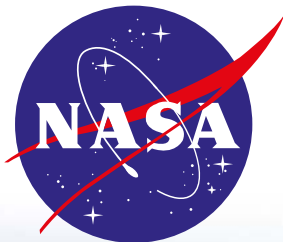


CASE STUDY

CLIENT NASA
SOLUTION IP STREAMING SOLUTION



NASA



VITEC'S TECHNOLOGY INNOVATION CONTRIBUTES TO THE NASA MISSION

NASA was looking for ways to harness IP streaming video technology to help monitor and maintain equipment on the Orion Multi-Purpose Crew Vehicle in manned missions to the Moon and Mars.

In support of the mission, IPTV will be used by NASA to help monitor and maintain equipment subjected to the extreme conditions of space flight.

A Historic Mission for VITEC

Only the most proven, field-tested technologies can be trusted to launch humans safely and securely into space.

The hardware decoding product provided by VITEC ensures that video feeds—with any frame rate, frame resolution, or bitrate—can be decoded and transmitted on industry standard video outputs, such as HDMI or SDI.



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VITEC's video streaming technology helps modernize NASA's existing IPTV distribution equipment, enabling new functionality and extending the community that can benefit from — and contribute to — Artemis / Orion missions.

Richard Bernard
Senior Product Manager
VITEC

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IPTV Technology Challenge for NASA

The environment in which video solutions for NASA's Orion Multi-Purpose Crew Vehicle must work are extremely harsh and volatile. There are a tremendous number of variables that are constantly shifting which can affect how video streams are transmitted.

To support operations in these challenging conditions the agency deploys proven, mature solutions that have stood the test of time. As a result, long development life cycles are needed for the most critical elements of vehicles NASA launches into space. This is especially true for those that involve manned missions. Only the most proven, field-tested technologies can be trusted to launch humans safely and securely into space.

When the Orion program was launched, IPTV technology was still in its early stages of development. As a result, many proprietary on-board video systems were developed to support the rigorous environment associated with NASA missions. The proprietary nature of the video solutions, however, make it difficult to share data with the broad community of experts and technicians that support the Orion mission.

Over the past decade IPTV standards have evolved and matured considerably. VITEC has introduced substantial IPTV innovations capable of contributing to the NASA mission by enhancing the ability to monitor critical systems on the Orion spacecraft.

The solution

NASA needed a highly flexible and robust decoder to handle the very precise, fluctuating video feeds reliably. VITEC provided video stream decoding technology to receive and manage a range of feeds used for this mission to work reliably no matter what conditions and circumstances may be encountered in space.

VITEC is working with NASA to develop video decoders that are compatible with the complex mix of proprietary and open standard video formats. VITEC's decoding technology adjusts stream capture module capabilities to manage a range of feeds used for this mission designed to work reliably despite the extreme circumstances presented by working beyond the Earth's atmospheric conditions.

The hardware decoding product provided by VITEC ensures that video feeds -- with any frame rate, frame resolution, or bitrate -- can be decoded and transmitted on industry standard video outputs, such as HDMI or SDI.



FEATURED PRODUCT

Professional low latency 4K HEVC & HD H.264 decoder

MGW Ace Decoder is a professional grade, high performance IP decoder supporting the bandwidth efficient HEVC/H.265 and H.264/AVC compression standards.

How VITEC's Technology Innovation Contributes to NASA's Mission

VITEC was tapped by NASA to develop IPTV video decoders that are rugged enough to meet their stringent requirements, but which are also compatible with a complex mix of proprietary and open standard video formats.

- NASA was looking for decoding technology that allows video streams from cameras onboard the spacecraft to be and analyzed by personnel on Earth to improve safety and quality assurance measures.
- The agency needed IPTV technology that enhanced the ability to monitor cracks in panels that may not be detected by sensors.
- NASA required a video streaming technology that preserves existing investments in proprietary equipment, while extending the ability for video traffic carried via different protocols, including those that are specific to NASA so that video traffic can be shared with a broad community of experts on Earth.
- To address the complex and dynamic conditions of outer space, NASA needed an IPTV-based video technology that provides support for both high- and low-frame rate streams, as well as images ranging from QCIF to 4K. A system was needed that allows the resolution and frame rate to be adjusted based on available bandwidth between Orion and Earth.

VITEC has laid the foundation for future-proofing Orion's video capacity, enabling it to support new applications and innovations that contribute to NASA's objectives today, tomorrow and beyond.

Industry Leading Video Innovation

Founded in 1988 VITEC is a pioneer in the design and manufacture of hardware and software for video encoding, decoding, transcoding, archiving and streaming over IP. In 1992, VITEC developed the first MPEG-1 encoder for micro-computers and is continuing this legacy of innovation by leading the development of the newest VVC codecs (H.266).

Today, VITEC's HEVC (H.265) with Gen2+ codec and H.264 class of products are the most extensive on the market for encoding and decoding devices:

- 100% hardware based encode/decode solutions deliver the highest quality IPTV streams over satellite links, private networks and over the internet.
- PCIe cards with SDK, making us a world-class provider of Custom Design and OEM for high-performance video systems.
- Award-winning EZ TV solution that is a powerful suite of IPTV services for content management, digital signage, video archiving, and video wall processing.