

Sat**Expander**



TRANSFORMING VIDEO EXPERIENCES FOR THE 5G ERA

High-QoE 5G video delivery for mobile
and fixed wireless users

Application Note

THE FUTURE OF TV IS 5G

5G is set to become the content-of-the-future distribution network, revolutionizing the way we watch and experience video. Enabling ultra-fast speeds and low latency like never before, 5G is unleashing a new generation of experiences on any screen.



TAKING CDN TO THE EDGE

Acknowledging the link between video quality, viewer expectations and network bandwidth, SatExpander is proposing a new approach to video delivery over mobile networks. Leveraging Multi-access Edge Computing (MEC) for video streaming and all-in-one compact CDN at the network far / deep edge - either cell sites or aggregation sites, SatExpander brings video processing closer to users. This reduces the volumes of video that must be moved, the consequent traffic, and the distance the video must travel, minimizing network congestion. Mitigating heavy traffic loads to avoid network congestion, SatExpander edge-based video delivery solution enables the delivery of high definition (HD) and ultra high definition (UHD) resolutions as well as significantly improves latency.



THE VIDEO DELIVERY CHALLENGE

With live streaming dominating mobile traffic, video delivery is congesting mobile networks and impairing user experience. Higher video resolutions and more immersive video experiences are further driving video traffic, making bandwidth issues even more severe.

As today's video delivery over cellular networks is unicast-based, a dedicated end-to-end unicast video stream is required for every user device. This puts network bandwidth under pressure, leading to throttled down video quality and service. While 5G opens up access connectivity, backhaul connections remains too narrow, and just a few users streaming HD-quality video is all it takes to consume most of the backhaul bandwidth and congest the network.



HIGHLIGHTS

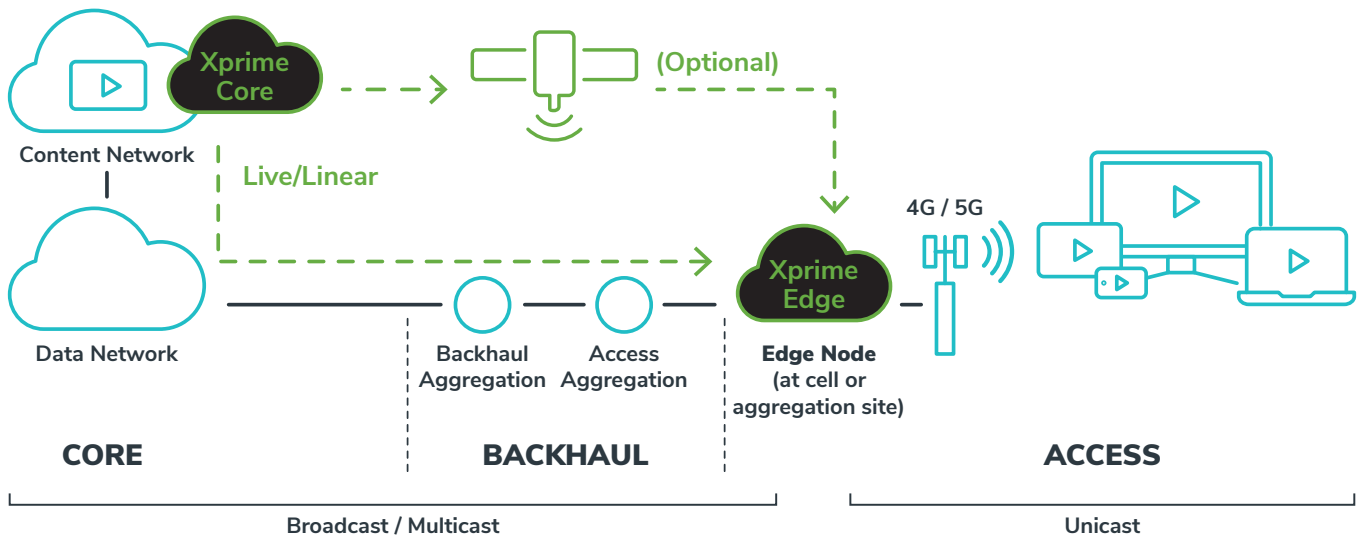
- Unleashing 5G TV business opportunities
- Live and on-demand streaming
- Any mobile and fixed user device: Smartphones to TV sets
- Highest quality user experience: HD and UHD
- Latency free real-time video
- Edge-based media delivery for mobile networks
- Network congestion mitigation
- Market-leading video delivery economics

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REDEFINING MEDIA DELIVERY

Unlocking true 5G performance, SatExpander presents a unique mobile video solution with SatExpander Xprime, an innovative take on media delivery.

Featuring the latest in edge and software-defined networking, SatExpanderXprime combines high-efficiency core-to-edge broadcast, novel edge-computing for video streaming, and powerful content delivery capabilities which includes processing, transmission, streaming, and security. Introducing broadcast / multicast video distribution to multiple edge locations and converting the shared media broadcast into unicast at the network edge enable the distribution of high-quality live content to any user device - from smartphones to TV sets.



ELEVATING BROADCAST EFFICIENCIES

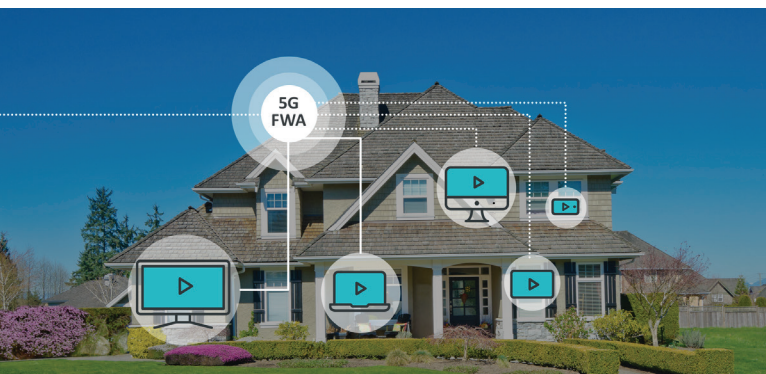
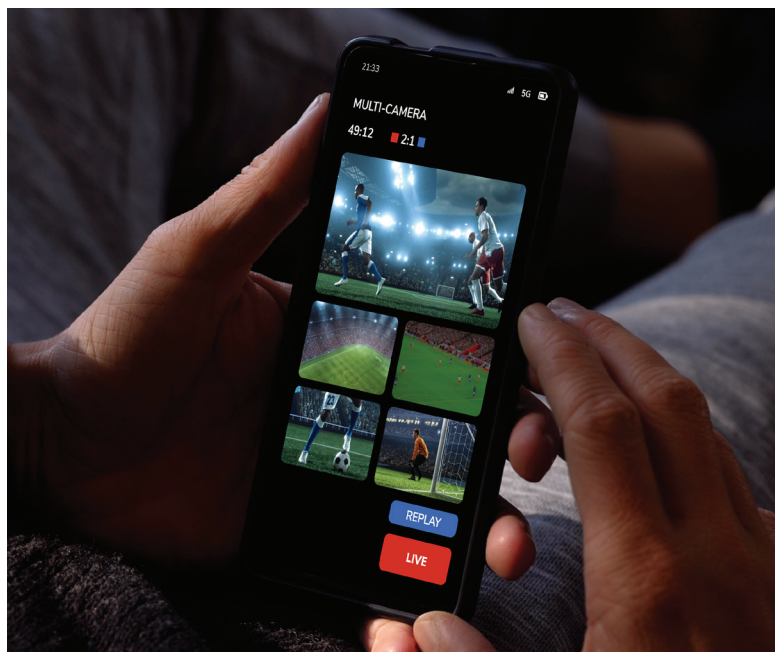
At the core network side, Xprime centralizes content acquisition from multiple sources in multiple formats, performs multichannel transcoding to HEVC, and transmits a single high-quality profile of each video channel. The high-quality profiles are broadcasted to multiple edge locations over terrestrial backhaul connections, mitigating bandwidth congestion by eliminating the need for numerous unicast streams. Alternatively, the high-quality profiles can be broadcasted over satellite, utilizing a single bandwidth to broadcast video content to hundreds and thousands of cell sites, bypassing the terrestrial backhaul connections, delivering the video content directly to the edge locations, offloading that video services from the terrestrial network.

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EDGE-BASED VIDEO DISTRIBUTION

At the edge sites, Xprime receives the broadcast / multicast media content, demodulates the transmission when used over a satellite link, executes decoding and transcoding, generates multiple video profiles, performs multi-profile packaging, caches video chunks, and delivers live video streams to multiple user devices over the wireless network. In addition, local caching is used to store high demand video content as well as live content for a given period of time, enabling pause / catch-up / replay capabilities as well as VOD services.

Identifying user requests for content locally available at the edge, Xprime streams the content to the relevant user devices from the network edge. This leads to major savings of bandwidth over the network's backhaul link as most user video traffic is generated and delivered from the cell site location.



FUELING FIXED WIRELESS BROADBAND WITH 5G VIDEO

Fixed Wireless Access (FWA) enables the delivery of high-bandwidth connectivity to homes through the 5G network, presenting a viable alternative to fixed-line networks. SatExpander Xprime complements FWA in supporting multiple video streams for each household, eliminating network bottlenecks, and opening the door for high-quality TV content distribution over 5G, and even 4G, mobile networks.

MAKING 5G TV A COMMERCIAL REALITY

SatExpander's 5G video solution opens the door for new business models and new revenue opportunities by enabling mobile service providers to offer a host of new video services. Among these, high-quality live sports content, premium quality connectivity at cost, and multi-channel TV bundles as well immersive video experiences like Multiview, 360° or VR.

SatExpander's edge-based solution also offers market-leading video delivery economics both in terms of network investment and deployment time, presenting the lowest video delivery costs as well as the lowest network investment versus other alternatives. Furthermore, the solution can be deployed in a rapid full-scale rollout or in a phased rollout model - aggregation sites to end sites, per usage and take rate of the video services by end users.



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27-12-2023