

Game Development Proposal

Executive Summary

Developed a design process through which diverse problems faced by gamers and developers can be resolved. We identified 3 main problems: Latency, Hardware and Security. To resolve these potential problems, we followed the generic 3s model (Speed, Scalability and Security); which was further followed by concluding an iteration process.

Identifying Problems

The primary purpose of this project is to create a forum for gamers and developers to enhance the gaming experience and to solve problems faced on both sides. The developers want a platform where they can provide gamers an uninterrupted experience that smoothens their gaming. The gamers, on the other hand, want a platform that they can access without any hardware constraints. I have divided the concerns into 3 broad aspects.

Latency: High latency can cause a bad gaming experience which can deteriorate the gamer's footfall on the platform. Since we will be dealing with all kinds of games, it is really important for our solution to have a lower ping. Unlike Google's Stadia, which has poor latency, our product needs to be resilient.

Hardware: Game developers face a problem with game production because they work with hardware that is outdated compared to cloud platforms. This causes the developers to write the best code on limited hardware. Not only with the developer's point of view, but gamers also have limited hardware which can be solved by cloud platforms like Cloudflare.

Security: This is linked with Distributed Denial of Service (DDoS), as addressed before [here](#), attacks that could lead up to huge wait times for the players.

Generating potential solutions

This will be possible by introducing the 3S model which will be proposed by the Cloudflare Workers. The 3 Ss being:

1. Scalability
2. Security
3. Stability/Speed

To work on this, our solution should inculcate the following:

- The V8 engine accompanied by the virtual machine infrastructure can mean increased speed, efficient memory utilization and of course enhanced security. While the security infrastructure is set in place and designed to defend against side-channel attacks by making it impossible for code to measure execution time locally.
- Users will not have to carry gaming consoles (solving hardware problems). All they need is a stable internet service and access to a Cloudflare marketplace or a link from a developer. Thus, gaming is made easy.
- The users should never have to install additional downloadable content or wait for updates. Cloudflare's cloud services will be such that all these problems will be solved.

Thus the scalability and security problem is solved. Now, for the speed/stability which is a major problem faced by companies currently in the market here is the plan:

- Finding the ping of users who live far from the dedicated server and ping of users who live close to the dedicated server
- Mark the ping of games that are hosted between players who are geographically closer to each other.
- Analysis of the lag spikes; lower median latency at the expense of more lag spikes is poor performance.
- Working on the lag spikes.
- Calculating the overall cost to overcome the above-mentioned issues.

Precautionary Steps and Iteration

To further better the platform and improve the latency, there is a 9 step process as follows:

1. Create a basic platform in custom calling builder in CFW.
2. Create end to endpoint connection for private services, invite the servers.
3. Create an alpha testing system with a game so that latency could be tested.
4. Monitor the performance of the game, make changes accordingly to the platform and improve until latency is sorted.
5. Test game latency from all around the country.
6. Test with a poor internet connection.
7. Invite game publishers to build customized protocol on Cloudflare's Platform.
8. Further, develop a platform for big gaming developers like EA.
9. Launch the platform

Finally, constant iteration and improvisation at every step is really important. Apart from improvisation, taking regular feedback from important stakeholders is vital.