



## **5G and the Future of Entertainment**

Jan 30, 2019

Reading Time : **4 min**

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Important to an understanding of 5G's potential is a discussion of the sheer scale of its technical improvements. 5G promises, among other things, data speeds 100 times faster than 4G, 10 times lower latency, 100 times more network capacity and significantly more reliable connections. Some of the effects of these improvements are more obvious: a two-hour HD movie can take several minutes to download at 4G speeds, but, with 5G, users could download the same movie in just a few seconds. This alone will allow traditional content creators to push far more product to consumers—video is, in fact, expected to account for 90 percent of 5G data traffic—but the high speeds of 5G wireless will also combine with 5G's latency, capacity and reliability improvements to facilitate entry for new competitors and new business models for new and old competitors alike.

### **New Entrants in Traditional Media**

The advent of 5G is certain to further the already developing entanglement between technology and entertainment companies. At CES, multiple telecommunication providers celebrated burgeoning partnerships with content creators. Disney, for example, announced a collaboration that would see 5G technology applied to improving the studio's production workflows, likely allowing greater integration and efficiency across production facilities, and changing how content is created, stored and delivered to consumers. When it comes to the future of content delivery, however, technology companies are unlikely to always play nice with traditional players.

Cloud-Based Gaming

The high speeds and low lag times of 5G are expected to provide a breakthrough for cloud-based gaming. Video games require the transmission of large amounts of data and minimal latency in transmission for optimal playing experience. Prior to 5G, this meant that players were dependent on purchasing expensive consoles from Sony, Microsoft or Nintendo, and that game developers were dependent on the same console manufacturers to deliver their content to the players. With 5G, complex processing can be done at a centralized server and transmitted seamlessly, directly to consumers. Telecoms like AT&T are themselves investing in cloud-based gaming services, joining game industry stalwarts Microsoft and Sony, and technology players like Amazon and Google. Perhaps more interestingly, video game developers may themselves decide to market directly to their customer base.

### Over-the-Top TV

Another sector of the entertainment industry marked by a small number of dominant players is television distribution. With relatively few cable companies in a given area, consumers generally face little selection when choosing a television provider. Although over-the-top television (“OTT TV”) has been gaining momentum in recent years, with the entry of SlingTV, DirectTV Now and YouTube TV, among others, the attractiveness of these offerings has been limited by the fact that OTT TV service is currently still dependent on a hard-wired Internet connection, for which consumers must usually rely on the same few cable companies. This has allowed cable companies to preserve their role across both the television and Internet service markets, and has constrained the value proposition of OTT TV. Wireless 5G’s speeds will, on the other hand, allow anyone with a data plan to stream OTT TV without any involvement of the cable companies.

### New Media

Among 5G’s most profound impacts will be its facilitation of entirely new content experiences—in particular, virtual reality (“VR”) and augmented reality (“AR”). Although both types of media exist in some form today, 5G will see the rise of VR and AR that become indistinguishable from real life and transform our daily activities.

#### Virtual Reality

VR is one medium in which 5G’s latency improvements will be most obvious. Today’s 4G wireless technology averages approximately 50 millisecond (“ms”) latency and tops out around 33ms. This makes streaming enjoyable or lifelike VR content an impossibility in 4G, since most

people will experience nausea at more than 20ms latency, and latency below 15ms must be reached for the lag to be imperceptible to most humans. With latency of less than 5ms, 5G will allow streaming VR to cross the key implementation threshold.

5G's ability to support massive amounts of data from multiple sources creates endless possibilities for enhancing the delivery of entertainment content. To cite one example, Intel has suggested that 5G will increase the possibility of “responsive haptic clothing”—clothing or accessories that add a realistic touch component to the VR experience. Augmenting a touch component also illustrates the possibility of new monetization cycles that VR offers for existing intellectual property content, since existing works can be reprocessed to provide new more immersive features and sensations. VR has already proven to be a fertile sector for launching new entertainment technology companies like Dreamscape Immersive to success, and 5G technology companies like AT&T are focused on integrating their capabilities into future VR development.

### Augmented Reality

AR, like VR, is heavily dependent on 5G technology to reach its full potential. One minute of AR can consume 33 times more data than a minute of standard definition video. The true promise of AR will also rely on the capacity improvements of 5G. As more and more of our surroundings go online with the Internet-of-things (“IoT”), an AR gaming application will be able to use 5G to communicate with all these information sources and overlay real-time information and content into a player's set of smart glasses or other AR-enabled devices. The increases in network capacity will allow for truly immersive experiences that supplement, rather than replace, the real world. The opportunities for content creators are massive, with every digitally enhanced real-world feature presenting new opportunities for the user to interact with entertainment content. Thus, although self-driving cars and other IoT applications are currently (and will remain) hot topics, within 10 years, AR gaming is likely to account for 90 percent of AR data use and \$36 billion in revenues.

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The power of 5G is poised to revolutionize the media and entertainment industries by facilitating new types of content creation and consumption, and by opening up existing markets to enterprising new players. Like past revolutions in content delivery, the rewards of the 5G era will likely flow to those who are most willing to embrace the opportunities that the new technology offers. Although the first 5G-enabled devices have now started hitting

the market, it is likely to be a few years before 5G truly starts reaching its full potential. Thus, while the new business models and new revenue streams that 5G offers are infinite, forward-thinking media companies have just enough time to plan their market strategies and plan for their new competition.

## Categories

Entertainment & Media

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