Cloudflare Workers for Gaming Product Strategy Assessment

By: Sujitt Rameshkumar

1. Intro & Thesis:

Cloudflare Workers (CW) currently utilizes highly effective Function-as-a-Service (FaaS) computing to allow developers to update components of code continuously. FaaS has created a paradigm shift in software development as it allows projects to be easily scalable and much more cost-efficient.

The most prevalent products within the cloud gaming space are Google's Stadia and Microsoft's xCloud. Stadia launched in late 2019 and xCloud is in beta for Android devices. While these products proved the market interest for cloud gaming platforms they couldn't fulfill the promise of 4k content with low latency. These undelivered claims prove these platforms are not meant for competitive gaming. Cross-platform multiplayer games make up the majority of market share within online games. These games require great server connectivity and low input delay (latency).

The Cloudflare Workers for Gaming (CWG) initiative will disrupt the cloud gaming market by using the following in-house technologies to develop a gaming platform that is both scalable and cost-efficient.

1. **Cloudflare's Edge Network** - Allowing content to be stored close to client machines to minimize latency. Storing cache content will increase rendering efficiencies resulting in high frames per second (FPS) rates and resolution.
2. **Automatic Scaling** - Conducts traffic routing and load balancing across all servers to provide a high-efficiency environment for users. It allows developers the ease of mind to focus on the business logic of products rather than the infrastructure.

This design will allow for CWG to become a preferable choice for multiplayer developers and gamers while still capturing the casual gaming market.

2. Risk Analysis:

There are certain risks attributed to entering an emerging market such as cloud gaming.

1. Competitors:
    a. Cloud Gaming Services:
        i. Google Stadia - Largest user base (~11.6 thousand). High-quality resolution/graphics. Significant latency issues.
        ii. Microsoft xCloud - Open Beta testing with positive feedback and a growing user base.
        iii. Microsoft Azure Gaming - Offers similar services as CW including easy scalability and infrastructure management. Poor performance and latency issues
    b. Other Functions-as-a-Service Platforms:
        i. AWS Lambda, Google Functions, IBM Apache - vast language support. They can support several languages. Lack high memory allocation and have significantly high
2. Product Risks
    a. Gaming quality - Using the WebGL API to render 2D and 3D graphics makes it near impossible to deliver the same level of graphic quality as OpenGL rendering from traditional platforms (PS4, Xbox One)
    b. Security - Heavy loads of user data required to stream games which impose data and privacy concerns

3. Users:

To ensure CWG can deliver to each corner of this market, it is important to segment users into categories, each with unique values and personas.

- *Hobbyist Developers* - Creators who make smaller products (Ohio State Game Creation Club)
- *AAA Title Developers* - Companies that develop the most popular games on the market (Nintendo, Blizzard)
- *Casual Gamers* - Prefer games that are functional and have good graphics.
- *Competitive Gamers* - Enjoy strategic games with a massive online presence. Require high connectivity and speed.

4. Prototyping and Early Stage Development (~ 1st Year) :

The development of an initial product is pivotal to the long term success of CWG. A prototype must be developed that applies to the needs of small and mid-scale developers and addresses their pain points through user testing in a closed beta. By developing a prototype that is attractive to early adopters, we can validate that the product is low-cost and easy to use which will allow for AAA title developers to pick up the product as CWG builds momentum. CWG should include to following features to diversify their offerings from competitors:

- ➢ *Realtime Cross-Platform Multiplayer SDK* - Develop a devkit that allows for synchronous gameplay and custom webhooks (Photon Realtime Engine)
- ➢ *Cloud-based Ray Tracing* - Renders 3D spaces by simulating ray bounces. This technique can be used to deliver exceptionally clear graphics, render distances, and lighting. While this technique is costly in terms of computation, by caching content through the Cloudflare Edge Network, graphics are drastically improved over several iterations.

5. Open Beta (~ 4 Months)

After the prototyping period, the open beta will be available developers who sign up. The service will be free for open beta users as our primary goal is to get feedback on the product and begin strengthening the platform for public release. A marketing strategy to increase the viral coefficient is to reward users with future discounts if they can refer other users to the open beta. Another goal is to get high volumes of user-generated content. By hosting several game development challenges users are encouraged to bring their games to life on the platform. These challenges will simultaneously work as a demo stress test to the server and point out inefficiencies in the platform's traffic management schemas.

6. Public Release

Shortly following the initial launch of CWG, incentives can be given to early adopters to bring in more users through the word of mouth. Game development challenges should continue to be a driving factor in bringing in new talent to the platform. Based on the success of the games developed on this platform, Cloudflare can begin collaborating with big names in the gaming industry such as Nintendo or Riot Games to sponsor challenges. These hackathon-like events will be an excellent way for gaming companies to recruit developers for internships or full-time positions.

Key Metrics:

Feedback is an important value through the release phase. Crash reports, reviews, and collecting metrics are essential in the continuous improvement of CWG. Some key metrics from the games worth collecting include latency time, FPS rates, and loading times. Metrics should also be collected on the user base and products developed on CWG. Daily-active-users (DAU), percent of users acquired virally, and session durations are a few key data points to study user experience.

While maintaining data collection on our users, we can successfully move into a long term phase of research and development to ensure the sustained success of CWG in the cloud gaming space