



● ● Henrik Axelsson, President of KenCast

Satellite Evolution Global

Q&A

## At the leading edge of content delivery ●●

Today KenCast serves the military as well as a growing number of global companies that distribute feature films, live sports events, concerts, digital signage, corporate content, news, educational content, and more. We spoke with Henrik Axelsson, President of KenCast, to find out more about the company's breakthrough technology and plans for the future.

*Crispin Littlehales, Executive Editor, Satellite Evolution Group*

**Question: When was KenCast established and how has the company evolved to meet the changing demands of its customers?**

**Henrik Axelsson:** Digital communications are prone to errors, with disruptions lasting from milliseconds to minutes. Missing or corrupt packets can cause the file or stream to be unavailable. Founded in 1993, KenCast's earliest patents were able to repair degraded data, re-ordered delayed data, and re-created deleted data. It was for these reasons that the US military became one of KenCast's earliest customers.

As the US Department of Defense (DOD) was building out a network called the Global Broadcast Service (GBS) to provide global connectivity via satellite to US joint forces in battle, issues quickly emerged. The DoD was unable to reliably send encrypted content to troops on the move and into areas where weather and atmospheric conditions were challenging.

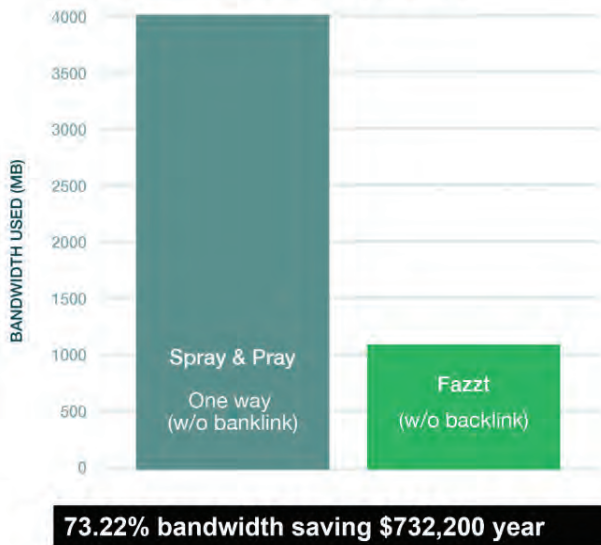
This was compounded by the challenge of not permitting a backchannel to validate received data (as this backlink would risk exposing military installations and troops to revealing their position). Instead, in this one-way network, the military had little choice other than to "spray and pray," sending content multiple times in the hope that all content sent would be received.

Carousel delivery, where data is sent again and again, can ultimately work, but it is unreliable, time-consuming, and inefficient. This is especially true in multicasting—point-to-multipoint—when the sender needs to



Photo courtesy KenCast ●●●

### Fazzt Savings vs Spray & Pray



Fazzt software is the culmination of decades of development work catering to a diverse set of customers and their wish list. ●●●

ensure 100 percent of the recipients each receive 100 percent of the file or stream. Inefficiency increases and costs rise. What was needed was a way of ensuring error free transmission the first time around to every recipient.<sup>1</sup> The DoD invited over a dozen major companies to address its need for secure and reliable delivery of critical content. KenCast already had a reputation within military circles for exceptional satellite error correction, based on its success in content delivery to globally dispersed naval ships via the Armed Forces Radio & Television.

KenCast offered its advanced form of Forward Error Correction (FEC) and, after exhaustive testing, successfully demonstrated efficiency, reliability, operational effectiveness, and cost savings. These innovations, plus KenCast's rich software suite of content delivery tools, impressed the DoD which then selected KenCast as the content delivery solution for GBS.

### Question: What are the major challenges facing content distributors and how does KenCast solve them?

**Henrik Axelsson:** In 2023, both the general public and businesses expect to receive an endless stream of content anywhere—whether in remote areas, in places with poor infrastructure, flying in a plane, at sea, or on the road. What's more, no one wants to pay much to receive it. Content distributors face steep technical and economic challenges to reliably meet these demands. To make matters worse, satellite, television, or 5G multicasting transmissions are often at the mercy of weather. Mobile receivers experience gaps in line-of-sight visibility as they pass through tunnels, overpasses, or behind obstacles. Moreover, the fact that transmitters (LEOs/ MEOs) and receivers are scattered across the globe and darting about at high speeds—on land, at sea, and in the air—heightens the likelihood of communications errors.

I previously mentioned FEC. In some ways, the algorithm behind FEC is like a Sudoku puzzle where, if a user receives enough numbers, they can figure out what's missing. Similarly, if an algorithm can solve all the missing pieces, it can complete the entire file or streaming video. With FEC, missing pieces are reconstructed using supplemental packets that were generated prior to transmission and broadcast with the original file or stream.

As an example, the premier movie distributors in the Americas use KenCast's Digital Cinema solutions to distribute their films to more than 5,000 cinemas in over 20 countries in the western hemisphere. To do so, they transmit their content through KenCast's headend software and hardware at a teleport, send signals to a satellite thousands of miles into the sky, and then transmit the data into KenCast's CinemaPro appliance in the exhibitors' projection booths. When they send that movie, they also add a small percentage of supplementary packets of our proprietary FEC. Movie files are amongst the largest files there are (with some over 1TB). When a film is received, different theaters will lose different parts in transit (rain in Florida, snowstorm in Alaska) but our software repairs any

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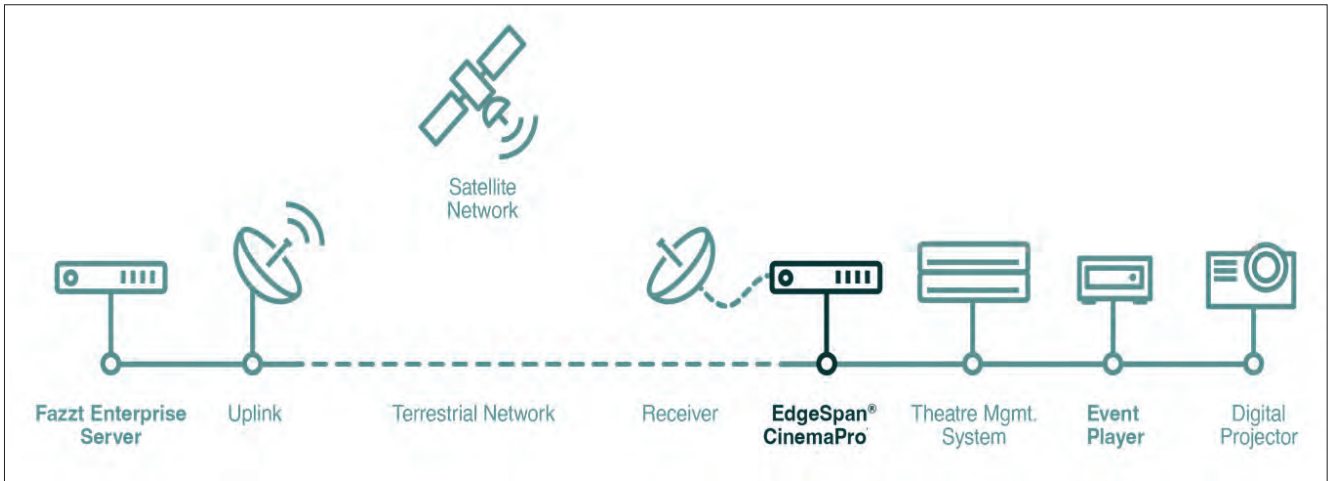


Figure 1 KenCast Digital Cinema Workflow ●●●

lost data. As a result, millions of theatrical releases have been digitally multicasted to thousands of cinemas and tens of millions of theater goers across the hemisphere, all without a hitch. The same is true for live events. In Central and South America, stretching for thousands of miles over mountainous terrain and challenged by terrestrial connectivity that is insufficiently fast and reliable enough to push feature films and live events, delivery via satellite is a must. In the past year, KenCast's cinema solutions enabled theaters across the region to stream the FIFA World Cup, UFC fights, and high-profile live music events from musical artists, including Coldplay and the K-Pop group BTS. Fans flocked to theaters to enjoy these events together. It would have been impermissible had any theater suffered an outage.

**Question: Who are your customers and what kinds of applications does your technology support?**

**Henrik Axelsson:** In the first two answers, I mentioned the US military and digital cinema. They are two of the larger sectors we serve. Here are how some other organizations that use our software.

- Retail and hotel chains use our signage solution to display ads or notices for particular locations and conditions.
- Educational institutions supply teaching and test materials to students across continents.
- Leading news networks rely on KenCast in over 99 countries to relay the latest stories.
- Maritime fleets provide media streaming services and



KenCast serves the US military sector. Photo courtesy KenCast ●●●