WHITEPAPER

DVB NATIVE IP: THE GAMECHANGER FOR CONTENT DISTRIBUTION

PHOTO BY ROBERTO NICKSON ON UNSPLASH

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DVB NATIVE IP: THE GAMECHANGER FOR CONTENT DISTRIBUTION

THE RISE OF VIDEO

In recent years, the global entertainment landscape has undergone a seismic shift, thanks to the remarkable growth of the video streaming market. Streaming platforms, characterized by their on-demand access to an extensive library of films, TV shows, and other video, including live content, have revolutionized the way people consume entertainment. The industry's rapid expansion can be attributed to numerous factors, including technological advancements, changing consumer preferences, and the emergence of new players in the market.

The proliferation of high-speed internet connections, the widespread adoption of mobile devices, and the development of advanced video compression algorithms have significantly contributed to the accessibility and convenience of streaming services. With the advent of 4G and 5G networks, users can seamlessly stream their favorite content anytime, anywhere, without the need for traditional broadcast methods.

Changing consumer preferences have also been instrumental in propelling the video streaming market forward. Today's viewers increasingly value flexibility, personalization, and the ability to curate their own entertainment experiences on their personal mobile devices. With streaming services offering tailored recommendations, user-friendly interfaces, and the freedom to choose what, when, and how to watch, consumers have been quick to embrace these platforms as their primary source of entertainment. The ability to binge-watch entire seasons, discover niche content, and access a vast library of international productions has further contributed to the attractiveness of streaming services.

The growth of the video streaming market has not been limited to developed countries alone. With increased internet penetration and smartphone adoption in emerging markets, streaming services have found new audiences globally. This expansion has opened up vast opportunities for content creators, enabling their work to reach a global audience without the traditional barriers of distribution and localization.

THE STATS BACK IT UP

According to Cisco, 80% of internet traffic worldwide is video. Boosted by demand on social media platforms as well as the popularity of streaming services, this is set to continue.

Statista predicts that OTT TV and video revenue is expected to reach 235 billion U.S. dollars by 2028, nearly double the figure reported in 2021. The market has experienced massive growth over the past years, with revenues growing exponentially from 6.1 billion U.S. dollars in 2010 to over ten times that amount in 2021.

It's a meteoric rise, but with demand burgeoning in every region, it does present some limitations too – particularly for end-users on-the-move, and for home users in regions with insufficient terrestrial coverage trying to watch popular events. The digital divide is a multifaceted issue with one main characteristic: a disparity in access to high-speed internet across reliable devices. This affects the capacity of the population to access this service in three main ways: reach, cost and scalability. However, there is a solution that, although in its early stages of adoption, can effectively address these issues and provide a highly efficient means of delivering video and other data services over satellite. It's called DVB Native IP over Satellite.

This whitepaper will look at the barriers that broadcasters and service providers face and how the emergence of Native IP over Satellite can help overcome those barriers.

ENTER DVB NATIVE IP

Back in 2021, a group of active DVB members came together to develop an ecosystem that took the DVB-NIP standard and created a working solution that can be implemented today.

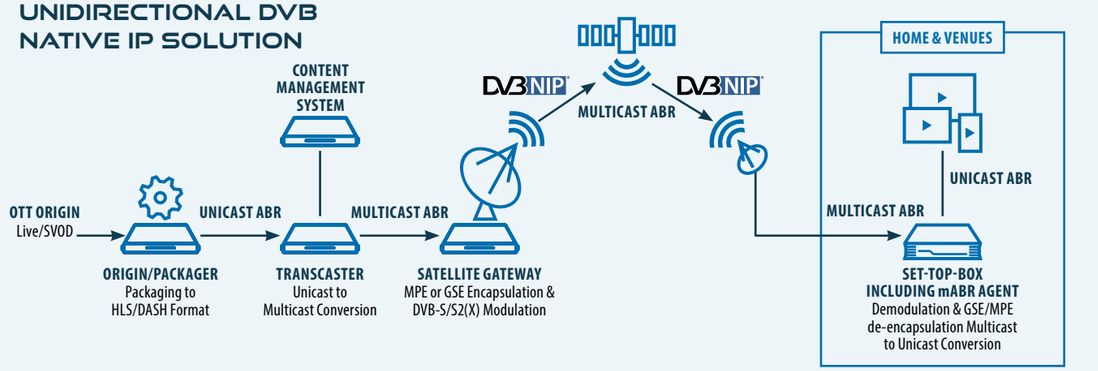
"DVB has a highly successful track record of developing media delivery specifications that drive major industry transitions, such as the shift from analogue to digital and the jump from SD to HD and on to UHD. Now, with DVB-NIP we see truly converged media delivery becoming a reality, underpinned by an open standard that will drive the next major transition."
— Emily Dubs, Head of Technology, DVB Project Office

This ecosystem has appeared in live demonstrations at major tradeshows around the world and is now finding its way into real-life use cases. Eutelsat and ST Engineering iDirect have contributed to the DVB NIP Technical Working Group, with Eutelsat taking a front seat as one of the members tasked with steering the group.

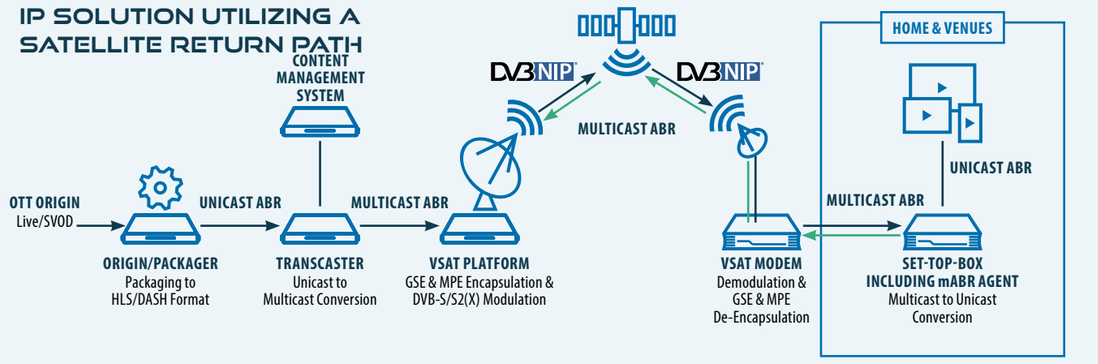
The DVB-NIP standard bridges the gap between broadband and broadcast networks and paves the way for a truly converged media distribution solution. It uses the efficiency of broadcast networks for large-scale content distribution to modern IP devices, fully integrating broadcast technologies with those used in broadband networks.

Distribution of OTT over satellite using multicast can serve multiple markets and applications. The distribution format isn't limited to video (live/linear, SVOD/Subscription Video on Demand) only, also files such as push VOD (Video on Demand) and PDFs can be pushed out to receivers. Both live or linear distribution can happen unidirectionally or bi-directionally, where the bi-directional delivery utilizes a satellite return path using a VSAT platform.

UNIDIRECTIONAL DVB NATIVE IP SOLUTION



BIDIRECTIONAL DVB NATIVE IP SOLUTION UTILIZING A SATELLITE RETURN PATH



NETWORK CHALLENGES

Streaming of content to IP-enabled devices has become an imperative for content owners and distributors globally.

The main problem with streamed content, however, is that not all users are equal, which presents a big problem for broadcasters and providers. Patchy broadband service equals a frustrating viewing experience for many, and several regions are still unserved by any terrestrial connectivity.

In order to extend reach and serve users ubiquitously, providers need to look beyond traditional terrestrial methods of connectivity to ensure greater reach and higher QoE (Quality of Experience). Satellite, which has no geographical boundaries, has been overlooked for far too long in the case of IP-video distribution.

Satellite has been very successful in Direct-to-Home TV delivery, this has been its traditional stomping ground. Times have changed and it's time to apply some out-of-the-box thinking. Traditional linear TV consumption, while remaining the largest component of total TV viewing and still relevant, is in decline. The sheer growth of the amount of IP-based linear and file-based/On Demand video content available to global consumers, coupled with the changing consumer viewing preferences, dictates that we look at ways in which satellite technology can cost-effectively and reliably benefit providers of video streaming services.

With so many factors to consider, it's no surprise that service providers are under increasing pressure when it comes to choosing the right connectivity technology for their networks.

WHY DVB NATIVE IP OVER SATELLITE?

STREAMLINING OPERATIONS

With content being produced and delivered over a single Native IP platform, broadcasters have an opportunity to streamline their OTT content and satellite broadcasting services. These show many similarities, such as content processing, application, content player and user analytics, independent to how the content is delivered to the end-user. On the receive side, a set-top box with satellite front-end and Multicast-ABR client gives access to these services, whereas the other services are accessible through OTT.

CONSISTENT USER EXPERIENCE

One of the key advantages that a Native IP over Satellite solution offers is a closing of the digital divide. End-users can access a Native IP over Satellite-enabled service using the same device and application whether they are on-the-move or at home, and whether they access the service through broadband or OTT. In this perspective, their interaction with the OTT service is seamless and natural, increasing user satisfaction and stickiness to the service.

SUSTAINABILITY

The power consumption to distribute the same content to all consumers is drastically lower in multicast than terrestrial IP distribution. The carbon footprint of broadcasting one hour of satellite TV corresponds to the emission of 0.11g of CO^2, which is the equivalent of driving a car just 0.5 metres. Both broadcasters and OTT service providers can provide a better service for little or no change in the workflow when it comes to media delivery platforms.

USE CASES

Native IP over Satellite doesn't simply restrict its benefits to streaming services and broadcasters. There are a host of sectors that can take advantage of the standard. Aside from video, other file-based documentation can be transmitted using Native IP over Satellite technology. This, therefore, opens the door to a much wider range of users than those who solely consume OTT content. Here are just a few of the notable and emerging use cases where traction is being gained.

REMOTE EDUCATION/ DISTANCE LEARNING

DVB-NIP is set to transform the remote education sector. For many students, especially those in areas where broadband is not easy to access, the ability to access virtual education content differs greatly from that of students in areas that are well-connected.

According to a study published by UNICEF, almost half a billion students live in countries with lack of public policies to support remote learning or resources are not available. COVID exposed the chasm between those with and those without connectivity.

Not all students are lucky enough to have a DSL or fibre connection that runs either to their school or their home, yet a lot of educational material today is digital. This means that there are many students being left behind due to the Digital Divide. This has a domino effect on their lives, ultimately impacting their development and future opportunities.

With Native IP over Satellite, there is a huge potential to distribute educational content such as live public broadcasting, VoD and file-based assets and resources such as e-books, papers, examinations and other documentation using cost-effective satellite infrastructure. File-based content delivery via Native IP over Satellite allows students to download content onto their mobile devices, even in regions where terrestrial connectivity is limited. If bi-directional learning is required, a VSAT return path is easily implemented.

"There's the global push to close the digital divide. There are two main components required to achieve this: Expand or improve connectivity and provide cost-effective platforms to support virtual learning globally."
— Alex Beach, Head of Media and Broadcast, ST Engineering iDirect

Distance Learning is not a new education model. However, the global pandemic accelerated the proliferation of virtual education models as students were mandated to quarantine at home. As a result, governments across the world are prioritizing distance learning services for their constituents. The challenge of providing such services to underserved populations in regions with limited or no connectivity has always been a considerable barrier. The Native IP over Satellite standard addresses these challenges by providing a mechanism to bring distance learning services where they are needed most.

In Peru, a mere 30% of the population has access to public broadcasting and news services. This presented major issues during the global pandemic. Not only did the majority of the population not have access to distance learning resources, but they also had no access to live news or governmental messaging.

In an effort to ensure vital services access to all Peruvians, the Government of Peru has selected Native IP over Satellite technology to deliver live and file-based content to all regions of the country. Soon, people all over Peru will have access to those vital services.

MARITIME

The Maritime sector is making an impressive comeback after the global pandemic essentially brought it to a halt, with deep financial implications. As the pandemic subsided, the industry began to make up its losses and both the cruise and the merchant sector are back to full strength with demand for goods and leisure travel at an all-time high.

The Cruise industry shifted some focus towards providing high-performance connectivity onboard for customers. Cruise consumers demand the connectivity needed to stream video. Although video requires large amounts of bandwidth, connectivity to support an onboard streaming population has become 'table stakes'. The same applies to crew welfare in the Cruise, Commercial Shipping industries, and for oil and natural gas platforms globally. Increasingly, the demand for better and more video content is increasing.

By using Native IP over Satellite, cruise operators can take advantage of a very efficient way of delivering video. Video itself is very dense and comprises greater than 80 percent of internet traffic – and this demand just keeps on increasing. This creates a problem for vessel operators that are also dealing with cost pressures. The addition of more bandwidth costs more money, and this creates the question of Return on Investment (RoI). The question that the operators need to ask is whether they add more bandwidth, and how can they be more efficient with the bandwidth they already have? Native IP over Satellite provides a more efficient way of using the existing bandwidth that is already allocated and it's optimized because 80% of the Internet traffic is video. Native IP over Satellite uses less bandwidth to supply an augmented video experience to passengers and crew.

"For the Maritime market, Native IP over Satellite provides a more efficient way of using the existing bandwidth and capacity. It's optimized for video... which accounts for at least 80% of internet traffic."
— Alex Beach, Head of Media and Broadcast, ST Engineering iDirect

AERONAUTICAL

Like the Maritime sector, the Aero industry is experiencing a post-COVID bounce back as millions of people take to the skies again for business travel and holidays.

The Aero sector also faces constant struggles to reliably connect passengers and crew with streaming services due to the complexities involved with being at 35,000 feet. It's a very similar story, as passengers want to remain connected, with excellent QoS, at all times during the flight. The familiar story of the majority of traffic consisting of video is just as true in the air as it is on land or at sea.

However, in a space where the majority of passengers are trying to access large amounts of data, the available bandwidth is consumed very quickly, and the network becomes congested and unable to cope with demand.

Native IP over Satellite can help to reduce the inability of customers to connect to a video service, never mind retain it during an entire flight. Delivery via this method can reduce congestion on the overall network, ensuring a seamless experience with no buffering, throughout the entire flight.

"Native IP over Satellite can help solve the persistent problem of connectivity in the air. On board aircraft, accessible broadband is often of very low standard and often unable to support video streaming. Airlines can now assure their passengers that they will be able to access the content of their choice in-flight – a key differentiator in a highly competitive market."
— Alex Beach, Head of Media and Broadcast, ST Engineering iDirect

HOSPITALITY

Native IP over Satellite provides an ideal solution for hotels and other hospitality venues and public places such as bars and restaurants where guests often use multiple mobile devices to stream content.

"Consumers experience network congestion from poor Wi-Fi or broadband connectivity in hospitality venues, so there's a real interest for providers to be able to enhance this user experience and to bring video content in places such as hotels, bars and restaurants. When it comes down to it, satellite has always been, and it still is a golden medium to distribute live video."
— Annamaria Recchia, VP Commercial Development, Marketing & Product, Video, Eutelsat

Frustratingly, in high-usage environments such as these, networks can become very congested with overloaded Wi-Fi networks which negatively impacts the streaming experience. Providers can bypass this congestion using a Native IP over satellite solution. This is also a convenient solution for small boutique hotels that often do not have a main screen in the hotel room but will instead provide a tablet for guest use. Using Native IP over Satellite, premium content can easily be distributed.

In particular, at sporting events where people tend to congregate to watch live sporting events and also provide comment on the events via social media, Native IP over Satellite can assure a high-quality experience without buffering – an essential requirement for anyone watching live sport.

Native IP over Satellite can work as a complement to terrestrial connectivity where set-top boxes can also be connected to the internet to retrieve other content. This is also an ideal solution for venues that are poorly served by broadband or terrestrial connectivity. Native IP over Satellite technology can also provide both linear and VoD content solely via satellite, with no reliance on internet connectivity, delivering one-way content that is live or cached.

NEXT-GEN TV SERVICES

Next generation Direct to Home (DTH) services will also benefit from Native IP over Satellite. In addition to distributing linear TV, these networks will also be able to supplement their offerings with OTT content, enabling them to differentiate themselves in a highly competitive environment.

"The introduction of DVB Native IP over Satellite is really about improving the user experience in the Direct to Home TV field. It's about enabling broadcasters to do more with what they have by including OTT content."
— Annamaria Recchia, VP Commercial Development, Marketing & Product, Video, Eutelsat

At present, viewers tend to consume their DTH content on a main screen. However, utilizing Native IP over Satellite technology, coupled with new set top boxes, viewers will be able to consume live feeds simultaneously on the main screen and also on mobile devices and laptops. This means that every member of a household can be served by the same Native IP over Satellite technology.

Native IP over Satellite also provides an ideal solution for customers located in remote or rural areas that are unserved by terrestrial broadband or where it is patchy and unreliable. Native IP over Satellite can ensure delivery of DTH content directly to viewers. Native IP over Satellite will drastically improve the user experience for DTH viewers. This is currently a new state-of-the-art technology and will need to be adopted by current and new entrants. However, once deployed by an initial provider, the market will see a vast improvement in user experience and the ability to easily and cost-effectively extend reach.

WILL MY BUSINESS BENEFIT FROM NATIVE IP OVER SATELLITE? SOME KEY QUESTIONS

Does your business need Native IP over Satellite? Bandwidth is expensive and if you have a lot of demand as the sectors listed in this whitepaper do, it would be worth asking a few key questions. Yes, bandwidth costs, so instead of purchasing increasing amounts of bandwidth, why not ask how your customers are using bandwidth. Do you understand your customers' connectivity behavior? Are you getting RoI from the bandwidth you have invested in? Do you know how much bandwidth you really need? What happens if you start to prioritize efficiency over buying more bandwidth?

These are all critical considerations that businesses need to ask themselves. By adopting Native IP over Satellite, which is highly efficient, bandwidth costs can actually be lowered.

THE GAME CHANGING SOLUTION FOR BROADCASTERS AND PROVIDERS

Satellite technology has an important role to play in the distribution of OTT video. For too long it has been overlooked, yet it provides a highly efficient multicast uni or bi-directional means of distribution. The advent of the DVB NIP standard now offers content providers the opportunity to cost-effectively deliver their content to unlimited users with no geographical boundaries whilst maintaining high Quality of Service.

In this age of video, isn't it time your business turned to DVB Native IP over Satellite?