



Respawn Entertainment

Apex Legends and Hybrid Cloud: How Multiplay scaled
the fastest-growing game of all time

Respawn Entertainment

Established	Known for	# of employees	Multiplay services
2010	<i>Apex Legends</i> , <i>Titanfall</i> , <i>Star Wars Jedi: Fallen Order</i>	315	Hybrid Cloud, support, consulting

Respawn Entertainment and Multiplay

As one of the most exciting and successful studios to emerge in the gaming landscape over the last decade, Respawn gets a lot right. So we were honored when they chose to partner with Multiplay for *Titanfall 2* – and then again on their smash-hit battle royale, *Apex Legends*.

Operating from their headquarters in Los Angeles, the Respawn team designs and delivers some of the most innovative titles out there to millions of players. Multiplay acts as an extension of their team, handling all things server-related.



"I feel like I have this weird secret advantage that I keep trying to spoil the secret on by telling everyone else to come and work with Multiplay."

– Jon Shiring, lead programmer, Respawn Entertainment

Apex Legends by Respawn Entertainment

APEX — LEGENDS™ —



About Apex Legends

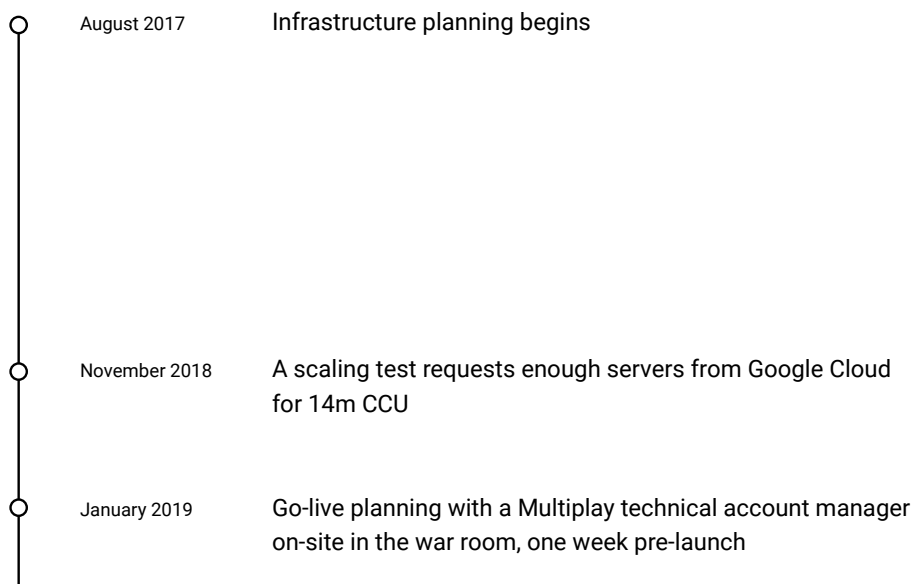
Apex Legends is a free-to-play battle royale game created by Respawn Entertainment. It's set in the same sci-fi universe as the *Titanfall* franchise, where three-person squads battle it out to be the last team alive, looting weapons and armor as the ring closes in.

Since launching in February 2019, several new playable characters and a new map have been released for *Apex Legends*, and Respawn has launched a series of limited-time events. This has enabled it to maintain its position as one of the most popular games of the year.

"Apex Legends would not have launched as smoothly as it did if we hadn't partnered closely with Multiplay. We anticipated a million players in the first week or two – we got 20 million. You can't do that without a platform that scales as gracefully as Multiplay does, and so I credit a huge amount of our early success to that partnership."

— Drew McCoy, executive producer,
Respawn Entertainment

Timeline



February 2019	<i>Apex Legends</i> goes live and hits over 2m CCU in just three days – by 24 days after launch, it passes the 50 million player milestone
June 2019	Season 2 goes live, creating a massive spike in demand
September 2019	<i>Apex Legends</i> Invitational, an eSports event with on-site support from a Multiplay engineer
October 2019	Season 3 goes live – player count for <i>Apex Legends</i> surpasses 70 million

“For launch we had a cautious and sensible amount of bare metal, but soon after launch we realized our projections were out by a factor of ten. However, because we were using Multiplay’s Hybrid Cloud, we just scaled into the cloud and everybody got to play the game, which is ultimately what we wanted!”

— Fred Gill, head of technology, Respawn Entertainment

From 0 to 50 million players in 24 days: How Multiplay scaled *Apex Legends*

What does scaling at speed look like? For Multiplay’s collaboration with *Apex Legends*, the numbers looked something like this:

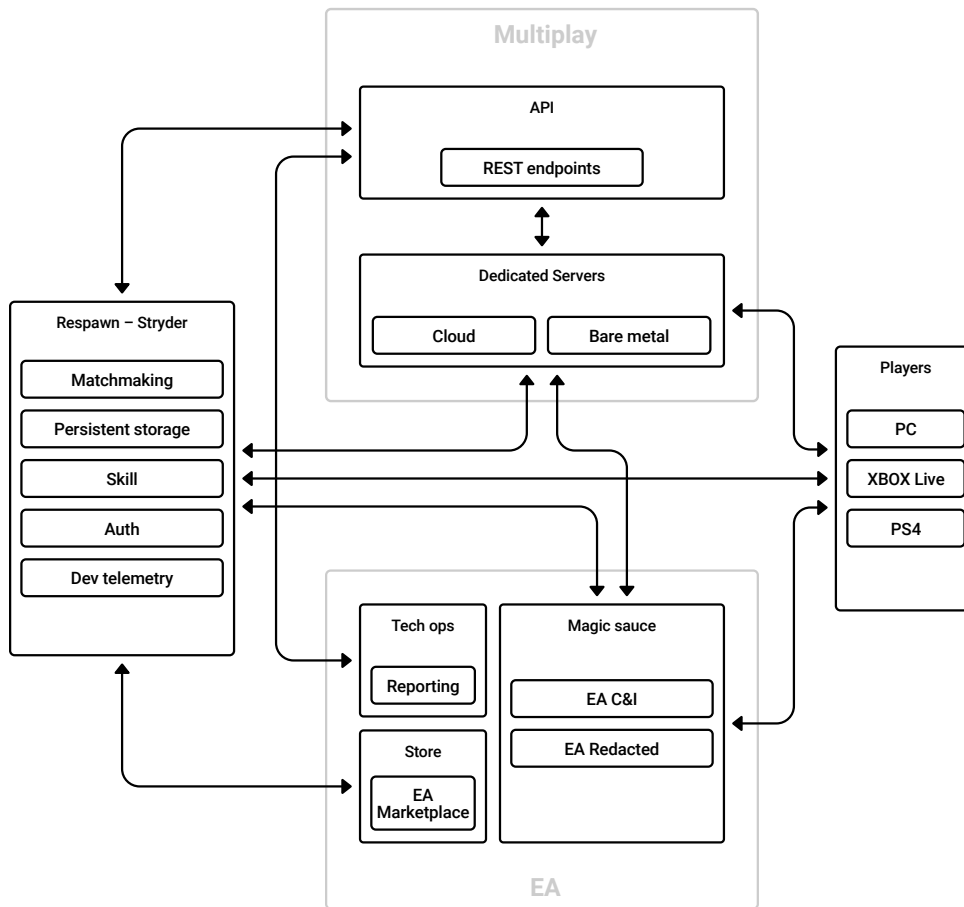
- One million players in less than eight hours
- 10 million players in three days
- 50 million players in 24 days
- A peak of over two million concurrent players



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To achieve these numbers, Multiplay's scaling tech had to earn its keep. At peak, the orchestration layer was spinning up more than 3,000 cores per minute – that's two machines a second – with 6,500 Virtual Machines (VMs) on cloud alone, across 54 locations.

Scaling Apex Legends: The tech



"With multi-cloud you can pick and choose the best region, meaning you're not tied into a global decision. With this 'super set' of all the clouds and bare metal, we get more resilience and the best possible experience for our players."

— Jon Shiring, lead programmer,
Respawn Entertainment

A peek behind the scenes at Apex Legends' back end

Respawn's back-end stack manages everything from player matchmaking to syncing with the EA marketplace to connecting to platform services like Origin and Xbox Live. This work is supported by Multiplay, which oversees Respawn's server use to ensure a smooth player experience.

Requesting a server – the API

Respawn's matchmaker requests servers from Multiplay via a simple API call. From there, Multiplay's orchestration layer runs the show, managing the allocation and deallocation of servers.

Allocations: An allocation request tells Multiplay that *Apex Legends* needs a game server, in which region and with which configuration.

Deallocations: When the match is finished, the server is deallocated and put back in the pool of available servers.

To manage this at scale, Multiplay stays one step ahead of the demand curve, maintaining a buffer of servers in a warm state to ensure that they stay ready for *Apex Legends* players.

The scaler also optimizes for cost, searching the pool of available machines for bare-metal servers first, then using any available cloud servers if needed.

Simply put, Multiplay ensures there is always a cost-efficient game server ready for Respawn's players.

"Multiplay's support has been phenomenal, both pre-launch and post-launch. They've been helpful in creating diagnostics, digging into issues with us, being responsive whenever we have issues – it's been a great partnership."

— Drew McCoy, executive producer,
Respawn Entertainment

Hybrid Cloud's dedicated servers

Hybrid Cloud balances cost efficiency and flexibility by using Multiplay's network of 150 bare-metal data centers alongside its Google Cloud and AWS capacity. With this system, most of the player base plays on cheaper bare-metal servers most of the time. But when player numbers spike (such as after the release of a



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new and wildly popular map), Multiplay bursts into the cloud to ensure that every gamer experiences the same seamless performance.

Hybrid Cloud was essential to the successful launch of *Apex Legends*. This system ensured that when the player count blew right past even the most ambitious forecasts, there were game servers available for everyone.

Multi-cloud distribution increases system resilience

In addition to scaling from bare-metal servers to the cloud as needed, Respawn benefits from Hybrid Cloud's capacity to use multiple cloud providers.

For such a large operation and with so many players, Multiplay and Respawn can optimize their global fleet for performance and cost efficiency. Also, if one bare-metal or cloud provider experiences an outage, Multiplay can failover onto a nearby provider.

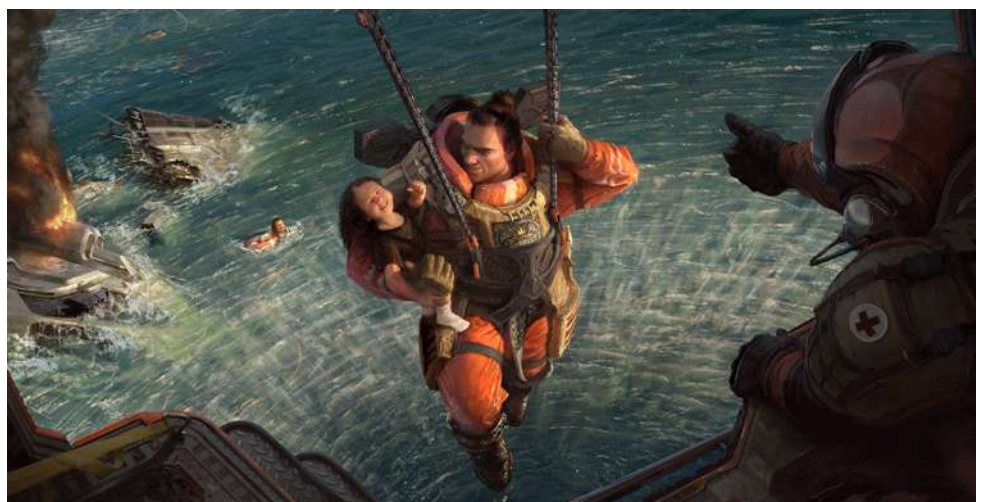
Top ops

To support a game with a global audience at scale, you need the right operations people in the right places. Multiplay has support teams in Texas, Seoul and the U.K., working closely alongside the EA and Respawn operations teams to ensure that *Apex Legends* is supported 24/7 every day of the year.

Respawn is also supported by a dedicated technical account manager who proactively monitors their systems. This point person is on-site with the Respawn team for everything from the pre-launch war room to the first *Apex Legends* Invitational in Poland.

"It's not Respawn's critical advantage to figure out how to run game servers better than our competitors. I want us to focus on how to make the game as fun as we possibly can. Multiplay gets that, so they're always trying to minimize our engineering time, and our designers' time, so that we can focus on the game and not on the servers."

— Jon Shiring, lead programmer,
Respawn Entertainment



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Multiplay's entire support team acts as an extension of Respawn, ensuring that the infrastructure is optimized, the game runs smoothly, and patches are rolled out when they're needed.

Staying focused on the fun

Respawn continuously attracts some of the best talent in the industry because they nurture a tight-knit work culture that puts gameplay and their players first. Central to building and maintaining this culture is letting the team concentrate on the fun part: making games.

Managing and running game servers is essential to Respawn's business, but it's a distraction from their core creative mission. That's why they decided to entrust Multiplay as a long-term partner that lets the Respawn team focus on what they do best.

**Want to use the same tech as Respawn
for your game?**

Let's talk. [Get in touch](#) with Multiplay to discuss your project.

