installed; end-to-end candidate validated. Discovery and individual selection were validated in a two-program lab scenario.

Validation describes tested capability, not universal activation across every customer environment. Review source characteristics and required output behavior before rollout.

06 / CONTROL AND OBSERVABILITY

Operate with context.

Manage channels, inspect system resources and integrate OTRIX into your operational tooling.

Channel lifecycle	Create, edit, start, stop, restart and delete channels. Persistent configuration/state uses SQLite; independent runtime state carries process, health and telemetry data.
Source + output	Source FPS, source status and age of measurement; LIVE/FALLBACK/PROBING states. Encoded/HLS FPS, audio/video bitrate and encoded/pending frame counts.
Channel health	Output health, frame integrity, estimated delivery loss, availability, uptime and last error.
System health	GPU count, running channels and output issues. Separate host-metrics service, events and logs provide operational context.
REST API	Channel management and start/stop/restart actions; dashboard, events, health, network interfaces, scheduler and scheduler preview.
Live updates	WebSocket dashboard updates and host network-interface inventory for selection and configuration.

14 OPERATIONAL VIEWS

Dashboard / Channels / Inputs / HLS / Fallback / GPUs / MPTS / VOD / SRT / UDP / RTMP / Logs / Alarms / Settings

> **Security and commercial readiness**
>
> Encrypted SRT and protected passphrase storage are implemented. The secure authentication gateway and signed online commercial licensing remain deployment items to complete; the visual login interface alone is not an authentication guarantee.

07 / SPECIFY YOUR OTRIX DEPLOYMENT

Start with the workflow.

Build a deployment brief around your sources, output profiles, caption requirements and recovery expectations.

Sources	Channel count; protocols; codecs; resolution and FPS; source bitrate; SRT modes/encryption; program/PID details for MPTS.
Outputs	Rendition count and profile settings; HLS segment/playlist requirements; optional SRT, UDP or RTMP contribution; target OTT players.
Audio + captions	Audio track count and languages; CEA-608/708 carriage; WebVTT requirements; SRT subtitle files for VOD.
Continuity + hardware	Channel fallback artwork and timing; retry/recovery policy; active and standby GPU resources; reserve capacity and admission limits.
Operational scope	API integration, host interfaces, monitoring needs and validation plan. Confirm controlled features, authentication gateway and licensing readiness.

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Explore OTRIX Media Server

Capability scope: production, engine-implemented and validated features are identified throughout this document. Confirm deployment-specific activation and infrastructure sizing during technical discovery. CPU, GPU and NETINT VPU encoding are supported; size the deployment for your workload.