Watson Video Enrichment (VE), the first offering of a suite of IBM Watson Media solutions, uses Watson’s cognitive capabilities to analyze textual, audio, and visual data within multimedia content - deeply enriching the value of every asset by creating automated metadata sets that are thousands of times more detailed and searchable than is currently possible for large libraries of video.

The Process
Video Enrichment begins with content ingest. Just seconds after an asset is ingested into the product, Watson watches – and listens – to begin extracting metadata. Watson automatically detects and breaks down the number of scenes, keywords, objects, and emotion within a video.

Looking at keywords, Watson provides and categorizes a 5-level keyword taxonomy. It identifies entities including people, cities, and organizations, all associated with a confidence score. Watson also captures the high-level concepts and themes related to a video. Everyday objects, celebrity faces, and even food are recognized and tagged automatically. But the analysis doesn’t stop at what’s visible in a video frame. Watson is also able to transcribe audio as well as detect sentiment and emotion. For example, in the image to the right, Watson tells us that the dominant emotion of this video is joy.

Making sense of what was once unstructured, dark video data, Watson is able to create a metadata package that transforms an asset into a searchable and more valuable piece of video.
How It Works

To build these metadata packages, the Watson Video Enrichment API, powered by Watson’s leading AI capabilities, conducts a thorough analysis of every asset found in the content library. Some key Watson capabilities used for analysis include:

- Speech to Text: transcribe audio into text using machine intelligence
- Natural Language Understanding: distill text and dialogue into fundamental concepts of relevance and understand what concepts and entities are being discussed.
- Visual Recognition: identify the contents of an image or video frame
- Video Scene Detection: detect chapters and breaks in a piece of content
- Tone Analyzer & Personality Insights: document emotional, writing, and social tone of dialogue

Upon completion, the Watson Video Enrichment job outputs a complete, searchable JSON metadata object that is stored wherever the client chooses.

By unlocking this wealth of data, media companies can understand their content in dynamic new ways and leverage this information to improve content search and discovery, maximize operational efficiency, deliver higher ad revenues, increase viewer engagement, and ultimately offer entirely new ways to meet the demands of their businesses.

The Watson Video Enrichment API, housed on the IBM Cloud, is a simple REST API that enriches media assets.
Applications Today
IBM Watson Video Enrichment solves a number of critical challenges faced by leading media and entertainment companies.

Some key use cases for clients today are:

- **Content Search & Discovery**: Apply metadata such as concepts, entities, scenes, and other keywords to enhance every asset in your library. Enriched content is inherently more searchable, leading to improved discovery and increased usage.

- **Recommendation Uplift**: By enriching the video, better recommendations are made. Serving up only highly relevant content, personalized to each user’s viewing preferences, results in more viewing time and reduced churn.

- **Closed Captioning**: Automate captioning and translation services to ensure real-time, accurate results. Watson’s AI technology saves you time and money in a service area that is currently expensive, complex, and error prone.

- **Highlight Clipping**: Rapidly identify and curate the most exciting moments in sports broadcasting to generate highlight clips in an automated fashion.

- **Cognitive Editing**: Enriched data makes videos searchable within editing suites like Adobe - saving time for producers and editors.

- **Compliance**: Detect and flag assets with potential compliance violations such as adult content, violence, crude language, incorrect or fraudulent material, logos, and trademarks.

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