Behind great games, there's game tech.

aws game tech

AWS is How Game Tech | Volume 2

Reconnecting through tech

Over the past year, many of us have felt compelled to escape into a game, even if only for a few hours. Technology has been our salvation and our solace. When we've been forced to stay apart, tech has helped us to feel connected, whether by racing strangers through virtual cities or teaming up to battle awesome foes in Wolcen: Lords of Mayhem.

Player ID:
Eric Morales

Classification:
Head of
AWS Game Tech EMEA

Player profile

Player history

Stockholm	Joined	Gamer since
59°32'N 18°06'E	July 2015	1995

There has, perhaps, never been a greater need for the escape that gaming gives us. So I'd like to say an extra thank you to the studios we're featuring in this issue. Without you, lockdown would have been just a little bit harder for so many millions of us gamers across the globe.

Like most businesses around the world, 2020 wasn't easy for the developers you're about to meet. They've had to cope with unprecedented challenges, but they harnessed their grit and their determination to forge new experiences for players all over the world. Most importantly, they didn't face these challenges with corporate firepower, they created these incredible experiences with audacity, creativity and the simple desire to make something fun.

These studios know when to play it safe and when to take calculated risks. When to keep pushing forward on a bumpy road and when to somersault onto a new one.

Building on AWS gives studios the chance to experiment, innovate, and make mistakes in order to keep forging ahead. I'm 100 percent with Roberta Lucca from Bossa when she says: "I think entrepreneurs are half-scientist, half-artist. You start by failing many times. Always be ready to learn and experiment."

As ColdFire has discovered, AWS gives studios the chance to test, analyze, predict, target and act on player feedback. Agility is crucial when you're a developer, so the ability to pull a 180 when the odds are stacked against you is as important for development as it is for game play. Traplight's Valtteri Pirttilä told us: "It's always been about seeing where we are and working out the best way forward, instead of sticking to a plan that no longer fits. New ideas come through all the time and you have to embrace them."

For some of the developers we spoke to, the pandemic has been just one of many hurdles they've overcome. Just five years after escaping civil war in Syria, the founders of Wolves Interactive built Traffic Tour, which has now reached 40 million downloads.

And Creative Mobile only came about after three gamers lost their jobs. Co-founder Vladimir Funtikov told us: "I took the chance to do something I loved, with people I liked, and who shared an audacious spirit." The Estonian studio has gone on to create an open, transparent working culture that puts people and core values at the very heart of the business.

Perhaps one of the key things we can learn from these studios is that adversity can spark the creativity we need to build something truly spectacular. In many games, your character levels up and gets stronger regardless of your own skill, which can be liberating. But sometimes, as in real-life, games can be uncompromising. Some games insist that you—the player—must improve to progress. That can be rewarding in itself. 2020 has certainly felt that way for me, but Praise the Sun, I think that's a game worth playing.

Love and unlimited continues,

Eric Morales
Head of AWS Game Tech EMEA

Bossa Studios

Player profile

Player ID: Roberta Lucca

Classification: Marketer-in-Chief and Co-founder

Player history

Roberta Lucca, one of the original founders of Bossa Studios, is a computer scientist turned marketing expert turned entrepreneur. An experienced keynote speaker and angel investor, Roberta's many accolades include; the Forbes Top 50 Women in Tech, the Top 30 Women in Games and Inspiring Fifty UK.

Player ID: Sylvain Cornillon

Classification: Chief Technology Officer

Player history

Sylvain Cornillon is the Chief Technology Officer at Bossa Studios, where he's been working closely with the founders to build highly original, off-the-wall games. With a background in programming and developing, an eye for creative and a flair for the unusual, Sylvain brings a steady hand to this successful indie studio.

Studio

London	Founded	Employees
51°52'N 0°08'E	2010	78

Surgery shenanigans. Bread and fish. Game creativity redefined.

It started with the birth of social media. These platforms thrived as they enticed and enthralled millions and, as they evolved, they also introduced tech savvy users to the world of gaming. These early games populated throughout social media channels used gambling mechanics to keep people hooked, but lacked the depth of true gaming experiences. When Bossa Studios entered the fray, this creatively-driven indie studio saw an opportunity to make games that offered something different.

Founded in 2010 by Roberta Lucca, Henrique Olifiers, Imre Jele and Ric Moore, this British video game developer set out to redefine the genre. And they succeeded, releasing innovative and hugely enjoyable titles that have not only won awards, but cult followings.

From Monstermind—which earned Bossa Studios a BAFTA in 2012—to Surgeon Simulator, a surprise hit that evolved out of a 48-hour Global Game Jam session and went on to sell millions of copies, to I Am Bread, a game that follows a slice of bread's journey to become toast, Bossa Studios has stuck to its vision of offering gamers unique and unusual experiences. And those games can now be enjoyed across a range of platforms, from Android and iOS to Xbox, PlayStation and PC. Today, the studio runs exclusively off AWS, having recently migrated the last of its technology stack to the AWS Cloud for increased stability and flexibility.

> "One of our biggest titles is I Am Bread, where you undertake this slice of bread's mission to become toast." – Roberta

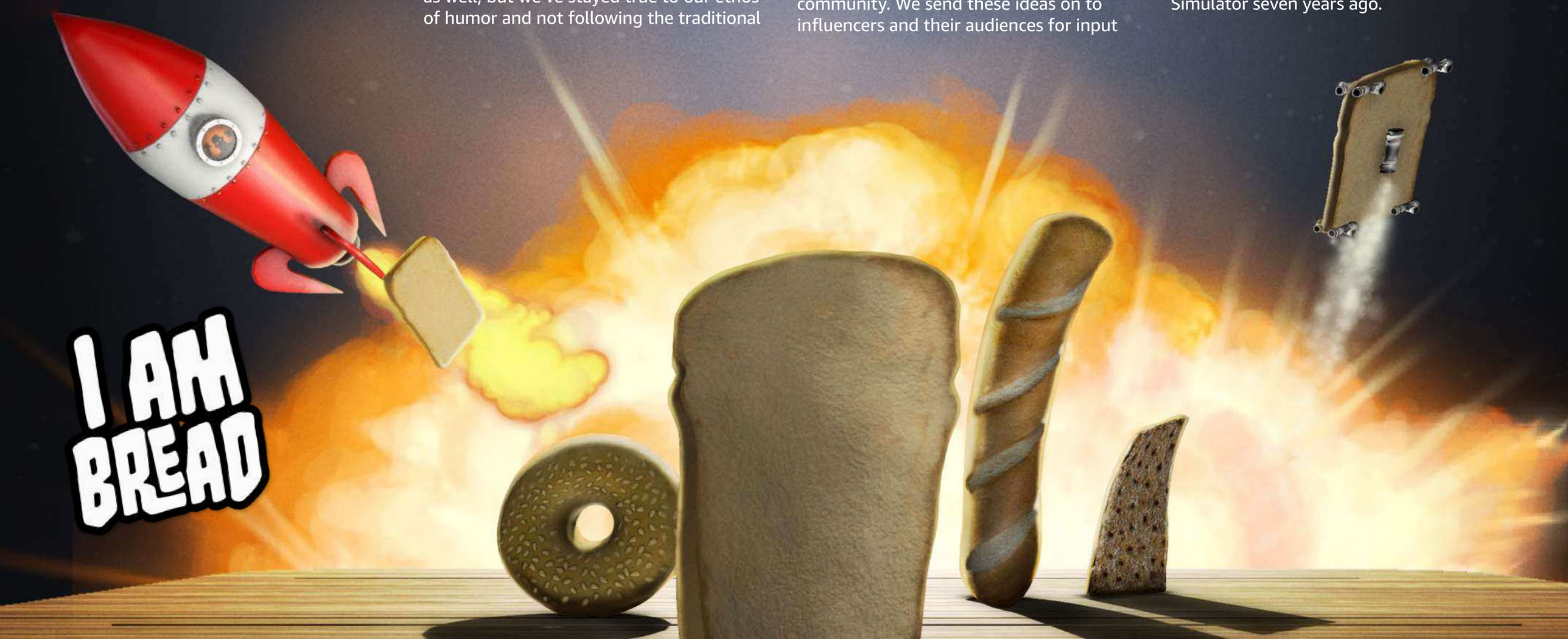
Roberta: "The name Bossa was inspired by the Bossa Nova"

I'm from Brazil originally, and the word 'bossa' in Portuguese refers to something that has a special flair or charm. That's what defines our culture at Bossa Studios—a quirkiness and charm that we embed into all our games.

Bossa was created ten years ago when my co-founders and I saw an opportunity to make games that were different from what people were playing at the time. We started with social games on Facebook and have since launched more than 30 titles across mobile, VR, PC and console. As we've evolved, our games have evolved as well, but we've stayed true to our ethos of humor and not following the traditional rules around game creation and genre allocation. Our work is genre-defining. One of our biggest titles is I Am Bread, where you undertake this slice of bread's mission to become toast—it has to avoid the jam, the water and other obstacles to get to the toaster and win.

We don't come up with ideas from the top down, with the founders defining the games that are made. Instead, we do game jams; we stop the company for a few days, everybody goes into different teams and over two days they come up with a new game. Often we'd get anything from five to ten games out of a session. This creativity has become part of our culture, and has also shaped the way we engage with our community. We send these ideas on to influencers and their audiences for input and feedback, so we can evolve our games to match what players want.

We believe community is incredibly important. We have a strong community of superfans who play all our games because they're different and fun. We've become a company that embraces weirdness and humor, and brings new experiences to gamers. Today, we have thousands of YouTubers and influencers playing our games because they love the experiences they get and because we value their role in our community. It's a really positive relationship, as they always get new games to play for their audiences and we have them on side to share these experiences. This is what happened with Surgeon Simulator seven years ago.



Sylvain: "Everything comes from creativity"

We held a game jam and out came the idea of Surgeon Simulator. A game that puts patients into the operating room from a first-person perspective and asks them to figure out how to save the life of the person lying on the table. It's not as easy as it sounds, arms and legs have a tendency to fall off. The game was developed in only a few hours, but it started to trend on YouTube and we had to pivot quickly to support it. Surgeon Simulator was a hit with influencers, streamers and YouTubers. People would stream themselves playing the game on platforms like Twitch, and others would enjoy watching it, so they would then go and buy it. It's still one of our most popular titles and it came as a complete surprise. The entire premise was still a prototype when it became a success.

Creating games that aren't derivative and are original and exciting is important to us. We want to challenge ourselves and the status quo. We want creativity to define how we approach problems, how we improve on our processes and how we build our games. Creativity defines the core of our business, our games and our overall strategy.

Surgeon Simulator really defined our brand and underscored the value we find in being creative. It's driven us forward into developing games like I Am Bread, and continuing to experiment with different ideas.

Sylvain: "It's taken us seven years to make a sequel"

We couldn't find anything that made it worth doing a sequel to Surgeon Simulator—there had to be something more to the new game or it wasn't going to work. We thought of different ideas, but they all felt derivative and it was really important to us that the new game be original. We wanted multiplayer, but we struggled to find a way of embedding the physics and managing the complexities of multiplayer, so we didn't move forward with it for a while. Then, we started talking to partners who were doing physics in multiplayer, did a prototype and realized there was real potential. This happened at about the same time we decided to move the gameplay from a static hand above a body, to a full body, first-person view.

The new version of Surgeon Simulator allows you to create a co-operative experience with your friends. We've extended the game from just being inside the surgery, to moving around the whole of the hospital. There's also an entire backend where players can create more surgeries and levels for other players to enjoy. The game takes the physical comedy factor and enhances it, with richer gameplay that's more co-operative and exciting.

You can approach your surgery in Surgeon Simulator 2 as if it's going to be done properly, but things will always go wrong. Then you just have to let go and do what needs to be done to save the patient. The moment I let go of my control freak nature—that's the moment in the game that I love. Then, I'm just doing whatever I can to keep the patient alive after another player has pulled his arm off, or cut something important in half. All of these elements have created a game that's different enough, where players can see the value of having a sequel.

Sylvain: "We don't want a player's enjoyment to be interrupted by monetization"

The success of Surgeon Simulator really confirmed the validity of our approach to design and creativity, and to games that are very different in terms of storyline and gameplay. To really embed this into our values and strategy, we've created a website called Bossa Presents where people can play our prototypes for free and give us feedback. We use this feedback to determine which games we're going to take into further development. With this more in-depth process, we go through idea selection and balance ideas against risk. If we like what we see and recognize its possibility, then we go through the prototype phase and put it onto Bossa Presents. Based on feedback and responses, we narrow the ideas down and identify which games will be the most successful.

We have a strong moral stance around what we think is important in the gaming space, so want to make sure we don't take advantage of our players. We're passionate about gaming and the excitement and entertainment we provide to people, but we believe fairness is important. It's a big thing for us. We don't want monetization mechanics to impede a person's enjoyment of the game—we want them to reinforce it. We want people to be happy to spend money and not have buyer's remorse.

"Today, we have thousands of YouTubers and influencers playing our games because they love the experience they get." – Roberta

Bossa Studios

Roberta: "The biggest challenge is the fight for attention"

The fight for attention keeps us awake at night. How can we ensure millions of people know about our game when the world is consuming huge volumes of content every minute? We're always looking at how we can cut through the noise and create experiences that are special. Emotions are important to us—they're why we've mastered the laugh. People want to come back and play our games with their friends. That's why we focus on creating games that are weird, wonderful and quirky, that grab attention in this super busy world.

Sylvain: The most challenging part of bringing a game title to market is not knowing whether players are going to respond to it, and if it's going to be a success. Are they going to think it's worth buying? Will they enjoy playing it? We've had to learn where to push, how to invest and how to get customers committed to an idea. It's all about interaction with the community and deciding the best approach. You need to give players updates, tell them what's going to happen to a game and then commit to deadlines. Some studios don't talk until launch, some talk about it early on—it's about pegging the right approach and building a relationship with the community.

WHAT IS I AM FISH?

It is the sequel to Bossa's unexpectedly toasty treat, I Am Bread. In this game players are in control of a goldfish that has to navigate all sorts of challenging situations in order to make its way back to the ocean. Because this is the dream of all goldfish…

WHY SHOULD I BECOME FISH?

Because your journey to the ocean will be one filled with stories of joy, sorrow and elation. Because you will discover the immense satisfaction of being able to take the humble goldfish to a new life in the sea. That is why you should become fish.

WHERE IS MY FISH?

Your fish starts out inside a goldfish bowl, one that has been strategically placed on a window ledge so that your fish can see the sea. And then your fish will die, repeatedly, as you make your way across swimming pools, trampolines, disco halls, roads and high wires while trying to keep your glass bowl from smashing before you get to your destination.

Sylvain: "We wanted everything in the cloud"

We didn't want to build our own infrastructure; we wanted everything in the cloud with a minimum number of servers in-house and the ability to commit to infrastructure that works at a small scale. We've worked with AWS since the beginning and we've lived through the evolution of its services. As soon as Docker containers came into play, we created our own version of Platform-as-a-Service so we could run multiple servers. We're always looking for the kind of support that allows us to run games in development, while delivering on costs that are proportionate to the game. If the games are successful, we can scale; if not, they won't cost us that much. AWS strikes the right balance of services, automation and control.

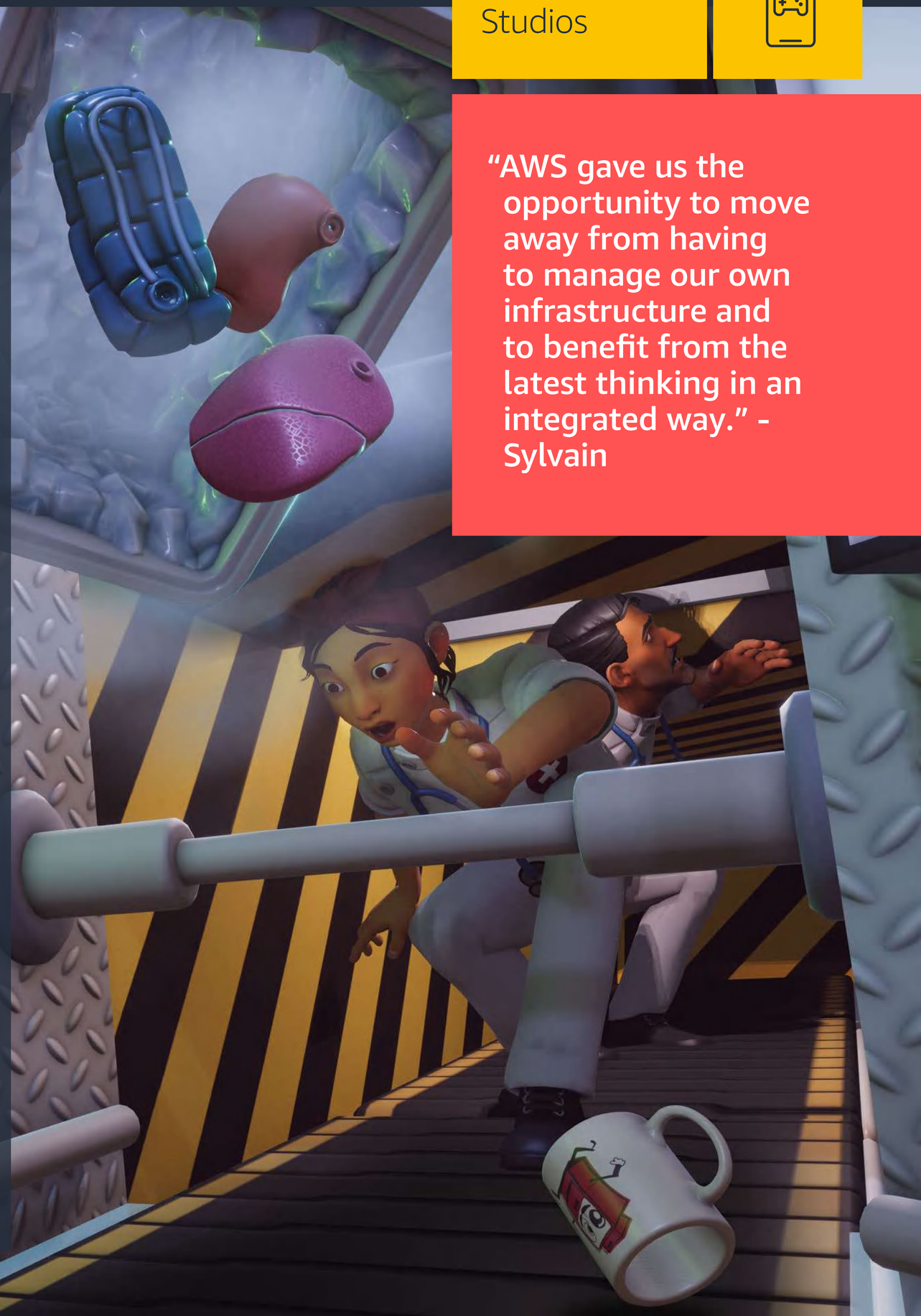
This says a lot about our relationship with AWS. We're very careful about what decisions we make around technology—we only choose the solutions that are right for us. We constantly question the tools, engines and technology to make sure they're still the best fit for us. We stay away from statements like 'industry standard'—we only care what's best for our games. AWS gave us the opportunity to move away from having to manage our own infrastructure and to benefit from the latest thinking in an integrated way.

We've designed our systems in such a way that they allow us to create new games on backend technology that we've already built. This investment made it easy for us to transition to everyone working from home during lockdown. We already had our teams in place and our systems were already online. I am not exaggerating when I say that the biggest problem in our move to remote working was finding people chairs.

Sylvain: "A complete move to AWS"

In the beginning, we didn't want to use too many proprietary AWS technologies, so we could move platforms if we wanted to. But the cost of maintaining other databases and services was so high—we were paying a cost now for what we might use later. So, we've completely migrated to AWS databases, and the team is finalizing our move away from Google Cloud Platform and using Google BigQuery. We're now using Amazon DynamoDB for our backend database, Amazon EKS for our services, Amazon CloudFront for content delivery and AWS Fargate for serverless compute. Surgeon Simulator 2 is logging its telemetry with Amazon Kinesis via Amazon Redshift—an architecture designed in collaboration with the AWS Data Lab team. The microservices powering the online components for the game are using Kubernetes deployed to brand new EKS clusters that talk to one another via Amazon Simple Notification Service (SNS) and Amazon Simple Queue Service (SQS).

One of our biggest tech moments this year was our move to Amazon EKS containers. We shifted our entire backend to Kubernetes, as it offers stable servers, is easier to scale and is simpler to work with. It was a huge move forward for Surgeon Simulator 2 and the team is incredibly proud of it. The result is a very stable game for players.



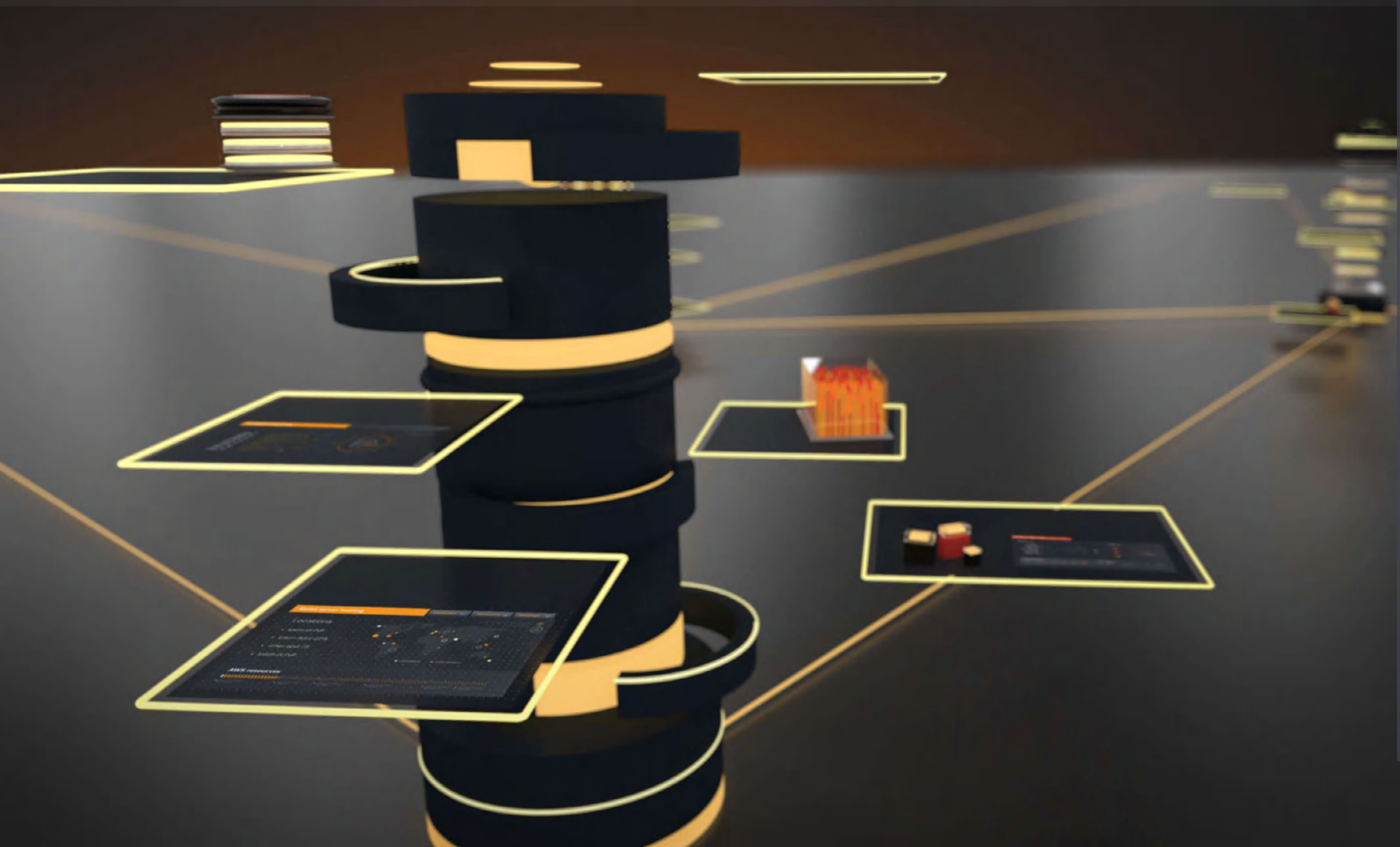
"AWS gave us the opportunity to move away from having to manage our own infrastructure and to benefit from the latest thinking in an integrated way." - Sylvain

Bossa Studios

Roberta: "We're proud of being daring"

I think entrepreneurs are half-scientists, half-artists. You start by failing many times until you get to the point where you've mastered your art. Anyone starting a studio today needs to be patient and have high resilience. You'll learn so much—the right people to hire, how to build a culture and how to refine your vision. Lead your team to achieve your goals and always be ready to learn and experiment.

When I think about Bossa, I think about the words 'bold' and 'creative'. We do genre-defining games, we take risks and we bring new ideas into the world. The chance of failing multiple times is very high, but the vision holds us together. Games need to be bolder; they need to focus on diversity and inclusion; they need to represent different people. If the gaming industry continues to under-represent certain people and beliefs, then it will be teaching the wrong things to younger gamers. Games expose people to experiences and shape worldviews, particularly those of younger gamers. We need to be part of that change, and the move towards diversity and inclusion in this creative medium we all inhabit.



At-a-Glance

AWS Services used:

- EKS
- CloudFront
- DynamoDB
- AWS Fargate
- Amazon Kinesis
- Amazon Redshift
- AWS Data Lab team
- SNS
- SQS

Key games:

- I AM BREAD (2015)
- Surgeon Simulator 2 (2020)
- I AM FISH (2021)

Fast fact:

Surgeon Simulator was developed in 48 hours, commercialized in three months, sold millions of copies and became a cult hit with dedicated gamer YouTube channels and countless Twitch streams.

Follow:

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Coldfire Games

Player profile

Player ID:
Cem Aslan

Classification:
CEO and
Co-founder

Player history

Cem Aslan took a calculated risk to quit his previous job, where he worked as a senior developer, and co-found German indie studio ColdFire Games. Under his leadership, ColdFire has created a string of mobile game hits, such as Idle Space Clicker and Idle Space Tycoon, with huge help from its ever-growing community. Cem started his career at Orbster, developing location-based augmented reality games.

Studio

Karlsruhe	Founded	Employees
49°01′N 8°4′E	2016	8

Killer content, capturing clicks and counting on community

A restructure at their previous company led Cem Aslan and Martin Stocker to try their luck at launching their own indie mobile game studio ColdFire Games. From the earliest days in 2016, when the team worked out of Cem's living room, the studio has impressed players and pundits alike with engaging, immersive mobile titles like Idle Space Clicker which offers shoot 'em up and action gameplay, and Idle Space Tycoon, an inspired mix of the idle and tycoon genres.

To beat the odds in the notoriously fickle mobile game market, the team brings a laser-like focus to analytics and marketing, always listening to the feedback from its incredibly loyal player community. Recently, the studio blazed a fresh trail with the launch of a fun simulation game Idle Casino Manager; a gamble that's paid off, with more than a million downloads since its release earlier this year. Combined, these three games have notched up a whopping five million downloads.

After migrating its on-premise backend to a cloud-enabled solution powered by AWS, the studio now gets to spend less time managing infrastructure, and more time creating the next generation of their highly successful mobile games.

"We slashed our infrastructure costs by 60 percent when we made the switch to AWS."

"Our head office was my living room"

A restructuring at the company where we worked threw up this now-or-never opportunity for Martin Stocker and I to set up ColdFire. A few of us had talked about doing our own thing, but not everyone had been ready to risk walking out of a secure job. When some of my super-talented programmer and artist friends suddenly found themselves free, it felt like the perfect moment to strike. But before we made the move, we thought long and hard about the financial odds: What are the risks? Can we do it? Will this work? And do we have a back-up plan? After weighing everything up, we thought: "Let's give it a go for two years and see if we can survive."

We started work on our first game, a pure sci-fi shoot 'em up called Galactic Blaster Space Shooter, which evolved into Idle Space Clicker, when we were still a two-man team and our headquarters were my living room. If you strip everything back to basics, the only thing you really need to develop a game is a laptop. Once we started hiring people and had to take on a proper office, I remember thinking: "Oh, my God, we'll never fill this." Actually, we've ended up having to move to a bigger space every year since because we keep out-growing it.

"It was a calculated risk"

Everyone in our team loves sci-fi games, so our first titles were all themed around spaceships. But we soon realized we were going to struggle in terms of revenue because they were too niche. Once we'd made the decision to widen our target market, we went with the deliberate tactic of talking to our community before choosing a theme. That was a big contrast to our earlier games, where we'd try them out on our community after we'd come up with a concept. Our first idea was a fantasy-themed store simulator, but after beta testing and listening to community feedback, the research showed that a casino was the most popular theme. That's what we developed: Idle Casino Manager.

There aren't many casinos near us, so we watched a lot of videos on YouTube instead. If we'd stuck faithfully to a real-life scenario, it would have been people just standing around tables, which would have been boring. So, to spice-up the usual combination of roulette, poker, blackjack and slot machines, we added a games arcade. To bring warmth and color to the game, we created all these cute little people who run around the casino like crazy. That creates a real buzz because everywhere you look, you'll see there's something happening.

One of the biggest challenges with Idle Casino Manager was that it started out as a tower, with each floor featuring one type of game play and players able to move up and down between levels. That was easy to generate, but because you couldn't see everything that was happening in the game, our player feedback was that it left them with a feeling of missing out. Our solution, which we beta-tested with a small group of users, was to reconfigure the whole thing, so it's all on one level and everything's visible.

"We were able to slash our costs by almost two-thirds"

To begin with, we were working off old-style, on-premise technology and I was handling all the coding and server maintenance stuff, which took me at least one day a week.

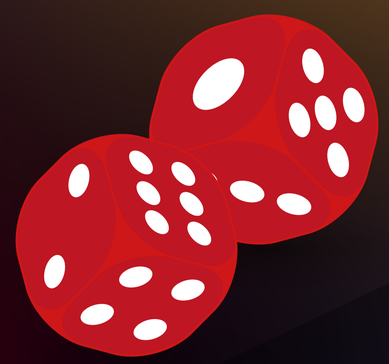
When we made the switch to AWS, not only did everything go really smoothly, but we also slashed our infrastructure and personnel costs by about 60 percent.

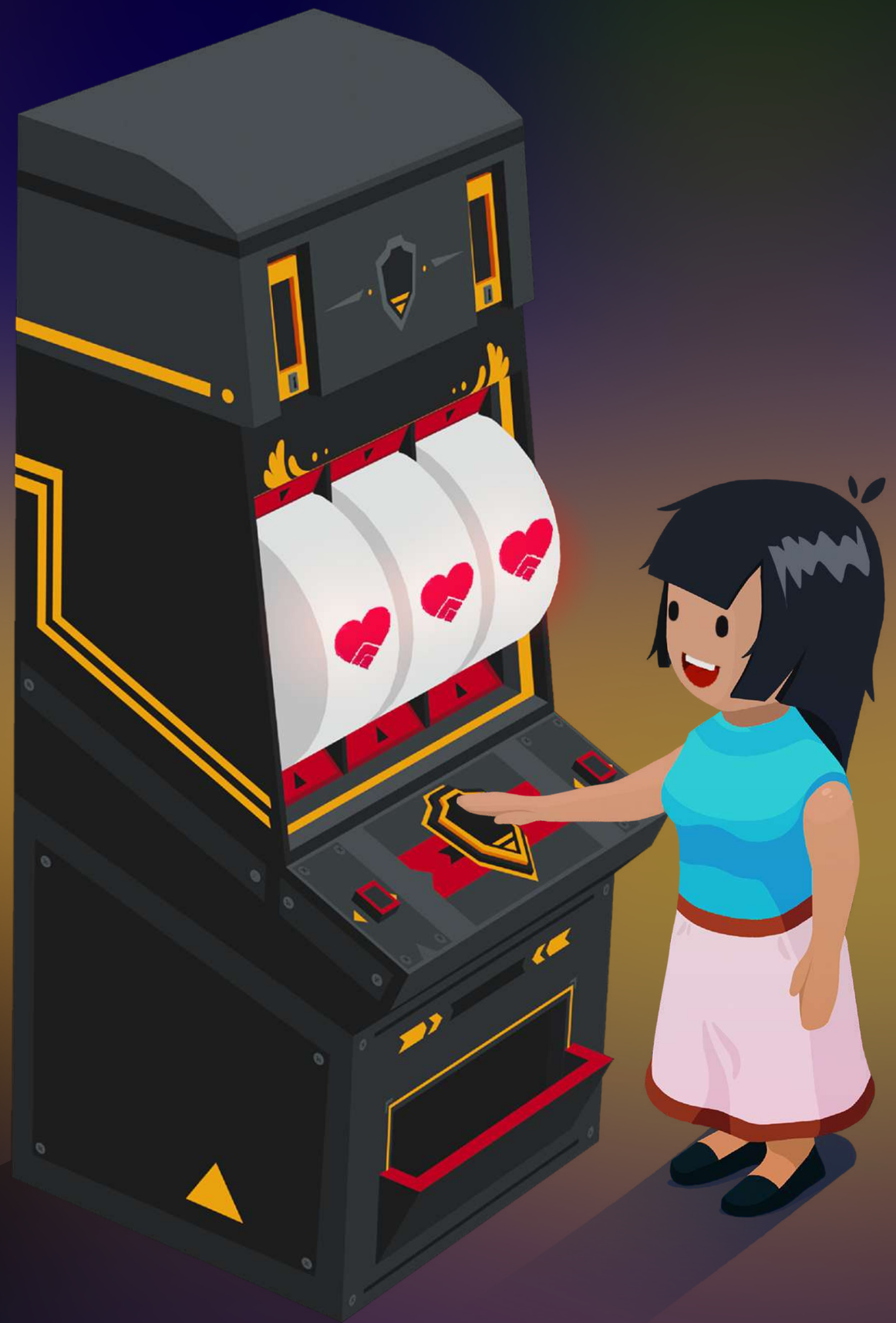
Getting featured on one of the gaming platforms is always last minute. If you're using an on-premise backend, it involves a huge amount of planning to make sure there's enough capacity and you don't lose customers because the servers can't handle the sudden escalation in the number of installs. That's no longer a problem now that AWS handles everything, and with automatic scaling we only pay for what we use. Even if we get ten times, 50 times or even 100 times more users, it adapts without us having to do anything.

To do that, we use Amazon API Gateway, AWS Lambda and Amazon DynamoDB, which creates the auto-scaling backend. We also use all of the Amazon Relational Database Service clusters with Amazon Aurora, Amazon RDS for PostgreSQL and Amazon Simple Queue Service (SQS).

One of the other products we find useful is Amazon Polly for voice-overs in several different languages for our avatars, and to help internationalize marketing campaigns. As an indie producing games with global reach, Polly's ability to turn text into life-like speech using machine learning is a super attractive alternative to the high cost of employing voice actors, both when we're developing our games and creating marketing videos and other material.

Although we're operating three games, they all share the same infrastructure, tools and code, and we use AWS tech to separate them. This really speeds things up in terms of prototyping new games, as we don't have to develop a completely new server; we can just re-use.





"It's a smarter bet to hire someone who gels with the team"

Most people in the game industry aren't in it for the money—it's a passion and they want to have fun while they're at work. Something I learned from my previous job at Flaregames is that when you're recruiting, the top priority needs to be how a new employee gels with the team. If someone is lacking specific knowledge, you can train them, but if their personality isn't a good fit, that's really difficult to put right.

Right from the beginning, we went for a different setup at ColdFire. Instead of the typical coder/art/game design combo, we prioritized marketing. Our first full-time employee was Matthias Knopp, who's now Head of Marketing, and it was taking him on that made us decide it was time to move into a proper office.

With such a huge number of games coming out every day in the mobile market, if you're a small indie, it's hard to get seen by players and you can end up getting binned. I'm not sure if we'd still be here if we hadn't made such an effort to concentrate on marketing at that early stage.

There's a really close bond between us as a team, so communication is never an issue. In other companies, when people recognize something's not working, they're often too polite to say anything, but that's not what we want here. If there's a problem, I want people to tell me—even if I'm the one who made the wrong decision. We all make mistakes, but if no one calls you out, you can't fix them.

WHAT IS IDLE CASINO MANAGER?

In Idle Casino Manager you start with a small casino and work hard to make your business grow. Add new games to create an exciting experience where visitors can play poker, roulette, blackjack or try their luck at the slot machine.

GAMEPLAY

If you like management and idle games, you'll enjoy Idle Casino Manager. Although it's an easy-to-play game, it takes all your strategic decisions into account. Invest your money wisely and transform your small business into a huge Las Vegas-like casino!

"Treat all your players as though they're high rollers"

We prioritized community from day one, by bringing in our friend Benjamin Theobald, who'd worked with us as a QA tester at Flaregames. That was on a freelance basis at first, but he later joined full-time, and is now our Head of QA, in charge of community and support. The community side of things is so crucial because players appreciate it if you talk to them and respond rapidly. Even if you can't fix things immediately, they can see you've made the effort to answer.

We're constantly gathering stats and analyzing how users interact, so we can optimize all our games, projects and processes. We A/B-test everything we build, and track and benchmark how players are engaging with new features, while watching for negative feedback. In parallel, we run user acquisition tests and try out different styles to see what's more appealing.

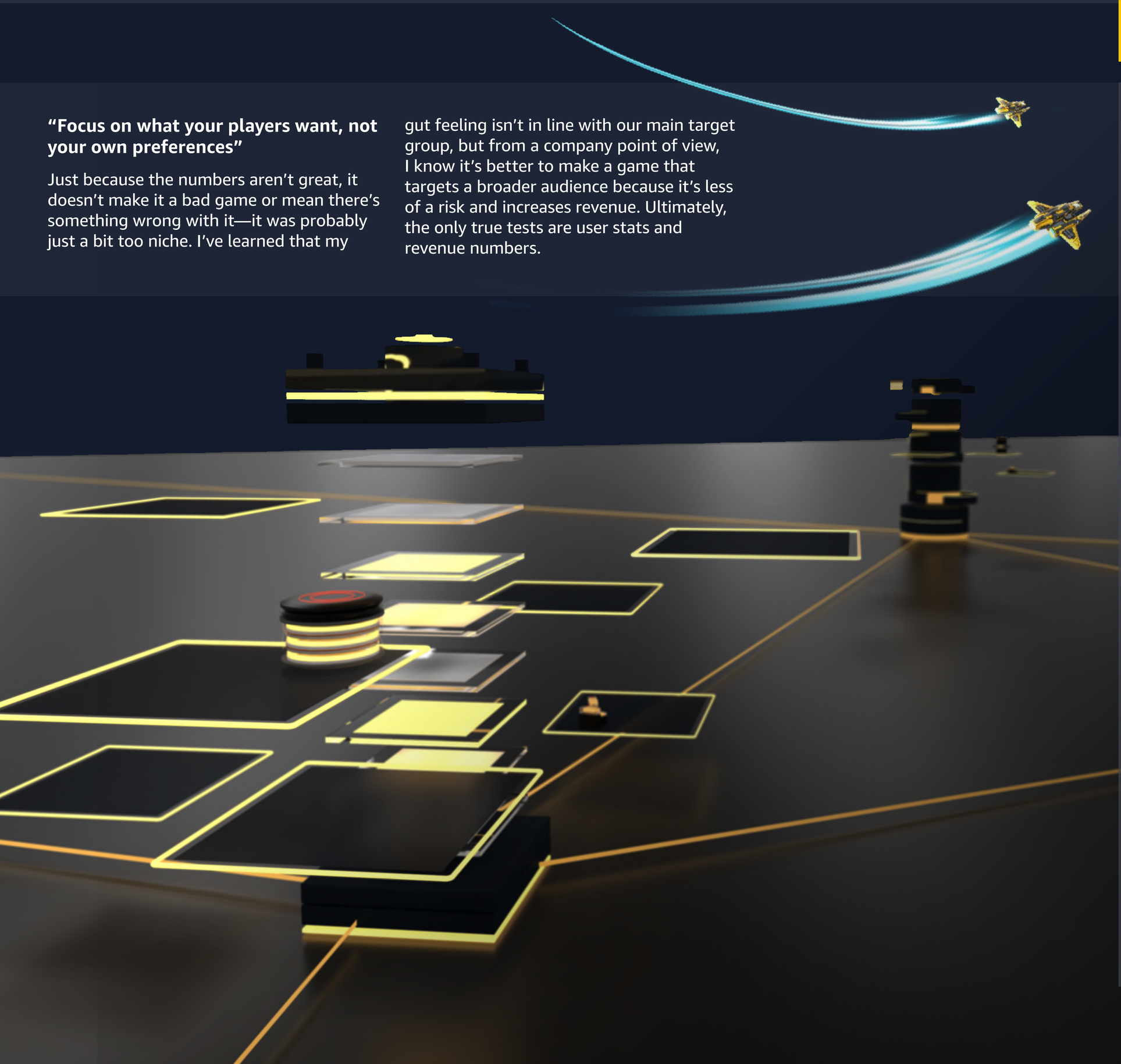
We plan to use AI and machine learning in the near future to help make better decisions and predict user behaviors. As we grow, we'll need something to analyze and categorize user behavior more effectively, and of course, it's also good for churn prediction. Detecting when a player looks likely to churn is important, so you can send them push messages or extra rewards to keep them engaged in the game.

> "Players appreciate it if you talk to them and respond. Even if you can't fix things immediately, they can see you've made the effort."

Coldfire Games

"Focus on what your players want, not your own preferences"

Just because the numbers aren't great, it doesn't make it a bad game or mean there's something wrong with it—it was probably just a bit too niche. I've learned that my gut feeling isn't in line with our main target group, but from a company point of view, I know it's better to make a game that targets a broader audience because it's less of a risk and increases revenue. Ultimately, the only true tests are user stats and revenue numbers.



At-a-Glance

AWS Services used:

- API Gateway
- Lambda
- DynamoDB
- RDS
- Aurora
- PostgreSQL
- Simple Queue Service
- Polly

Key games:

- Idle Space (2016)
- Idle Space Tycoon (2019)
- Idle Casino Manager (2020)

Fast fact:

The studio's latest title is a simulation game, Idle Casino Manager, which has notched up more than a million downloads through the Play Store since its release in January 2020.

Follow:

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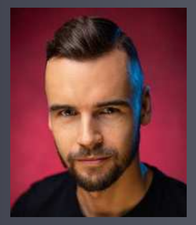
Creative Mobile

Player profile



Player ID:
Vladimir Funtikov

Classification:
CEO and Co-founder

Player history

Vladimir Funtikov is the CEO and Co-founder of Creative Mobile, a dynamic and vibrant indie studio that's known for hits such as Hot Wheels Infinite Loop, Drag Racing, Zoocraft: Animal Family and Nitro Nation. Before co-launching Creative Mobile with Sergei Panfilov and Serhiy Slyeptsov, the Estonian CEO worked as a software engineer and Android developer at Mobile Post Production Inc.

Studio

Tallinn	Founded	Employees
59°43'N 24°75'E	2010	100+

People, Games, Wheels, Passion (and cats)

When the 2008 recession hit, Vladimir Funtikov, Sergei Panfilov and Serhiy Slyeptsov lost their jobs. Their loss was the mobile gaming industry's gain. Instead of settling into safe careers working for other companies, they decided to follow their shared dream of building their own—Creative Mobile. Drawn by the thrill of self-publishing and distributing games worldwide, the founders stepped into an industry and onto a learning curve that would define their company culture and their successful future.

In 2020, Creative Mobile celebrated ten years of mobile gaming success. The company has grown from just three men working long shifts, to a stable of more than 130 employees. Their timeline is a litany of success: In 2012, they won the Estonian Startup of the Year Award and celebrated the success of Drag Racing, a game launched in 2011 that went on to become one of the most downloaded on Google Play, with more than 350 million downloads globally. In 2013, 2014 and 2015, the studio was awarded the PocketGamer Top 50 Developer award, and in 2014 the company achieved the significant milestone of 200 million game installs on Android.

This success led to Creative Mobile publishing a string of mobile hits that also includes Nitro Nation (2014), Zoocraft: Animal Family (2017) and Hot Wheels Infinite Loop (2019)—a game created in collaboration with Mattel Digital Games. AWS is the cloud provider of choice for the studio, providing the scale, machine learning tools and cost-efficiency that helps them build increasingly relevant and challenging games, putting gamers at the heart of its DNA.

> "At our core, we believe the difference between success and failure is the ability to trigger emotions, tell stories and create pockets of excitement."

"I wanted to work with people I liked who shared an audacious spirit"

In the beginning, we were just three gamers of different tastes and ages who'd lost our jobs in the recession. I was 23, I had a good resume and an appealing job offer from an IT company. I turned it down because I realized that if I accepted the offer, I'd end up with a comfortable career ahead of me, but this would close the door to running my own company. I took the chance to do something I loved, with people I liked, and who shared an audacious spirit. We were excited about self-publishing our own games, being able to distribute our creations across 150 countries overnight, and seeing the results in the morning. And we were inspired by close collaboration with our gaming community and finding that secret sauce that makes games immersive and engaging. Eighteen months later, we were making money and our business was growing.

We started Creative Mobile because we were passionate about games. This hasn't changed. We have a strict mission statement to enrich people's lives with magical moments. At our core, we believe the difference between success and failure is the ability to trigger emotions, tell stories and create pockets of excitement. This is really ingrained in our culture—focusing on emotion and talking to the players and adding something special to people's lives.

"Nobody understood what we were doing"

Gaming is not a sexy industry in Estonia. Nobody understood what we were doing and they would laugh at us; even magazines mocked us. Now that we've created a precedent and won some awards, attitudes have changed a bit, but mobile gaming is still not something people naturally gravitate towards even though it's such a cool industry. This sits at the core of one of the biggest challenges we had when starting our studio, which was a lack of access to talent.

We didn't have connections to the wider industry—we didn't know what conferences to go to or how to hire people remotely, or even where to locate them. We had a huge talent shortage even though we could offer competitive salaries and had an amazing culture. For the first two years, we hired anyone we could find—even writing them a blank check to get them to enter the industry as a career path. It's been very slow progress and for nearly seven years, we've struggled to match our ambition with the right talent. When we established ourselves as a capable company with financial stability, we started investing into the local ecosystem and universities to create a foundation for more engaged talent.

"We focused on core gameplay to bring players back"

We realized we couldn't be as competitive on Apple's App Store as we could on Android. The App Store was already more established, but Android—now Google Play—offered us an immediacy that really drove us in the beginning. We had no prior game dev experience, but we had distributed games ourselves. My first few apps had achieved several thousand downloads when they were first released, so we knew we had something special and that this was the platform for Creative Mobile to kickstart its future.

I still have a hard time explaining how we make money and why people spend their money on mobile games, even today. Back then, they were alien to everyone—a black magic that few understood. Our strategy was to take a chance, work hard and iterate, iterate, iterate. Our first game was a complete mess. That's when we realized that games should follow some basic rules: be as easy to learn as possible, speak for themselves and bring people back time and again because they're immersive and engaging.

We figured out this business model where we made games fast and focused on the core gameplay, adding progression between sessions so players wanted to come back and move deeper into the game. We monetized with ads and ensured that every game was optimized as much as possible—our loading times were kept to a minimum, and we focused on value and gameplay. All the things everybody else knows today, we figured out by trial and error back then. We implemented our basic strategy of ensuring organic discovery, and this is how we found our first success in Basketball Shots 3D. It made us enough money to put food on the table and carry on.

We kept following our strategy until we created something really big—Drag Racing. The statistics and numbers we have for this game are huge. It's had around 450 million downloads since its launch in 2013, and has the distinction of being one of the most downloaded games on Google Play. It became a cultural phenomenon.

WHAT IS DRAG RACING?

Nitro Nation Online takes drag and drift racing to the next level with a 3D world full of stunning cars, amazing racing physics and unlimited in-depth gameplay.

CREATE

Customize your car with different colors, visual effects and hundreds of decals!

PLAYER COMMUNITY

Start a team, win tournaments with your crew and work your way up the leaderboard rankings.

"We lost our identity as we grew"

We lacked experience in building and scaling a studio of this size. We thought that because we were this down-to-earth group of guys focused on making awesome products that it would translate into an amazing company culture. But as we grew, we realized we'd lost our identity. We had an uneasy mix of awesome people who saw great things in us, people who saw us simply as a company to put on their resume, and others who just came for the money.

We started thinking about how the studio was structured and what defined our roles and disciplines about five years ago. We asked the hard questions and challenged roles, even our roles as founders. We wanted to understand the DNA of Creative Mobile, and what values we would live by.

It was a nightmare at first, but we've really focused on defining our DNA, why we work on specific games and what we want to achieve. Ultimately, the image of a company is shaped by the people who are part of it, and we couldn't change this overnight. It was a slow process. We entered the next phase about two years ago, when we formulated our vision and mission. We defined what's welcome, and what's not, focusing on changing our culture and cementing our identity.

We elevated our HR people to the status of founders—a symbolic move that put talent management into a position that highlighted how important it was to the company—and we built an extensive hiring framework, with a recruitment process that hires people that are aligned with our goals and mission. Today, we have more than 130 people in the company and we've grown way beyond our original vision.

We're also more open. We discuss what's profitable, we encourage people to ask questions and we are transparent about our finances, mission and investments. We're also more collaborative than ever before. We want to develop games where everyone in the company takes pride in them, and this requires a lot of horizontal collaboration and cross-team engagement and support. But our original DNA is still here—a strong passion for games and gamers and giving people things they've never experienced before.

"Gamers are part of our identity"

We're really good at talking to players—this has always been part of our identity and is something we haven't lost as we've grown. It's still something I want to dedicate my life to and we all feel this way. We appreciate the players, being able to connect to them and get their real-time feedback, and use this to give them what they really want in a game. Our customer communication teams are integrated throughout the company and they're involved in everything; from marketing to game design.

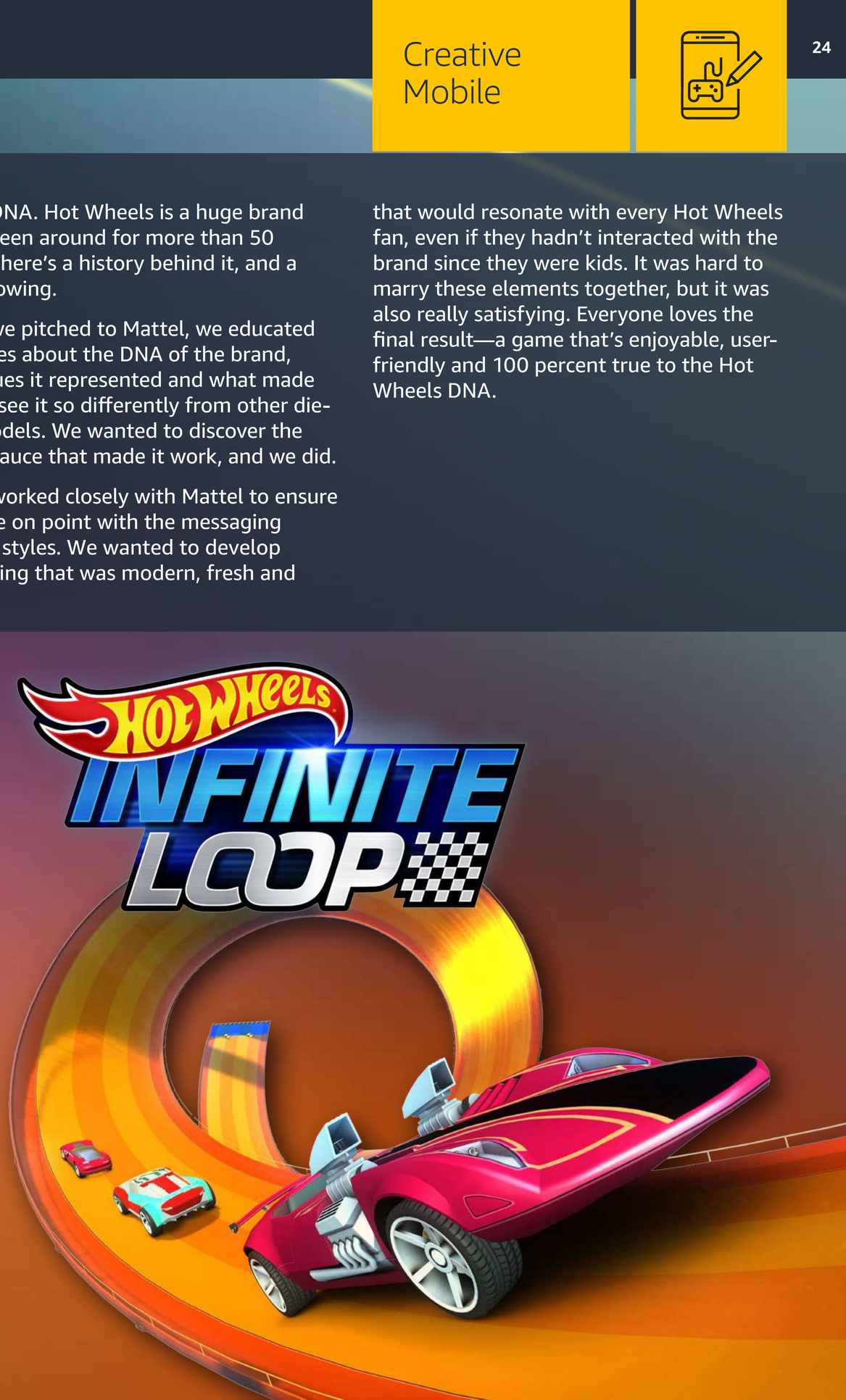
We believe that everything is a funnel—we attract the player, we onboard them, we talk to them and we get to know them. We want them to stay with us for years, which is why we have a customer support depot that talks to marketing and sales and everything in between. We are proactive with our customers and really care about their experiences.

"Hot Wheels Infinite Loop is Hot Wheels through and through"

Our most recent launch is one that really showcases our deep understanding of brand DNA. Hot Wheels is a huge brand that's been around for more than 50 years. There's a history behind it, and a big following.

When we pitched to Mattel, we educated ourselves about the DNA of the brand, the values it represented and what made people see it so differently from other die-cast models. We wanted to discover the secret sauce that made it work, and we did.

We've worked closely with Mattel to ensure we were on point with the messaging and art styles. We wanted to develop something that was modern, fresh and that would resonate with every Hot Wheels fan, even if they hadn't interacted with the brand since they were kids. It was hard to marry these elements together, but it was also really satisfying. Everyone loves the final result—a game that's enjoyable, user-friendly and 100 percent true to the Hot Wheels DNA.



"AWS puts a lot of services in one place and this allows us to control our costs and forecast our expenses more accurately."

"Real time collisions at high speed"

One of the challenges we had to overcome was around real-time multiplayer, as it introduced complexities around unpredictable latency, real-time collisions and multiple players on the track at the same time at high speed. We also had to manage performance—the constant trade-off between accessibility and looks. We wanted the game to look gorgeous, with high detail and plenty of cars on the track.

We solved our latency and design challenges by using behind-the-scenes optimization and a mix of some of the latest tools from AWS. The team uses AWS Elastic Beanstalk, AWS DynamoDB, Amazon GameLift, AWS Systems Manager, Amazon CloudWatch, and the cutting edge of Amazon Machine Learning to shave off a millisecond here, add more detail there and deliver the right level of performance. There was a lot of work under the hood, but we used the latest hardware and pushed it to its limits, while always making sure the game was accessible to players.

"There is immense value in tech specialization"

I'm incredibly proud of how the product teams have shared knowledge and developed their skills over the years. In some teams, we have solid automation for day-to-day operations pipelines, shared logic written in C# for Unity and .Net, and other great things.

In the past, we had to use so many different technologies, toolkits and service providers. Over the years, the differences between the toolkits have become smaller and it's allowed us to consolidate our efforts around the technologies we really like. This has driven our adoption of AWS—it allows us to work with interchangeable tools that deliver richer competence and more value. AWS puts a lot of services in one place and this allows us to control our costs and forecast our expenses more accurately. AWS also offers a great set of automation tools that are particularly important, as we're dealing with increasingly complex projects.

"With Amazon Machine Learning, we're on the bleeding edge of game development"

The greatest benefit we get from AWS is the optimal difficulty curve. This is what defines how the game's difficulty changes over the course of being played, and is what ensures the difficulty matches the skills of the player. With AWS, this fits both small project requirements and complex infrastructure challenges. Most of our projects use AWS Elastic Beanstalk, Amazon DynamoDB and Amazon S3, while some use Amazon GameLift, AWS Systems Manager and Amazon CloudWatch. We're also sitting right on the bleeding edge of the hottest game development machine learning, with a specialized machine learning team that uses Amazon Machine Learning and Big Data solutions that integrate with our gaming apps. We also use AWS Glue, Amazon Athena, Amazon EMR, Amazon RDS, AWS Batch, Amazon EKS and Amazon Route 53.

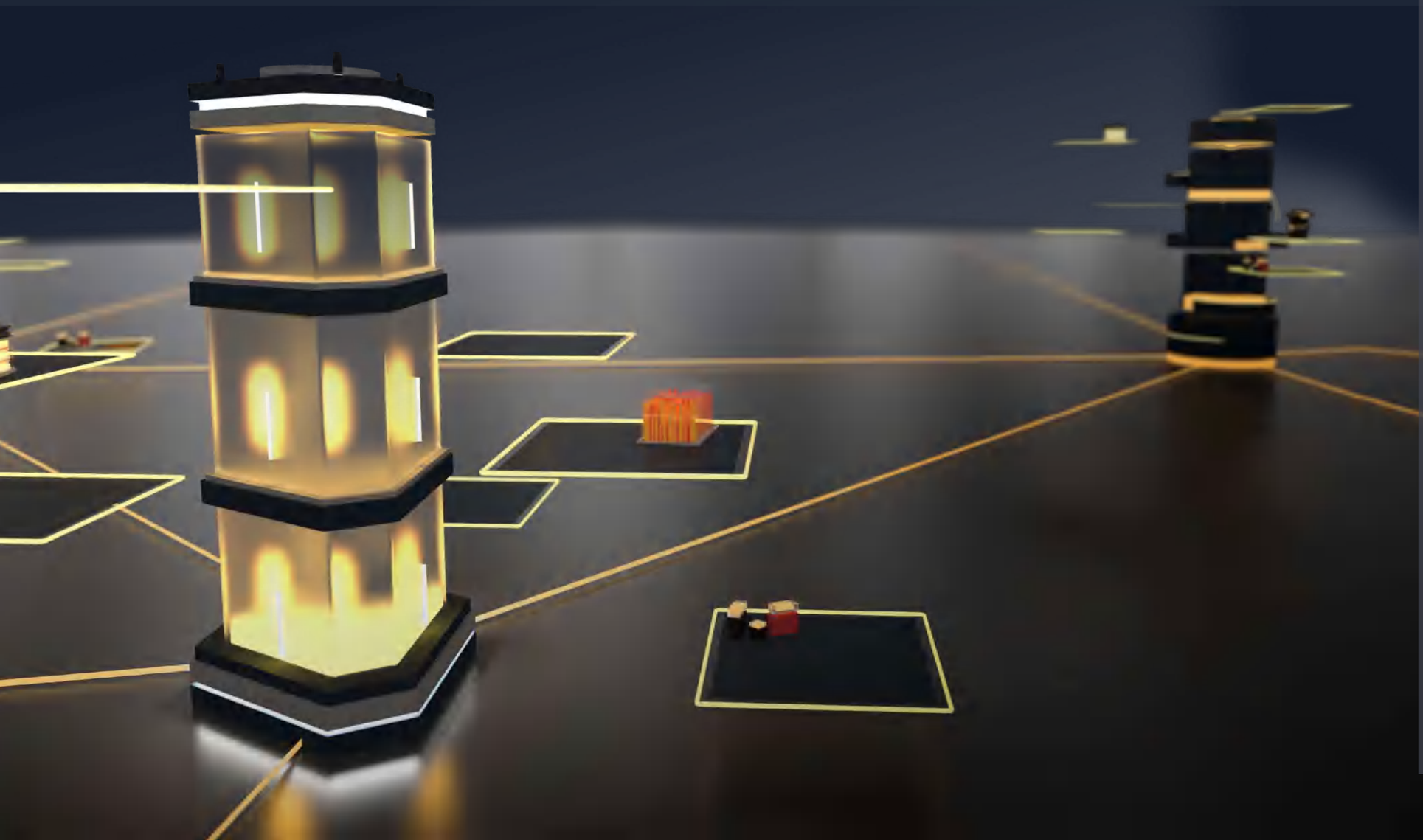
Creative Mobile

"Next up: Cats & Magic"

We did a soft launch of a game called Cats & Magic this year—a game I'm really excited about. It's a game about cats. This particular game is going to be a major part of our portfolio next year and runs entirely on AWS, which makes it a solid game product. There are no great games about cats that really please cat lovers, and we're seeing some great early metrics on this title. The game is still not in peak shape, but it comes with great cat characters, lore and technology and satisfies one of my key criteria for a game: we're passionate about the subject. I love cats.

"Your secret weapon is your business vision"

Focus on your business vision, not your game vision. The secret weapon that will define your studio and your business is not the mystical weapon you designed for any given game; it is your people and your DNA. The market changes and technology changes and game ideas rarely last, but what does last is the essence of your company, its culture and the core values that define it, regardless of its size or age.



Stats and facts

AWS Services used:

- S3
- Elastic Beanstalk
- DynamoDB
- GameLift
- Systems Manager
- Cloudwatch
- Machine Learning

Key games:

- Nitro Nation (2014)
- Hot Wheels Infinite Loop (2019)
- Cats & Magic (2020)

Fast fact:

Creative Mobile's Drag Racing series became one of the most downloaded franchises of all time, with more than 450 million installs, and now has several follow-up titles to its name, including Drag Racing: Bike Edition and Drag Racing 4x4.

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Traplight Games

Player profile

Player ID:
Valtteri Pirttilä

Classification:
Lead Server Programmer

Player history

With a career spanning broadcasting and games, Valtteri Pirttilä brings versatility and vision to his role as lead server programmer with Traplight Games, a Finnish indie studio that's turning heads with its engrossing free-to-play mobile strategy games, Battle Legion and Big Bang Racing. Before joining Traplight seven years ago, Valtteri gained server-side expertise at THQ-owned Universomo, various indie studios and Finnish public broadcaster Yle.

Studio

Finland	Founded	Employees
61°29'N 23°46'E	2010	40

Awesome armies, user-generated action and world-class agility

Think rock, paper, scissors—but with awesome AI-controlled armies that players can handpick and send into combat. Battle Legion is the latest hit from indie studio Traplight, which has a reputation for punching above its weight with ingenious mobile strategy games. After Finnish game studio Universomo dissolved, former employees Riku Rakkola, Sami Kalliokoski and Jari Paananen set up Traplight in 2010.

They scored their first award-winning international hit in 2016 with Big Bang Racing, a massive free-to-play game that includes 10 million racing tracks generated by players.

Battle Legion—which went Top 100 in multiple stores the week of its global launch in July 2020—lets players build their dream army of archers, sword fighters, wizards and mythical creatures, position them on the battlefield, then sit back and enjoy fast and furious AI-enhanced clashes.

Traplight's secret weapon is its nimble approach to team structure and game development, which uses the flexibility of AWS to quickly and easily push out prototypes, broaden the player base and create a clever mix of asynchronous and real-time technology.

A recent $9 million funding round gives the studio a solid base from which to continue building global gaming success stories.

"Game development is pure theater"

When I worked at Universomo, the CEO told me game development is like theater; your job is to create the largest illusion possible using the fewest resources, and I've never forgotten that. Technology is just a tool; the real skill is being able to use it in a smart way.

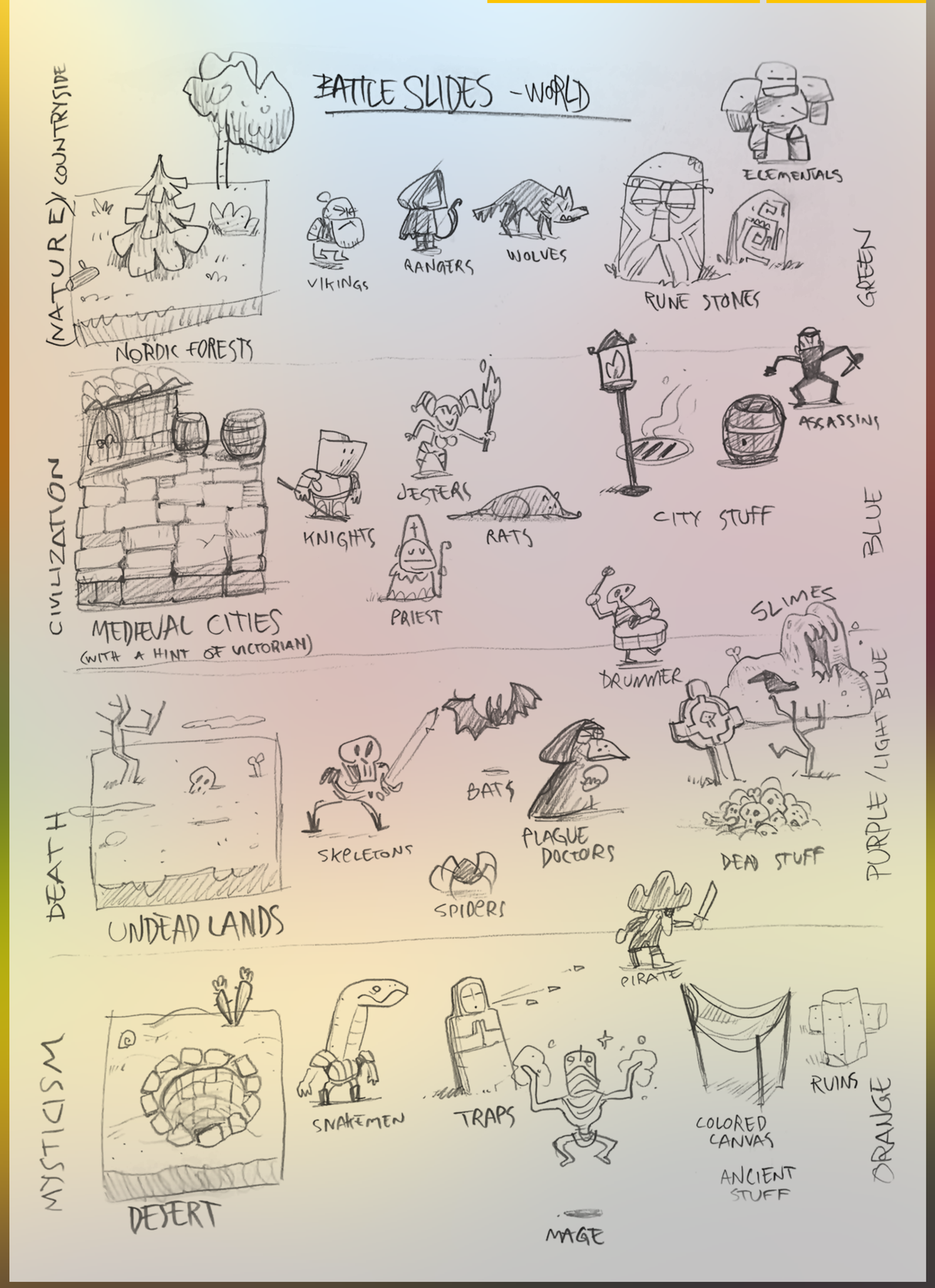
Traplight has gone through distinctly different stages. There were three years of small, independent projects before we started working on Big Bang Racing. We had a lot of ideas about how we were going to expand, but none turned out the way we thought. It's always been about seeing where we are and working out the best way forward, instead of sticking to a plan that no longer fits. New ideas come through all the time and you have to embrace them with an open-minded approach.

"We pumped out as many prototypes as possible"

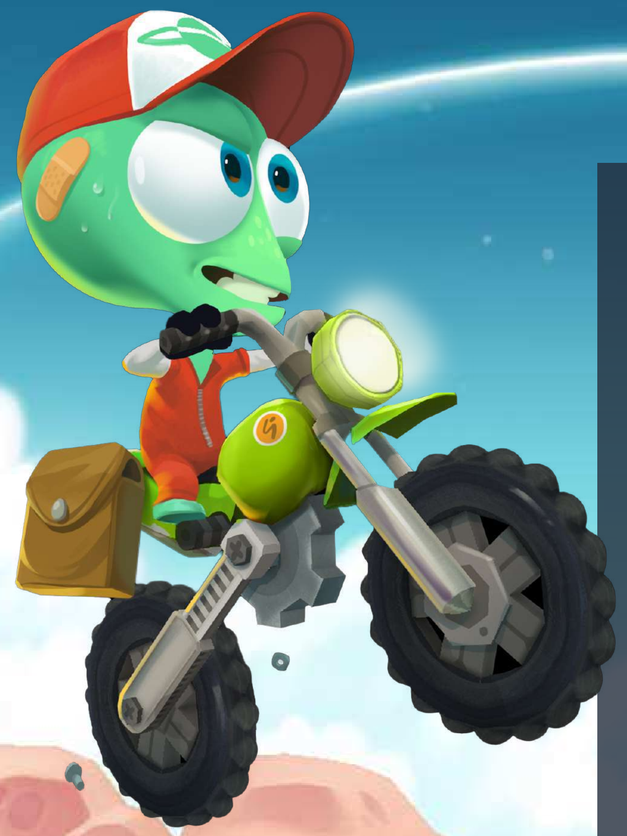
After Big Bang Racing, we started working on new concepts and—as we wanted as many prototypes as possible—we set up several sub-teams to run at the same time. They were two pretty challenging years because we got excited about so many ideas that just didn't click. We'd try to improve them, but most of the time would end up accepting it just wasn't going to work.

Several ideas went as far as beta launch where—using metrics to track new players—we'd measure how far into the game they continued to play, and whether they logged in again the next day and so forth. The upshot was that although there were times we thought we had something special, it didn't resonate with players.

"Being small and agile is an indie game studio's secret weapon."



Traplight Games



"Laziness can be a virtue"

One of the ways we stay nimble is through a new framework that enables us to push out prototypes really fast. We work with Unity and we've built a skeleton on top of that, so when you plug in a new project, you've got the elements our games have in common—such as the menus, etc.—ready to go. Amazon EBS Snapshots allows us to instantly create a new environment, and we use MongoDB Atlas for AWS for our database deployment.

We've started using AWS CloudFormation to automate the creation of environments, so within an hour, it's ready to fill in with the actual game details. By automating so much, it frees up our time to concentrate on things that need creative solutions. Laziness is one of the greatest virtues of humanity; we've done so much work to avoid doing work!

"We took an idea and added our own unique twist"

We wanted to build a user-generated game where players could express their creativity by building amazing levels for others to enjoy. That hadn't been done all that well for mobile up until then—the games already out there were too technical.

Taking inspiration from Little Big Planet and Minecraft, we came up with Big Bang Racing. It's super easy to create your own content; you draw with your finger or just grab the objects you want. It's so simple that anyone from a kid to a granny can do it.

We have 10 million user-generated tracks in Big Bang Racing, so when a new player comes in, there's a question around what you show them. How do you know the level they get is not only good, but appropriate for their skill and the amount of upgrade they have in their vehicle? Similarly, Battle Legion has 10 million player-generated armies—which one do you pitch a new player against?

In Big Bang Racing, we came up with an elegant fix: a test bench where people can play recently published levels and rate them. We monitor how long it takes them to finish, and we know what kind of vehicle they're driving so we can analyze all those elements programmatically, and create a model of what kind of a level it represents. As players are also rating levels, we can see which ones are good or bad, tap into that data to mash them around and then use a search engine to find an appropriate one. There's a lot of magic involved behind the scenes.

It's all about the experience you give the player. I see companies creating large and constantly active virtual worlds that require a huge amount of technology, and then they plug players into it. They're coming at it from the wrong direction—I always prefer to see things from the player's point of view first.

"We throw in the variables and the search engine does the rest"

To get to that point in Big Bang Racing, we used Amazon Elasticsearch Service to define the parameters and values. We want a level that can be defeated by a player's engine level while making sure the fun factor stays really high.

Variables like how long it took to finish the race and how long to edit the level are important because they're an instant indicator: if someone spent 10 seconds on a level and published it, you can be fairly sure it wasn't very well thought out. So, we throw all those elements into the mix and the search engine does the rest.

"Zero to one million"

When you're about to release a game and you know there might be a million players coming on the first day, it's really stressful for a server developer. We've lined up this great treat that everyone's excited about—but if it doesn't work, it's all ruined.

Luckily, when you're in a cloud environment where you can change resources on the fly, it's easy. We reserve way more hardware than we're ever going to need and after a couple of days, we tone it down because in the cloud, it doesn't cost an arm and a leg. For the global launch of Battle Legion, we mostly used AWS CloudFormation and Amazon EC2 to scale. We also rely heavily on auto scaling groups, so set up AWS Auto Scaling with their corresponding load balancers, target groups and route 53 DNS records.

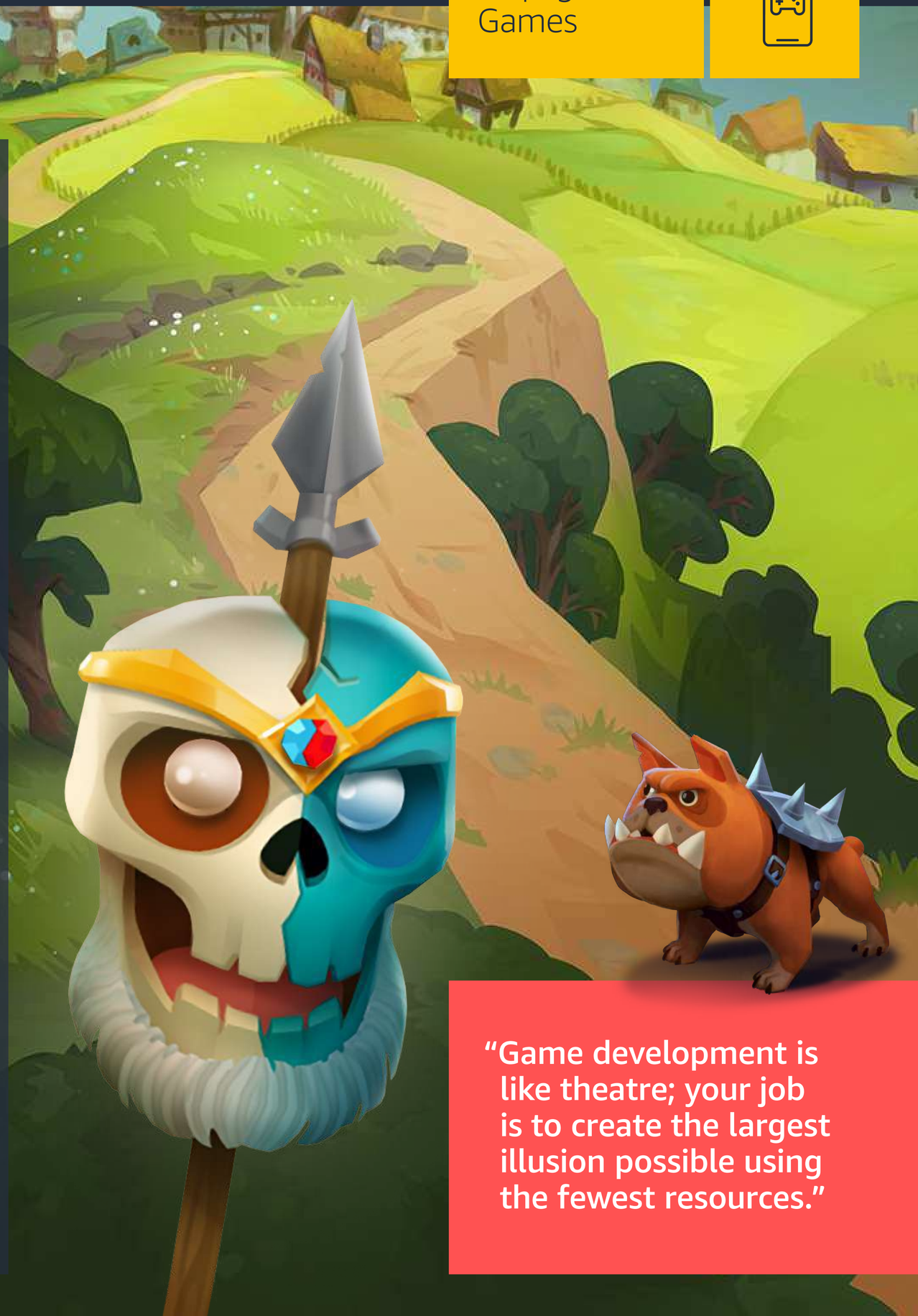
"Our servers are bombarded with half a million simulations"

We need to stress test the game so we monitor the first 40 minutes of gameplay of a new player. We record the calls the game makes to our AWS servers and create a playback of that. With Battle Legion, at each location, we ran 1,000 individual playback simulations of players hitting our servers. We made a container system so we could bombard our servers with the simulations and watched it scale automatically with the press of a button. Using Amazon Elastic Container Service (Amazon ECS), we can change the stress levels of our servers; for instance, starting with simulating 100,000 players and going up to 500,000.

"You need to keep your game world alive and breathing"

With modern mobile games, you're trying to create a service that will last for years so the challenge is to keep coming up with fresh content, events and experiences for everyone, while at the same time maintaining the balance between new and existing players. You need to make sure your game world is alive and breathing, and yet still keep that first-time experience similar to what it was in the beginning.

I enjoy every day here because of the people I work with and the open culture. When we give feedback, it's listened to and things change. I also like the indie setup because although we have processes, getting ideas approved is quick and straightforward.



"Game development is like theatre; your job is to create the largest illusion possible using the fewest resources."

Traplight Games

The studio is our second home. We were asked what kind of office we wanted so we went for couches and hammocks to create a laid-back atmosphere. No one does their best work when they're under constant pressure; we all need time to think.

"Strategy games teach you to think on your feet"

I was five when my father taught me to play chess and it was helpful in learning how to think fast and adapt a plan quickly. We got our first computer when I was 10 and I started to teach myself how to program a few days later.

Growing up, my favorite game was Mike Singleton's Lords of Midnight. It came with a novella, so you could totally immerse yourself in that world. I've always been into strategy games; the Civilization series is one of my all-time favorites and my absolute go-to is The Creative Assembly's Total War series.

I also like playing small indie strategy games on PC because they often have ideas that translate well to mobile. Supercell's Clash Royale is the game I wish I'd come up with. It's such a good combination of strategy, an ecosystem and a way to bring in money.

WHAT IS BATTLE LEGION?

Battle Legion is a mass battle multiplayer spectator game with deep strategy elements and AI-controlled troops fighting for you.

GAME PLAY

Build your dream army from dozens of versatile fighters and find the victorious army composition that brings other players to their knees!

PLAYER COMMUNITY

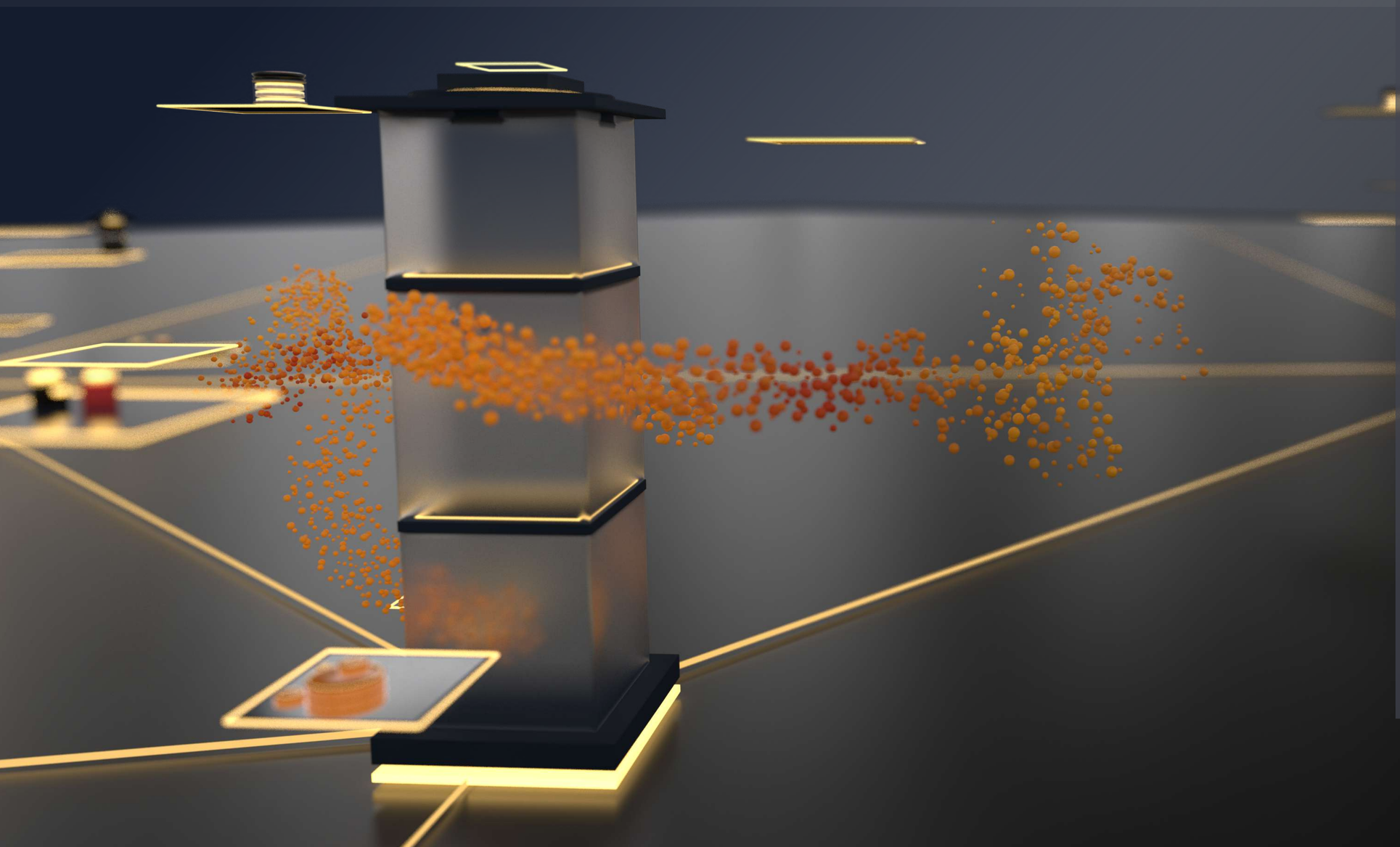
Join players and developers for the best strategies and unit synergies. Being a part of the community gives you the opportunity to steer the game in the right direction, share your opinions and make suggestions.

"Machine learning will revolutionize personalized purchase offers"

We recently recruited a machine learning expert who's looking at analyzing what type of content to offer players based on their in-game behavior. The main area we're looking at is personalized purchases. So, given the geo-location of a player, the way they've played the game, how many purchases they've made before and what kind of army layout they're using, we hope to figure out what kind of offer they'd like. It's early days, but I'm curious about what this technology will bring to player content.

"Don't reinvent the wheel"

My advice to game devs looking to launch their own venture is make sure you understand the market as well as the game. As for server developers, what they teach in game development schools is to make real-time servers but those are really expensive and heavyweight. Rather than always going for the latest, coolest tech, have a look at traditional web technologies, like REST APIs, because they're less expensive and less complicated. Less complicated means less development, which means less time to market, and that's so important.



At-a-Glance

AWS Services used:

- EKS
- ECS
- S3
- CloudWatch
- Route 53
- EC2

Key games:

- Big Bang Racing (2016)
- Battle Legion (2020)

Fast fact:

Traplight's 30-strong team was recently boosted by a $9 million funding round, which will help power its ambition to keep developing global gaming successes.

Follow:

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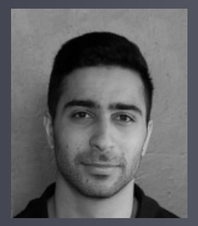
Wolcen Studio

Player profile



Player ID:
Daniel Dolui

Classi ication:
CEO and Co-founder

Player history

Daniel Dolui is the CEO and Co-founder of Wolcen Studio, a company that emerged into existence following a successful Kickstarter campaign. Along with Simon Majar, Daniel set out to create a dungeon crawler, an action role-playing game that tugged on the nostalgic roots of Diablo II. Using the money raised, they stayed true to their vision, and today, Daniel continues to drive the studio's commitment to becoming the best in building fun, beautiful and disruptive games.

Studio

Nice	Founded	Employees
43°71'N 07°26'E	2015	60+

One studio. One vision. A crowdfunded passion project.

Kickstarter has become a haven for gamers looking to invest in games that recapture the nostalgia of the past. Games that use modern technology to weave in the storylines, mechanics and the magic that first drew legions of players into their riveting webs. From board games like Gloomhaven—designed to offer players the ultimate in dungeon crawling control—to Wolcen: Lords of Mayhem, a game built specifically to recapture the extraordinary depth of Diablo II, these titles have been funded by gamers and fans who want something more than standard fare.

In 2015, Daniel Dolui and Simon Majar launched a Kickstarter for Wolcen: Lords of Mayhem. They wanted to build the ultimate isometric action role-playing game (RPG) focusing on the freedom of character development and exploration. Want to be a ranger with the magical prowess of a mage? No problem. Fancy the muscle of a tank while still wielding the skills of a squishy? Done. This new approach plus the extraordinary visuals of the game and the gaming market's need for fresh isometric RPG content, turned the studio's dream into a hard and fast reality when the game launched in February 2020. Working in collaboration with AWS, Wolcen Studio was able to flex their game development muscles to create a rich game world capable of handling multiplayer engagement at scale.

Wolcen Studio

"Kicking the story of our studio into action"

We wanted to create a modern hack and slash game that reignited all those old school gaming memories. Diablo II has been the reference game for this genre for the past 20 years. While we didn't want to just make another Diablo II, we did want to build this transformative and immersive gaming experience to remind people of the magic of that game. We chose Kickstarter as our platform in 2015 because it was a big thing at the time for gaming, and we showcased a high-quality prototype of what we wanted to build. The response was extraordinary. We raised more than $400,000, and were the biggest Kickstarter campaign in France at the time. This gave us the confidence we needed, and set the story of our studio in motion.

We didn't have any money of our own. And you need money for salaries, technology and development. This was the first challenge we had to overcome, which is why we decided to use Kickstarter. The second was to find the right people; to ensure the quality of the game never slipped. Finding the right people at the right time was a long process, made tougher as we added in new features and had to learn new skills. When we decided to move to full multiplayer, for example, we had to slow down, so we could perfect the process and ensure the player experience was seamless.

There was no structure when we first started out because we were understaffed. One person could be working on three different parts of the game, and there were lots of opportunities for people to learn new skills. However, the result was communication problems and limited visibility into how well the different parts of the game worked together, if at all. Today, the studio has almost doubled in size since we started—from 30 at the start to nearly 60—and now that everyone is in a specific role, we have a far stronger team. People appreciate having the time and space to dig deep into a topic or explore the full functionality of a feature. This is what we believe is key to our long-term success, and to ensuring we really refine all the mechanics and features of our games.

"Gamers need infinite ways to crush their enemies"

We built the kind of game that we wanted to play; that created the experiences we wanted to share with other people and that told the story we wanted to tell. Our goal was to create the next big game mythology, while also ensuring what we built was sustainable and would stay a part of gaming culture well into the future. At first, the dream that drove Wolcen was a bunch of people trying to create the best game possible—now we want to establish ourselves as a game studio capable of releasing AAA titles. For us, our games need to be intense and immersive, offering gamers immense freedom and infinite possibilities to crush enemies.

We designed Wolcen: Lords of Mayhem the way we wanted it—Doom meets Diablo II, blending the intense action of Doom with the rich layers of an RPG like Diablo II, where every player and character has a role. The combat is designed to follow a similar style as that in the famous FPS, Doom, where every enemy is like a chess piece with its own specificities in combat. This rich action quality is supported by strong visual effects and a hack-and-slash style that challenges the gamer. Player skills are critical to ensure battlefield survival.

We wanted to give players a lot of freedom to explore the world and different character abilities. Using the Gates of Fate skill tree, players can change their character and skills as they see fit. They can start as a ranger, introduce some mage attacks —maybe even specialize as a necromancer. We wanted our players to have immense freedom in how they interpreted their characters in the game. For us, it was essential that gamers could adapt their skills and gameplay to their own unique style, and have a truly interactive experience.

"For us, our games need to be intense and immersive, offering gamers immense freedom and infinite possibilities to crush enemies."

"We wanted a partner with experience and quality"

The main reasons we chose AWS were cost and reputation. We wanted to partner with a big technology provider that had worldwide reach, experience and a commitment to quality. AWS GameLift really surprised us. It's so easy to set up, and it allowed us to create our own server system that wasn't too complex for our company, and that we could optimize to suit our requirements. The platform gave us the freedom to explore rich special effects and features without compromising on the quality of our servers. AWS has been our preferred technology from the outset, as it's light on cost and heavy on functionality. AWS also helped us on launch day when we had issues with the game lobby—we were having problems with the bridge connection to the server and they helped us to build our own system.

We've found Amazon GameLift is perfect for optimization and cost reduction, and it offers us reliability with its security and scalability. We only have to pay for what we need and we can scale according to the players—this is critical for us, as you never know how many gamers will show up at any given time. An article in a magazine, a TV interview and suddenly a thousand new players show up. We need a service that's capable of adjusting to player demand; one that can provide server availability in the right region to minimize latency. AWS GameLift helps us scale on demand without compromising on quality.

VIVID ACTION

Wolcen's combat is dynamic, fast and responsive. Wield a great variety of weapons and find your own playstyle.

CLASSLESS PROGRESSION

Carve your own path to power through 21 uniquely themed classes in the rotating Passive Skill Tree.

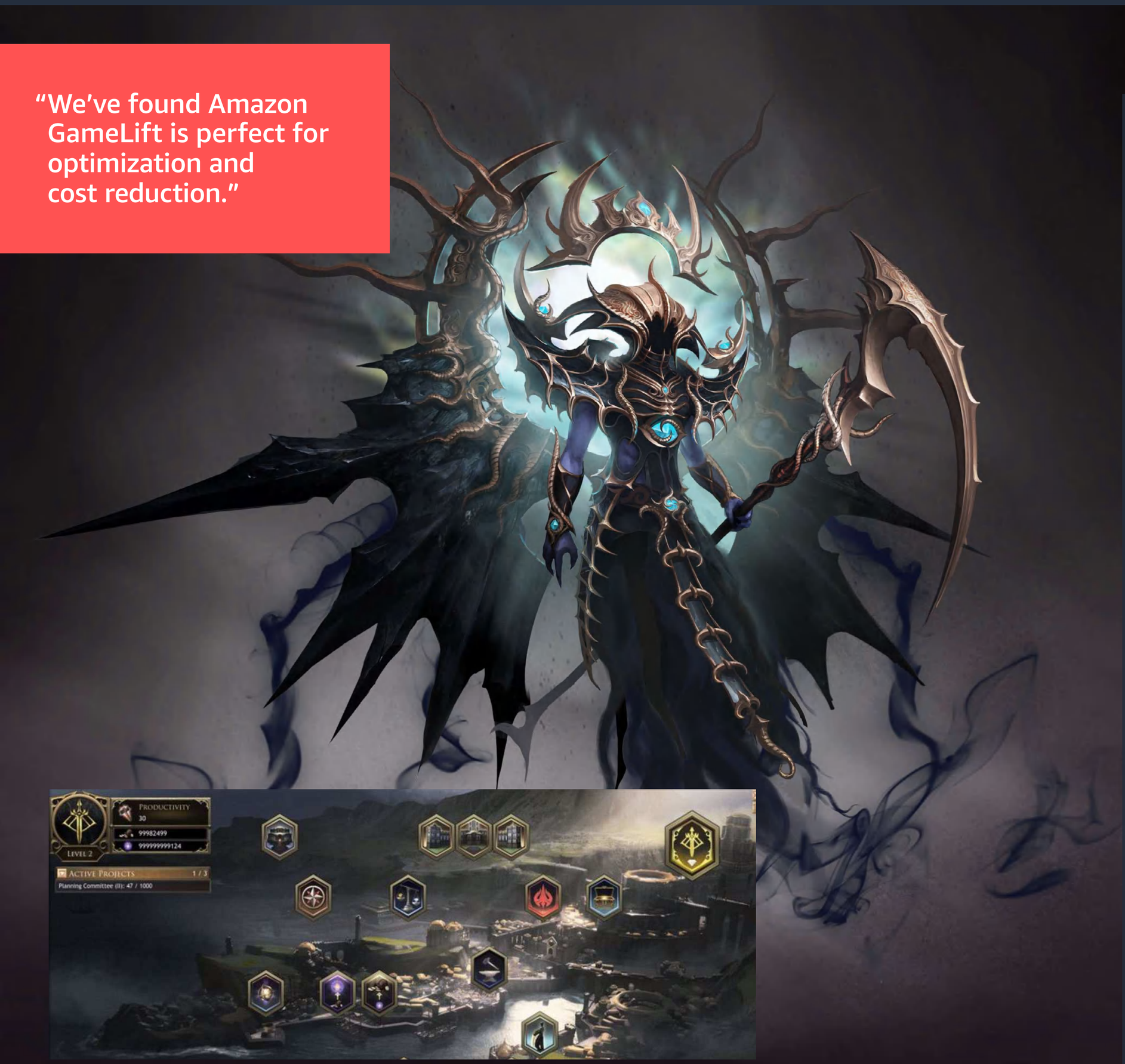
DEVASTATING POWERS

Fuel your apocalyptic power to unleash fury on enemies by transforming into a ultimate avatar of destruction with unique skills.

CONTENT DIVERSITY

Discover secondary areas with deadly creatures, secondary objectives and awesome loots.

Wolcen Studio



"We've found Amazon GameLift is perfect for optimization and cost reduction."

"Four years of feedback shaped the game"

The launch was hard. We had bugs and kinks to iron out and issues that we needed to resolve. It was a tough time as we worked to make sure that we fixed issues for the players as fast as possible. During this time, our players sent us cake and pizzas to keep us going. It was crazy. I mean, it's hard to find our address online, especially with French directions, and yet they went to so much trouble to send us food and gifts that showed their support. It made us realize that our players believed in what we were doing, and it inspired us to keep on going and deliver a game that would keep gamers immersed and entertained.

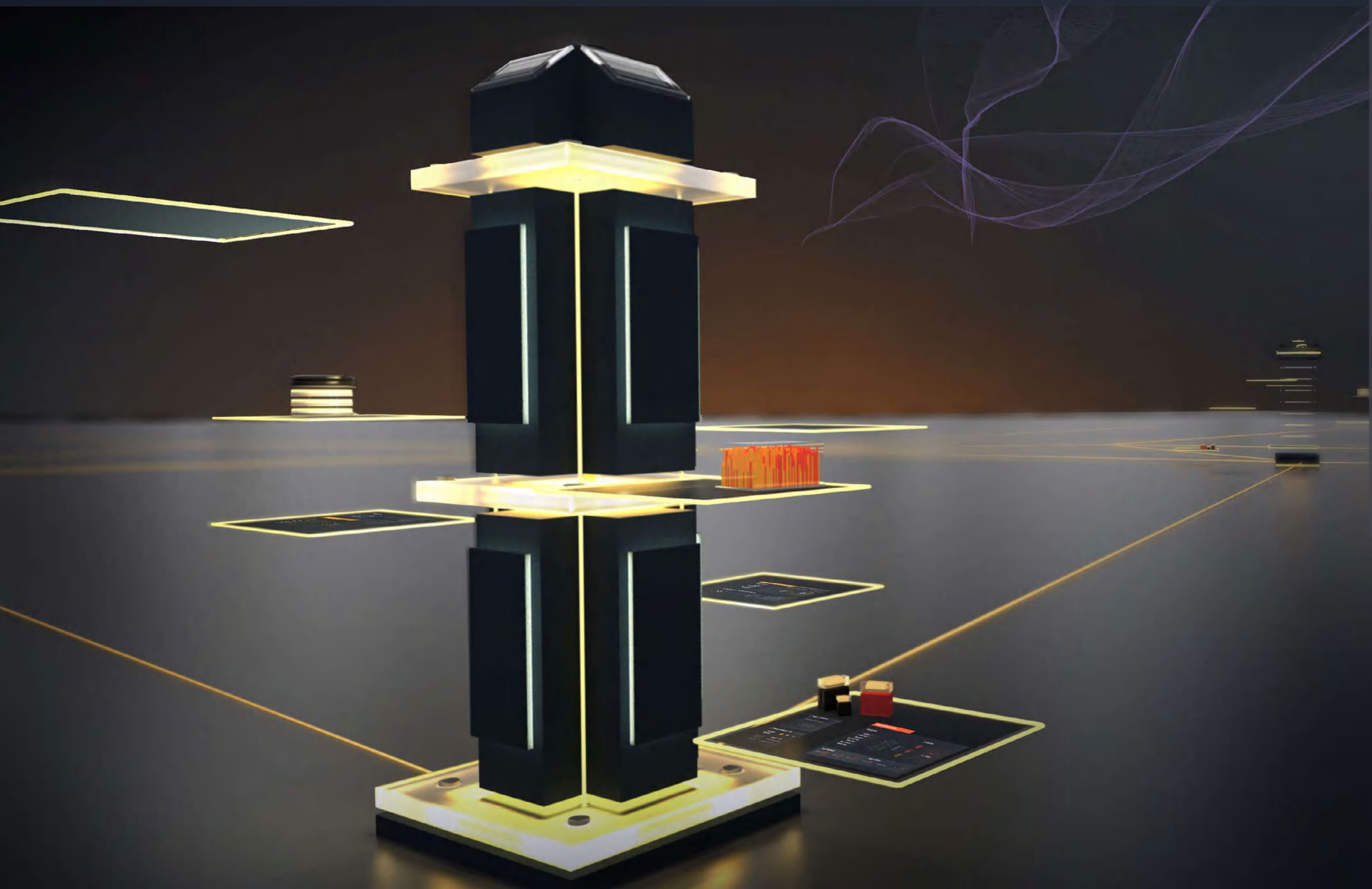
We relied on feedback throughout the four years of game development to make sure we were always happy with what we'd built. If something didn't work, we would reboot it. We did this a few times—one element was redone three to four times because it didn't quite achieve the levels of quality we were looking for. The particle effects, the animation, the character movements—these were the features we focused on the most. We then used feedback to refine these features until we felt they were ready for launch.

Our plans for the future revolve around upgrading the game and ironing out all of the bugs and kinks that have affected performance to date. We're taking time to polish the game, to implement quality improvements, and we're also working on some expansions to add new levels, bosses and functionality. We want to refine Wolcen: Lords of Mayhem until the quality is exceptional. Then we'll introduce new features and expansions that match this quality and take the game even further.

Wolcen Studio

"Choose your technology wisely"

If I were to give anyone advice on how to start their own studio today, I'd tell them to choose their technology wisely. Pick the tech that fits your needs. Also, never underestimate the business side of things—money may not be your problem today, but at some point, you will have issues, so make sure you aren't setting yourself up for regret. Always stick to your budget, don't underestimate good management and take the time to find the right people. Always consider the human element, and remember to give as much as you take.



Stats and facts

AWS Services used:

GameLift | Cloudwatch | S3

Key games:

WOLCEN Lords of Mayhem (2015)

Fast fact:

The game is unique in its genre, in that it doesn't restrict players to specific classes, allowing for constant adaptation and a more open world experience.

Follow:

www.wolcengame.com

WolcenGame

@wolcengame

Wolves Interactive

Player profile

Player ID:
Khaled AlMoukhtar

Classi ication:
Chief Technology Officer and Co-founder

Player history

Life took a dramatic turn for Khaled Almoukhtar when, in 2012, he was forced to flee his home and career as a mobile game programmer in Damascus, to escape the Syrian civil war. He settled in Turkey and co-founded Wolves Interactive, where he is Chief Technology Officer. After going viral within six months of its 2017 launch, with more than 10 million downloads, the studio's mega hit Traffic Tour has been downloaded more than 50 million times and counting.

Studio

Istanbul	Founded	Employees
41°03'N 28°9'E	2016	15

Rising to the challenge, revving up and ready to race ahead

Rising to the challenge is something the co-founders of indie game studio Wolves Interactive know all about. Khaled Almoukhtar, Mohammed Dayoub, Ahmed Allazkani and Karam Bwidani escaped the civil war in Syria and found refuge in Turkey, where they built a thriving mobile gaming enterprise from scratch. The Istanbul-based company, which specializes in arcade-style racing games, was set up in 2016 and launched its first game, Traffic Tour, less than a year later.

Traffic Tour challenges drivers to scorching missions through highway, city, desert, rain and snow while making the most of slick handling and massive acceleration to chase down rivals and rack-up the bonus scores. Wolves' next release, Motorbike, was launched in 2019, challenging players to dodge police and attempt daring overtakes. This was followed by Motor Tour in August 2020, a bike version of the ever-popular Traffic Tour.

The team's latest title, Racing Go, published in September 2020 and takes players on an ultra-realistic, high-octane car race around the streets of the world's most iconic cities, featuring superb graphics and the option to go up against other gamers in real-time. It also revs up the tension with a 'Drag' mode to test players' timing and skill in shifting manual gears, plus 'Takedown' challenges, where winning means neutralizing rivals with a series of exhilarating smashes.

Wolves has worked with AWS from day one, evolving its existing titles and adding new games to their portfolio, while sharpening design and development to be more data-driven. Ready to switch it up a gear, the team is currently seeking investment to treble its 15-strong team, expand from mobile-only to console games—kicking off with a VR version of Motorbike for PlayStation—and open their first international office.

"The sound of bombs and gunfire was scary"

When the civil war started in Syria in 2011, it was frightening and dangerous for civilians. Where I lived, near Damascus, we could hear bombs and gunfire, and every day there were power cuts lasting hours. I was working as a programmer and studying online, so was heavily reliant on internet access. Sometimes, the electricity would cut out in the middle of a lecture, and it was impossible to work, which was when I started to think about leaving Syria.

My friend Ahmed Allazkani, who'd already relocated to Turkey, persuaded me to make the move. I had to leave most of my family behind, but my wife is here with me in Istanbul. We married a month before we left—even in the middle of a civil war, life goes on. It's hard to explain, but when you're living in a situation like that, you get used to it. Our brains have an incredible ability to reprogram events and accept them as normal. Now, every time I call my family, I ask: 'How are you managing with no electricity?'

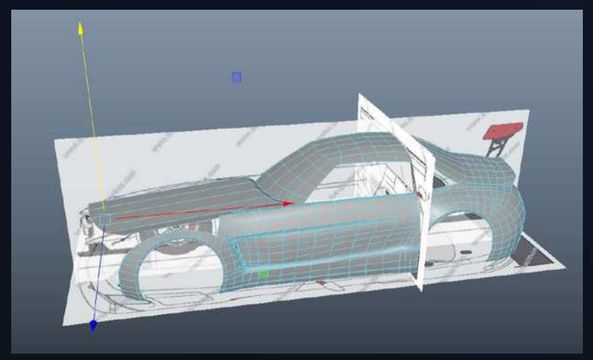
"Our dream was to make high-quality arcade racing games for mobile"

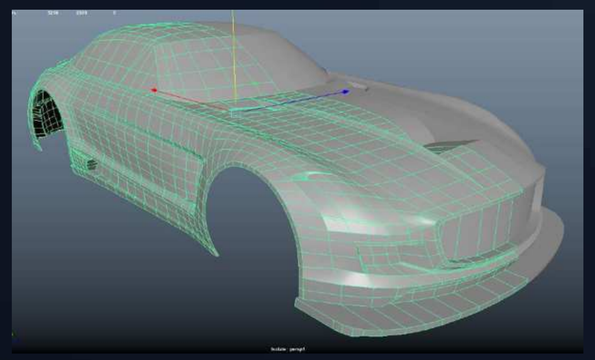
When I arrived in Istanbul in 2012, I was approached by Mohammed Dayoub—then a Game Director and now Chief Executive of Wolves Interactive. He had been developing action titles in Damascus for several years and was passionate about starting a mobile game studio, which led to him coming up with the idea for Wolves Interactive and forming a team. Just like me, he'd come to Turkey to escape the war and was intending to return—but when his home was destroyed, he couldn't go back. Although living in different regions of Turkey, we worked together remotely on a couple of interactive projects. Mohammed would come up with an idea and design, and I would bring it to life as a programmer.

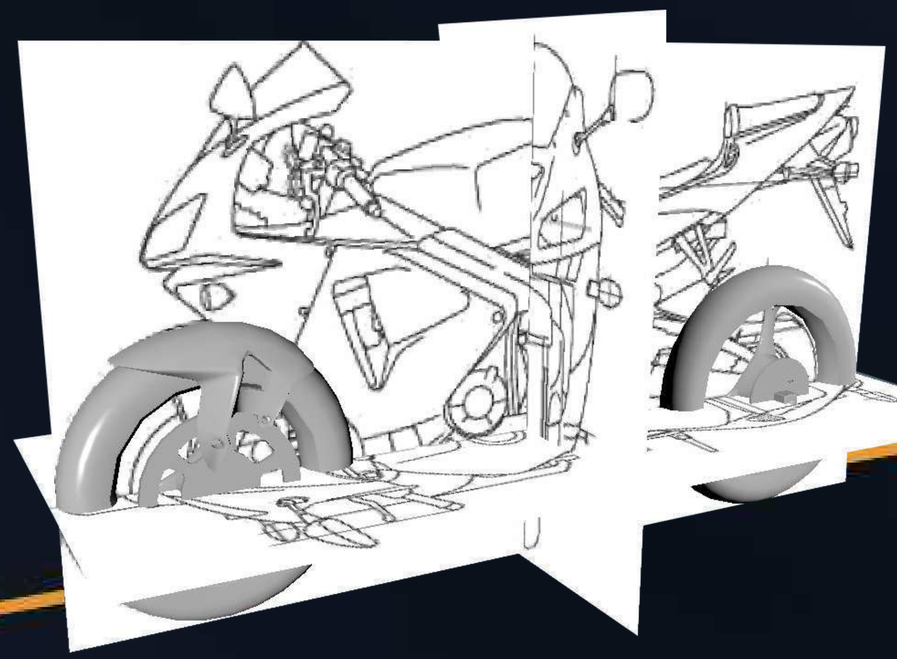
We decided to try to make a few simple games for mobile devices and when that went well, it got us thinking about building the sort of high-quality racing arcade games we love playing. We knew it would be too tough as a startup to compete in the console game market against big companies like EA and Gameloft, so we realized our best chance was to create amazing games, but make them lightweight enough for mobile.

Neither of us knew many people in Turkey, so we put out a call on Dubarah—an online community network which connects displaced Syrians, asking designers and developers for help with developing the prototype of our first game, Traffic Tour. We were amazed and humbled at the response. Initially, we funded everything ourselves; developing games, our in-house tools, marketing—all of it was created from nothing.

Ahmad Allazkani had been running a clothing company in Damascus, but had been forced to relocate to Istanbul because of the war, so he already knew all about Turkish business and financial regulations. When we showed him what we'd created with Traffic Tour, he loved it and offered to work with us. The three of us set up Wolves Interactive in 2016, and a few months later, we were joined by Karam Bwidani, who'd left Syria in 2013 and was working in Turkey as a freelance game dev.







"We didn't know anyone when we arrived in Turkey so we've built everything from scratch."

In 2019, we managed to close our first round of fundraising and persuaded Hussam Alnatur to join forces with us. A gaming guru in the Gulf area, Hussam has his own gaming company and good connections with Sony. He helped us create our first PlayStation game, marking a new milestone in our journey.

"We broke even in our first month"

When we launched Traffic Tour in 2017, it went viral with more than 10 million downloads in the first six months. Just a month after publishing, we were breaking even. We still joke about having created a money machine: you put money in and more money comes out. Traffic Tour has since hit over 40 million downloads, and we've reached more than 60 million players across all our games. It's an incredibly powerful feeling to know our player base is the equivalent of the population of a small country!

We started to improve Traffic Tour and plan more projects, but quickly realized it would take too long to develop every single future game from scratch. That's why, as well as developing the games, we've also poured huge amounts of time and effort into building our own in-house tools and making a template for creating future games. Traffic Tour took six months to launch, plus another year to improve and stabilize. Now, thanks to our tools, we're developing games much faster. In the past two years, we've created three games for Android and iOS platforms.

We have about 12 tools that we use in each game, but that's come about gradually. We started with five tools in Traffic Tour and have developed more as we've gone along. Our latest game, Racing Go, has improved multiplayer and purchasing systems, but took less time than Traffic Tour to develop, thanks to the time we saved by using our development tools.

"Players smash into a rival's car and shift gears in perfect time to win"

For Racing Go, we designed levels to mimic some of the most iconic cities around the world—Paris, London, Istanbul, Moscow and Los Angeles. But before we started developing and designing, we studied pictures of each on Google Maps and found a famous street or building to give the game an authentic feel. We also rebuilt all of the cars from scratch, including the interiors and exteriors, focusing on texture and detail.

We introduced a new mode called Takedown, where the player needs to smash into an opponent and damage their car, while avoiding taking a hit themselves. We added in a feature so the player can see how badly their car's bashed up. Another very different game mode in this game is Drag, which is all about skill and timing. There's no need to steer, but the player needs to 'manually' shift gears at exactly the right time to be able to win.

Wolves Interactive

We worked hard on the physics system to make this happen, because to make everything feel real, you need a powerful CPU for processing. As we're dealing with mobile devices, everything needs to be optimized and adapted, so that was a major technical issue. This was particularly relevant, because where previously a player had only one opponent, in Racing Go they can go up against five others. It was a huge step up in terms of optimization to make that work, and some systems needed to be rewritten. For example, our AI system for automatic driving had to be recreated to be optimized. In some cases, we used caches and workarounds, but we eventually managed to find a solution for each issue.

"We read up on car engines and how gears work so we could build an algorithm"

We came up with the idea of the manual gear shift 'drag mode' while we were developing our second project, Motorbike. We built the tool and the system and incorporated it into that game as well as Racing Go. To begin with, drag mode was just a section but, after a few weeks, we were bombarded with messages from players saying how exciting and fun it was and asking us to add a pop-up message to offer that option at the very start of the game. Now, when you open Motorbike on your mobile device, you're asked immediately if you'd prefer to play in drag, as opposed to normal mode.

From a development point of view, drag mode presented a really tough challenge. We had to build a new system for the manual gearbox because the player is responsible for shifting gears. We read up on car engines and how gears work in real life so we could build an algorithm. That's how we improved our physics engine, which is now incredibly realistic. Once we'd done that, we improved our audio system to be compatible too, so there's this incredibly authentic soundscape that reflects the gear shifts, acceleration and braking moves.

"We've been with AWS from day one"

We did our research and it was obvious that AWS is the go-to for game tech, which is why they've been our choice from day one. We mainly use AWS Elastic Beanstalk to scale and deploy our code, which is written using PHP, running with Apache on Linux. We also benefit from the network load balancing and auto-scaling features to handle and manage the EC2 instances. We use a static IP for our instances, using a private NAT gateway and, for storage, we use Amazon RDS for MySQL, MongoDB (AWS CloudFormation) and Amazon S3. And on top of that, we take advantage of a couple of other great features, like Amazon EBS Snapshots.

WHAT IS RACING GO?

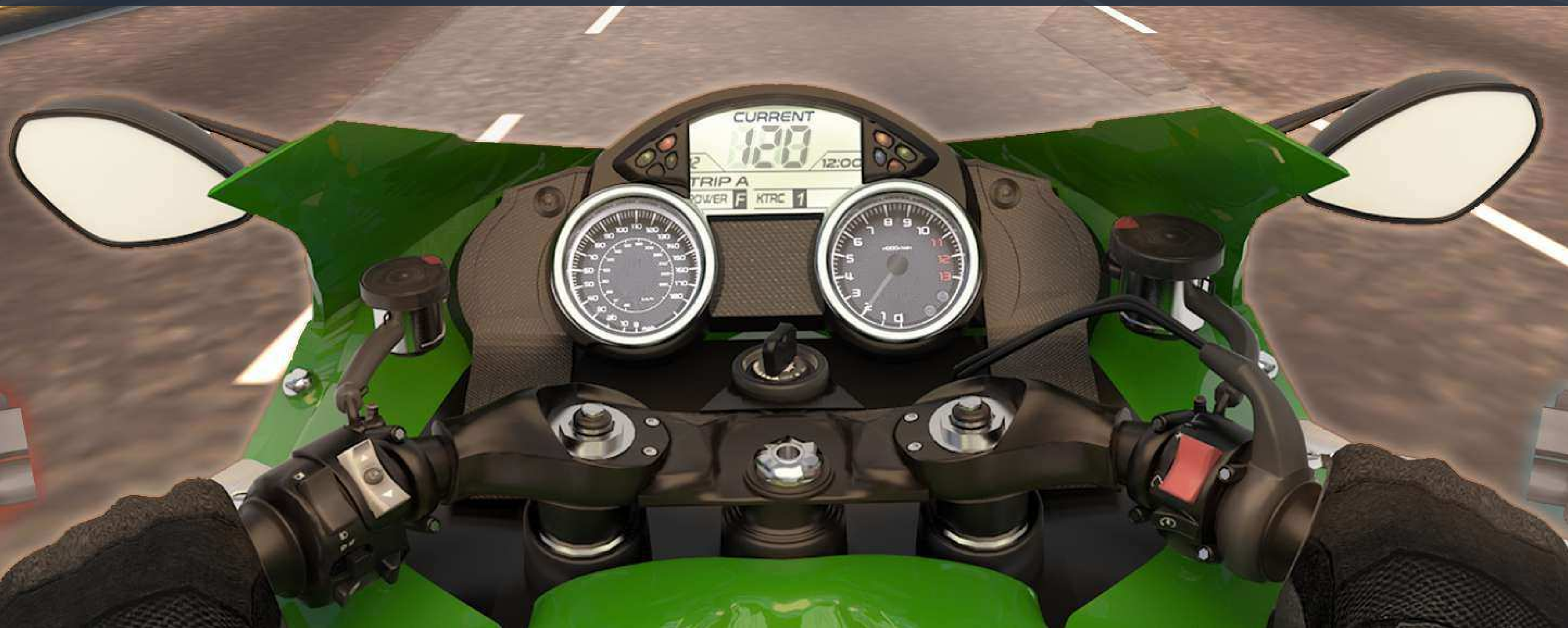
Racing Go is a new endless arcade racing game that takes you to another level of smooth driving simulations and high graphic quality.

GAME PLAY

Drive your car in the endless highway roads, overtake traffic in challenging career missions, collect blueprints, unlock new cars, upgrade them and challenge your friends in real-time racing.

We couldn't find the right tools to monitor how our apps were doing, so ended up developing our own, including a real-time revenue tracking system, which means I can check the server any time to measure how any of our applications are doing. Our in-house analytics system tells us how players are navigating our games and shows us where there's room to improve—for example, if we can see a player's stuck on a certain level because it's too hard, we can fix that. We also have a system to make in-app purchases easier. It's a base layer for our project, so it's now easy to add that to the purchasing system, plus it's already linked to our revenue tracking and analytics system.

More specifically, for our revenue tracking system and player management, we use Amazon Elastic Compute Cloud (Amazon EC2). All our players' data, IDs and progress is saved on our server, which we built ourselves, and which is hosted on AWS and linked to our database. We save things like the progress of our players and all related information using Amazon Relational Database Service (Amazon RDS) and Amazon Elastic Block Store.

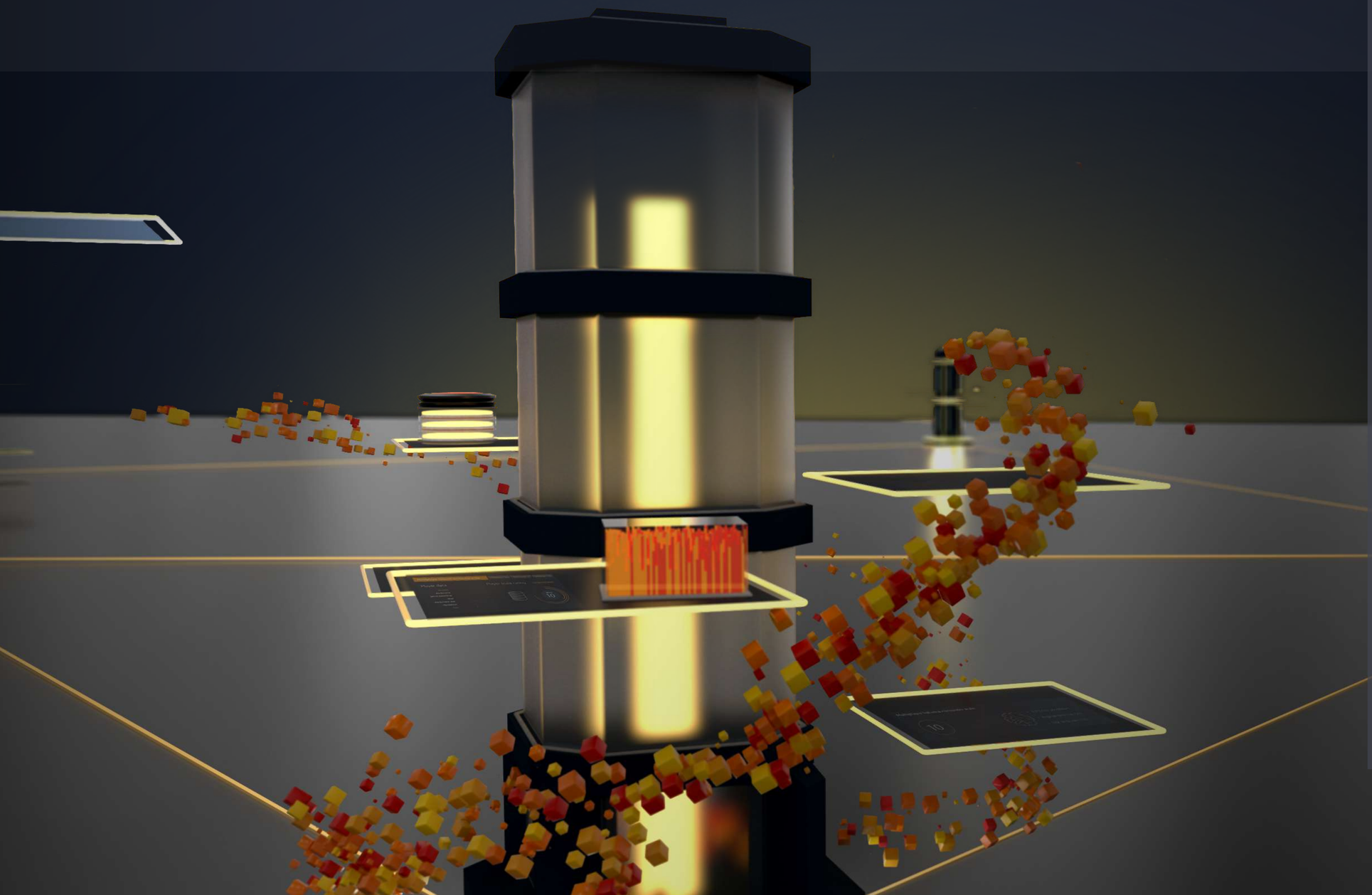


Wolves Interactive

"Publishing your game is just the beginning"

One of the biggest lessons I've learned is that the day you publish a game is just the beginning. When we started, we worked hard to prepare Traffic Tour for release. We wanted to publish it but, because we were nervous, we started tweaking stuff and adding new features and ended up missing the deadline. That experience taught us to get used to the fact that not everything's going to be ready in time for the launch, but there's nothing to stop you from constantly improving and adding to a game afterwards.

Every game we've created is special to us, which is why we keep maintaining and improving all of them. Traffic Tour is so much fun to play, why wouldn't we keep updating it? On launch day, it included 16 cars, but we've kept adding new ones and it's up to 40 now. We've also added plenty of other special offers and features. A game is like a baby—if you keep nurturing it, it'll keep growing.



At-a-Glance

AWS Services used:

- Elastic Beanstalk
- RDS
- Cloud Formation
- S3
- EC2
- Elastic Block Store

Key games:

- (2017)
- (2019)
- (2020)
- (2020)

Fast fact:

Wolves' first game, Traffic Tour, went viral after launching in 2017, notching up more than 10 million downloads in the first six months—that figure has since grown to 50 million.

Follow:

www.wolvesinteractive.com

wolvesinteractive

Bossa Studio
Coldfire Games
Creative Mobile

Follow the studios

Bossa Studio

Renowned for their "creativity first" approach to development and open, collaborative process, Bossa Studios is a multi award-winning independent game developer and publisher based in London. Creators of the BAFTA-winning Monstermind, as well as BAFTA-nominated viral hit Surgeon Simulator and quirky adventure game I Am Bread, their imaginative and critically-acclaimed titles are also huge hits with influencers and streamers across platforms like YouTube and Twitch.

Follow:

Coldfire Games

Putting players at the heart of everything they do has helped indie studio ColdFire Games stand out in the fiercely competitive mobile market. From prioritizing community, to developing the most in-depth gameplay stats, the studio makes it clear that players come first. The result is fun, immersive titles like Idle Casino Manager and Idle Space Tycoon, which have been downloaded millions of times and garnered rave reviews from players across the globe.

Follow:

Creative Mobile

What makes a game special? How do you take a beloved IP, and turn it into a fun and memorable gaming experience? For the past ten years, these questions have been the driving force behind Estonian studio Creative Mobile. This focus has resulted in chart-topping, genre-defining drag-racing games, a critically acclaimed collaboration with Mattel on Hot Wheels Infinite Loop, a slew of industry awards and over 450 million lifetime installs.

Follow:

Traplight Games
Wolcen Studio
Wolves Interactive

Follow the studios

Traplight Games

2020 was a big year for Finnish mobile game studio Traplight. As well as releasing their battle strategy game Battle Legion, the company raised $9 million in their most recent funding round, money they plan to spend developing bigger, more ambitious gaming experiences. Founded in 2010, the studio scored their first hit with the fun, free-to-play Big Bang Racing, which won an Apple App Store best of 2016 award.

Follow:

Wolcen Studio

Making their mark in the crowded ARPG space is Wolcen, a Nice-based studio that began life as one of France's biggest Kickstarter success stories. Their eagerly anticipated title Wolcen: Lords of Mayhem, features stunning visuals and rich, complex combat. While openly embracing its love of the Diablo franchise, the studio offers players a fresh, inventive take on the hack 'n' slash game genre.

Follow:

Wolves Interactive

Over 45 million mobile gamers have downloaded titles from bold, self-funded studio Wolves Interactive. The studio's founders escaped Syria's civil war and moved to Turkey, where they developed the 2017 viral hit Traffic Tour, receiving 10 million downloads in its first six months. The Istanbul-based studio has continued to build on this success, with a series of creative and technically ambitious racing titles, including their most recent release, Racing Go.

Follow:

Build your next game on AWS

Ready to follow in these studios' footsteps and introduce your game to the world? Whether you're itching to create a new immersive landscape or have ambitious plans for the next hit mobile game, AWS is here to support you through every stage of your game's lifecycle.

AWS GAME TECH RAMP-UP GUIDE

Whether you're new to game development, or an experienced games professional, here's the foundational knowledge you need to help build your understanding of game development using AWS Game Tech. This guide feature free digital training, classroom courses, videos, whitepapers, certifications, and other resources to get started with the AWS Cloud.

WHY AWS FOR GAMES?

Is the cloud right for games workloads? Build a more well-rounded view of cloud economics and the reasons to consider migrating your games workloads to the AWS Cloud.

AWS GAME TECH E-LEARNING MODULE

The AWS Game Tech e-Learning module gives you the building blocks needed to get started with AWS, regardless of your game's genre, platform or complexity.

ARCHITECTURE BEST PRACTICES FOR GAME TECH

Learn best practices for game development, including how to build game backends, operate game servers and workloads, and implement game analytics.

AWS ACTIVATE FOUNDERS PROGRAM

The AWS Activate Founders program is specifically created for bootstrapped, unbacked game startups, designed to help you build and launch your games on AWS. You can benefit from $1,000 AWS credits, along with dedicated technical and business support. Signup here:

CREATE A FREE AWS ACCOUNT

Get started with AWS today to benefit from 12 months of free tier access, including to Amazon EC2, Amazon S3 and Amazon DynamoDB.

CLAIM YOUR FREE TIER ACCESS