



How 5G enables next-level remote production

by Per Lindgren, Co-founder and CTO at Net Insight

As the 5G rollout is taking off, broadcasters need the right end-to-end solution to leverage 5G's potential to eliminate bottlenecks in their live production workflows. There's no better time to get ready for 5G.



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5G brings higher flexibility and more streamlined workflows to the broadcasting industry. Remote and distributed production for on-demand sports and news is set to benefit significantly from 5G's high bandwidth and low-latency potential. 5G-enabled remote production workflows will become central in staging large and lower-tier events.

Fast connectivity without the logistical strains and costs of installing or staging fixed network equipment is a very attractive proposition for media companies that want to increase their production volume while achieving efficiencies.

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Remote production drives efficiencies

Remote production has shifted the dynamics of the content supply chain delivering dramatic cost savings and increasing

overall efficiencies. Moving away from on-site production models granted the flexibility and agility needed to keep the broadcast industry going, even in the face of adversity. 5G will further accelerate the trend towards remote and distributed workflows and allow more sites and events to be part of a unified high quality and low latency production environment.

With only the necessary technical staff and hardware equipment required on-site, remote production accelerates the shift from CAPEX to OPEX. Media companies benefit from scalable workflows that are deployed and paid for as they need them when they need them, eliminating unnecessary costly hardware investments.

5G takes remote production to the next level

5G makes it possible to acquire and deliver mobile media from anywhere in the world while offering high bandwidth, low latency, and a defined quality of service at reasonable cost. This brings new possibilities and flexibility for the broadcasting of events that do not have good fixed network connectivity or run over some distance, such as marathons, golf, cycling, etc.

Once fully rolled out, 5G has potential to become the main connectivity link between the event location and the centralised

production facility. So far, it can be deployed as a back-up link to the primary connection, delivering multiple high-quality feeds and replacing the less efficient method of diverse routing over fixed connectivity. 5G networks' slicing capabilities increase the reliability of connections by allowing a dedicated set of users or different services to reserve a part of the network. This component is critical for live production when the connectivity and ultra-low latency requirements are very demanding.

Delivering new compelling viewing experiences

While 5G is set for providing cost-efficient and agile contribution links, it has also the potential to change and enhance the viewing experience for the consumers. It allows for more cameras and new and more immersive camera angles to be brought into the main production, whether that is player or referee cams, 360-degree or AR/VR cams from cars or moving vehicles or just easier connectivity to broadcast cameras and sensors at the event arenas. In combination with remote workflows, where all streams are brought to the main production facilities and set for distribution, it will also allow content owners to distribute more immersive content from events and even allow viewers to choose their own camera angles or players they want to watch. This means 5G will have a revolutionary effect on new viewing experiences and will be especially important for providing new gaming and esports experiences.

5G can also simplify the broadcast production and staging at the events. Leveraging 5G to connect cameras to production

facilities cable-free means that camera operators are more flexible and mobile. Production teams can set up "pop-up" production capabilities that use 5G to transport multiple camera signals back to a central production facility. Producers can mix video captured by traditional cameras on 5G-enabled smartphones seamlessly, creating multi-camera experiences and new angles that were not possible before.

5G also allows production to move away from bonded cellular technology that relies on heavily compressing videos, improving video quality and reducing complexity. Compressed video streams cause issues in onward production and distribution chains, impacting the video quality for consumers.

Leveraging 5G in remote production with the right end-to-end solution

To ensure broadcasters and producers make the most of 5G's potential, they need the right end-to-end solutions. These solutions should fully support distributed production workflows over commonly available IP infrastructure making integration of 5G IP media streams easy. Fortunately, the media industry have already taken large steps towards these distributed IP media workflows before and during the pandemic.

The right media platform leverages 5G to ensure the content is delivered with the highest quality regardless of network issues such as fibre cuts, over-provisioned network capacity, broken IP routers, etc. Clean switching and the ultra-low end-to-end delay are critical parts of remote production workflows. As



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with all distributed IP media workflows, it is essential to ensure end-to-end quality, time synchronisation for the media streams and enforcing IP security. The new IP Media Trust Boundary solutions with NAT and low-latency firewalls are key to protect and ensure IP media content.

Seizing the 5G future

5G shifts the foundations of the media and broadcasting industry. Higher bandwidth at a lower cost enables media and production companies to change their production workflows and benefit from economies of scale and new market segments. 5G also impacts the broadcasting landscape, sparking further consolidation in the value chain and partnerships between players such as network operators, broadcasters and content providers.

Following a challenging year, the broadcasting industry is primed to make the most of innovation. Remote production has been established as a mission-critical capability for broadcasters. To meet the increasing demand for live content, media companies need to achieve much-needed cost and resource-efficiencies.

5G is an innovation-enabler that will help the industry rethink its production models. The right end-to-end solution will be critical in supporting broadcasters and production companies to level up their game and get ready for unparalleled connectivity as well as more and better content.



Technology Innovation Awards

The Society for Broadband Professionals

Nominations are now being sought for the Society's 2022 Technological Innovation awards which will be presented at Society's Annual Dinner in 2022.

Following the massive sell-out success of our previous dinners, this is sure to be yet another success. Awards will be given for three separate categories:

- 'Best broadband network transmission solution'
- 'Best CPE solution'
- 'Best digital processing solution'

Nomination forms are to be forwarded to the Society office no later than **30 March 2022**.



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