

Presentation on *Stadia*

By,

Nand Gondha

160470116012

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STADIA

During its Game Developers Conference keynote presentation on Tuesday, March 19, Google unveiled the final version of its “Project Stream” technology. Called “Stadia,” the streaming platform does not feature a dedicated hardware box, but it offers players, video creators, and developers the chance to interact like never before.

WHAT IS STADIA?

Google’s Stadia is a game platform designed to allow everyone to enjoy video games, even if they don’t have a powerful PC or console, or they can’t download extremely large files. With data centers in more than 200 different countries and more than 7,500 edge nodes around the world, Google is able to provide high-quality game streaming to practically any device.

Stadia is streamed directly to your Chrome browser, similarly to how Project Stream worked. The latter service was limited to just computer browsers, but on Stadia, you will also be able to stream it on phones, televisions, and tablets. Not only that, but if you’re logged into more than one device with the same Google account, you can drop one and pick up the other to keep gaming on the go.

When watching YouTube videos of games on publishers’ official channels, you’ll also be able to see a “play now ” button in the corner. Click this on an Assassin’s Creed Odyssey trailer, for instance, and you could be playing the game in as few as five seconds.

Stadia will feature support for up to 4K resolution with HDR, 60 frames per second gameplay, and surround sound at launch. In the future, Google plans on adding 8K resolution and support for up to 120 frames per second.

STADIA CONTROLLER

Stadia will support your typical gamepads that you already use on your laptop or PC, but if you're playing on a separate device, you'll use the official Stadia controller. Its layout was previously leaked, but its functions are similar to the Xbox One or PS4 controller, with two sticks and the face buttons where you would expect them.

However, it also has a special "capture" button that lets you instantly start streaming your gameplay to YouTube, and the unique Google Assistant button. Press this button while you're stuck on a section of a game and you can talk to the Google Assistant through the built-in microphone and get tips.

SUPPORTED PLATFORMS

There will be no dedicated console or box needed to play games on either Google Stadia or Project xCloud, but the two services won't work identically, either. Depending on the systems you own, one could seem like the better choice, especially if you have a preference in the games you play.

Google Stadia is designed to run through your Chrome web browser. During initial tests as "Project Stream," it could be used only on desktop computers, but when the final version of Stadia is live, you will be able to use it on devices like phones and tablets as well. Because it uses your Google account, this theoretically means you'll be able to stop playing a game on your PC and start playing on your phone in mere moments.

At launch, Stadia will support televisions, laptop and desktop computers, tablets, and phones. Televisions will require a Chromecast Ultra to play at full settings, and only the Pixel 3 and 3A phones will be supported, initially.

Project xCloud doesn't look to offer quite this level of seamlessness, but because the technology is built on the existing Xbox infrastructure, you will be able to carry all of your cloud saves and data across the devices you use for xCloud and your other Xbox games. If you play a game on your Xbox One at home and then leave for a week, you should be able to enjoy it via streaming from your phone while you're gone.

STREAMING QUALITY

Google and Microsoft are not promising the same streaming quality on their services, at least when it comes to resolution. This is hardly surprising, as Microsoft's Xbox consoles continue to be its go-to destination for 4K and HDR gaming.

At launch, Google Stadia will support 4K gaming with HDR and 60 frames per second, and will lower down to 720p resolution for those with slower internet speeds. In the future, it could get up to 8K resolution and 120 frames per second. The GPU Google is using in its data centers allow for up to 10.7 TFLOPS of power, which is nearly double what the Xbox One X is capable of. To run games at 4K, players will need 35 Mbps or higher in internet speed. During our tests of Project Stream, we found the quality of Assassin's Creed Odyssey to be good, but not as impressive as if it had been running on a console.

Using the "Stream Capabilities API" included in what Google has dubbed the "Playability ToolKit," developers will have live access to a player's stream capabilities, including HDR, surround sound, and resolution. This will allow them to adjust game settings on the fly, providing the best possible settings for players.

Additionally, Product Manager Khaled Abdel Rahman addressed latency concerns with Stadia at Google I/O, saying the team has weekly research sessions in addition to wider scale testing. The team is focused on trying to find a balance that works with the many inconsistent factors in each player's situation.

Microsoft has not shared specifics regarding resolution targets for xCloud, but it will be leveraging its own 54 Azure data center regions to power the service. Because of the local Bluetooth connectivity, and assuming the service has low latency, it should provide players with an experience comparable to what they get on the Xbox One or PC.

What players might not get, however, is an experience on par with the upcoming PlayStation and Xbox systems. According to 3D Realms VP Frederik Schreiber, the PS5 and Xbox "Anaconda" systems will be far more powerful than Stadia in particular. It remains to be seen if this is actually the case, but with the PS5 confirmed to support ray tracing and 8K resolution already, it seems likely that it is.

GAMES

Assassin's Creed Odyssey review

Google Stadia will have several third-party games available when it launches. Among these are multiple Ubisoft games like Trials Rising, as well as Doom Eternal from Bethesda. Developers can sign up to apply for Stadia development on the official developer website. Stadia will support multiple game engines, including popular choices like Unreal and Unity.

We also know something is in the works from major independent developer Q-Games, and it will make use of the service's "State Share" feature. However, we don't know what the game will be or even its genre. Rime studio Tequila Works was featured during the announcement presentation, as well, so it will likely have involvement. Larian, the company behind Divinity: Original Sin 2, is also developing Baldur's Gate III, but it isn't exclusive. The game's scale required the studio to triple in size.

Popular third-party games available for Stadia at launch include:

- The Division 2
- Metro Exodus
- Rage 2
- Mortal Kombat 11
- Destiny 2
- Final Fantasy XV
- Thumper
- Shadow of the Tomb Raider
- Doom
- Ghost Recon Breakpoint

MAKING GAME DEVELOPMENT AND STREAMING BETTER

Google's goal with Stadia is not just to make it easier for the average person to play a hardware-taxing game, but also for developers to have an easier time making them.

Using a feature called “Stream Connect,” games will be able to bring back couch-based split-screen multiplayer without compromising on a game’s performance. This can be done with asymmetrical games, and they can even have “command center” setups for different gameplay experiences.

A second feature designed to make world design simpler is called the “Style Transfer ML.” ML, in this case, stands for “machine learning,” and using Google’s A.I., you can apply the art style of nearly anything to a gray polygonal world. In the demonstration, we saw the famous Van Gogh painting Starry Night morph into a game world, and even the famous Pac-Man screen became the level.

Stadia makes use of the Vulkan API, and because of the wide industry support for this already, game developers are finding it very simple to make their games run on the platform. Id Software executive producer Marty Stratton revealed that Doom Eternal was up and running well in just a few weeks, and it’s fully playable for GDC attendees. Stadia will also support Unreal Engine, Unity, Havok physics, Simplygon, and several other middleware programs.

For game streamers, they will also have more tools at their disposal if using Stadia. A feature called “Crowd Play” will let your viewers instantly begin playing multiplayer games with you directly from the stream. Once they click the button, they will be placed into a queue like it’s a theme park ride, and then they will be thrown into the stream they were just watching without having to download anything.

A BRIGHT FUTURE

Stadia doesn’t have a firm launch date or pricing yet, but the service will launch in 2019 for the United States, Canada, United Kingdom, and most of Europe. There are currently more than 100 studios with the necessary hardware in their hands, and more than 1,000 creatives and engineers are working on it.

Those interested in developing for Stadia can sign up at [Stadia.dev](https://stadia.dev), and those interested in playing it can get the latest news at [Stadia.com](https://stadia.com). Details on the launch lineup will be made available this summer.

PRICING AND AVAILABILITY

Thus far, only Google has revealed its pricing structure and launch window. The pricing structure and availability will vary depending on the model you want:

Stadia Founder's Edition, \$129: Comes with three months of Stadia Pro, as well as a limited-edition Night Blue controller, Chromecast Ultra, first dibs on name, and three-month buddy pass. Available in November.

Stadia Pro, \$10 per month: 4K resolution with 60 frames per second and HDR, discounts on game purchases. Full Destiny 2 access. Free games available with a subscription. Launches in 2019.

Stadia Base, free: 1080p resolution with 60 frames per second. Buy games you want, play in Chrome browser.

Microsoft is planning public tests for xCloud in 2019, but did not specify the regions in which it will be available. Google Stadia, meanwhile, will begin arriving in the United States, Canada, United Kingdom, and most of Europe in 2019.