Frima Studio's Zombie Tycoon

3D zombies invade browsers

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Frima Studio inspired to bring its Zombie Tycoon game console to browsers, using new capabilities in the Adobe® Flash® Platform to deliver astonishing 3D experiences to vast new audience

Staffed with 275 artists and programmers, Frima Studio is a prominent game development firm. Since its inception in 2003, Frima has served clients including Electronic Arts, Warner Brothers, and Nickelodeon. Known for producing high-caliber multiplatform and Flash games that are as remarkable artistically as they are technically, Frima has thrown open the door to 3D Flash gaming in the browser. The new 3D technology found in Adobe Flash Player is one of Frima's secret weapons, enabling the firm to liberate its 3D Zombie Tycoon game from the confines of a console, bringing the most eye-popping, high-performance 3D gaming experiences imaginable to the widest number of devices. This big win is attributable to the marked advancements in Adobe Flash Platform runtimes—specifically Adobe Flash Player, which is already installed on 98% of the world's Internet-connected computers.

Zombie Tycoon, one of Frima Studio's most popular 3D games, was first released in 2009 as one of the original six games for the Sony PlayStation Portable (PSP) Mini. Back then, Frima built the game using a full-blown console engine specific to the PSP platform. Now, Frima Studio brought Zombie Tycoon from the PSP platform to the browser, using the Adobe Flash Platform to bring astonishing 3D experiences to web gamers as never before. Frima has realized its goals for Zombie Tycoon of attaining the broadest possible reach and delivering immersive 3D experiences to Zombie Tycoon players.

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> **Steve Couture**
> **CEO,**
> **Frima Studio**

Challenge
- Deliver 3D games to the greatest number of computers and devices
- Unleash 3D games from the console to the browser
- Make it easy for 2D game developers to move to 3D

Solution
- Leverage new capabilities in Adobe Flash Player for high-performance 3D experiences on browser and beyond
- Create astounding 3D game experiences never before seen in browser
- Use Adobe Flash Platform tools to build 3D development tools and APIs

Benefits
- Funnel widest possible audience to experience 3D games on the web
- Enable developers to create tools to transition to 3D
- Introduce new revenue opportunities for Flash developers

Toolkit
Adobe Flash Platform. Components used include:
- Adobe Flash Professional CS5
- Adobe Flash Builder
- Adobe Flash Player
- Flex

Adobe Photoshop CS5

This game-changing achievement was made possible using Stage 3D, a new method of 2D and 3D rendering supported with new Stage 3D APIs in the Adobe Flash Player. Advanced 3D experiences like the ones delivered in Zombie Tycoon within the browser can now be created by all Flash developers using the familiar Adobe Flash Platform tools—opening up enormous opportunities for developers to create great experiences on desktops, tablets, and mobile devices. As game developers know, this engagement will ultimately lead to greater monetization opportunities.

"We invite Flash developers everywhere to get inspired from the progress we've made in just a few months working with Stage 3D in the Adobe Flash Player," says Luc Beaulieu, CTO at Frima in Quebec City, Canada.

When asked why Flash was chosen for this project, Frima's CEO, Steve Couture, speaks out. "Flash is everywhere. Developers want to be building games in Flash because that's where the money is—especially for Facebook games and free-to-play games—two of the biggest revenue opportunities out there," says Couture. "The ubiquity of the Adobe Flash Player base and its success rate is undeniable. No other 3D development platform has anywhere near the penetration of Flash. Combined with Frima's expertise, Stage 3D will allow us to create the next generation of Flash gaming and strengthen our company's position as a leading-edge Flash developer."

Beaulieu adds that not having to install a player is a particular advantage when it comes to capturing the youth market. "Why would you want to use anything but Flash and risk eliminating such an important segment of your customer base right from the start? Our clients want Flash because it maximizes the number of players into their game."

Opportunity abounds
This new 3D Flash game development opportunity isn't limited only to 3D developers. Rather, it presents ideal conditions for all Flash developers—from independents to mainstream marketers—to get in on the game. In fact, even with its own team of experienced 3D developers, the Frima developers responsible for the browser version of Zombie Tycoon are ActionScript® developers with 2D game building experience without strong knowledge of 3D programming.

"The new set of Stage 3D APIs in Flash Player that enable advanced capabilities across screens, combined with Frima's IceField 3D engine developed specifically to extend the new Stage 3D Flash Player capabilities, enabled us to create a dynamic, high-performance experience never before seen in a Flash game," says Beaulieu. Combined, the technologies enable developers to create, add texture to, and animate hundreds of avatars simultaneously without sacrificing performance, as well as generate advanced special effects and atmospheres like static and dynamic lighting, shadows, fog, and mirror effects.

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Luc Beaulieu
Chief technical officer,
Frima Studio

Zombie Tycoon is a single player game in which zombie squads turn the world into mayhem. Tales of intrigue and betrayal, challenges inside puzzle-filled cities, and quirky items keep players immersed in 3D thrills. Dynamic lighting effects slide as the camera zooms in and out. Other key elements that make or break computer games permeate Zombie Tycoon, including fluid, 360° animations and skybox effects.

These achievements were made possible in Flash because the new low-level Stage 3D APIs give 3D engine developers the flexibility to leverage GPU hardware acceleration for significant performance gains. Hundreds of thousands of z-buffered triangles render at HD resolution in full screen at around 60 Hz. These milestones make it possible to deliver sophisticated 3D experiences across almost every computer and device connected to the Internet.

With the current pervasiveness of Adobe Flash Player, Beaulieu estimates that it will be a matter of months for more than 80% of all Internet-connected computers to leverage the new hardware acceleration features in Adobe Flash Player to deliver 3D experiences. Until then, older computers will rely on software rendering in Flash Player to deliver a similar 3D experience. The demand for 3D gaming will soar, Beaulieu predicts, as the rapidly increasing masses of online game players will come to expect all high-quality game experiences be in 3D.

Conquering development

The Frima team built this game using a two-tiered workflow, with Adobe Flash Platform tools as mainstay throughout both phases. First, they used the Flex® framework to build the tools they needed to create 3D applications. Then, they used Adobe Flash Professional and Flash Builder™ to design the game's user interface and initial menus, and to profile everything that used the CPU. "We have used the Adobe Flash Platform in our business since we first started, so it was only natural for us to go to the next level using the environment's powerful new advancements," says Beaulieu. Frima also leverages the Flex environment to build most of its web-based development tools.

To export 3D assets from a third-party modeling program into Flash, the team used Flash Builder to create an Adobe AIR® application that converts the assets into a format supported by Frima's proprietary engine. 3D artists used Adobe Photoshop® CS5 to texturize characters and buildings and then import those assets into Flash Professional. Frima also used Flash Builder to optimize the ActionScript part of the game to ensure that the CPU was not doing all the game's heavy lifting.

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Looking ahead to mobile, the Frima team is excited about future possibilities of deploying 3D games to mobile and tablets using Flash. At the end of the day, no matter the platform, it's the passion of gamers that drives the demand for Flash games. "People are truly amazed at how fast and smooth Zombie Tycoon performs," notes Beaulieu.

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For more information
www.adobe.com/flashplatform