MAINCONCEPT

Unified APIs - Integration Made Easy:

Real-world use cases and benefits

Introduction

MainConcept Easy Video API 'EVA' has a wide range of applications. Whether you're a software vendor developing an ingest, transcode or live encoding product, application or service, or a broadcaster managing an ingest workflow, delivering a live production or distributing content in many formats, MainConcept EVA has you covered.

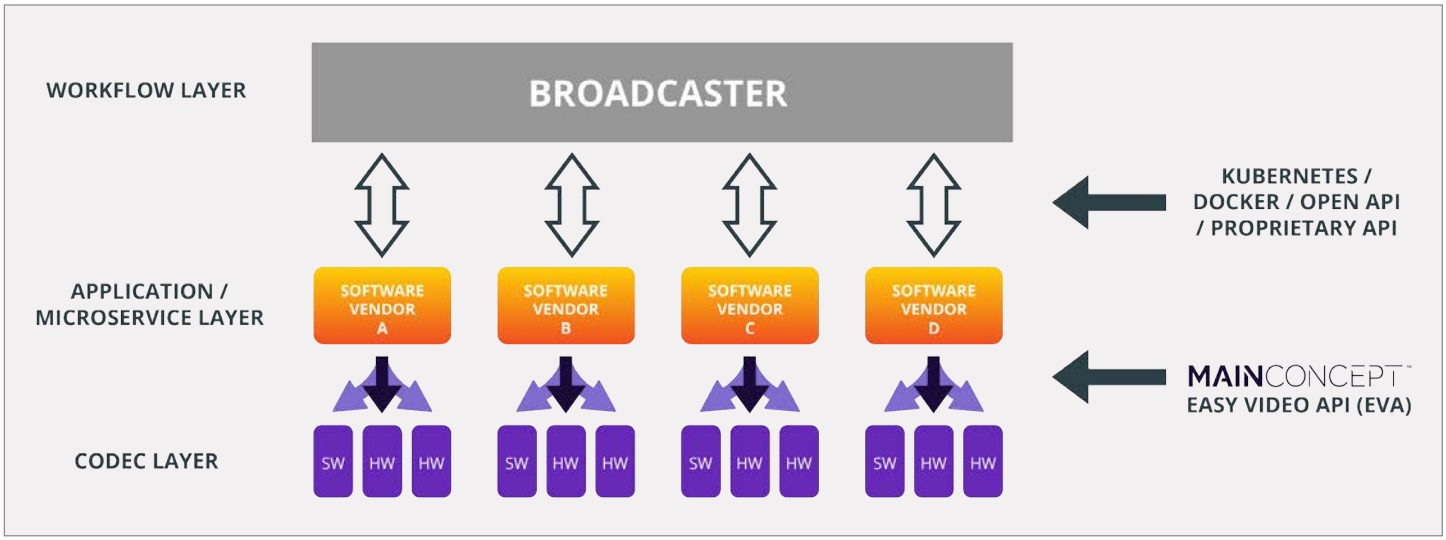
MainConcept's unified API adds flexibility and saves time and effort. Let's explore a few examples of how MainConcept EVA can simplify the codec layer of a workflow.

Use Cases

- Software Vendor
- Ingest Workflow
- Live Production
- Distribution

For more information:

MainConcept EVA: mainconcept.com/easy-video-api
Blog Post: Unified APIs - Integration Made Easy



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Software Vendor

Use case

Introduction

For software companies developing products like ingest solutions, transcode applications, or services for VOD and live encoding, the challenges of integrating multiple APIs for different codecs can be a major burden. Typically, they would need to support various APIs from multiple hardware-based GPU encoders (like AMD, NVIDIA, Intel) and software-based encoding solutions, requiring significant engineering time and effort to manage compatibility and functionality across different platforms.

With a unified API, software vendors can streamline development by having access to both hardware and software codecs from a single interface.

This allows them to select the best encoding options based on the specific requirements of their application, without needing to manage different APIs individually. For example, for live streaming where density and performance are critical, hardware encoders would be optimal because they allow for more live streams and channels to run on a single server.

By using a unified API, software vendors can:

- **Reduce engineering overhead:** Instead of implementing different APIs for each codec, they can focus on a single interface, simplifying the development process.
- **Increase flexibility:** Switch between hardware and software encoders depending on the specific use case, improving the efficiency and performance of the application.
- **Faster time to market:** With less complexity in managing multiple APIs, new products or features can be developed and deployed faster.
- **Streamlined maintenance:** Future updates to hardware or software encoders will be easier to manage as the unified API abstracts the underlying changes, reducing the need for extensive re-engineering efforts.

For VOD services where quality is a priority, software-based encoders would be more suitable, allowing for fine-tuned optimizations and higher-quality output.

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Ingest Workflow

Use case

Introduction

For broadcasters managing ingest workflows that involve capturing multiple video feeds simultaneously, a significant amount of processing power is required to encode the captured feeds before they can be stored on the server. The goal is often to reduce the file size and storage requirements, but this creates challenges when the broadcaster needs to manage numerous streams efficiently.

In the current multi-platform environment, broadcasters often face two primary limitations:

1. **Encoding complexity:** Using a single software or hardware encoding vendor might simplify API management, but that solution may struggle with handling many streams or may not support all the necessary codecs.
2. **Codec flexibility:** Different parts of the broadcast workflow may require the file to be in a specific format, which may require different codecs, leading to additional complications with implementing separate APIs.

MainConcept EVA allows for more efficient ingest of video feeds, reduces CPU strain, and allows for easier adaptation to the evolving workflow requirements, erasing the impact of these limitations.

With a unified API that supports both hardware and software encoders, broadcasters can address their challenges more efficiently:

- **Optimize processing power:** Offload some streams to hardware encoders when software encoding can't handle the load, enabling more efficient use of available resources.
- **Simplify codec management:** Use different codecs for different streams without worrying about the complexity of implementing multiple APIs.
- **Improve scalability:** Seamlessly manage multi-stream encoding workflows by leveraging a unified interface that balances between hardware and software encoding based on current system capacity and needs.

A unified API balances hardware and software encoders, optimizing processing, simplifying codec management, and improving scalability.

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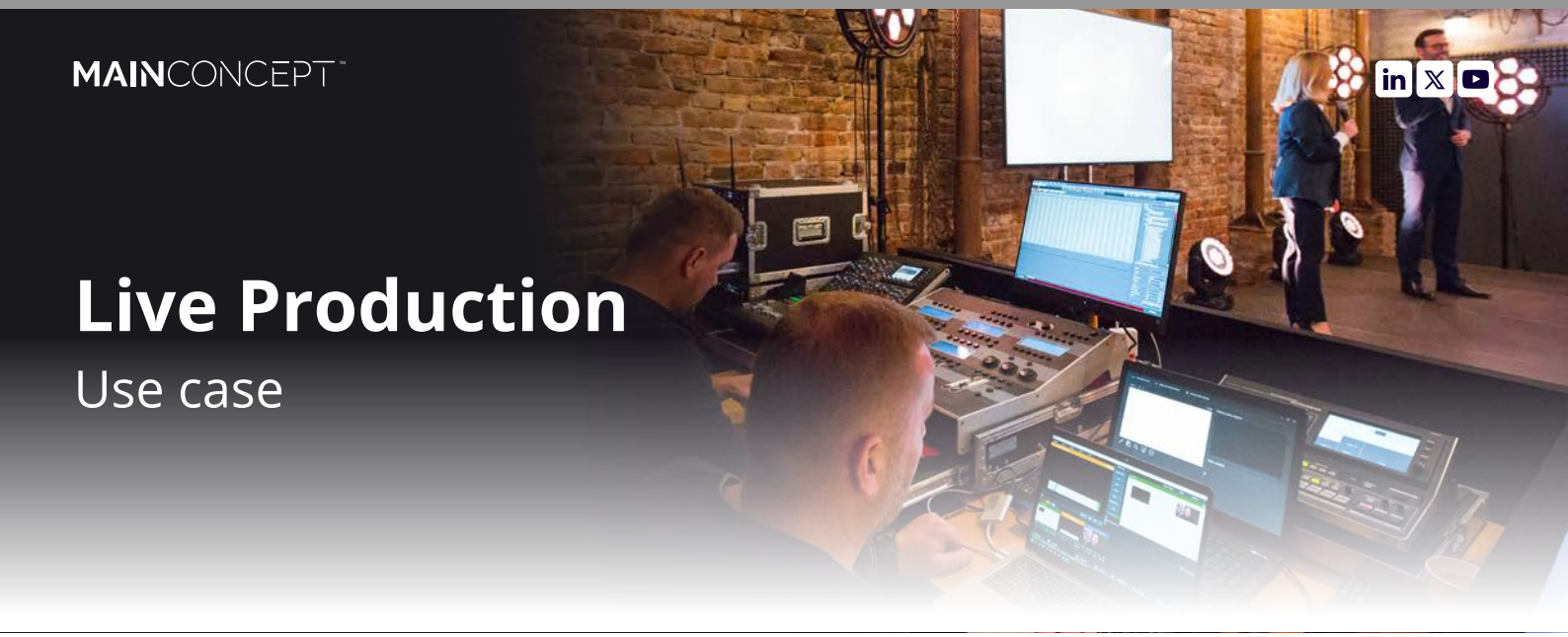

Live Production

Use case

Introduction

In live production workflows, broadcasters may need to make real-time adjustments to content that is already captured and compressed. This might include adding effects, banners, and overlays before broadcasting or streaming.

Often, this requires the video files to be decoded and then encoded again with a low-latency codec for fast transmission between operators and production tools. The repeated cycles of encoding and decoding create challenges, especially when dealing with different APIs across hardware and software platforms.

By utilizing a unified API, the live production process can be significantly simplified, enabling broadcasters to:

- **Reduce API complexity:** Eliminate the need to manage multiple APIs during the encoding and decoding process, making it easier to integrate various production tools into the workflow.
- **Enhance flexibility:** Easily switch between hardware-accelerated encoders for low latency streaming and software-based solutions for higher-quality post-production tasks, without the hassle of managing multiple encoding platforms.
- **Lower latency and improve efficiency:** By streamlining the encoding and decoding process through a unified interface, engineers can achieve faster real-time processing, minimize latency, and reduce the risk of bottlenecks during live production.

Ultimately, the unified API enhances real-time content editing and broadcast workflows by making encoding transitions smoother and more efficient.

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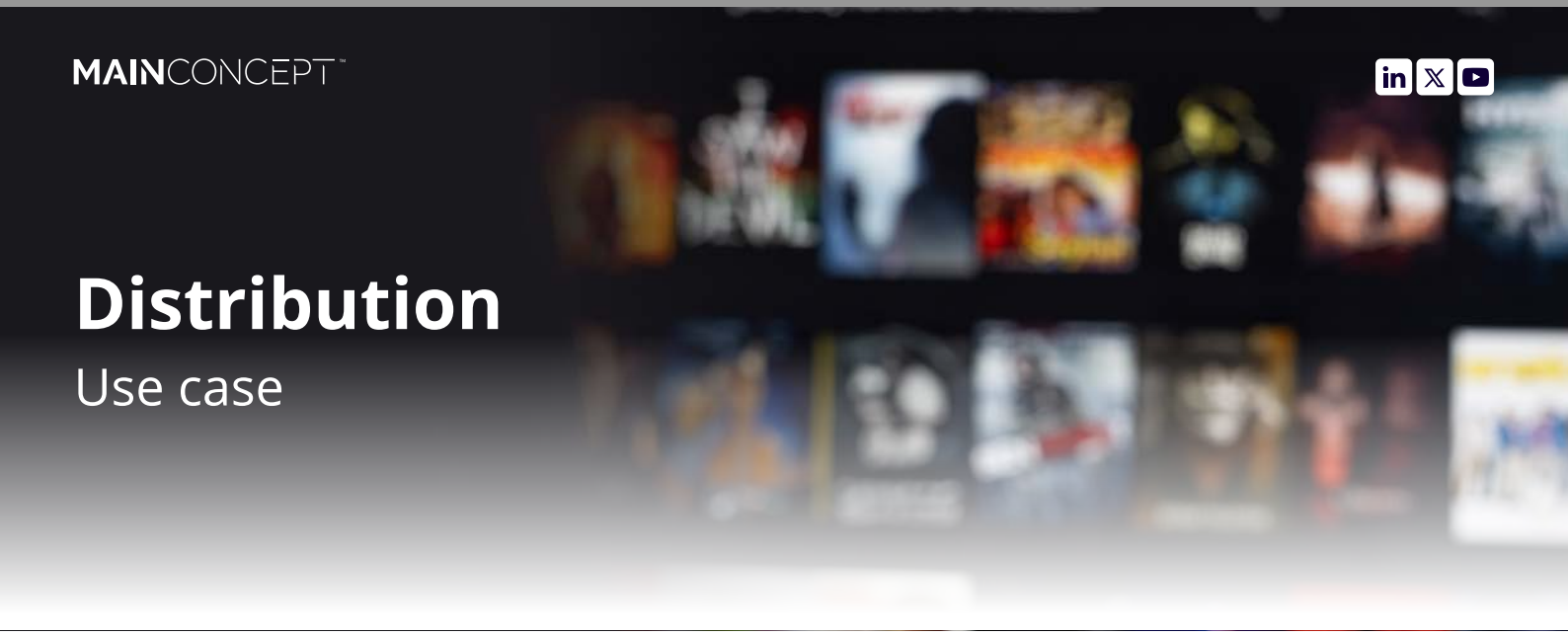

Distribution

Use case

Introduction

In content distribution, broadcasters often need to create multiple versions of the same video content to support a variety of platforms and devices, each requiring different video formats and codecs, such as AVC, HEVC and AV1. This conversion process can be extremely resource-intensive, requiring a lot of processing power and often overwhelming a single server or machine. Broadcasters typically mitigate this by:

1. **Using multiple servers or cloud instances** to distribute the encoding load.
2. **Balancing software and hardware encoders** to improve processing performance and power efficiency.

A unified API helps broadcasters relieve the issues around creating multiple versions for different platforms.

By simplifying content preparation and reducing processing load through a unified API, broadcasters can meet the demands of multi-platform distribution faster and more cost-effectively.

A unified API offers significant benefits in this context by:

- **Consolidating the encoding process:** With a unified API, broadcasters no longer need to manage multiple APIs for each codec or encoding device. Instead, they can encode content into different formats using a similar interface, making the process more efficient.
- **Increased scalability:** Broadcasters can easily scale encoding across both hardware and software solutions depending on current resource availability, allowing for faster and more efficient distribution of content.
- **Improved flexibility:** Broadcasters can choose the best codec for each distribution channel without worrying about the integration complexity that multiple APIs would introduce.
- **Reduced engineering effort:** With a unified API, the time and effort required to maintain and update encoding workflows is significantly reduced, as the API abstracts the complexities of dealing with hardware and software codecs.

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