BUSINESS BRIEF

Media and Entertainment
Video Processing

Lightning-Fast Video Retrieval Delivers Better 8K VR Experiences

An Intel®-optimized solution boosts quality, lowers bitrates, and reduces content distribution costs

Streaming VR is a great way to reach multiple audiences in a way that is exciting and highly influential. By allowing users to immerse themselves into a live concert, sports event, or movie, marketers and content providers are providing incredible, captivating experiences like no other. However, traditional distribution methods require too much bandwidth for acceptable video quality. The result is a low-quality image or an undesirable nausea-inducing experience.

Tiledmedia's ClearVR* solution enables streaming of high-quality VR over existing networks, with a high degree of responsiveness to the headset wearer's motion. The solution offers numerous benefits:

- Distribution of live 8K 360 streaming video to client devices at a network bandwidth of approximately 15–18 Mbps
- Content distribution over existing content delivery networks (CDNs)
- Distribution to a wide variety of display devices (head-mounted VR devices, phones, tablets, set-top boxes, and Android* TVs)
- Uses standard encoding/decoding systems
- Virtually zero motion-to-photon latency
- Market-leading motion-to-high-resolution switching speeds

"ClearVR enables us to offer a VR360 solution with a quality level that has no equal in our industry."

—Alain Nochimowski, EVP Innovation, Viaccess-Orca

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How it works

The ClearVR solution works by cutting the content up into tiles, and then streaming only those tiles that are actually visible in the display. With ClearVR technology, only about 20 percent of the content needs to be streamed. A low-resolution background is always present to accommodate fast head motion but is hardly noticeable under reasonable network conditions. The speed at which high-resolution images can be retrieved in response to motion determines the quality of any "viewport-adaptive" streaming system.

ClearVR integrates networking and media processing, which enables switching to high-quality imagery in 20–40 milliseconds—an order of magnitude faster than many other solutions on the market. The technology allows distribution of 8K x 4K source content to devices that can decode only a quarter of that resolution (4K x 2K).

A software suite ideal for live VR360

Tiledmedia's solution suite consists of the ClearVR SDK* and the ClearVR Cloud* platform. The ClearVR SDK contains tools to integrate the ClearVR Client* into apps, including extensive documentation and a reference implementation with source code. It is easily integrated into applications for head-mounted devices and 2D screens such as phones and tablets. ClearVR Cloud is used to tile and encode the content for distribution on any CDN, while Tiledmedia's partners can integrate ClearVR Packager* to add tiling functionality to their own encoding platforms. ClearVR requires no edge processing, making it fully compatible with existing content distribution chains.

Tiledmedia's tiled streaming solution also supports zooming and panning-in feeds from 8K cameras on devices with 4K decoders at reasonable bitrates.

Use cases

- VR360 for existing devices
- Live and on-demand streaming; local venues (e.g., with 5G)
- Zooming and panning in ultra-high resolution content

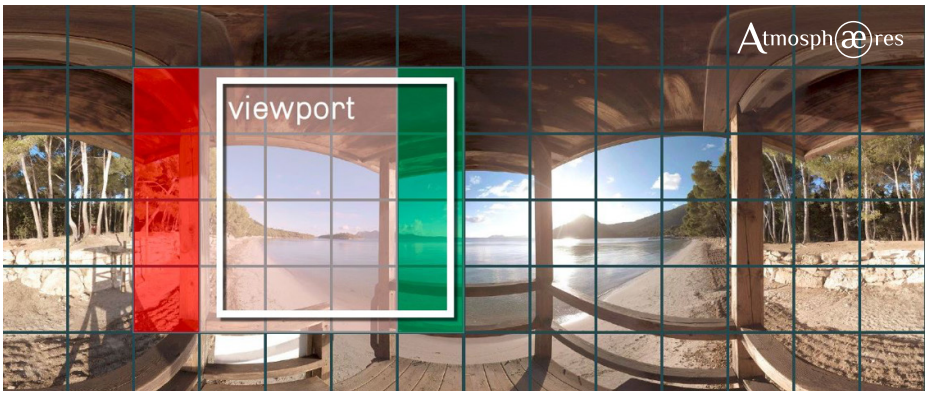


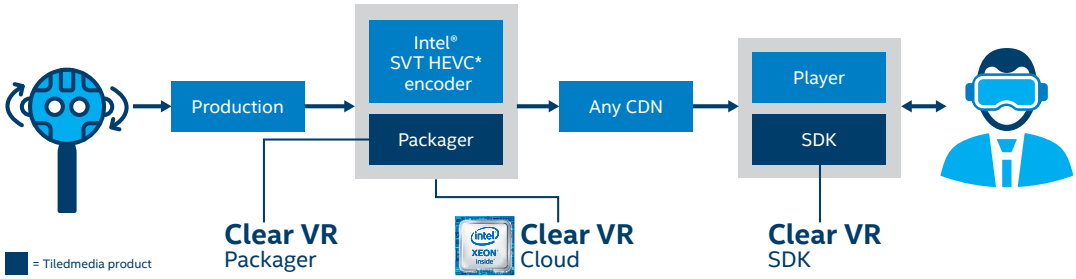
Image courtesy of Atmosphaeres

Tiledmedia's ClearVR* solution allows lower bitrate consumption by streaming only roughly 20 percent of the content in high resolution. As a headset-wearing viewer turns his head from left to right in this example, the solution responds by retrieving the tiles that come into view (green) in high resolution while discarding the high-resolution tiles that disappear from the viewport (red).

Optimized for Intel® Xeon® Scalable processor-based platforms for high performance

ClearVR Cloud is optimized for live encoding sessions on Intel Xeon Scalable platforms. Key to real-time encode/decode performance is the open source Intel® Scalable Video Technology HEVC* encoder, with the ability to distribute content to any standard, off-the-shelf device with an HEVC decoder currently in use today.

ClearVR* integration into the video processing chain



Learn more

Learn more about the award-winning ClearVR at tiledmedia.com.

Contact Rob Koenen, CBO, or Maarten van der Lee, VP of marketing and sales, at Tiledmedia for a ClearVR demo today.

Read more about Intel® visual cloud computing at intel.com/content/www/us/en/cloud-computing/visual-cloud.

About Tiledmedia

Tiledmedia is a global frontrunner in flexible, low-latency delivery of extremely high-resolution video content to consumer devices. Tiledmedia was established in 2017 as a spinoff of the TNO, the largest Dutch R&D institute. Through our advanced software products, distributors of high-resolution content (e.g., 360-degree VR video or 180-degree panoramic video) can reach the maximum number of viewers with the highest available quality. Our product portfolio enables advanced streaming features like directional streaming and zooming without resolution loss. Tiledmedia supports interoperable distribution of high-quality VR content, relying on open standards, including MPEG standards like HEVC.

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