VRTogether

Capture | Encode | Network | **Decode & Deliver** | User Interface

Scalable ultra-low latency Point-Clouds and TVM transmission SDK

developed by MOTION SPELL

This SDK transports volumetric data from end to end using existing scalable networks such as CDNs. Potential applications include AR/VR/XR with real-time interactions (Social VR, Gaming, healthcare, manufacturing, education/training, live events, military and defence, real estate and virtual shopping, ...) and movie production involving the compression, storage and live preview of volumetric data.

SDK Key features

1. Provides an end-to-end transmission SDK for all platforms. Includes a streaming component (native only), some optional server components (native only), and a reception component (native, Web and mobile).
2. Enables ultra-low latency transmission (this latency is the addition of 1 frame processing, the network transmission time and the player buffering).
3. Low footprint in term of CPU, memory and network overhead.
4. Delivers 3D volumetric content as well as video, audio, subtitles and metadata.
5. Includes an SFU (Stream Forwarding Unit) allowing to relay streams with zero-latency. Ideal for testing or for events that don't involve a CDN.
6. Keeps compatibility with existing CDNs and with edge-computing to scale the number of viewers while keeping latency low.
7. Integrates an optional MCU (Media Composition Unit) to handle server-side adaptive bitrate (ABR) with up to 80% gains. May be CPU intensive.

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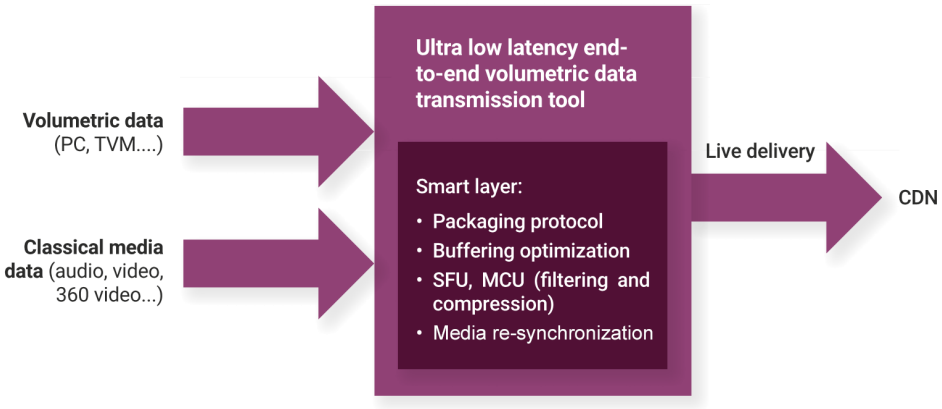
A turnkey solution

Volumetric video and 3+/6DoF contents are still innovative formats. Our team can accommodate and help you with:

- A comprehensive offer including capture, encode, transmission, and playback (native, mobile, and Web) software and expertise.
- Providing and licensing software according to your needs.
- A service offer including trainings, customer developments, and support.



Technical description

- MPEG-DASH over CMAF.
- Adapts to any kind of volumetric data from Point Clouds (V-PCC, G-PCC), Mesh/TVM, MPEG 3+/6DoF, or using a generic container to transport your own data your own way.
- Enables to handle legacy media: video, audio, subtitles, metadata (including timed metadata).
- Can operate in three modes: live, linear or on-demand.
- Offers a smart layer system enhancing adaptive filtering, compression and buffering optimization that can leverage existing player optimizations.
- Uses the latest works from standardization organization such as MPEG, DVB, ATSC.

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About VRTogether

VRTogether is an end-to-end system for the production and delivery of **photorealistic and Social Virtual Reality (Social VR) experiences**.

VRTogether enables Social VR experiences that allow a **natural interaction between remote users** immersed in a shared virtual environment in an affordable way and with photorealistic quality. The project's key exploitable components cover the whole Social VR pipeline:

- Volumetric Capturing System
- Simple Point Cloud Capture System
- Point Cloud Encoding & Decoding
- Scalable Utra-Low Latency Volumetric Data Transmission
- Media/Session Orchestrator
- Live Presenter (MS)
- Point Cloud - Multipoint Control Unit Objective Metrics
- Unity Player
- Web-based Social VR Platform

Consortium

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 761974.

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