

Intelsat General Corp. President On Epic's Military Uses

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The launch of the fifth in the Epic constellation of [Boeing](#)-made satellites, designed for maximum flexibility with the ability to interconnect between three different bands, will also be able to transmit full-motion video from small UAVs used by militaries, according to Intelsat General Corp. President Skot Butler.

The launch of Intelsat's Epic satellite 37e on an Ariane 5 rocket is scheduled for Sept. 29 in French Guiana on Flight VA239 along with Space System Loral's BSAT-4a for a direct-to-home television service in Japan. It was rescheduled from Sept. 5 after an anomaly was detected in an Ariane 5 solid-booster electrical component that has since been replaced.

According to Intelsat, 37e is the first satellite to interconnect between three bands: C, K_u and K_a.

Butler explains that Epic, a Boeing 702MP satellite, can connect spot beams to other spot beams rather than connecting through a gateway. "You can just pick two beams anywhere on the footprint of the satellite and say, 'I want to go from here to here,'" Butler notes. "That's true regardless of whether it's in K_u-, K_a- or C-bands."

The satellite also is able to optimize power in a given beam for at least one of the services being supported in that beam. "That's an added element of flexibility," Butler says.

Ultimately, that means users such as the U.S. military can offer more services with the same amount of capacity as in a traditional wide-beam architecture. In addition, these high-throughput satellites are able to reduce the threat of jamming.

"With the digital payload on Epic, we can filter out that uplink interference and reassign our user in such a way that we don't have to worry about finding that offender," Butler says. "If you think of it as two ends of a link, we can disconnect the link from User A to the satellite and give him another link."

All of that can be done by Intelsat with a couple of keystrokes, Butler says.

In addition to new ways of directing satellite bandwidth to customers, Epic satellites are improving the way they communicate with UAVs.

More than year ago, Intelsat General and L3 Technologies (then [L-3 Communications](#)) demonstrated a 200-300% increase in data throughput between a UAV and hub controller.

The company has also tested its ability to exchange full-motion video with a Class III UAV—the size of an RQ-21 Blackjack—to which wideband satellites historically could not transmit data because the antenna required was too large and heavy.

“With a high-throughput satellite, you can put a very small antenna—as small as 6 in.—to support full-motion video applications,” Butler says. “That really becomes a game changer.”

The company can transmit from a 6-in.-aperture (15-cm) terminal at 3.9 mbps.

Butler says the only thing preventing that application from proliferating across the military is the government’s acquisition process.

On larger Class IV and V UAVs, Epic satellites can transmit at even faster rates.

This year, Intelsat General began leasing services to the government on its first Epic satellite, the IS-29e, to support training for a communications-on-the-move platform, transmitting 3-5 times faster than data rates from wide-beam satellites. The company boasts that that is a good alternative to using government Wideband Global Satcom satellites.

Inasmuch as the Epic satellite will bring new technological capabilities, Intelsat General is also looking to change how its military users purchase broadband connectivity. The company is moving to a managed-services model that is common in the commercial market but less so in the military, where for a long time the business model was contractor-owned and -operated satellites for which the government paid a monthly fee to cover everything required. Says Butler: “We’re using Epic to create a platform that is going to have different types of offerings so users can buy in a different fashion.”

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