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Cloudflare Workers for Gaming

I interviewed 5 people in the game development industry across console gaming, mobile gaming, third party services and analytics to understand the applicability of Cloudflare Workers. My hypothesis, user personas, needs and insights are derived from these interviews.

User Personas	Needs	Motivations	Frustrations
'Cool' Console/PC Game Developer Description: This is a game developer who builds PC/Console games and is typically employed by a game studio.	Push out outstanding games that engage gamers for eternity	Provide the most amazing gaming experience rich with advanced graphic and ultra-fast speed	Gamers don't upgrade their hardware quick enough to keep up with the advancements in gaming technology
'Worried' Mobile Game Developer Description: This is a game developer for the mobile who is often building online multiplayer games for the masses. They can be part of a game studio or be an indie game developer.	Focus on core game design without having to worry about their gamer's internet connection and device	Wants to provide a seamless multiplayer gaming experience for the masses	Spends a lot of time in optimizing the game for different hardware devices
'Keep It Going' Dev Ops Description: This person is responsible for game builds and ensuring that the game scales well.	Provide scalable, reliable and performance-optimized architecture for game deployment	Avoid interruptions to game play to ensure the game's availability and performance for every user	Unable to accurately anticipate unforeseen rise in traffic leading to outages
The Data 'Savant' Description: The Data Analyst is responsible for collecting, analyzing data to help guide decision making around monetization and engagement of the game.	Needs to collect, standardize and analyze data in real-time	Wants to provide advanced levers to the game developers to improve engagement	Lack of structured data in actionable form from different parts of the game play journey results in a lot of effort spent in standardizing data
The API 'Ninja' Description: This person/company provides 3rd party services (monetization, advertising etc.) for game developers to integrate with.	Run these 3rd party API with the ability to provide low-latency service without increasing their own costs.	Reduce the load for developers to re-invent 3rd party service (monetization, advertising etc.) from scratch.	Investing in technical infrastructure without knowing how demand will fluctuate 24/7

The games developed by this segment are the biggest component of the global gaming industry and will impact 2.4 billion people globally.[1]

Hypothesis: Unlike console games, mobile game developers need to design games that work across a variety of hardware specifications (particularly for Android) for a global user base. Thus, they would benefit the most from Cloudflare Workers to effortlessly scale while providing a fast, efficient, and cost-effective experience to gamers all over the world. Potential Use Case below outlines some ideas of how this can be deployed in the mobile gaming industry. In essence, the focus is on removing expensive compute and network communication from the end-gaming devices without degrading the gaming experience.

- **Game Play Validator**: While the main game logic is deployed in the mobile device, the game moves need to be validated and updated across the global copy of the game, particularly with features like "client run ahead". This particular function is a prime candidate for Cloudflare workers.
- **Real-Time Analytics:** Using Cloudflare Workers, gameplay developers could quickly deploy A/B tests that help them test the impact of new gameplay features, monetization features, and social features on engagement.
- **API Integrations:** For companies in complementary markets such as advertising, monetization, etc., they need an easy way to deploy existing and new APIs for game developers without worrying about managing infrastructure and security to scale efficiently. They need to do this while ensuring that their services do not impact the gaming experience by slowing down game performance or increasing lag.

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[1] Source: Mobile games are 47% of the global gaming industry. 2.4 billion people were expected play mobile games in 2019 alone. https://influencermarketinghub.com/mobile-gaming-statistics/

Plans to learn more about the market and its needs:

- o Conduct a gaming ecosystem market research to understand the different participants and the key players.
- o Conduct interviews with key stakeholders to understand their needs:
  - Interview game developers and gaming infrastructure managers.
  - Interview game engine developers such as Unity 3D.
  - Interview dev ops and data analysts in the gaming industry.
  - Interview API providers for Monetization, Social Features, Analytics.

  Note: A vital vector to consider is geography as one would want to consider the needs of stakeholders offering their games in markets with varying internet speeds and hardware devices.

- o Survey the Cloudflare Community Forums to gain initial insights.
- o Participate in Game Developer Conferences to meet with developers, dev ops and service ops engineers to collect their feedback on the existing Cloudflare Workers or its competitors such as Lambda@edge.

Product changes or additions (100X Impact Idea):

- o **Game rendering on-the-edge in 5G markets:** This feature would require Cloudflare to have GPUs available on-the-edge that can render frames that are sent over the internet to the mobile device.
  - Reduce hardware dependence for gamers to play high-end games on mobile.
  - Also, it would allow the game developers the ability to work with standardized edge hardware that reduced the time spent in testing and performance optimization for low-end devices.
  - It would also scale well for AR/VR enabled games – a likely trend over the next five years in the age of gaming.

  Note: The use cases mentioned on page 1 are the immediate ideas I would invest in.

Methods for improving the quality of offering before it is released:

- o Launching a beta test with mobile game developers to understand if the API match their needs and (invite those already part of Cloudflare customer base or indie developers).
- o Build case studies that can be published when the service is released for gaming.
- o Partnering with mobile companies like 'Zynga' or 'Niantic' to help launch a mobile game that extensively uses this capability.

Goals to measure the success of what you build:

- o Short Term Oriented Goals (For the build and can be extended for the future):
  - o Adoption Rate (Net new users per month, Number of accounts that use this as first Cloudflare service, Adoption by existing customer base).
  - o Sentiment Analysis of feedback left in Beta Community Discussion Forums.
  - o Per Day / Per Hour Cloudflare Workers usage statistics.
- o Long Term Goals (Post-Launch) for Cloudflare Workers from Gaming
  - o *Revenue Driven:* Increase in Net Monthly Recurring Revenue Growth; Increase in Average Revenue Per Account; Decrease in Customer Acquisition Payback Period.
  - o *Scalability and Performance Driven:* Average response time; Throughput; Average cost to serve a request; Survey of adoptees to understand how the service is reducing their time-to-market.
  - o *Availability Oriented: Node* heatmap to identify bottlenecks.

Risks which might lead to its failure:

- o Inertia among game developers to re-orchestrate their code for Cloudflare Workers – *mitigate* with dedicated partnerships, quality documentation, dev conferences.
- o Competitive response from Amazon, Nvidia, Google, who can compete on similar network infrastructure as Cloudflare or have platform lock-ins – *mitigate* with pricing, security, performance and resiliency of platform.
- o Technical challenges in implementing the 100X use case – mitigate with partnership with Nvidia or AMD.