CRYING SUNS

HOW ALT SHIFT BROUGHT THEIR STORY-RICH SPACEFARING EXPERIENCE TO MOBILE

Unity's extensible Editor and multiplatform tools enable reliable ports to Nintendo Switch™, iOS, and Android devices.

alt Shift

→ **THE CHALLENGE**
Building an immersive UI that captures the drama of classic sci-fi and maintains it across multiple platforms

→ **PLATFORMS**
Android, iOS, Mac, PC, Nintendo Switch™

→ **PROJECT STAFF**
4 core developers, 8 other contributors

→ **LOCATION**
Montpellier, France

ALT SHIFT: A UNITY CASE STUDY

Creating a captivating, immersive sci-fi world with a pixel art look and feel is quite an accomplishment. But getting it out the door in a minimal crunch environment after deciding to go multiplatform mid-project – while preserving its PC richness on smartphone screens – takes that achievement to the next level. Alt Shift's *Crying Suns* is widely praised for pairing a deep human story with frantic and engaging space combat, a beautiful art style, and a soundtrack with an ethereal, *Blade Runner* feel.

POWERFUL TOOLS FOR AN EXPERIENCED TEAM

When Alt Shift built their first game, they brought together several experienced software developers and built their own custom engine. It did a rudimentary job, but in the words of founder Frédéric Lopez, "never again." Since then, they've relied on Unity for every successful release, and the platform has proved its worth each time with its full complement of collaborative artist tools, extensibility, multiplatform capabilities, and continuous integration/continuous development (CI/CD) features.

THE RESULTS

→ Launched a premium game on mobile, desktop, and console platforms reaching more than one million players

→ Performed 90% of testing across devices directly in the Unity Editor using custom extensions

→ Reduced game memory footprint from 1.5 GB to 1.1 GB using the Unity Addressable Asset System

→ Minimized launch crunch with built-in Unity Cloud Build CI/CD

# INSPIRED BY SCI-FI CLASSICS
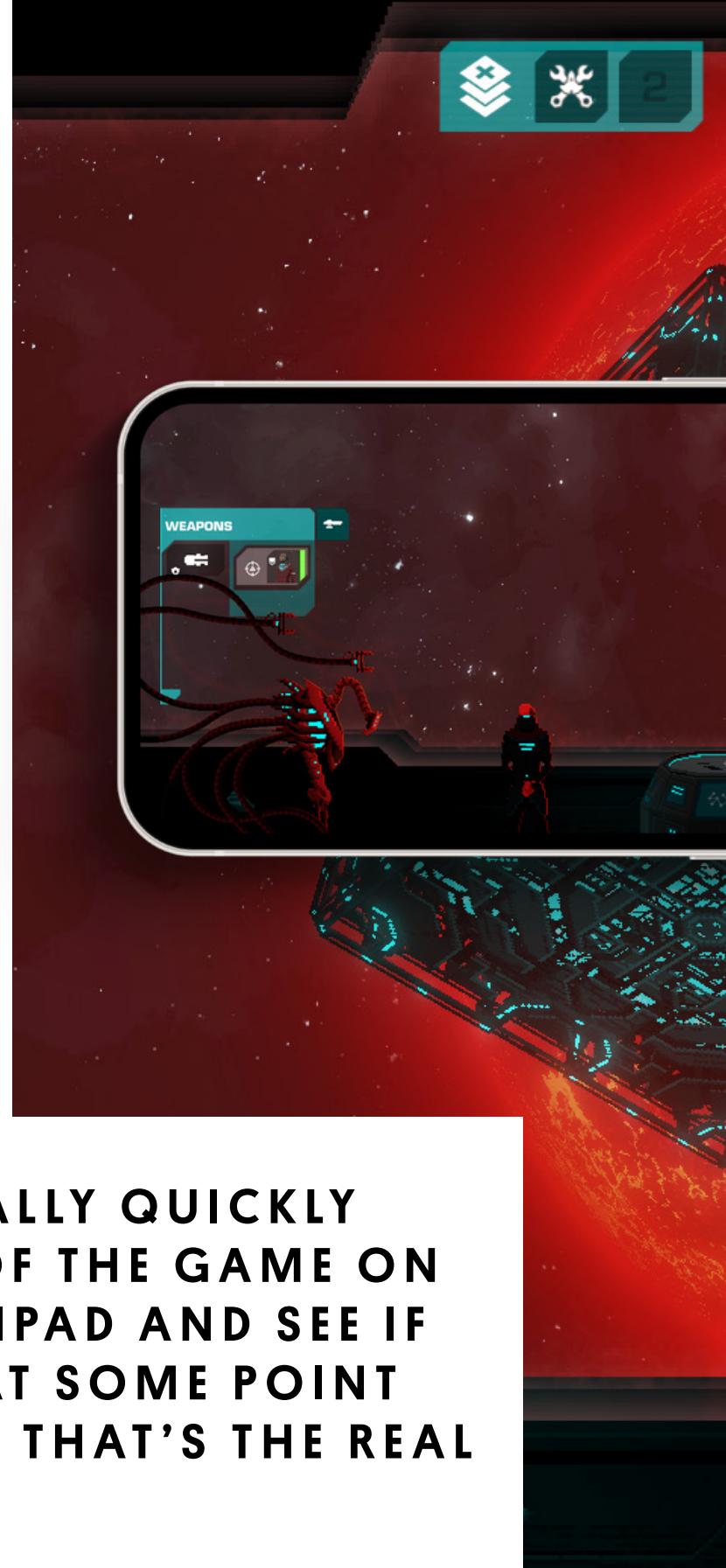
The Alt Shift team got its start alternating between having fun creating games and putting food on the table with commercial web work. But after their first hit with Unity – the F2P puzzle delight *Not Not: A Brain-Buster* (with over 14 million downloads) – they were able to put their energy into developing *Crying Suns* full-time. The Alt Shift team shares a devotion to serious science fiction, and they envisioned *Crying Suns* as a story-rich, tactical rogue-lite inspired by *Foundation*, *Dune*, and *Battlestar Galactica* – and, in particular, by Admiral Adama.

TAKING SMARTPHONES TO THE STARS

According to Alt Shift cofounder Julien Cotret, who served as *Crying Suns*'s producer, narrative designer, and sometimes programmer, "We are big fans of *FTL: Faster Than Light*. With *Crying Suns*, we wanted to add to that initial gameplay formula a sense of scale and a feeling of dramatic stakes in a rich, post-apocalyptic environment." They built the drama by writing more than 300 possible story events and pushed the limits of pixel art to create the world of the game's central character, Space Admiral Ellys Idaho. Having died centuries before during the collapse of an interstellar empire, he respawns as a clone to discover what happened, what's left, and what's possible.

Alt Shift targeted PCs and iPad when the project kicked off in 2016, unaware of how quickly smartphone screens would evolve and how successful Switch would be. They'd been using Unity since 2012, so, understanding its strengths for multiplatform releases, they tested some prototypes and decided to expand the game's reach. Says Cotret, "We tend to keep a single main development branch on our project, no matter how many target platforms we have."

"WE WERE ABLE TO REALLY QUICKLY BUILD A PROTOTYPE OF THE GAME ON A MOBILE PHONE OR IPAD AND SEE IF IT WAS ACHIEVABLE AT SOME POINT WITH OPTIMIZATION. THAT'S THE REAL STRENGTH OF UNITY."

— Mathias Baglioni, UI/UX Lead, Alt Shift

RUNNING A TIGHT SHIP WITH EFFICIENT WORKFLOWS
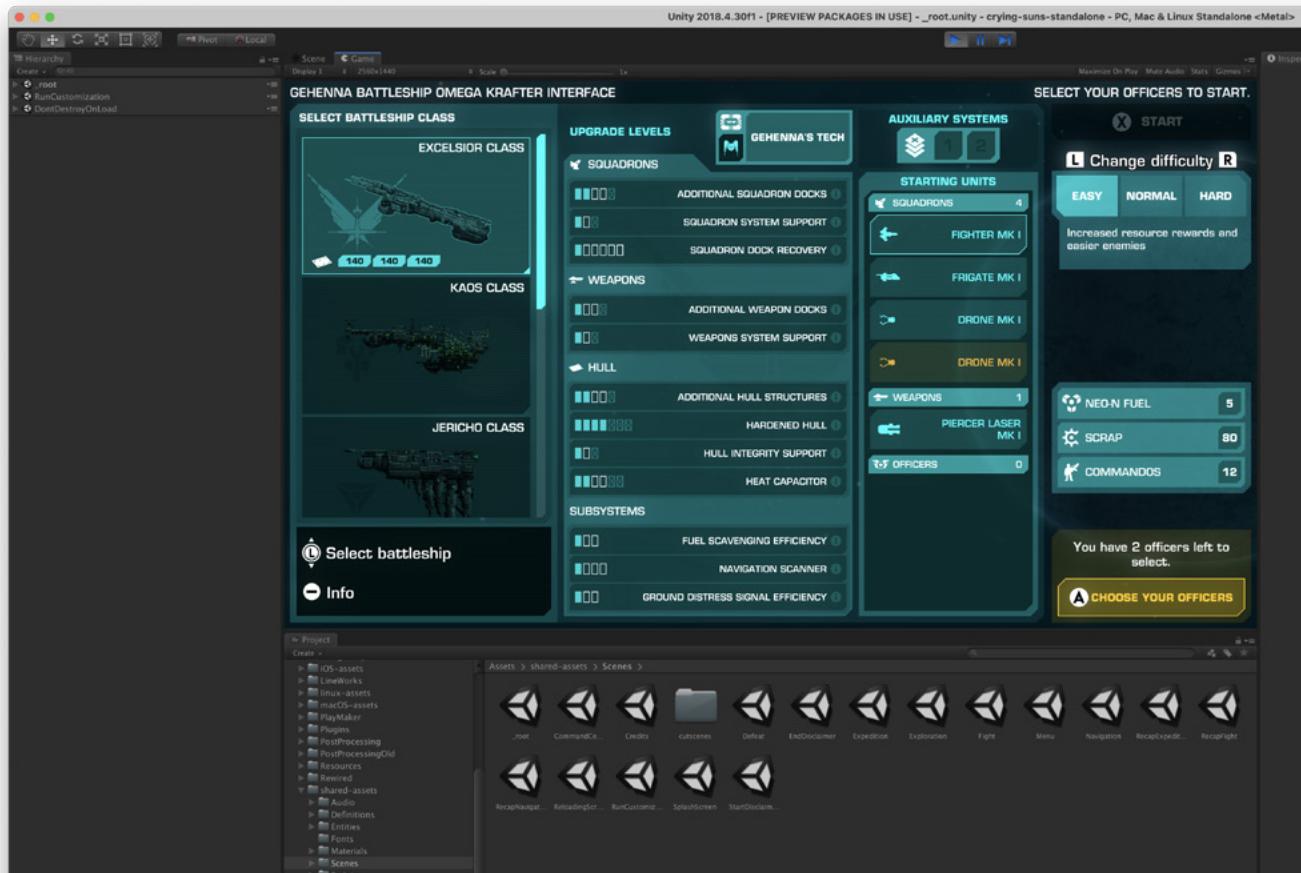
"Let's be honest. What we really want is the player to act like Admiral Adama in *Battlestar Galactica*," says Cotret. To save a dying humankind in *Crying Suns*, the player has to manage a huge, high-tech battleship with a crew of hundreds. Similarly, to succeed as an indie studio, a team has to apply agile, DevOps-oriented software development practices such as testing early and often.

Going multiplatform demanded that every new game component be tested against multiple configurations in the Unity Editor. To avoid lengthy build times to test directly on each target platform, Alt Shift created a number of special property drawers and custom inspectors that let them alter aspects of their game based on which platform was selected, directly from the Editor.

"To minimize 15–20 minute on-device compile times, we implemented custom extensions to test multiple platforms with only 15–20 seconds of platform switch time – basically 'stop play mode,' 'change platform,' and 'start play mode,'" says Christophe Sauveur, lead developer on *Crying Suns*.

From UI design, to scene assets, to store managers, the team could quickly assess their changes and customize them accordingly for each platform. "We provided our designers with tools to help them discriminate platforms on an interface," says Sauveur. "For example, we have some components or game objects that are dedicated to online stores – Steam Manager, GoG manager, EGS Manager, and so on. All of those components are removed from the build when you are on mobile or Switch."

Planning and executing frequent testing early in the development cycle – a DevOps practice learned in the team's pre-gaming days – has always been part of the Alt Shift work culture. They're working towards a "no-crunch" philosophy that's a growing trend with game studios of all sizes.

PUSHING THE LIMITS OF PIXEL ART

Alt Shift's goal with the *Crying Suns* look and feel was to create a unique atmosphere driven by one guiding idea: a sense of immersion. To accomplish this, and to enhance the game's classic sci-fi atmosphere, the team used pixel art, a less-is-more approach to graphics that forces the artist to focus on and isolate the most important elements in an image.

Artists designed Admiral Idaho and his officers as pixel art and animated them with bones, paths, and meshes. They simulated volume by deforming textures. This provided a much smoother and more realistic quality than traditional pixel art animation. For battleships, the 2D pixel art was extruded to create a 3D model to which they applied 2D textures. This technique lets them take advantage of 3D dynamic lighting, volumes, and perspectives while keeping the pixelated look intact.

For smaller ships, the team used just the 2D textures and added parallax effects for depth. They included a mix of 3D models, sprites, and pixel-art textures for star systems, planets, beacons, and the like.

APPROACHING MULTIPLATFORM REACH STRATEGICALLY
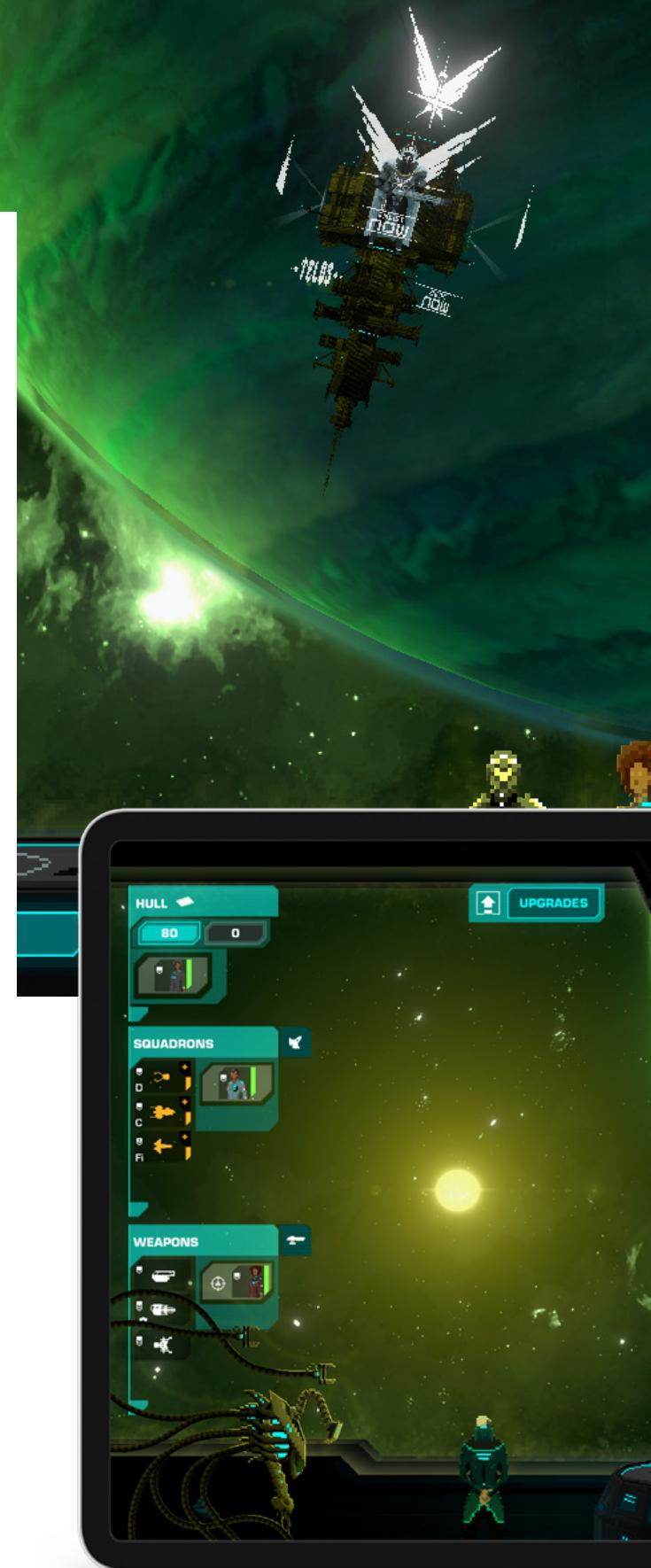
"Adding mobile devices opened up a huge market for us, but *Crying Suns* is a premium game, so we had to be careful," says Cotret. "Top store reviews are critically important for premium mobile games – players simply won't impulsively pay to try a game without them."

Android supports over 19,000 devices, and the game only plays well on higher-end models. To ensure a high-performance experience and better reviews, Alt Shift cut 10,000 lower-end models from the Google Play Store. "Narrowing the list of supported Android devices was one of our most profitable strategies," he adds.

Less profitable was starting development without having a true multiplatform strategy in place. "It's always expensive and difficult to develop UIs for other platforms retroactively," says Mathias Baglioni, UI/UX lead at Alt Shift, "Especially when the controllers are so different, from mouse and keyboard, to gamepads and touchscreens."

Despite the added 10% cost of adding on mobile devices, Lopez calculated the market as four to five times larger than that for PC/iPad, and that made bringing the game to mobile devices a no-brainer. "Going for the broader market was the right bet. The profits were 10 times the porting costs."

Plus, having built multiplatform simulation tools in the Unity Editor, they were able to test UI components for every platform. According to Sauveur, "We were able to do 90% of our testing in the Unity Editor and then double-check the last 10% on the devices themselves. It was a very efficient process."

SAVING TIME WITH COMPREHENSIVE FEATURES

To optimize memory usage on both smartphones and Switch, the Unity Addressable Asset System enabled loading only fonts needed for a particular user's UI. Addressables also opened play for older iOS devices such as the iPhone SE/8 and the iPad Mini 4 by reducing the game memory footprint from 1.5 GB to 1.1 GB.

Continuous integration is critical for agile development, and according to Cotret, "Unity Cloud Build was essential for testing and build validation, and the fact that it's integrated in the development platform makes it a much more manageable process." Built-in bug reporting was another important Unity capability that proved to be a significant timesaver.

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— Julien Cotret, Cofounder, Producer, and Narrative Designer, Alt Shift

PUTTING DEVOPS FIRST WITH UNITY

Alt Shift's devotion to fundamental DevOps practices has been a major factor in their success. They test early and often, and they take advantage of Unity's continuous integration capabilities for frequent builds along with using unittest for automated QA. The result is a remarkably relaxed work environment given the enormity of what they've achieved with *Crying Suns*. Lopez adds, "Unity integrates so many different capabilities – from the game itself and artist collaboration to software development workflows. Unity is a valuable member of the Alt Shift team."

STAR MAP