

BOOSTING SNG VIA ALL-IP NETWORKS

A silhouette of a satellite news truck is shown against a vibrant sunset sky. The truck is equipped with a large satellite dish on its roof and a storage container at the rear. The sun is low on the horizon, creating a warm, orange glow. The title 'Setting The Scene' is overlaid in white text on the left side of the image.

Setting The Scene

SNG or Satellite Newsgathering is an integral part of any broadcaster's business. In our world of rolling news, sporting and live events the transmission of video from the scene has become essential, giving the feeling of immediacy, of being there.

The last few years have heralded a significant change in the media and broadcast sector. Applications and technology are evolving, on a variety of different levels. The digitization of the sector has meant that the use of IP is overtaking more traditional means of broadcasting. This is a market in transformation and it's an exciting time as more and more becomes possible. In the broadcasting world of today, a simple contribution link alone is not sufficient. Operators require access to the Internet, to file transfers, email and newsdesk applications.

The effect of COVID-19 has also had an impact on the current broadcasting landscape in positive and negative ways. The requirement for people to stay at home has resulted in a huge rise in subscriptions for and overall usage of streaming services. This demand is creating congested networks and a struggle to serve some customers on overloaded terrestrial networks.

On the other hand, the pandemic has negatively impacted outside broadcasting (OB), especially due to the lack of live sports broadcasts and newsgathering, as SNG trucks are parked up waiting for some sort of normality to return.

The role of satellite in this transformation is going to be significant due to its innate and unique ability to deliver content to a large geographical area, anywhere on the planet and far beyond the reach of any terrestrial network. The satellite industry itself is also going through change as operators introduce new, High Throughput Satellites (HTS) that deliver more throughput, low latency services for less cost.

The IP Evolution of Newsgathering

Long gone are the days when a journalist would have to physically transport a tape back to HQ after covering a story so that it could make its slot on the evening news. Technology and digitalization has transformed OB and exponentially expanded broadcaster's capabilities in the field. There are currently three methods of newsgathering used by broadcasters.

Traditional SNG

SNG is the use of mobile communications equipment for the purpose of worldwide newscasting. Mobile units are usually vans equipped with advanced, two-way audio and video transmitters and receivers, using dish antennas that can be aimed at geostationary satellites.

Traditionally, newsgathering and sports coverage was handled by dispatching large trucks manned by various technically skilled people for each and every event. Each service had its own communication requirements. Bi-directional communication was often limited to voice using solutions such as ISDN. While these trucks had great coverage and could provide high bandwidth and availability, for many newsgathering operations they were simply too expensive to build and maintain and well as too large to get close to an unfolding scene.

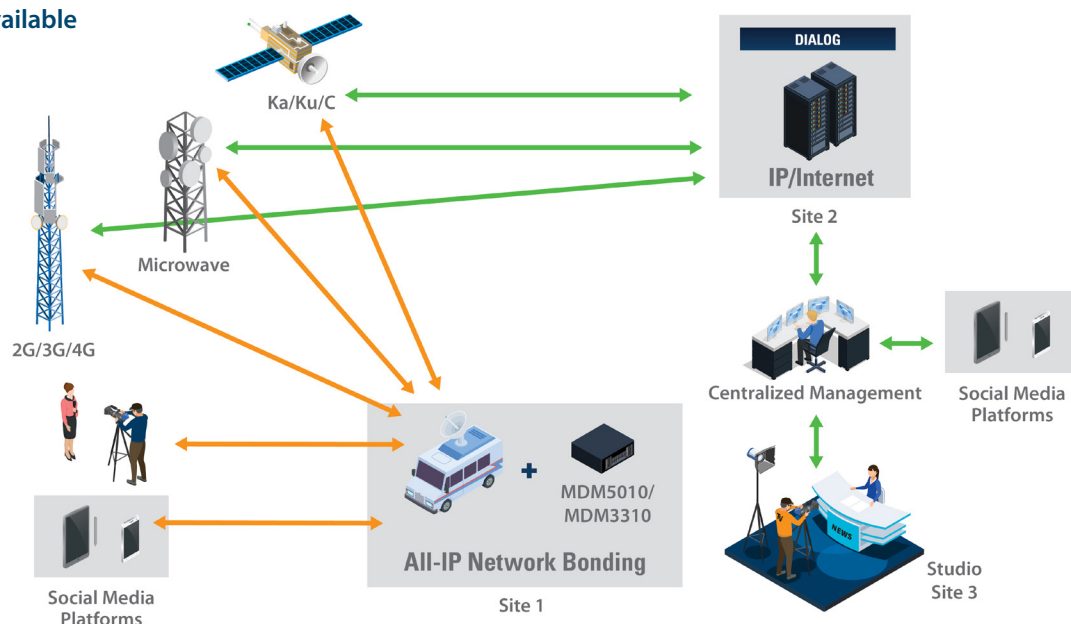
Cellular Bonding

The industry then made a move to cellular bonding technology, which has become an increasingly popular choice for broadcasters. Utilizing 3G and 4G cellular networks to bring video back from the field, cellular bonding involves dedicated equipment and All-IP transmission. It is easy to use and enables broadcasters to get close to an event. However, cellular bonding relies upon bandwidth availability and if networks are contended, the overall quality of the transmission is negatively impacted.

Blending All-IP Networks

The next shift in newsgathering technology is occurring with the blending of all available IP networks. This eradicates the concern of degradation of transmission when relying on cellular bonding by ensuring that satellite is used when IP terrestrial networks are unavailable, do not provide enough bandwidth, suffer from jitter and are not cost-effective. In these cases, the system simply switches to satellite in order to create a highly reliable connection no matter where the news or event is breaking. Over recent years, there have been significant advances in satellite technology that offers broadcasters new means of delivering high-quality video. For example, Ka-band satellites offer higher throughput and can be used with smaller terminals that require less power than traditional the Ku-band satellites that are traditionally used on SNG trucks.

Blending all available IP Networks

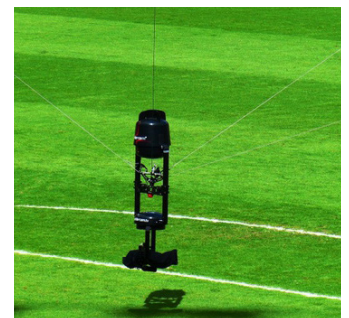


Trends

Ingest Trends

Advances in technology are transforming newsgathering and mean that for those covering the news, there are more options than ever available to capture footage.

- **Mobile Journalism (MoJo):** For journalists themselves, the smartphone and tablet have brought about a paradigm shift in the way news is gathered. Portable electronic devices are now widely used to gather news, edit and distribute news. This means that a journalist must now be able to do everything. No longer is a team assembled with specialist knowledge. Each journalist must be able to bring together video, words and graphics to create their own broadcast.
- **Drones:** The use of drones to capture footage for news outlets is on the rise. Drones enable crews to get to the story where they physically can't and to give a different perspective on the news. This is especially useful for sports broadcasting and coverage of disasters.
- **4K UHD:** An increasing amount of transmissions are now being carried out using Ultra HD and therefore highly reliable, high throughput capacity is required.
- **Multicamera:** Use of multiple cameras means garnering more high-quality content from more locations and perspectives.
- **IP Services:** Skype and Zoom calls are also becoming a staple of the remote studio, especially due to the impact of coronavirus. However, they require sufficient bandwidth to ensure that these video applications run smoothly.

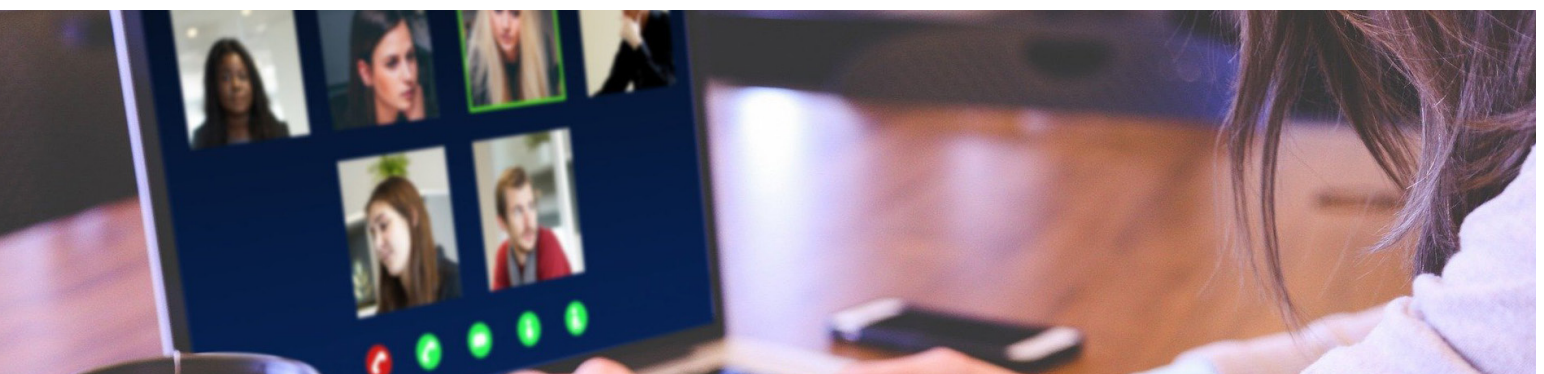


Mobile Journalism (MoJo)

Drones

4K UHD

Multi-Camera



IP Services

Production Trends

The trend for remote production means that IP is essential for any newsgathering organization. An increasing amount of production is being carried out from remote locations without the standard technical infrastructure that would normally be expected. This is only set to increase with the increase of MoJo or mobile journalism and the use of multiple cameras. A great deal more editing must be completed at the remote studio to prepare for transmission.

Transmission Trends

The move towards IP means that broadcasters and service providers are now looking to aggregate IP bandwidth by bonding all available IP networks. To cover live news events, camera crews deploy mobile solutions that can transmit more than just video. They require access to multiple applications, including Voice-over-IP (VoIP), video clip transfer, web and archive browsing, email and social media, as well as newsroom applications. These all require a reliable bi-directional IP “multiservice” communication link of sizeable bandwidth to allow news crews to operate like they are in the studio.

To aggregate enough IP bandwidth to concurrently handle all services a remote location requires, the specialist “cellular bonding” industry now bonds all available IP networks at a given point in time – whether it is 3G/4G, microwave, Wi-Fi, fiber, Ka- or Ku-band satellite.

There are pros and cons associated with each method of transmission. However, the ideal scenario is to be able to shift to the most reliable and effective method when necessary.

3G/4G

- Pros: Low cost, medium delay, abundant in urban areas
- Cons: Medium throughput, uncontrolled bandwidth, bandwidth contention possible, susceptible to jitter, global availability

Microwave

- Pros: Low OPEX, low delay, high throughput, controlled bandwidth
- Cons: High CAPEX, portability, low coverage area, flexibility of location

WiFi

- Pros: Very low cost, medium delay, abundant in urban areas
- Cons: Very low throughput, uncontrolled bandwidth, bandwidth contention possible, susceptible to jitter

Fiber

- Pros: Low OPEX, low delay, highest throughput, controlled bandwidth
- Cons: High CAPEX, low coverage area, flexibility of location

Satellite

- Pros: very high availability (Ka/Ku Band), high and scalable throughput, low jitter, All-IP, pricing is coming down (HTS)
- Cons: satellite link delay, cost challenge

High Throughput Satellites (HTS) Benefits for Newsgathering and Broadcasters

The satellite industry itself is also going through change as operators introduce new, High Throughput Satellites (HTS) that deliver higher throughput, low latency services for less cost. HTS are changing both the economics and the entire user experience. New constellations are being announced or launched continuously, especially for new orbital architectures such as LEO/MEO. According to NSR, there will be 14 times more capacity by 2027. This is projected to drive down the overall cost of satellite capacity to spur new growth and is set to offer opportunities for broadcasters by making the environment even more favorable for future deployments.

Newtec Dialog Technologies for SNG

Newtec Dialog is a single-service and multiservice VSAT platform that allows operators and service providers to build and adapt their infrastructure and satellite networking according to business or missions at hand. Based on the cornerstones of flexibility, scalability and efficiency, the Newtec Dialog platform gives the operator the power to offer a variety of services on a single platform.

MxDMA: Our award-winning technology that combines the benefits of MF-TDMA (ideal for bursty traffic and higher contention services) and the spectrum efficiency of SCPC. MxDMA scales in MHz independent of the number of terminals so customers may be served with a single return link for the majority of their use cases, minimizing operational complexity and maximizing statistic multiplexing:

- On-demand variable bandwidth
- Allocation
- Seamless carrier resizing without
- packet loss or additional jitter
- No fragmentation of the space segment
- Support of high bitrates

Multi-Level QoS model

- Manage QoS in VSAT forward & return with the same flexibility as for terrestrial networks
- Provide SLA guarantees across a population for different services in changing weather conditions.

SATLink Manager: SATLink Manager software module allows broadcasters and telco operators to efficiently manage the transmission resources and capacity, and at the same time guarantees error-free link setups by fully automating the satellite ground equipment. The satellite resource management capabilities and equipment automation of the SATLink Manager ensure bandwidth optimized, cost effective, permanent and occasional use transmissions.

- Space segment allocation and time-based session rights
- Session based QoS profile switching (CIR/PIR)

Powerful Application Programming Interfaces (APIs)

- Powerful APIs enabling integration in higher level management systems

Reliable Transmission - No Matter Where the Story Breaks

All-IP newsgathering provides a very flexible solution that enables reliable broadcasts and reduces overall costs. Scalability in geography and volume is also enabled by the IP-based transmission, creating endless options for content distribution across the globe. Satellite is too often overlooked in the broadcast world, as many still consider it an expensive option and perhaps even consider it latent, but it is time to start busting some of these myths. Satellite is a huge asset to any broadcaster's portfolio and it has an enormously bright future in the sector. ST Engineering iDirect offers an extensive product portfolio that answers the broadcaster's requirement for performance, reliability and efficiency as well as a multi-service platform that is highly flexible and able to deliver the myriad of applications used in the field today. Where terrestrial networks become congested, satellite steps in. Where terrestrial networks cannot reach, satellite can. Where the ability to multicast is not available, satellite prevails. Where terrestrial connectivity is not available, satellite provides the infrastructure no matter where it's needed. The media landscape may be evolving, but satellite has the agility to move with it – anywhere. Learn about the transformation of the sector here: <https://www.idirect.net/media-and-broadcast/>