

A Quick Look into Cloud Gaming Services

97.67 billion U.S. dollars, this is the 2022 estimated market size for the Video Games industry in the United States from Statista.com. Worldwide this number is much larger sitting at \$365.6bn, but the majority of that is mobile games which is not the target of this paper. This paper will be looking at cloud services for streaming video games, allowing you to play any game without directly owning a gaming device such as a PlayStation, Xbox, or Nintendo Switch. There are many game streaming services that all have their pros and cons, but this paper will look at 3. Nvidia GeForce Now, which is a service that caters to PC gaming. Cloud Gaming with Xbox Game Pass is also called Xbox Cloud Gaming Beta, which caters to Xbox users as well as having some PC games owned by Microsoft game development studios. Lastly, PlayStation Plus Premium, which caters to PlayStation users.

What are Cloud Gaming services? They are much like Netflix, Twitch, Hulu, or any other streaming service. Only they stream and allow users to play videogames rather than watch movies or shows. They allow their users to play games without needing the often-expensive gaming hardware like a PC with a powerful graphics card or gaming consoles like an Xbox One X or a PlayStation 5. The price on these can make them out of reach for some people. A gaming PC on the low end can run someone between \$600-800, where \$1,000-1,200 is a good, recommended starting budget. A New Generation Xbox is \$400-500, and a New Generation PlayStation sits at \$400-500 as well. Videogames are only getting more and more complicated and require more and more power and hardware to run them on their best visual settings. Right now, People using PCs generally can run games on higher settings than their console counterparts. Now the quality through cloud services still suffers streaming some of the newer

higher end games but as the technology progresses more and more will be available. Streaming games for Multiplayer over cloud also suffers from latency issues and can impact gameplay, but for single player focused games that problem is not really there. All you need for the majority of their services is a device that can stream video like a smart phone, tablet, smart TV, or Chromebook. You will also need a game controller or mouse and keyboard; these can be anywhere between \$20-100 depending on what you get. You will also need good internet connections, the recommended is roughly around 20mbps with minimal network latency, which in some cases can also end up being pricy or a good internet connection might not be offered wherever the person is.

Unfortunately, there is no standard cloud gaming service models, and everyone does it a little differently but essentially how the services work is you remotely connect to a PC or Console virtually through whatever cloud gaming app you choose and play the game from the app. The benefits to this are that the users do not need any hardware as mentioned above, there is no waiting for the games to install, which depending on the size of the game can often take hours. The other advantage is being able to play anywhere, there is decent internet connection, allowing people who travel a lot to still play.

As mentioned in the opening paragraph there are three cloud gaming services that this paper will look at, the first being Nvidia GeForce Now. This service offers over 1,500 games available for streaming allowing you to stream games you already own digitally on PC. With this service you can run your games on any device from iPhones to TVs. GeForce Now virtually connects users to GeForce RTX gaming rigs allowing games to run at their optimal performance and stream to a device that would otherwise be unable to run the game. They also offer not

having to update, download, or patch games which means no waiting on download times and that games are always up to date and ready to play. For GeForce Now there are three pricing models. The first is Free, with this package the user gets access to streaming from a basic rig, standard access to GeForce gaming services, and limits play sessions to only 1 hour. This package is really their trial package meant for testing out their service before you buy it, seeing if your internet connection and devices are able to steam properly. The next package is their Priority package sitting at \$9.99/month or \$49.99/6 months. This package offers users access to streaming from a premium rig with RTX on, priority access to premium services, a 6-hour session limit, and allows users to run the game at up to 60 FPS with a stream resolution of 1080p. The last package they offer is their Ultimate package, sitting at \$19.99/month or \$99.99/6 months. This allows users to stream from a rig using a GeForce RTX 3080 graphics card, Exclusive access to the fastest services, 8-hour gaming sessions streaming in 4k resolution up to 120 FPS.

The next Cloud streaming service is Cloud Gaming with Xbox Game Pass also called Xbox Cloud Gaming Beta. For this service the user will need to have an Xbox Game Pass subscription which can be \$15-20. Xbox game pass allows the user to play any Xbox or Microsoft Games Studios title that are on game pass for free allowing you to download and play over 100 games on your Xbox or PC. Xbox cloud gaming offers a list of verified devices that are able to stream, but first to stream on any device the user will need to have the Xbox app installed. After that the devices are iPhones, iPads, Windows Devices, and Smart TVs, specifically Samsung Smart TV work the best. The user will also need a controller, any controller that will work on an Xbox will

work for their cloud gaming, but not every controller will be compatible to the specific devices so users will need to do some research beforehand.

Lastly, and slightly less fleshed out than the others, is the PlayStation Plus Cloud Streaming service which offers over 750 games. For this user will need a PlayStation Plus Premium membership which runs at \$17.99/month. As for devices, the PlayStation cloud services only offers streaming to the PlayStation 4 and PlayStation 5 consoles or to the PC. So, for this service you will still need the hardware to stream the games. It should also be noted that this is the only way to play PlayStation console exclusive titles on the PC. This is a service that will really benefit those who already have a PC or already use PlayStation.

Cloud Streaming services are far from being established and are a thing of some controversy within Video Games, primarily people poking fun at video game streaming services. There was also the failed Google Stadia which has really put a mark on Cloud Streaming for gaming. Google Stadia ran for about a year before Google pulled support and scraped it, but despite that setback cloud gaming services are growing in popularity every year for many different reasons. The first is the ease of access, as the technology gets better the games being streamed are running, performing, and looking better. Another is that companies like Xbox and PlayStation are adding access to cloud streaming services to their already established services like Xbox Game Pass or PlayStation Plus meaning people don't have to subscribe to anything new they just have access. Also, as devices such as phones, tablets, and smart TVs get better they allow people to use apps on them that stream games.

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