

BOOSTING SNG VIA ALL-IP NETWORKS

Satellite Newsgathering is a crucial part of any broadcaster's business. In our world of news, sporting and live events the transmission of video from the scene is essential.



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Setting The Scene

Over the years we have seen a change in the media and broadcaster sector. On different levels, we can see applications and technology evolving with the digitization of the sector meaning that the use of IP is overtaking the traditional means of broadcasting. In the broadcasting world of today, a simple contribution link alone is not sufficient, with operators needing access to the internet, email, file transfers and newsdesk applications.

The effect of COVID-19 has also had an impact on the current broadcasting landscape, in both positive and negative ways. The need for people to stay at home has resulted in a large rise in subscriptions for and overall usage of streaming services. This has led to a struggle in serving some customers on overloaded terrestrial networks, creating congested lines of communication.

In contrast, the global pandemic has negatively impacted outside broadcasting (OB) due to the lack of live sports broadcasts and newsgathering. The role of satellite in this change is going to be significant, due to its unique ability to deliver content to a large geographical area, anywhere on the planet and beyond reach of any terrestrial network. The satellite industry itself is going through change as operators introduce new High Throughput Satellites (HTS) that deliver more throughput.

The IP Evolution of Newsgathering

Gone are the days when a journalist would physically transport a tape back to HQ after filming a story so it could make its slot on the evening news. Technology and digitalization has transformed OB and expanded broadcaster's capabilities. There are currently three methods of newsgathering:

Traditional SNG

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

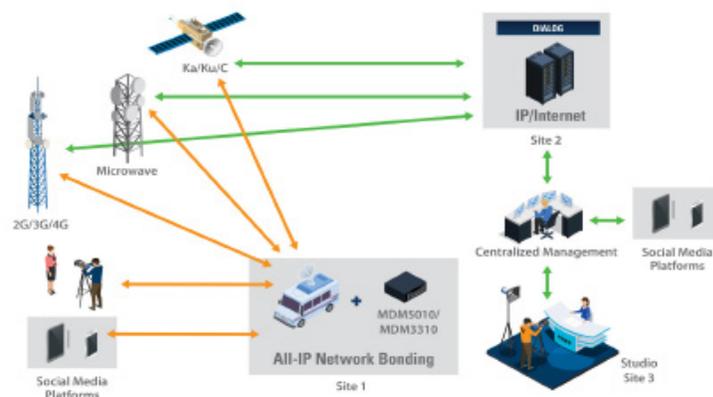
Newsgathering and sports coverage was traditionally handled by dispatching trucks manned by technically skilled people for each event, each service has its own connectivity requirements. Bi-directional communication was often limited to voice using solutions such as ISDN. While these trucks had good coverage and could provide high bandwidth and availability, for many newsgathering operations they were too expensive to maintain as well as too large to get close on scene.

Cellular Bonding

The industry then moved to cellular bonding technology, which has become a popular choice for broadcasters. Cellular bonding involves dedicated equipment and All-IP transmission, utilizing 3G and 4G networks to bring video back from the field. However, this method relies upon bandwidth availability, meaning that the quality of transmission is negatively impacted if networks are congested.

Blending All-IP Networks

The next shift in newsgathering capabilities is occurring with the blending of all available IP networks. This eliminates the concern of degradation of transmission when relying on cellular bonding, by making sure that satellite is being used when IP terrestrial networks are unavailable. In these cases, the system switches to satellite to create a highly reliable connection anytime and anywhere. Over time, there have been significant advances in satellite technology, offering broadcasters new means of delivering high-quality video.



Blending all available IP Networks

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Trends

Advances in technology are changing newsgathering, providing more options than ever to those covering the news.

- **Mobile Journalism (MoJo):** For journalists, the smartphone and tablet have transformed the way that news is gathered. Portable electronic devices are now widely used to gather, edit and distribute the news around the world.
- **Drones:** The use of drones is on the rise. Drone allow crews to capture footage where they physically can't. 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:** Using multiple cameras means capturing more high-quality shots from more locations and perspectives.
- **IP Services:** Communication via Zoom and Skype calls are becoming essential, especially due to the impact of coronavirus. However, they do require sufficient bandwidth to ensure that the video runs smoothly.



Mobile Journalism (MoJo)



4K UHD



Drones

Production Trends

The trend for remote production means that IP is essential for any newsgathering operation. More production is being carried out from remote locations without the standard technologies that would normally be expected. This is only set to increase with the rise of MoJo or mobile journalism and the use of multiple cameras.



Multi Camera



IP Services

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Transmission Trends

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 sizable 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, low delay, abundant in urban areas
- Cons: Medium throughput, uncontrolled bandwidth, bandwidth contention possible, susceptible to jitter, global activity

Microwave

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

Wi-Fi

- 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

The satellite industry itself is also going through change with the introduction of 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.



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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.

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