



CREATING GAME-CHANGING FAN EXPERIENCES

Immersive sports experiences in 5G stadiums

5G: THE FUTURE OF THE FAN EXPERIENCE

Today, stadium fans are as involved as the players, seeking out engaging, interactive, and immersive experiences. Clubs, leagues, and stadiums are introducing 5G technology to sports venues, building new digital capabilities to transform the sports fan experience. 5G stadiums provide a comprehensive gameday experience, keeping fans connected from tailgate to tipoff to the tie-breaking shot. Delivering a thrilling experience that spectators never thought possible, 5G is a game-changer for sport and stadium business, unlocking immense opportunities.

COMING SOON TO A STADIUM NEAR YOU

5G is revolutionizing the stadium experience, drawing fans deeper into the action. The smartphone in the hand of each fan, is generating the opportunity for an interactive and unforgettable fan experience. Every seat becomes the best seat as fans can select any camera at any time on their smartphone, watching every moment from the optimum unobstructed angle. This immersive real-time camera-to-seat streaming enables up and close, zoom and focus, multi-view, and personal replay as well as AR and VR experiences. Fans can point the smartphone-camera towards the action and view real time graphics with line-ups, formations, player map, names, ball traces, statistics, and more. And while the referee is assessing a foul or the pitcher is waiting for the sign, fans can check out content related to the action or get a behind-the-scenes look.

DRIVING A WHOLE NEW BALL GAME

5G



**MASSIVE
CONNECTIVITY**

The ultra-high capacity and device density of 5G enables the delivery of immersive video experiences to multiple user devices at the venue



**REAL-TIME
DELIVERY**

The ultra-low latency of 5G unlocks live, augmented, and interactive engagements, merging the digital and physical live event experience



**EDGE
COMPUTING**

Pairing 5G with Multi-access Edge Computing (MEC) reduces the volumes of video and data that must be moved and the consequent traffic, minimizing network congestion



HIGHLIGHTS

- Unleashing new sporting experience
- HD quality user experience
- Latency free real-time video
- Live and on-demand content
- Edge-based media delivery for 5G networks
- Network congestion mitigation
- Market-leading video delivery economics

INNOVATING THE 5G STADIUM EXPERIENCE

Acknowledging the link between video quality, user experience and network capabilities, NOVELSAT is proposing an innovative approach to in-stadia media delivery over public and private 5G networks. Leveraging Multi-access Edge Computing (MEC) for video delivery and on-site all-in-one compact CDN, NOVELSAT brings video processing closer to the venue's cell sites, providing content without the data even leaving the premises. This reduces the volumes of media that must be moved, the consequent traffic, and the distance the media must travel, mitigating network congestion and cutting latency. Eliminating the need to deliver heavy traffic loads to and from the mobile core, NOVELSAT edge-based media delivery solution unlocks 5G performance, bringing crystal-clear HD experience in real-time to audience devices.

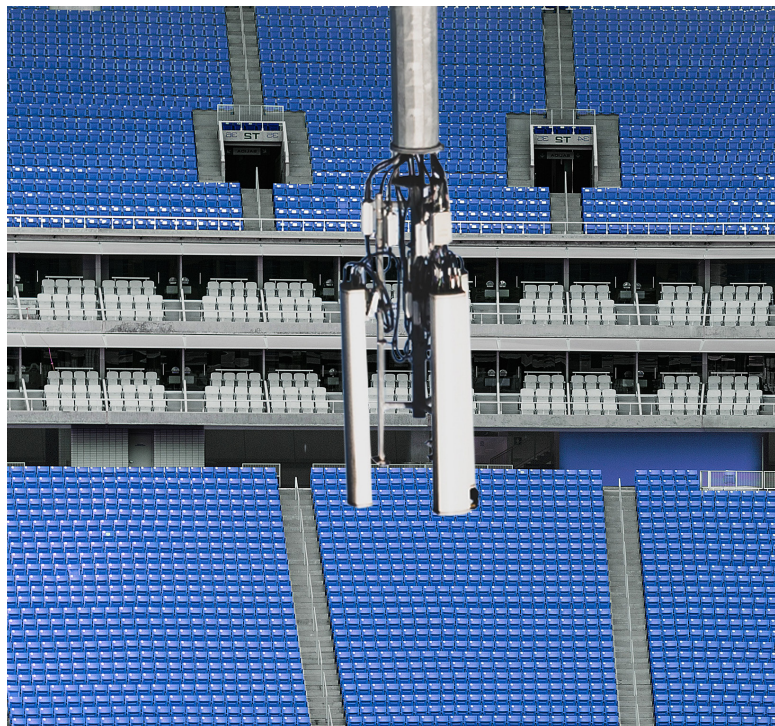


BRINGING FANS TO THE HEART OF THE ACTION

Redefining media delivery for stadiums and other venues, NOVELSAT presents a unique mobile video solution with NOVELSAT Xprime. Featuring the latest in edge and software-defined networking, NOVELSAT Xprime combines novel edge-computing for video streaming, and powerful content delivery capabilities which includes processing, transmission, streaming, and security. Introducing video distribution directly to on-site 5G base stations and supporting both unicast and broadcast video deliver NOVELSAT Xprime enables the distribution of enriched live video content to any user device and at high-quality.

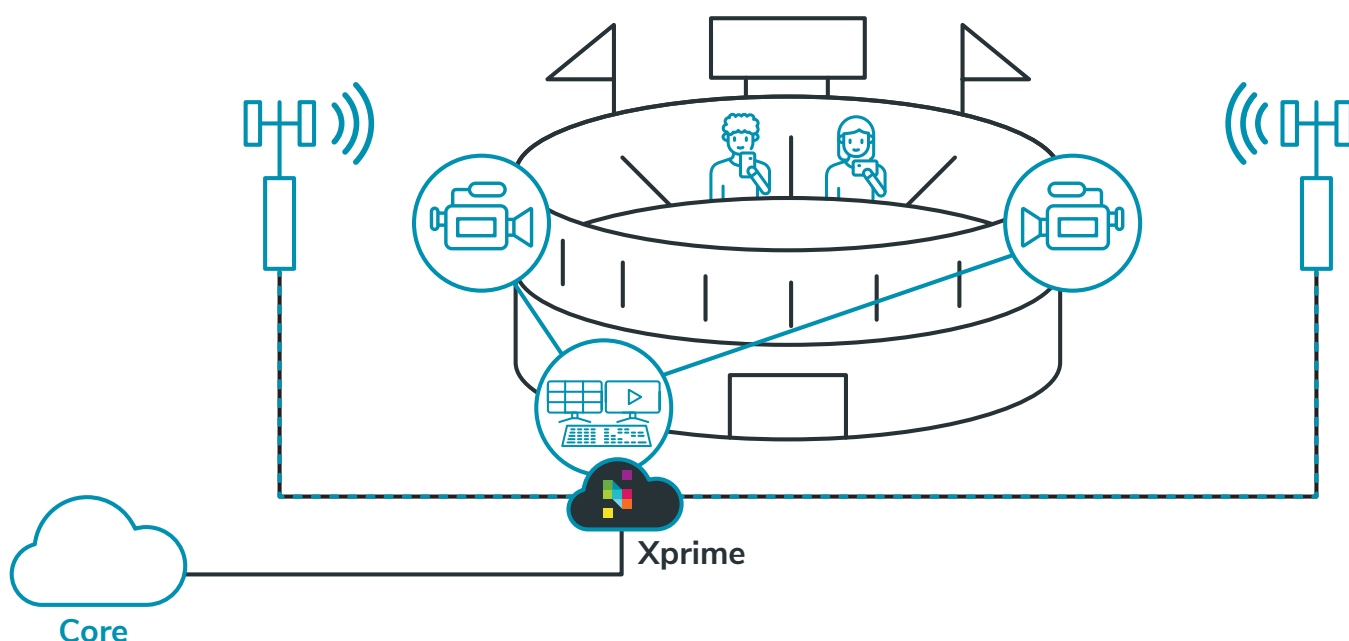
BUILDING EDGE-BASED MEDIA DISTRIBUTION

NOVELSAT Xprime allows flawless ingest of the video content into the radio access network at and around the stadium. NOVELSAT Xprime identifies user requests for content locally available at the venue and streams the content via the local 5G base station to the relevant user devices. This allows for new content - such as footage of a touchdown from a dozen different cameras - to be ingested into the 5G network - either public or private - in near real-time. Running locally, NOVELSAT Xprime performs video transcoding, packaging, caching and delivery, closer to users' devices, enabling to create the experience immediately for on-site fans. In addition, local caching is used to store on-demand and live content, putting fans in control of their match experience, so they can watch pregame interviews or replay the game-winning shot. And as AR, VR and AI evolve, NOVELSAT Xprime helps deliver immersive display from anywhere on the field to anyone in the stands.



ELEVATING GAMEDAY OPPORTUNITIES

5G is a game-changer for sports and stadium business, stimulating the fan experience economy. Enabling service providers, venue operators, and sports clubs to offer a host of new media services, 5G opens the door for new business models and new revenue opportunities. Fans are seeking change in their matchday experience, looking to personalize the way they digitally interact with the event and transform the way they enjoy their day out. Sports associations and event organizers, working with service providers, can capitalize on new technologies and digital innovations to delight fans, deepen loyalty, and generate more revenue. NOVELSAT's mobile video solution leverages next generation connectivity to enable new values for connected stadiums. NOVELSAT technologies ideally address the on-site demand for high bandwidth with low latency, offering market-leading video delivery economics for large public venues. Creating a platform which supports the future of interactive stadiums, we help our partners to realize their visions of the connected fan experience with future-proofed solutions that stay ahead of the game.



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