The impact

of edge computing on the broadcast industry

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How broadcasters can unlock next generation viewing experiences with the edge.

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Edge computing is becoming increasingly popular as it offers the potential to reinvent broadcasting with the opportunity to guarantee quality and reliable experiences at scale. However, edge computing itself is not a new technology. Its roots can be traced back to the early 1990s, when its primary goal was to deliver video processing for web and video content closer to the end-user. After all, if speed matters, then so does distance and we have yet to scratch the surface of what it could mean for the broadcast industry.

Now, the global edge computing market is expected to grow from $3.6 billion in 2020 to an enormous $15.7 billion by 2025 - driven by accelerated demand for more immersive experiences that require real-time streaming technology. But how can those standing at the edge of innovation in the broadcast industry seize the new opportunities made possible by edge compute technology?

What is edge computing?

Edge computing is a rapidly evolving technology that is revolutionising how data is handled, processed and distributed from millions of devices worldwide. It has been developed in tandem with the proliferation of the Internet of Things and new applications and services that demand real-time processing capacities, such as self-driving cars, artificial intelligence and robotics. Manufacturing and healthcare are two areas where edge computing is accelerating digital transformation and driving efficiencies, making it possible for smart manufacturing processes and medical devices to respond in real-time without waiting to hear from a server.

Potential applications of edge computing include the control and monitoring of industrial machines and processes (Industry 4.0), connected and autonomous vehicles, augmented and virtual reality (AR/VR), high-quality video and games and a range of services for the corporate and industrial divisions. On the other hand, the media and entertainment sector has been slow to explore edge computing's potential to transform how consumers consume and engage with content. However, this will change very soon.

Edge computing: Unleashing Its Potential

There is no doubt that the past year has changed the rules on how we consume content as the number of people dropping their pay-TV subscriptions for OTT services continues to rise. Broadcasters have come under increased pressure to rethink business models and how they merge real-world and at-home viewing experiences, particularly for live events. Connecting and interacting with consumers at the edge offers the infrastructure needed to create product offerings that are as near to real-time as possible by processing and managing data, application requests and responses closer to where each consumer is located.

However, it is important to note that edge computing is not a replacement for the cloud; rather, it complements it and allows each to be used for its own core value proposition. The cloud or corporate data centres can focus on data processing and preservation instead of gathering and analysing ever-growing data streams - saving time, money and lowering network load.

Edge computing can be used wherever bandwidth, low latency or local management of large amounts of data are critical to delivering high-quality services. This activity is based on moving data storage, handling and processing to edge nodes, close to where an application, device or end-user generates the data and away from a centralised cloud or core network. Thanks to this solution, users will not have to connect to the main data centre but only locally to the edge network, which means everyone will experience the same ultra-low level of latency.

Considering that we have recently recorded a sharp increase in the amount of work performed remotely - which has led to a significant change in the nature of traffic in telecommunications networks and demand for data - edge processing may be the key to managing latency.

The advantages for broadcasters

It has never been so crucial for broadcasters to retain viewers through good quality content and create more personalised, interactive features to keep viewers engaged for longer. Fortunately, as we move towards an edge computing future, broadcasters can create additional revenue streams to support profitability by personalising and localising content for end-users. In doing so, providers can benefit from improved video stream performance from significantly reducing latency and start-up times and custom/advanced security mechanisms that secure their content and fight piracy.

Additionally, offloading customer origin traffic by doing more at the edge instead of making multiple round trips to the customer's origin will significantly reduce costs, regardless of its infrastructure, cloud or operations while improving time to market. Broadcasters will fulfil the growing demand for their services while assuring consistent, high-quality broadcasts regardless of the quantity of data required with edge computing. Using CDN edge computers also needs less management, allowing developers to deploy code with less infrastructure provisioning and lower expenses.

Edge computing makes lower latency, shorter workload durations, and tailored workloads for individual users or customers are all possible. Live media entertainment workflows are so latency-sensitive that a decrease in latency to 200 milliseconds makes a significant effect. Because of the reduction in latency, it is now possible for content providers to reimagine the viewing experience with more immersive features, including real-time video and interactivity, wagering and gamification.

Creating cutting-edge viewing experiences

Although edge computing solutions are still in their infancy in the broadcast industry, the benefits to content producers are undeniable. Lowering operational costs, improving performance and enabling low-bandwidth activities are advantages of moving computing from cloud data centres closer to the end-user.

These benefits of minimising the distance data has to travel will help solve challenges in IoT, healthcare, artificial intelligence, and virtual and augmented reality — in fact, any business or technology that requires real-time data processing.

By moving processes to the edge, broadcasters will be edge computing will enable broadcasters to usher in a new era of viewing experiences.