

Supercell The Best Teams Make the Best Games



[Supercell](#), a mobile game development company based in Helsinki, Finland, was founded in 2010 on the idea of giving teams the independence to decide what kinds of games they make and how they choose to make them.

Creating lovable worlds and characters that players want to come back to repeatedly is at the heart of how Supercell designs and operates games using the best technology. Supercell believes games have the power to bring people around the world together, and works hard to create new, innovative, memorable experiences that will excite wide and diverse player communities.

A Need for Better Technology for More Performance

Sometimes technology can get in the way of achieving one's mission. This was the case with the company's most recent game released globally: [Brawl Stars](#), which suffered from lag, causing usability issues and gamer dissatisfaction. The problem could be traced to the way Just in Time compilation works in the boilerplate OpenJDK Java Virtual Machine.

A scalable solution was needed. A single 300-millisecond delay renders the game unplayable for a couple of seconds affecting the 100s of players on a server. As Brawl Stars automatically adapts its server amounts on the load from players across the globe,

every day many hundreds of servers running Brawl Stars battles were affected by a handful of 100- to 300-ms hiccups during the first two hours after server startup, caused by runtime warmup issues.

Java is fast for developing applications, it is cross-platform, and highly robust for massive at-scale use. But using out of the box OpenJDK meant that after launch the JVM (Java Virtual Machine), it was too busy compiling game code, and this repeatedly retriggered when a game enters new game logic. This caused random lag for game players and severely limited the load servers could safely carry during the first hour.

The challenge? Supercell needs to spin up and down instances all over the world constantly to stay close to the player, during holidays, weekends, and special events. As about all the battle servers are starting up fresh every day, the old solution of loading only about 30% of battles during the first hour after bootup was inefficient and caused additional hosting costs.

Delivering an Improved Gaming Experience

After a rapid evaluation and over a month of production testing in Supercell's Dublin-hosted cloud instances, the case was made. Supercell's Brawl Stars saw improved efficiency in scaling server operations, [Azul Platform Prime](#) delivered much more consistent load carrying capacity, reducing game lag, and reducing CPU usage by 20-25% for the same workload, which can be translated into a reduction in infrastructure costs. Using the improved Azul Prime JVM, Supercell was able to scale servers up and down more efficiently without any code changes.

Azul Platform Prime allows Brawl Stars game servers to avoid game lag by running Java code with the responsiveness and consistency of C++ code. In addition, the performance improvements allow for higher load on the servers, ensuring the investment could pay for itself through reduced hosting costs.

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About Supercell

[Supercell](#) is a game company based in Helsinki, Finland, with offices in San Francisco, Seoul, and Shanghai. Since its launch in 2010, the company has brought five games to the global market: Hay Day, Clash of Clans, Boom Beach, Clash Royale, and Brawl Stars. Supercell's dream is to create games that as many people as possible play for years and that are remembered forever.

Benefits of Azul Platform Prime. A high-performance, OpenJDK-based distribution

- **Faster JVM performance:** our C4 Collector lets you run two to five times more transactions through your infrastructure—without pauses, jitters, or timeouts.
- **Faster code:** the most scalable JVM on the market that delivers improved real-time JVM optimization with a better LLVM-based JIT compiler.
- **Faster startup:** includes built-in ReadyNow! technology accelerates Java warm-up times and gets you going faster.
- **Right-size resources:** offload JIT compilation with the Cloud Native Compiler to enhance the performance of Java applications in any compute environment

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