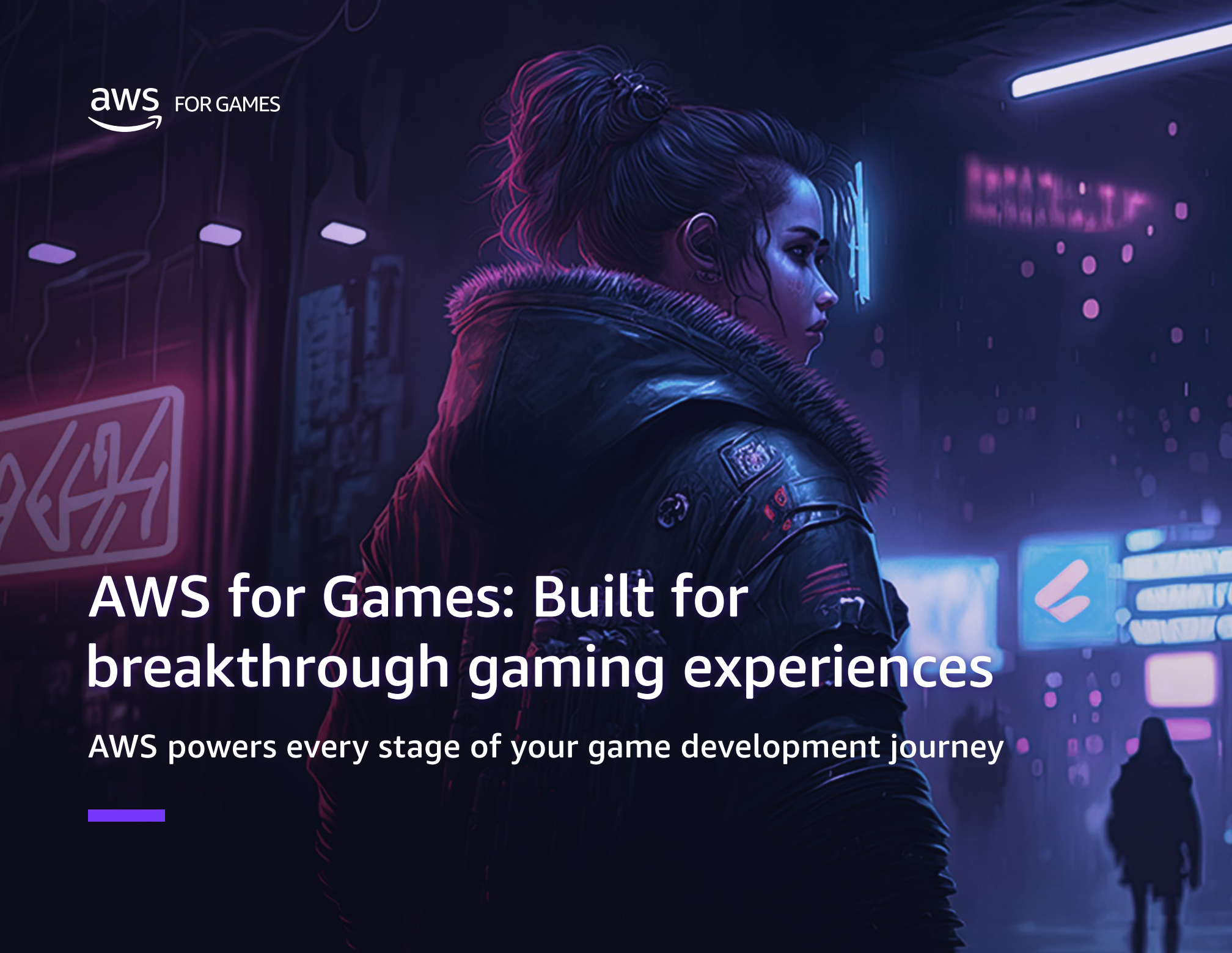

AWS for Games: Built for breakthrough gaming experiences

AWS powers every stage of your game development journey

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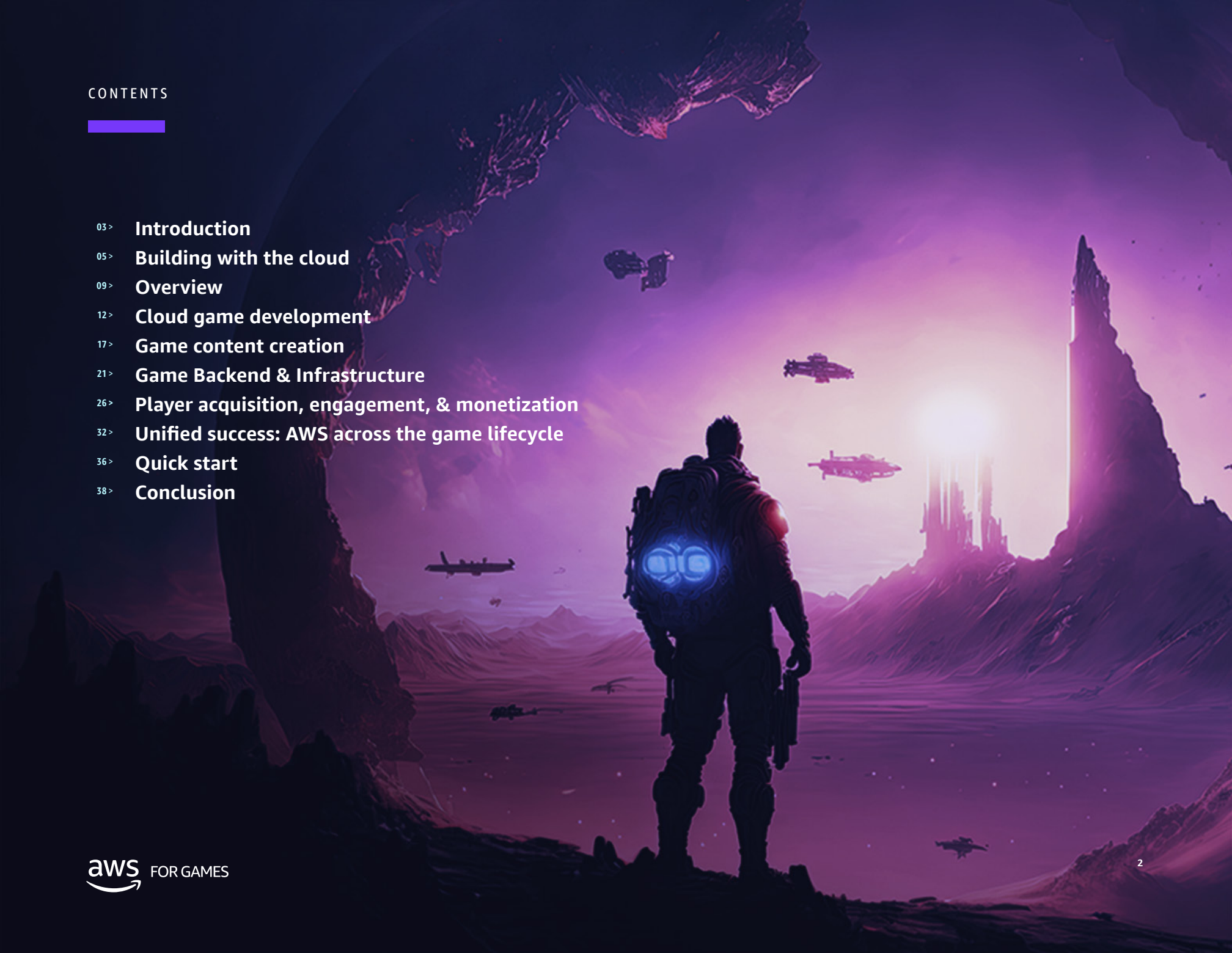


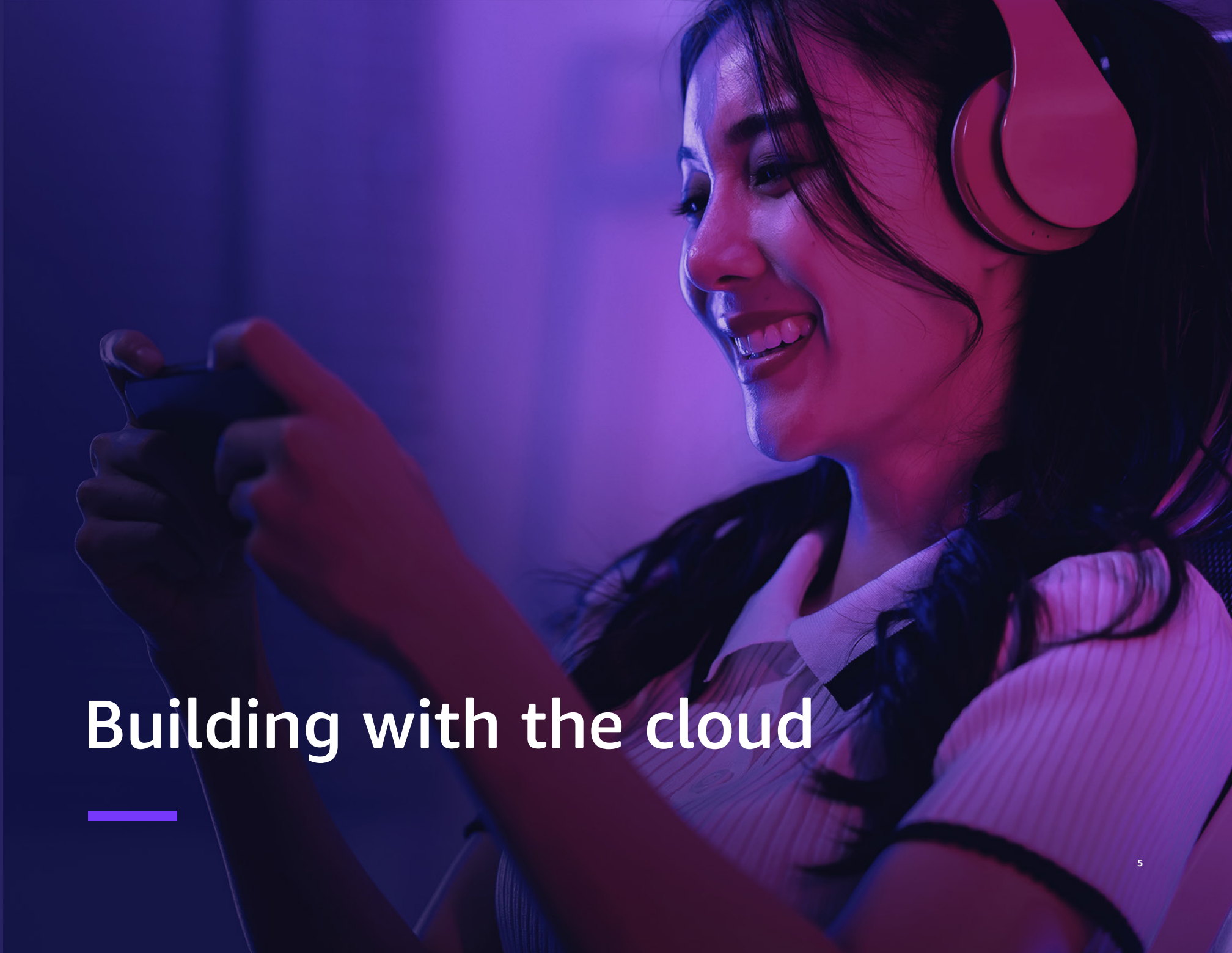
Accelerate game innovation with AWS

Gaming is more than entertainment—it's an immersive experience where players connect, compete, and explore new worlds. As player expectations grow, so do the challenges for studios: managing global teams, delivering seamless live experiences, and creating content faster than ever before.

AWS for Games gives you everything you need to build, run, and grow innovative gaming experiences. AWS has the most operational experience, at the greatest scale, of any cloud provider and brings over 16 years of experience supporting the largest games including Fortnite, Roblox, MARVEL SNAP, and League of Legends.

AWS and over 300 AWS Games Partners offer the broadest and deepest set of purpose-built services and pre-built solutions for cloud game development, content creation, game backend and infrastructure, and player acquisition, retention, and monetization.

These empower game developers to discover and select the best-fit tools and games-specific experts to address their unique business needs and accelerate breakthrough gaming experiences, build healthy, global player communities, gain player insights, and personalize and monetize player experiences across multiple channels to build lifelong fans. 750 million of these players each month, around the world, play games built on AWS.



Building with the cloud

Why build with the cloud

To understand how adopting cloud technologies translates into real business value, a survey of game companies conducted by the Hackett Group revealed that cloud services helped them:

Increase developer productivity:

27%

decrease in time to onboard new developers

Improve the overall gaming experience:

38%

decrease in annual network downtime

Enhance speed to market with greater agility:

29%

faster speed to market

Boost revenue and user acquisition growth:

30%

increase in monthly active users (MAU)

Why build with AWS

In a recent Market Radar report, Omdia analyzed the gaming capabilities of major cloud platforms. AWS came out on top, earning advanced marks in every category. The report outlines the advantages of working with AWS, including:

- AWS is the world's leading cloud platform: Its scalability, reliability, and Regional coverage are second to none, and the AWS for Games portfolio offers comprehensive, purpose-built solutions for game developers.
- AWS divides its solutions for game developers into four solution areas: cloud game development, game content creations, game backend and infrastructure, and player acquisition, engagement, and monetization. In each case, it is able to use its powerful infrastructure and tools across a wide range of industries to address specific game industry use cases.
- Amazon GameLift: Scale with confidence with support for up to 100M concurrent players. Game launches and events can generate sudden demand spikes and players will quit games that are not responsive. Be ready for going viral with responsive, on-demand infrastructure that supports up to 100 million concurrent users per game and can add 9,000 new compute instances per minute and 100,000 players per second into a game.
- Amazon Games, the company's games publishing arm, has scaled up considerably: Since 2021, Amazon Games has been publishing large-scale Triple-A (A A A) games. Although organizationally separate from AWS, the expansion of Amazon Games has given Amazon a greater opportunity to learn firsthand from using its own tools, particularly given that Amazon Games has chosen to specialize in massively multiplayer online games (MMOGs) that make heavy use of cloud infrastructure.

Building in the cloud

Accelerate game development

AWS and over 300 AWS Games Partners offer the broadest and deepest set of purpose-built services and pre-built solutions, empowering game developers to discover and select the best-fit tools and games-specific experts to address their unique business needs and accelerate breakthrough gaming experiences.

Launch and run your game with confidence

Launch day matters and a failure on day one can be catastrophic for a new game. AWS has the most operational experience, at the greatest scale, of any cloud provider and brings over 16 years of experience supporting the largest games including Fortnite, Roblox, and League of Legends.

Grow and engage player communities on a global scale

Extend the life of your game and keep innovating with services that help you keep your players engaged longer. AWS and AWS partners provide best in class tools to empower studios to optimize player acquisition, retain engaged players, and drive monetization strategies that deepen player relationships.

Building toward sustainability

According to a 2021 report by **451 Research**, moving to AWS is more sustainable than on-premises infrastructure because its scale allows it to achieve much higher resource utilization and energy efficiency than the typical on-premises data center. Amazon is on a path to powering its operations with 100 percent renewable energy by 2025. In 2019, Amazon co-founded The Climate Pledge—a commitment to reach net-zero carbon emissions across business by 2040, 10 years ahead of the goal set by the Paris Agreement.

Security

AWS supports over 100 security standards and compliance certifications—more than any other cloud provider—including PCI-DSS, HIPAA/HITECH, FedR AMP, GDPR, FIPS 140-2, and NIST 800-171, that meet or exceed compliance requirements for nearly every regulatory agency around the globe. Over 100 AWS services store customer data and offer the ability to encrypt that data.

Global infrastructure

AWS spans 36 geographical regions, 114 Availability Zones with 42 local zones, and 600+ edge locations around the world, with announced plans for 12 more Availability Zones and four more AWS Regions in New Zealand, the Kingdom of Saudi Arabia, Taiwan, and the AWS European Sovereign Cloud.

Overview

Build, run, and grow with AWS

The AWS Build, Run, and Grow framework simplifies the gaming journey:

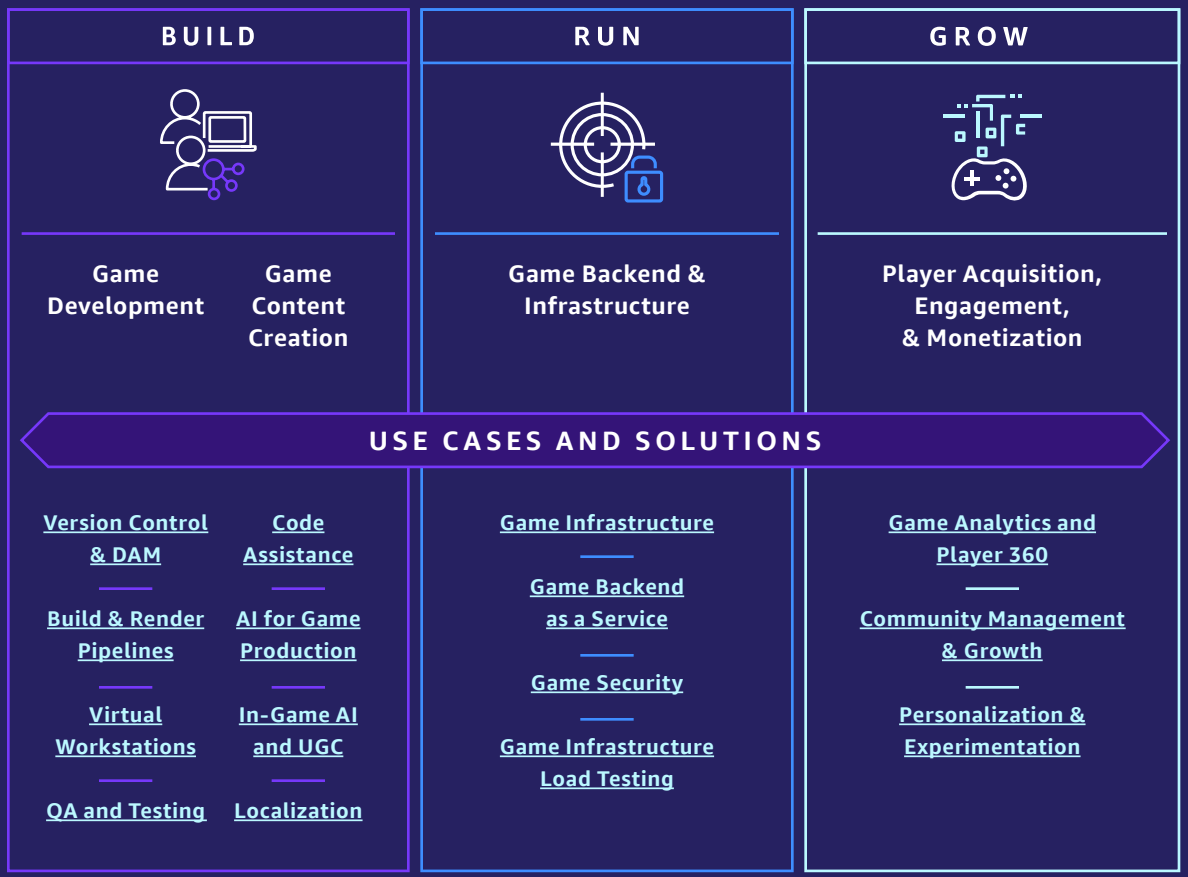
Build: Accelerate development workflows, empower teams to collaborate globally, and innovate with AI and cloud-based tools.

Run: Deliver scalable, low-latency gameplay experiences to millions of players, anywhere in the world.

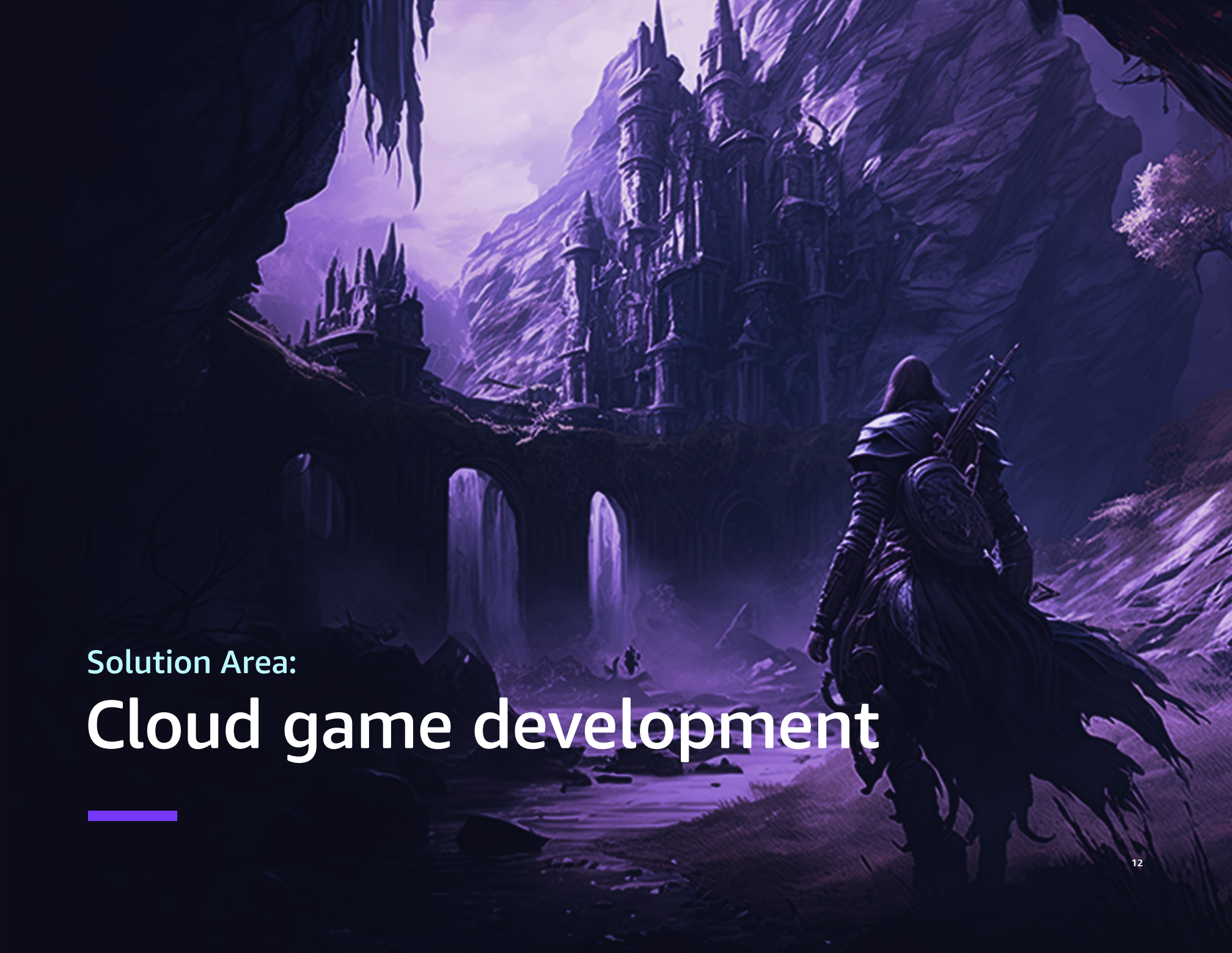
Grow: Drive engagement and revenue with personalized player experiences powered by real-time analytics and machine learning.

With AWS, studios can tackle today's toughest challenges and create unforgettable gaming experiences.

AWS for Games solution areas



Explore the latest **AWS for Games solution areas**.



Solution Area:

Cloud game development

Transform game development with AWS

Developing games today means managing complex workflows, globally distributed teams, and evolving creative challenges. AWS transforms game development by providing scalable pipelines, secure virtual workstations, and AI-powered tools to supercharge productivity.

By partnering with AWS for cloud game development studios can reduce development cycles, improve collaboration, and focus on delivering innovative gameplay experiences.

Key features and benefits

Empower global teams

AWS Virtual Workstations enable global collaboration without compromising speed or security by providing secure, low-latency environments for developers and artists.

Scale on demand

Use tools like Amazon FSx and Elastic Compute Cloud (EC2) to dynamically adjust capacity for asset-heavy workloads and reduce build times.

AI-powered coding

As the most capable generative AI-powered assistant for software development across the lifecycle, Amazon Q Developer can autonomously implement features, document, test, review, refactor code, and perform software upgrades to streamline resources and reduce costs. By automating repetitive tasks, developers can focus on innovation and deliver polished games faster.

Scalable and collaborative solutions for game development

Build and render pipelines

Modern game development requires highly scalable and reliable build pipelines to handle increasing production demands. AWS solutions enable teams to dynamically scale resources on demand, reducing time spent on build processes and ensuring faster, more efficient game version deployments. These solutions improve collaboration and optimize resources, saving valuable development time.

Learn more →

Version control and digital asset management (DAM)

Managing large-scale game assets securely and efficiently is critical to success. AWS provides guidance on implementing hybrid and cloud-based systems like Perforce Enhanced Studio Pack and JFrog Platform, offering scalability and robust asset management. These solutions allow global teams to have access to the resources they need while maintaining asset security and availability.

Learn more →

Virtual workstations

Remote and distributed teams need secure, high-performance environments to maintain productivity. AWS Virtual Workstations allow developers and artists to work seamlessly from anywhere, offering tailored setups for game production tools. These workstations deliver low-latency, GPU-powered performance while offering data security and accessibility.

Learn more →

AI code assistance

Game development can be challenging, with complex coding and bug resolution processes slowing production. As the most capable generative AI-powered assistant for software development across the lifecycle, **Amazon Q Developer** can autonomously implement features, document, test, review, refactor code and perform software upgrades to streamline resources and reduce costs. By automating repetitive tasks, developers can focus on innovation and deliver polished games faster.

Learn more →

Epic Games: Cutting build times by 75% with AWS

Epic Games faced significant delays in their build processes, which impacted the speed of development and content updates. By using the AWS scalable infrastructure, including high-performance compute instances, the studio drastically reduced build times by 75 percent. This optimization allowed developers to iterate faster, enabling quicker delivery of fresh content to players.

"We recognized some of the AWS instance types that were now available resulted in significantly better performance. For our client compiles, we were able to reduce times by 135 minutes, or 75 percent, which helps us iterate quicker."

Alex Carberry, DevOps Manager: Unreal Engine Infrastructure, Epic Games

Solution Area:

Game content creation

Accelerate creativity with AWS

AWS fuels creativity by providing generative AI tools, scalable rendering solutions, and secure workstations tailored for distributed teams. From concept art to in-game assets and cinematics, AWS accelerates game content creation, giving studios the freedom to innovate and deliver stunning visuals at scale.

Key features and benefits

AI-powered creativity

Automate NPC behavior, generate assets, and create immersive worlds with Amazon Bedrock generative AI

Efficient rendering

AWS Deadline Cloud provides cloud rendering at scale, allowing high-quality output for trailers, cutscenes, and promotional content

Secure collaboration

Virtual Workstations empower creative teams to work securely from anywhere, providing seamless workflows for distributed teams

Powerful tools for accelerating game content creation

AWS Deadline Cloud

AWS Deadline Cloud simplifies render management for teams creating 2D/3D graphics, visual effects, and animations for games, films, and TV. This fully managed service streamlines rendering workflows, allowing studios to focus on delivering high-quality visuals without infrastructure complexity.

Learn more →

In-game AI and user-generated content (UGC)

Empowering players to create and engage with user-generated content is key to sustaining communities and enhancing gameplay. AWS solutions enable developers to implement AI-powered tools for adaptive gameplay, content creation, and moderation. These tools extend player engagement by enabling innovative experiences and empowering non-technical players to become creators.

Learn more →

AI for game production

Modern game development demands faster content creation to meet player expectations. AWS AI for Game Production solutions use flexible AI models to accelerate asset creation, including images, 3D models, dialogue, and code. These tools reduce development complexity, improve iteration speed, and enable studios to experiment with unique gameplay features.

Learn more →

QORPO: Bringing generative AI features to AneeMate with AWS

For creature extraction shooter “AneeMate,” QORPO is utilizing generative AI to personalize the gamer experience. Using Amazon Bedrock, developers built an AI agent that analyzes near real-time game data streaming from Amazon Kinesis. It then randomly generates creatures with different physical and behavioral attributes based on the players’ previous activity.

"Cloud-based technology, including generative AI, is super-efficient and allows us to create games much faster while lowering costs. It will be interesting to see how the technology evolves the future of games, which will happen quickly and lead to further market saturation. That’s why it’s so important to create games with unique mechanics and story; that’s how you stand out."

Rastislav Bakala, CEO, QORPO

Solution area:

Game backend & infrastructure

Deliver seamless gameplay to millions

AWS provides the game backend and scalable infrastructure needed to deliver seamless gameplay at any scale. From multiplayer sessions to persistent worlds, AWS ensures low-latency performance and global reliability, keeping players immersed and engaged.

Key features and benefits

Scalable multiplayer hosting

Handle fluctuating player counts with Amazon GameLift, providing uninterrupted gaming experiences.

Low latency

AWS Global Accelerator intelligently routes traffic to deliver smooth, real-time gameplay.

Persistent world hosting

Build server architectures that support vast, open-world games with seamless scalability.

Optimized infrastructure for reliable gameplay

Game infrastructure for session-based games

Designing and operating dedicated server solutions for session-based games can be complex, especially with highly variable global traffic. AWS solutions enable studios to configure and deploy session-based server infrastructure that scales elastically to match player demand. These solutions deliver reliable, low-latency gaming experiences globally, providing seamless gameplay for players.

Learn more →

Persistent world games infrastructure

Persistent world games offer immersive experiences where players interact in worlds that persist between sessions. Building these environments requires globally scalable infrastructure, reliable player session management, and robust data storage. AWS provides scalable solutions for hosting persistent virtual worlds and massive multiplayer online games, enabling seamless world management and dynamic scaling to support growing player bases.

Learn more →

Game Backend as a service

Game studios must deliver updates, monitor games, and maintain engagement without disrupting player experiences. AWS Game Backend as a Service solutions allow studios to deploy and manage game services quickly, ensuring interoperability between first- and third-party tools. These solutions help studios scale connected games effortlessly, speed up time to market, and keep players engaged.

Learn more →

Game infrastructure load testing

Predicting player demand and identifying bottlenecks is critical to a smooth game launch. AWS infrastructure load testing solutions simulate real player behavior to stress-test backend systems, servers, and networks. Studios can ensure their game infrastructure scales effectively, preventing issues and delivering a successful, seamless player experience from day one.

Learn more →

Riot Games: Optimizing gameplay with AWS

To ensure seamless, low-latency gameplay for their global player base, Riot Games partnered with AWS to optimize their infrastructure. By deploying AWS Outposts and using the AWS global server network, Riot Games reduced latency by 20ms, creating a level playing field for players in games like Valorant. This improvement significantly enhanced the overall player experience.

"AWS helped us level the playing field for players, delivering the best possible experience. With AWS Outposts, we reduced latency by 20ms globally, ensuring seamless gameplay for Valorant players worldwide."

Zach Blitz, Head of Infrastructure, Riot Games

Solution area:

Player acquisition, engagement, & monetization

Transform player data into actionable insights

Every player is unique, and understanding their behaviors, preferences, and motivations is the key to long-term success. AWS empowers game studios to harness real-time data, drive smarter decision-making, and create personalized experiences that keep players engaged. AWS player acquisition, engagement, and monetization solutions help every player interaction feel meaningful—from live analytics to targeted recommendations.

Key features and benefits

Real-time data processing

Process massive amounts of live player data with **Amazon Kinesis** to uncover actionable trends instantly.

Actionable analytics

Use **Amazon QuickSight** to transform raw data into dashboards that offer teams powerful insights to optimize player experiences.

Personalized gameplay experiences

Amazon Personalize delivers tailored in-game recommendations, creating unique player journeys that enhance engagement and retention.

Optimized monetization

Advanced data warehousing with **Amazon Redshift** enables studios to refine monetization strategies, maximizing player lifetime value without compromising experience quality.

Data-driven solutions to scale engagement

Game Analytics and Player 360

Modern games generate vast amounts of data, making insight extraction complex. AWS Game Analytics and Player 360 solutions enable studios to deploy scalable data analysis systems quickly. These tools improve data quality, accelerate decision-making, and free up teams to focus on insights rather than processing. The result is better games, personalized player experiences, and higher satisfaction.

Learn more →

Personalization and experimentation

Personalization enhances player retention by tailoring experiences to play styles, preferences, and behaviors. AWS solutions use machine learning, customer analytics, and backend tools to identify player needs and deploy personalized features. From matchmaking to store offers, these tools help studios create more engaging and profitable games while fostering long-term player loyalty.

Learn more →

Community management and growth

Online games are vibrant spaces for interaction but can also attract disruptive behavior. AWS Community Management and Growth solutions help studios create safe, inclusive environments, fostering positive communities. These tools enhance player retention, build loyal fan bases, and strengthen brand reputation by ensuring engaging and respectful interactions.

Learn more →

Zynga: Boosting retention with AWS analytics

Zynga needed a way to analyze player data in real time to optimize retention and engagement strategies. By using AWS's analytics solutions like Amazon QuickSight and Amazon Redshift, the studio achieved a 2x improvement in ETL performance. These insights enabled Zynga to enhance player experiences and increase retention, driving higher revenue and long-term success.

"AWS helped us scale engagement and revenue while reducing operational overhead. With AWS analytics solutions, we achieved a 2x improvement in ETL performance and increased player retention significantly."

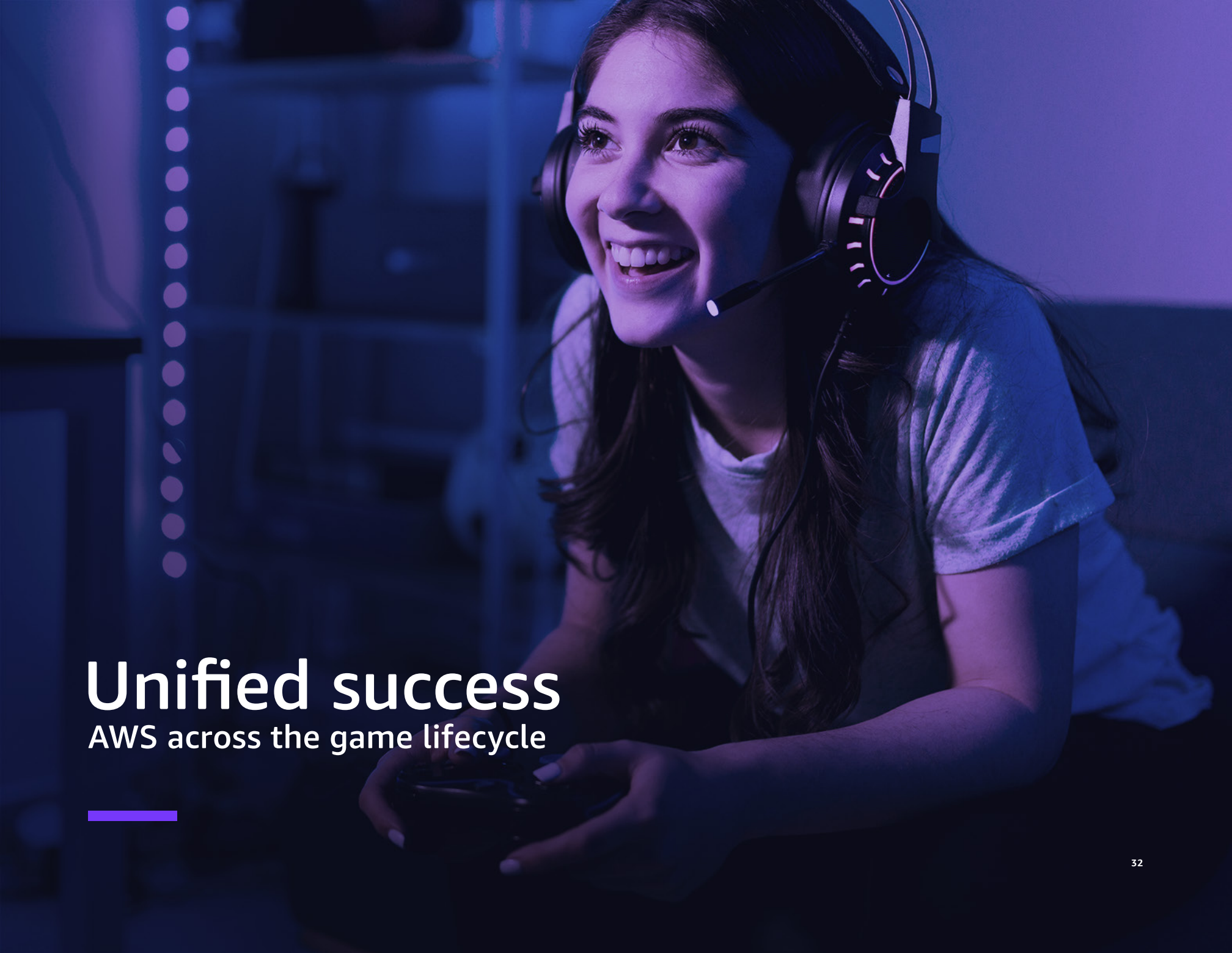
Bharath Anandaram, Data Architect, Zynga

Ubitus: Revolutionizing cloud gaming with AWS

Ubitus sought a scalable, reliable cloud infrastructure to deliver high-quality cloud gaming experiences globally. By using AWS services such as Amazon EC2, Amazon S3, and Amazon CloudFront, Ubitus built a robust cloud gaming platform capable of low-latency, high-performance streaming. This enabled them to support millions of users while maintaining a seamless gaming experience across diverse devices and regions.

"AWS infrastructure provides a full set of necessary tools, which is a big benefit for us to be able to quickly increase capacity. As a cloud provider, AWS is recognized around the world. By adopting AWS as infrastructure, the company can gain a lot of trust from customers in all regions. Customers from Japanese game-makers have also appreciated our use of AWS."

Wesley Kuo, CEO, Ubitus



Unified success

AWS across the game lifecycle

Why industry leaders choose AWS

Game studios trust AWS to power their most ambitious projects, knowing they can rely on:

Proven scalability: Handle millions of concurrent players globally with elastic infrastructure that scales dynamically

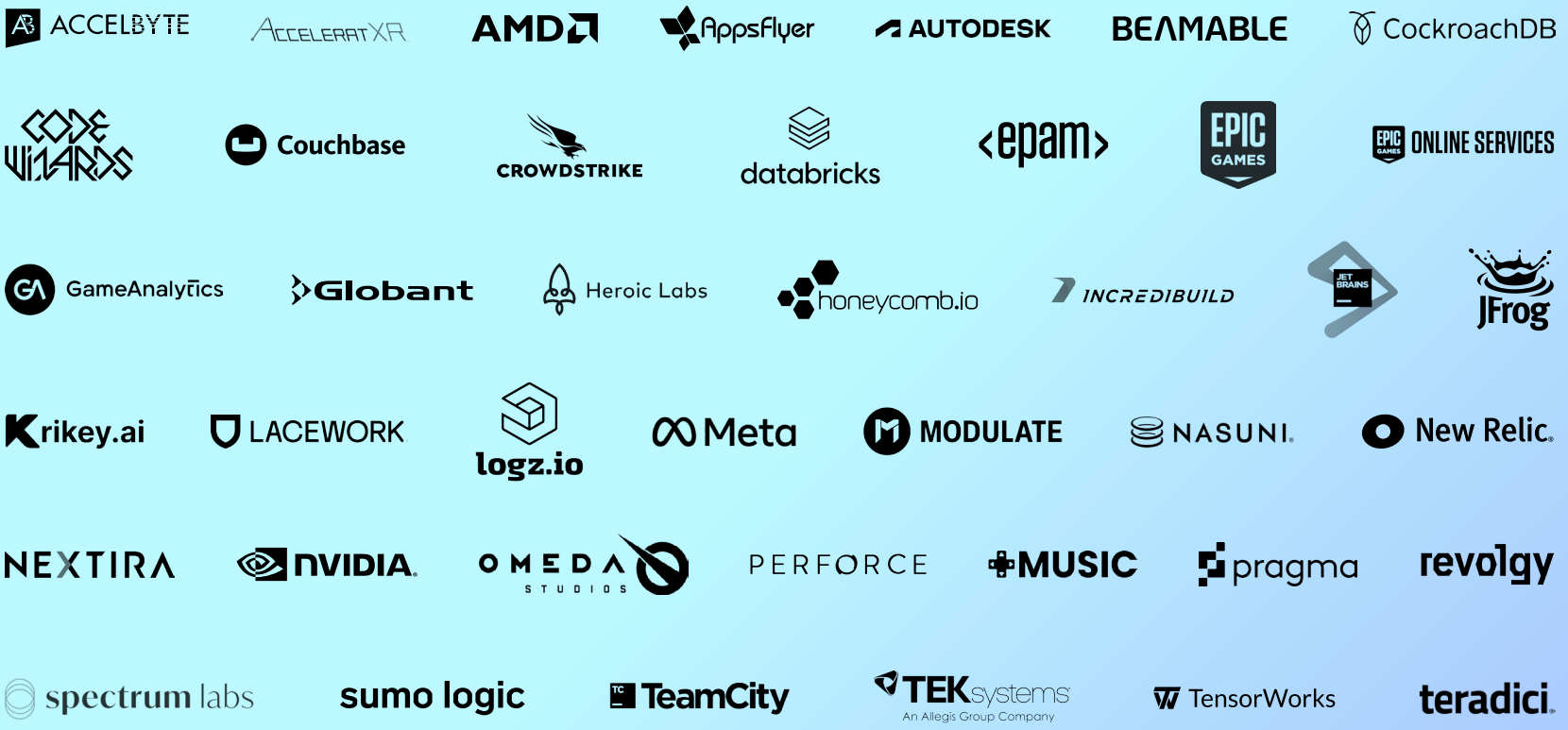
Global reach: AWS has 36 Regions and 114 Availability Zones for low-latency gameplay wherever your players are

Comprehensive solutions: Tap into tools like GameLift, SageMaker, and QuickSight to optimize every phase of the game lifecycle.

Cutting-edge Innovation: AWS's AI capabilities drive personalized gameplay, faster development cycles, and seamless live operations

AWS for Games customers

AWS for Games partners



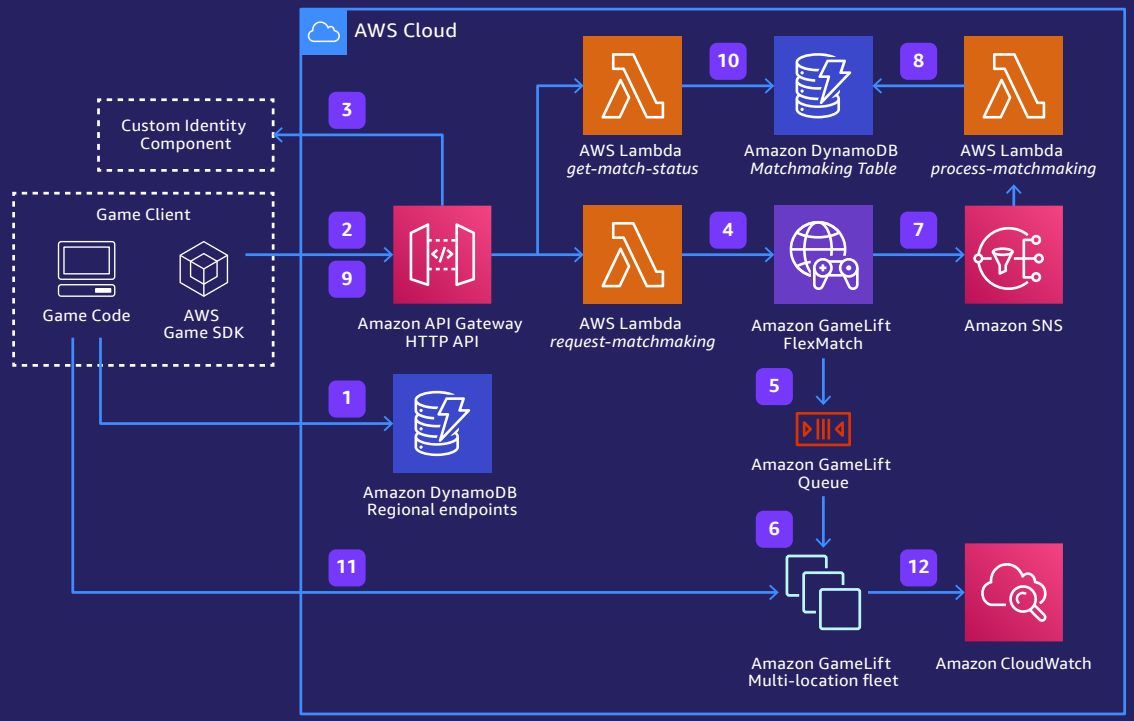
Scalable hosting for multiplayer session-based games

AWS provides a robust, scalable architecture for hosting session-based multiplayer games, providing low-latency, reliable experiences for players worldwide. This solution uses a globally distributed infrastructure to dynamically scale server capacity, matching player traffic and reducing operational complexity.

With tools like Amazon GameLift for elastic server hosting, AWS Global Accelerator for optimized traffic routing, and Amazon DynamoDB for real-time game state tracking, studios can focus on delivering exceptional gameplay while AWS handles the backend.

Guidance for multiplayer session-based game hosting on AWS

This architecture diagram shows how to build a global multiplayer game on Amazon GameLift with matchmaking and a serverless backend.



01 > Game client measures TCP latency to AWS Regions by calling **Amazon DynamoDB** endpoints.

02 > Game client uses the AWS Game SDK to make an authenticated POST request to **Amazon API Gateway** with the latency data in the request body. CreateGameSession.

03 > **API Gateway** validates client JSON Web Token with the Custom Identity Component public keys.

04 > **API Gateway** calls request-matchmaking **AWS Lambda** function, which sends a *StartMatchmaking* request to **Amazon GameLift FlexMatch** with the latency data.

05 > **Amazon GameLift FlexMatch** matches the player with other players and calls the **Amazon GameLift** queue to request a placement in case of a new match. It can also backfill players to existing matches.

06 > The **Amazon GameLift** queue finds a placement based on player latencies in one of the **Amazon GameLift** fleet locations.

07 > Once the placement is done and session started, **Amazon GameLift FlexMatch** sends a *MatchmakingSucceeded* event to an **Amazon Simple Notification Service** (Amazon SNS) topic. It also sends all intermediate events such as *MatchmakingSearching*.

08 > **Amazon SNS** invokes *process-matchmaking* **Lambda** function, which updates all match status changes to a **DynamoDB** table.

09 > Game client polls match status with a GET request containing the matchmaking ticket ID.

10 > *Get-match-status* **Lambda** function gets the latest match info from **DynamoDB** and sends it back to the game client. When matchmaking is done, it also sends the IP, port, and player session ID to the client.

11 > Game client connects with TCP (often UDP in real-time games) to the game session and sends the player session ID that the game server validates.

12 > The instances send logs and metrics to **Amazon CloudWatch** using the **CloudWatch** agent.

Unleash the full potential of your game with AWS

AWS isn't just a cloud provider—it's a partner for innovation, growth, and success in the gaming industry. Whether you're streamlining development workflows, ensuring seamless gameplay, or creating personalized player experiences, AWS provides the tools and expertise to take your game to the next level.

Don't wait to transform your studio's potential. Start your journey with AWS today and explore how our solutions can help you build, run, and grow the games players love.

Contact **AWS for Games** to explore solutions for your game studio.

Find the latest AWS for Games solutions in the **Solution Library**.

Start building **next-generation gaming experiences** with AWS for Games.

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