# Cambria File Transcoder

## Cambria FTC + Cambria Cluster

*Enterprise-grade VOD transcoding - on-premises, cloud, or hybrid*

Capella Systems was founded by engineers who helped define professional file-based transcoding - first at Rhozet, later acquired by Harmonic. That depth of expertise is built into every release of Cambria. The result is a transcoding platform that is precise, flexible, and designed to integrate cleanly into real-world broadcast, OTT, and enterprise media workflows.

Cambria FTC is used by broadcasters, content owners, service providers, and OTT platforms who need engineering-grade output quality, workflow automation, and the freedom to run workloads where it makes operational and financial sense.

## WHAT IS CAMBRIA FTC?

**In plain terms:** Cambria FTC is a professional transcoding engine. It takes media files and converts them - quickly, accurately, and at scale - into the formats your workflows, platforms, and delivery chains require. Cambria Cluster is the orchestration layer that turns multiple FTC nodes into a managed, scalable, automated transcoding service.

Most customers run FTC and Cluster together. FTC handles the encoding; Cluster manages queuing, load balancing, failover, job prioritisation, and cloud burst capacity.

### Cambria FTC - the transcoding engine

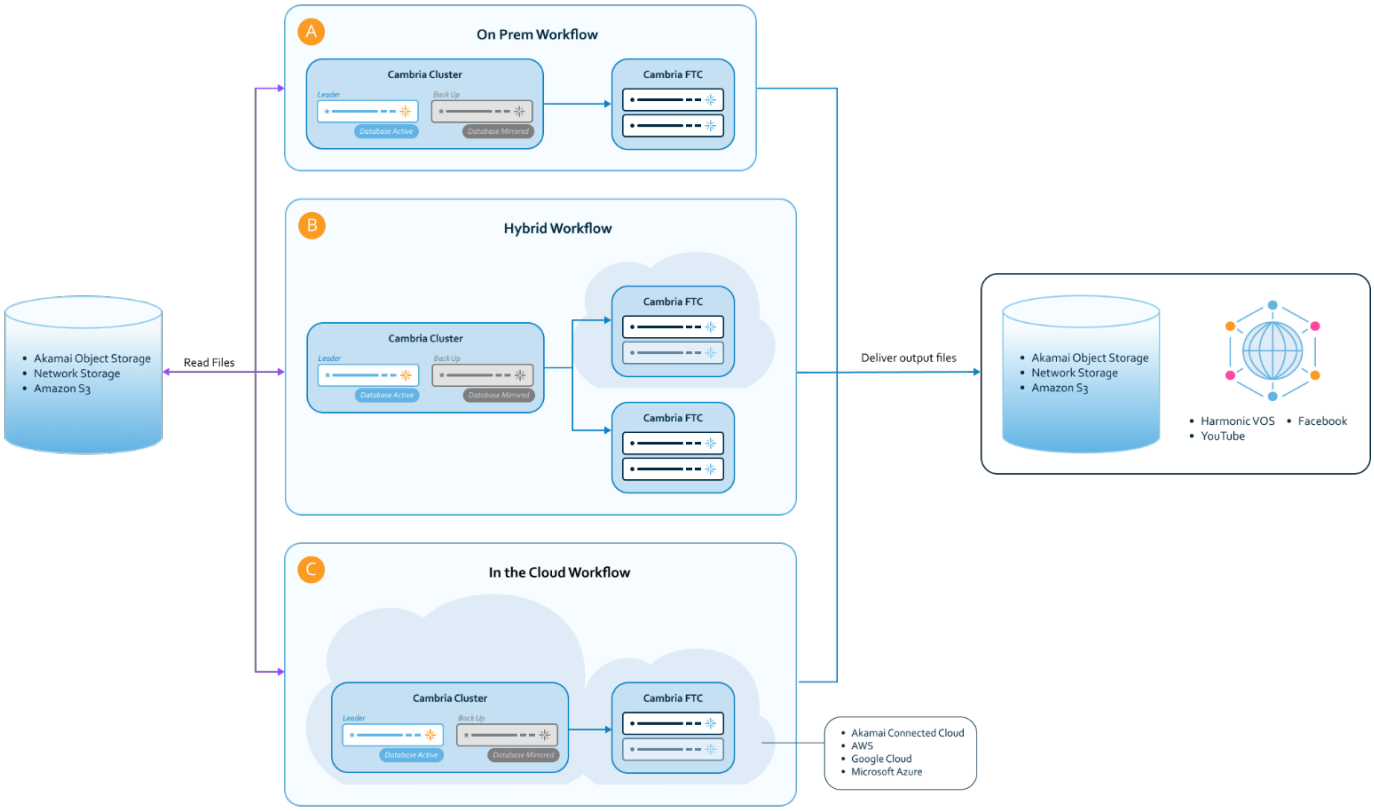
Cambria FTC is the processing node. It runs standalone or as part of a larger farm, executing transcoding jobs with full control over encoding parameters, analysis, and output formatting. Each FTC node can handle multiple concurrent jobs, and multiple nodes can be added to a farm to increase throughput linearly.

### Cambria Cluster - the orchestration layer

Cambria Cluster turns a collection of FTC nodes into a unified, managed transcoding service. It provides:

- Centralised job queue - no manual server selection
- Load balancing and failover across nodes
- Job prioritisation and tag-based routing
- Cloud burst management - overflow to the cloud on demand
- Operational monitoring and reporting across the farm

Architecture overview:




## WHY CAMBRIA FTC & CLUSTER?

Most organisations evaluating a new transcoding platform are coming from one of two directions:

- Legacy on-premises platforms that are expensive to scale, operationally heavy, and slow to adapt - or approaching end-of-life with limited vendor support.
- Cloud-only approaches that are straightforward to start but difficult to cost-control at sustained volume, and which leave little room for operational flexibility or hybrid deployment.

Cambria FTC is built for organisations that need engineering-grade output quality, deep workflow integration, and the ability to choose where workloads run - without being locked into a single deployment model or commercial structure.

## KEY BENEFITS

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| **Professional-grade output quality**<br>Built for professional use cases where output consistency and standards compliance matter. Not a best-effort solution. | **Automation-first**<br>REST API-driven control for job creation, monitoring, status reporting, and integration into MAM, orchestration, and internal tooling. |
| **Scales as your operation grows**<br>Cluster-managed farms that grow from a handful of nodes to large-throughput installations. Capacity scales linearly as you add nodes. | **Deployment flexibility**<br>On-premises, cloud, or hybrid. Run workloads where it makes operational and financial sense - and change that decision as requirements evolve. |
| **Commercial flexibility**<br>Perpetual, subscription, and usage-based cloud via CloudBurst. Licensing models designed to match real procurement and workload patterns. | **Exceptional support**<br>Capella is known for fast, knowledgeable customer support and a rapid development cycle. We aim to be a long-term technology partner, not just a vendor. |

## PERFORMANCE

Cambria FTC is optimised for both CPU and GPU-based encode workflows, delivering faster-than-real-time UHD transcoding on both platforms.

### CPU-based encoding

Cambria FTC on modern multi-core CPU platforms delivers high-quality software encoding with full flexibility for complex format and analysis workflows. CPU-based encoding offers the greatest encoding precision and the widest codec and feature support. Multiple concurrent jobs can be run on a single node, making high-core-count platforms cost-effective for mixed workloads. Faster-than-real-time UHD throughput is achievable for standard H.264 and HEVC deliverables.

### GPU-accelerated encoding

Cambria FTC supports NVIDIA NVENC GPU acceleration. GPU encoding delivers very high throughput per system, making it well suited to large-scale HEVC and H.264 workloads where speed and density are the primary requirements. Faster-than-real-time UHD HEVC encoding is achievable at high quality settings, with significant throughput advantages over CPU at scale.

## ADVANCED WORKFLOW CAPABILITIES

Cambria FTC goes beyond format conversion. Together with Cambria Cluster, it provides a sophisticated media processing layer capable of automated analysis, intelligent routing, and deep workflow integration.

### Automated source analysis and event detection

Cambria FTC automatically analyses source files and detects a wide range of content and structural elements, which can be used as triggers for different transcoding workflows:

- Detection of black frames, colour bars, and ad insertion points
- Content-aware analysis for scene and graphic change detection - supporting highlight and clip generation
- Encoding complexity analysis for intelligent bitrate allocation
- Metadata generation including speech-to-text conversion

### Smart watch folder architecture

Smart Watch Folders combine file monitoring with enhanced scripting to automate complex, conditional workflows. Each incoming asset can be inspected on ingest, with processing decisions made dynamically based on source properties such as format, resolution, frame rate, duration, or detected content characteristics. This enables automatic profile selection, file routing, and workflow execution without operator input - ideal for high-volume, repeatable operations.

### Scriptable workflows

Cambria FTC provides fully scriptable workflows, configurable through a web-based script editor. Workflows can be adapted quickly as requirements change, without requiring custom development - making Cambria suitable for evolving production environments.

### Source-adaptive bitrate ladders

Cambria FTC can automatically adjust bitrate ladders for DASH, HLS, or MSS output based on the encoding complexity of the source. Low-motion material is encoded at lower data rates; high-motion or complex content receives additional bitrate where it delivers real quality benefit. The result is more efficient bandwidth usage, consistent perceptual quality, and reduced storage and delivery costs.

### Automatic target output configuration

Output settings can be automatically derived from source file properties - including resolution, frame rate, interlacing, and aspect ratio. This reduces manual configuration, avoids common errors, and keeps outputs aligned with source characteristics and delivery requirements.

### Growing file support

Cambria FTC supports growing file processing - transcoding can begin while a source file is still being written or captured to disk. This significantly reduces end-to-end processing time for formats such as TS and MXF and is particularly valuable in time-sensitive workflows including news, sports, and live-to-file operations.

## INTEGRATION

Integration is not an afterthought in Cambria - it is a core design principle. Cambria FTC is built to fit cleanly into existing broadcast, OTT, and enterprise media environments through multiple integration approaches.

### Integration models

- API-driven integration for automation platforms, MAMs, and custom orchestration
- Plug-in architecture for third-party technologies embedded directly into transcoding workflows
- Native connectors to storage platforms, cloud services, and media management systems
- Standards-based interfaces to minimise custom development and operational friction

### n8n workflow automation

Cambria FTC includes built-in scripting for intra-job logic. For inter-system automation, Cambria integrates with n8n - an open workflow automation platform. With n8n as the orchestration layer, Cambria FTC jobs can be triggered, controlled, and managed as part of broader workflows involving storage systems, content management platforms, AI services, cloud infrastructure, and operational tooling.

### Plug-in architecture

Cambria FTC includes a plug-in architecture that allows third-party technologies to become integral parts of the transcoding workflow. Plug-ins operate directly within the processing pipeline, enabling tasks such as caption and subtitle processing, forensic and audience measurement watermarking, and DRM preparation - without external hand-offs or added workflow complexity.

Supported plug-ins include EZ Title (captioning), NexGuard (forensic watermarking), and Kantar (audience measurement watermarking).

### DRM and content protection

Cambria FTC integrates with industry-standard DRM and content protection technologies:

- Multi-DRM integration via Cipix, supporting PlayReady, Widevine, and FairPlay
- Forensic video watermarking using NexGuard during transcoding
- Audio watermarking using Kantar for audience measurement and tracking

### MAM, storage, and cloud integration

Cambria FTC integrates with a wide range of media management systems and storage platforms, including:

- MAM systems such as Avid Interplay
- Cloud and object storage including Amazon S3 and S3-compatible providers, and Akamai NetStorage
- Harmonic VOS for direct upload and check-in of encoded assets

## DEPLOYMENT OPTIONS

Cambria FTC supports three deployment models, and the transition between them is straightforward - your licensing and workflow investment carries across.

### On-premises

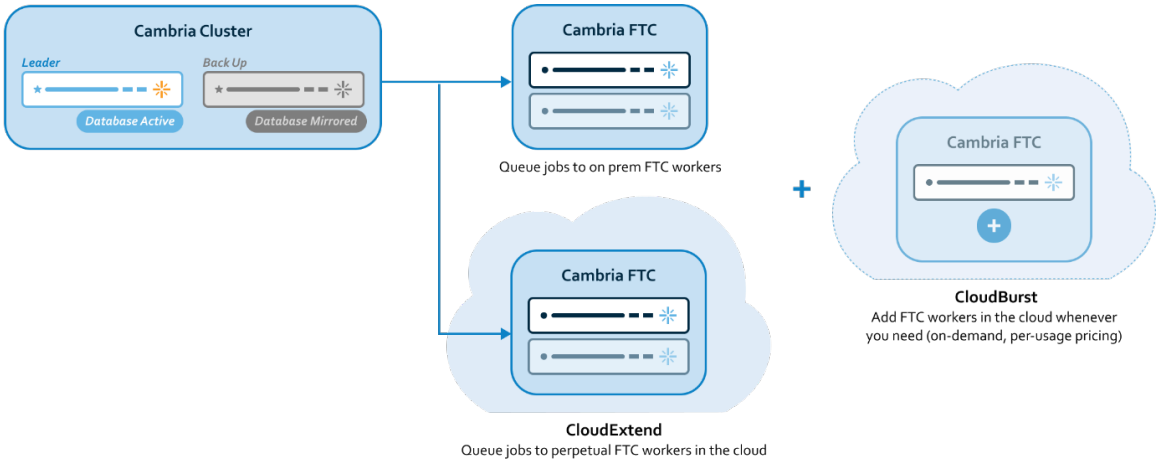
Predictable throughput, local control, no cloud egress costs. Suited to organisations with stable volume and existing infrastructure investment.

### Cloud

Elastic capacity without owning infrastructure. Deploy in your cloud environment of choice and scale nodes to match demand.

### Hybrid (recommended for many enterprises)

Maintain a stable on-premises baseline and burst to the cloud when demand spikes. CloudBurst provides usage-based cloud scaling so peak demand is treated as variable cost rather than permanent hardware.




## COMMON USE CASES

- Library normalisation and delivery format generation
- Broadcaster and OTT VOD pipelines
- Service-provider transcoding farms
- Multi-tenant internal media platforms
- High-volume, deadline-driven processing - news operations, sports turnaround, compliance workflows

## LICENSING

Cambria FTC is available under perpetual, subscription, and usage-based commercial models - designed to match real procurement processes and workload patterns rather than force a single path.

- Perpetual licences - suited to long-life infrastructure and predictable TCO requirements
- Subscription - operational flexibility and faster procurement cycles
- CloudBurst usage-based pricing - pay for what you use during peaks, without overbuilding permanent capacity

Advanced feature licences are available for HEVC encoding, Dolby Vision, Dolby E decode, IMF packaging, Dolby Atmos, and GPU acceleration.

## FIND OUT MORE

To discuss your requirements, request a demonstration, or obtain pricing, please contact Capella Systems or your local authorised reseller.

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