

Change-Bitrate-on-the-Fly Technology Supports Intelligence, Surveillance and Reconnaissance Across Wireless Environments

ATLANTA, UNITED STATES, October 26, 2023

/EINPresswire.com/ -- The ability to ensure high-quality images, regardless of network conditions in a theatre of operations, has emerged as a critical success factor for Intelligence, Surveillance and Reconnaissance (ISR) activities that depend on video-based intelligence to establish situational awareness and support effective



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decision-making. This is because missions are rarely executed in controlled laboratory environments. Quite the opposite, says Mark Rushton, global defence and security lead at VITEC, a leader in the Intelligence, Surveillance, Target Acquisition and Reconnaissance (ISTAR) technology community.

In a podcast interview for journalists, Rushton explains that the platforms -- from airborne drones to terrestrial and underwater remotely piloted vehicles (RPVs) -- that carry ISR payloads are often deployed in the harshest

conditions and connected to users and operators over wildly inconsistent communication networks.

This, he says, is where Change-Bitrate-on-the-Fly technology comes in.

"Change-Bit-Rate-on-the-Fly technology is an increasingly important feature for the ISR community because it directly affects the quality and timeliness of tactical field intelligence. Receiving information too late because of network latency or being unable to understand what is being analyzed because of dropped packets that result in fuzzy or pixelated images can mean the difference between life and death," he says.

Innovations around ISR have led to cameras that capture video images in stunning detail and sensors capable of detecting subtle temperature changes in the environment, including ground-penetrating radar. As a result, more information can be shared from a single ISR platform than

before. It does, however, create a challenge. Change-Bit-Rate-on-the-Fly is a technology from VITEC that enables the community to address network constraints by adapting the bitrate as networking conditions change.

Preserving Image Quality Across Inconsistent Networks

“While devices to capture this wide array of data are becoming increasingly advanced, there are still challenges associated with the wireless networks used to access the data in terms of bandwidth, capability, and change. As these platforms shift from one data carrier to another, they will likely experience a difference in bandwidth available to support the data traffic. Sometimes, that delta can be quite significant. A cellular network might deliver up to 100 megabits in connectivity only to switch to a satellite signal that supports a fraction of that capacity,” says Rushton.



Mark Rushton, VITEC

Other challenges revolve around the roving nature of ISR platforms. The quality and strength of wireless signals are better when platforms are near antennas. The signals weaken as the distance from antennas grows.

“The connectivity environment is highly dynamic with bandwidth fluctuating from total capacity that can be cut by half and then a third of capacity as ISR platforms move away from an antenna,” he says.

Change-Bitrate-on-the-Fly makes it possible to dynamically address changes in network signal strength in real-time, ensuring the continuity of image quality. It represents a major improvement over the previous efforts to support ISR video requirements.

Based on VITEC’s 20 years of experience of working within the ISTAR community, the company has been able to develop a video product lineup that can stand up to the rigors and mission-critical nature of military and government operations.

“Because we’ve been embedded in this sector for so long, we’ve monitored trends, analyzed the problem points and developed solutions that help the entire community of interest maximize mission performance while minimizing disruptions in the uplinks and downloads of video content,” says Rushton.

VITEC has produced several multi- and single-channel encoders to optimize the size, weight and

power capabilities needed to address different ISR mission requirements. These solutions reduce payload size and weight while adding functionality – including advanced Change-Bitrate-on-the-Fly – to reduce latency and ensure image quality.

“Our goal is to provide reliable and effective methods for dealing with constrained networks while delivering reliable and high-quality signals to real-time decision-makers,” he concludes.

To read the full Q&A with VITEC's Mark Rushton, please visit [HERE](#).

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