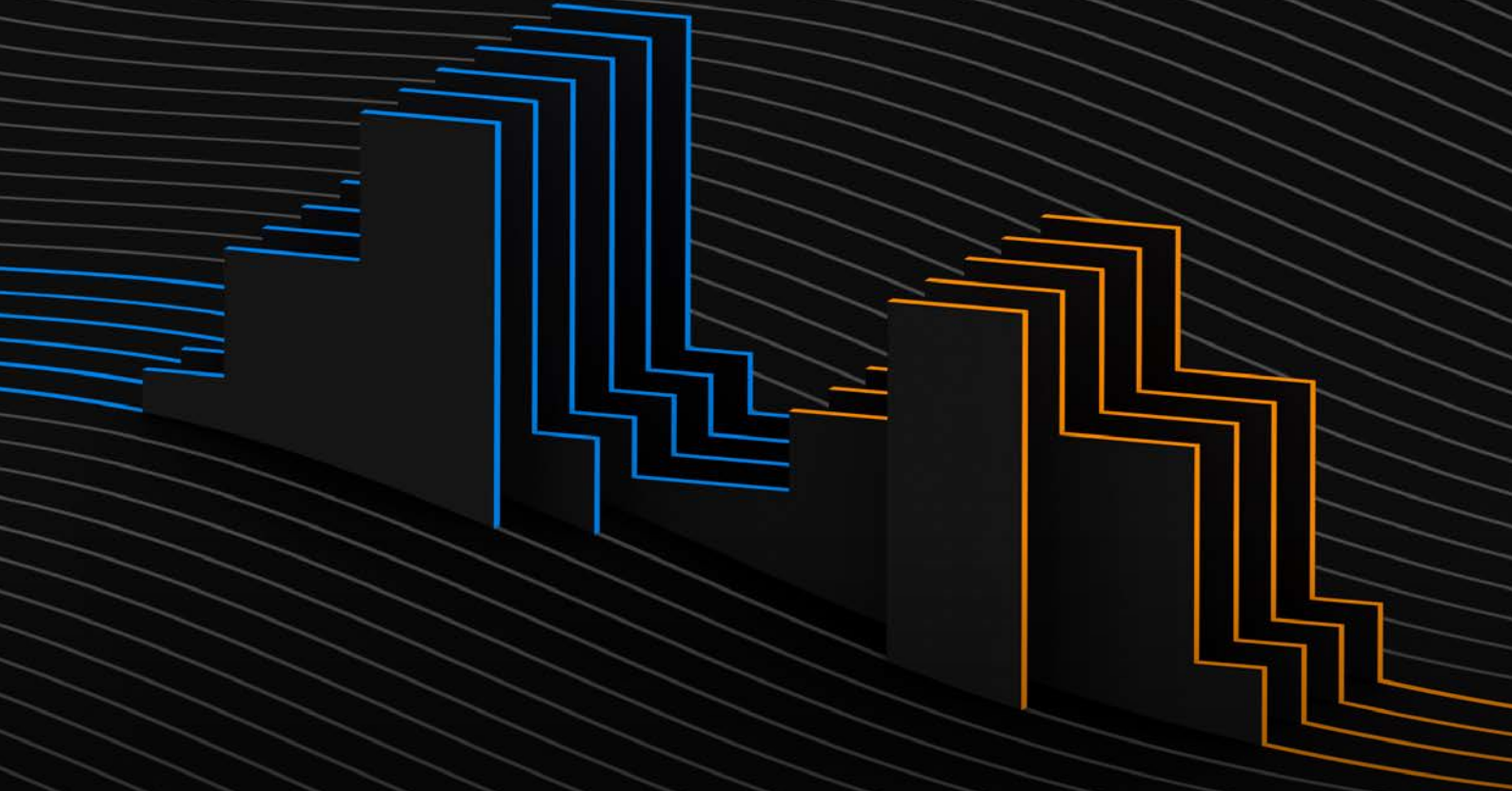




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Gaming on the move



Extract from the Ericsson Mobility Report
June 2020

Gaming on the move

In countries with lockdown measures in place and limited outdoor entertainment, applications for video streaming, video calling and gaming experienced significantly increased usage.

Driven by both new users with more time to explore and increasing usage among those already using the services, rising use of video services and game downloads resulted in a traffic increase in networks. Given this, some providers of video streaming services took a cautious approach and reduced the video quality to ensure they could maintain delivery over strained networks.

The popularity of many online games has increased, with millions around the world playing every week. Online games are designed to minimize the exchange of data traffic over the network in order to reduce latency. Traffic generated while playing a traditional online game consists primarily of small packets of information about each player's position and activity on the game map. Hence, even a large increase in players will not have a substantial impact on the amount of online traffic. For multiplayer games that are executed in the device, the demands on the network are for low latency. The biggest traffic impact on networks occurs when millions of players download or update a game at

the same time, as this may amount to a few tens of gigabytes. A full download can even be 100–150GB. Many such simultaneous downloads could cause short-term capacity challenges for any fixed or mobile network.

Streaming video games

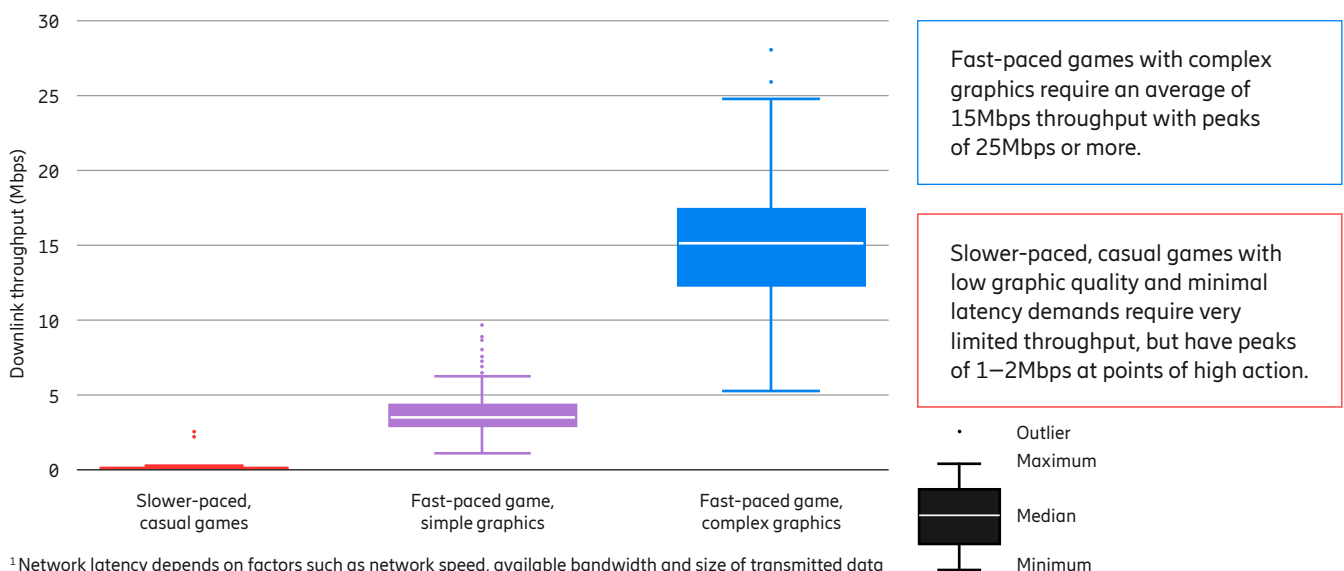
Streaming games from remote datacenters is now a reality for smartphone users. This trend is gaining momentum, as it enables games to run on a wide range of devices due to reduced hardware requirements. A number of services have already launched and more are under development. Streaming video game services, unlike traditional PC or console games, stream the whole game live over the network. Presently, some service providers with a 5G mobile broadband offering are partnering with cloud-based gaming providers to offer service-based packages on top of or within their 5G price plans.

Streaming different types of games can have varying impacts on the network, as illustrated in Figure 17. The required downlink throughput depends on the

game's speed and complexity. Streaming games consumes several times more data than a video stream of equivalent quality. This is due to the need for faster video encoding, which helps maintain the required low latency during gameplay, but with a higher data rate. Current cloud-based gaming platforms require sub-60–100ms network latency as a minimum for the services to run.¹ As games become more complex, even lower network latency will be required. Today's deployed 5G networks already have an average latency of 20–30ms, and are developing towards sub-10ms latencies.

Network performance becomes increasingly important when games are developed for a streaming architecture executed in the cloud. Network capabilities provided by 5G and edge compute technologies will better equip service providers with an optimized architecture for these services. Once deployed, more gaming packages are expected to launch that can both differentiate offerings and deliver the required user experience.

Figure 17: Variation in downlink throughput requirements of one cloud-based mobile gaming platform



¹ Network latency depends on factors such as network speed, available bandwidth and size of transmitted data

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