

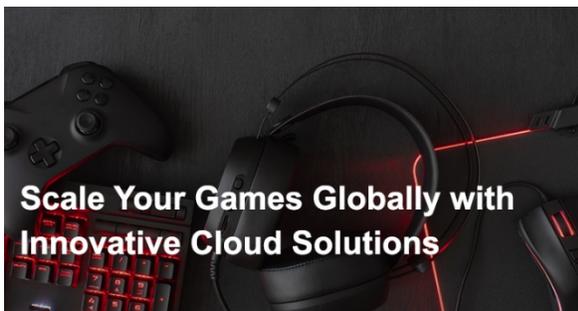
REIMAGINE GAMING

CLOUD INNOVATION SERIES

AMD 



Google Cloud





CLOUD INNOVATION IS TRANSFORMING THE FUTURE OF GAMING

AMD | Google Cloud

Gaming is a competitive and dynamic industry that serves more than 2.5 billion gamers around the world. These are incredibly sophisticated consumers who want entertainment at their fingertips, from any location and on a variety of devices.

Today's gamers demand a constant supply of new and engaging content that provides an immersive player experience. This trend makes research and development a top priority in the gaming space, inspiring developers to pursue constant innovation in order to meet evolving consumer expectations. Game companies work tirelessly to hone their products and services and deliver data-heavy content, support more players, and ensure a rich gameplay experience. As the industry continues to expand, a growing number of competitors and consumers will drive the need for faster, higher-quality, and more reliable offerings.

Game companies are under immense pressure to adapt and scale their operations. However, managing a complex underlying infrastructure poses even bigger challenges for organizations that lack the compute agility and flexibility to transform. Investing in the [latest technology advancements](#) is key for companies to reimagine how they work. Those that do will be able to create compelling products, maintain fast data transmission speeds with minimal lag, and improve consumer satisfaction.

Cloud technology is revolutionizing the gaming industry with [groundbreaking capabilities](#). Companies using outdated infrastructure are racing to harness greater performance and productivity in the cloud. These companies will have the opportunity to design extremely complex content and deliver it with ease, while quickly developing new, increasingly sophisticated games and features in response to their users' needs. As cloud gaming becomes more mainstream, companies will also be positioned to support cloud-based streaming and a host of on-demand services to compete for gamers' attention and loyalty.

Google Cloud and AMD are helping game companies tackle cloud adoption. Our goal is simple—to provide the right technologies to realize groundbreaking performance that can:

- Foster remote productivity and collaboration to build better games.
- Scale games globally with cloud platforms that are easy to deploy and manage.
- Leverage streaming insights to better understand players and anticipate their needs.
- Heighten information security to protect business and consumer data.

Google Cloud and AMD customers are transforming their infrastructure from the ground up. Our world-class cloud solutions are designed for unmatched speeds, advanced data security, and continuous availability so that game companies can keep innovating.

[Google Cloud Confidential Virtual Machines \(VMs\)](#) powered by [AMD EPYC™ 7002 series processors](#) deliver extreme performance and memory bandwidth to handle the most demanding data workloads. We offer the [largest VMs available on the market](#), built on [Google Cloud Compute Engine](#) with up to 224 vCPUs for superior and cost-effective computing. Now, game companies can simplify and accelerate intensive tasks—like video editing and special effects, virtual rendering, and streaming analytics—without breaking the bank.

Additionally, Google Cloud Confidential VMs provide industry-leading security through [AMD Secure Encrypted Virtualization](#), which protects sensitive data even while it is in use.

Cloud innovation is pioneering the future of gaming. Visit [Google Cloud](#) and [AMD](#) today to transform how you operate.



GAME COMPANIES THAT PRIORITIZE CLOUD ADOPTION WILL LEAD THE PACK

AMD | Google Cloud

Gaming is an industry of constant change and innovation. A major goal for game companies is to serve a growing population of gamers who expect compelling product options, reliable access, and on-demand support from customer advocates. These trends are top priorities for today's companies, inspiring them to up their operational performance to leverage vast amounts of data, from rigorous production workflows to remote gameplay. However, these goals also present major obstacles.

Time-consuming game development and distribution processes, cybersecurity risks, and countless players streaming worldwide place a huge strain on today's operating environments. On-prem technologies lack the extreme speed, scalability, and processing capabilities required to meet these demands, which can cause bottlenecks that slow time-to-market and lower player satisfaction. As a result, many companies are rethinking their approach to managing, securing, and executing their diverse workloads. They're dedicating time and resources to build a [new breed of cloud-based infrastructure](#) that allows them to operate faster and more effectively than the competition.

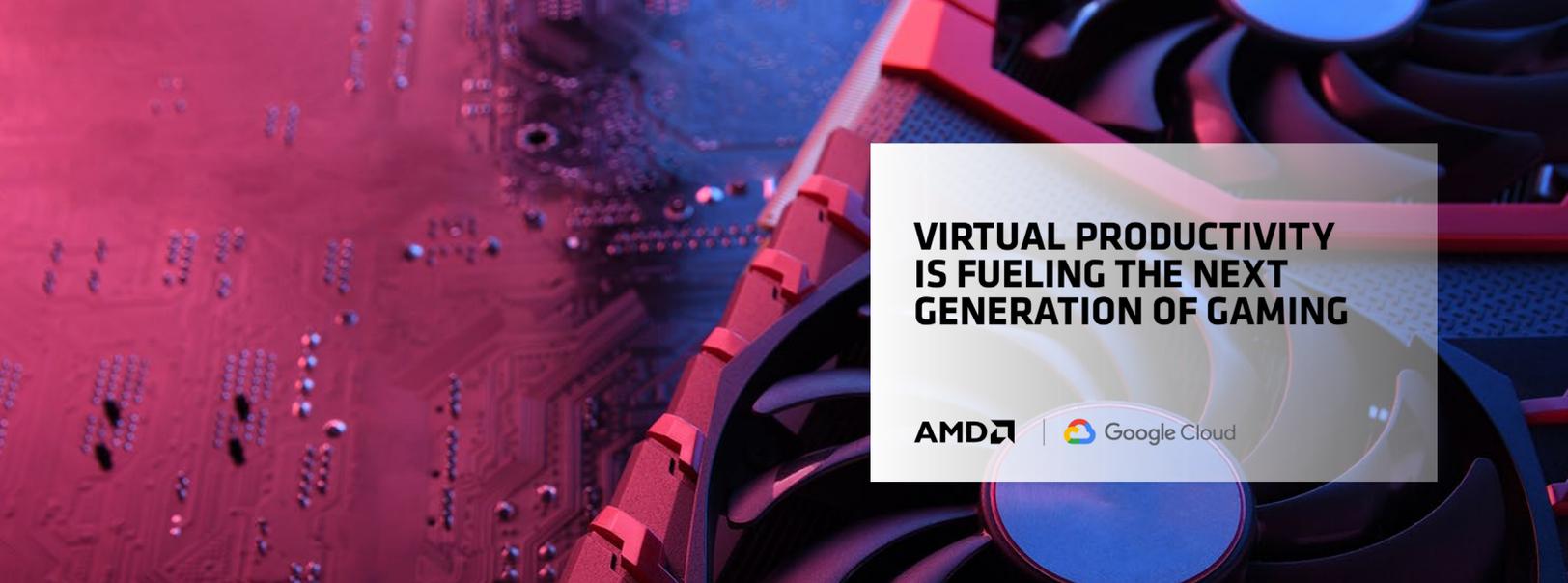
Migrating to the cloud enables companies to quickly develop and scales their games, meeting increased player demand and empowering workforces in dispersed locations to work with the utmost efficiency. Cloud computing eliminates the constraints of legacy infrastructure. These world-class platforms offer unparalleled scalability and performance to enable consistent, superior gameplay everywhere. Today, the global cloud gaming market is expanding rapidly, with a [47.9% CAGR expected from 2020 to 2027](#). Widespread cloud adoption is increasing productivity, accelerating data access, and optimizing workload execution, which contributes to the explosive popularity of off-prem technologies.

[Google Cloud and AMD](#) are making it fast and easy for game companies to transform their infrastructure. We offer the ideal technologies to create better player experiences while minimizing infrastructure complexity, so your workforce can focus on business-

critical tasks. Industry-leading cloud solutions from Google Cloud and AMD deliver peak levels of agility, flexibility, and compute power to help you evolve and tackle your most intensive workloads with confidence.

[Google Cloud Confidential Virtual Machines \(VMs\)](#) powered by [AMD EPYC™ 7002 series processors](#) deliver rigorous processing power and high memory bandwidth to execute a variety of complex workloads. We help you harness robust compute capacity with optimal price-performance, so your company can accelerate cloud adoption at a lower cost. In addition to groundbreaking cloud performance, Google Cloud Confidential VMs provide enhanced data security through [AMD Secure Encrypted Virtualization \(SEV\)](#). AMD SEV encrypts sensitive data even while data is in use, which ensures maximum protection in any location, from development through distribution.

Cloud innovation is revolutionizing the gaming industry. Implementing proven and cost-efficient technologies positions Google Cloud and AMD customers to lead the pack. Visit [Google Cloud](#) and [AMD online](#) to explore what the cloud can do for your business.



VIRTUAL PRODUCTIVITY IS FUELING THE NEXT GENERATION OF GAMING

AMD | Google Cloud

As the gaming industry increases in size and competitiveness, companies are rethinking how they operate at every level. In today's market, top priorities are to accelerate development and distribution while supporting a vast global network. Game companies face the enormous challenge of achieving consistent—and continually greater—performance to create an effective workforce and meet escalating player demands.

These goals require massive amounts of data moving at breakneck speeds between various locations, workstations, and devices. Whether game companies choose to deliver a small number of highly sophisticated products or roll out numerous products, their success hinges on the ability to work quickly and efficiently.

Virtual productivity is an immediate priority for companies supporting remote workers and players around the world. Today's companies need a technology environment that is fast and flexible enough to scale on demand and ensure seamless access to data, products, and services. To unlock this potential, a [new type of infrastructure](#)—cloud infrastructure—is revolutionizing the industry, optimizing how companies use and manage data as well as enabling exceptional gaming everywhere.

Widespread cloud adoption is fueling the next generation of games, equipping companies with unmatched levels of power, agility, and elasticity to enhance their operations. Cloud technologies are must-have solutions for the gaming industry. In fact, the cloud gaming market is expected to grow at a [CAGR of 47.9%](#) over the next seven years. Companies that migrate to the cloud can drive improvements in key ways:

- **Culture** – Enhance remote productivity and collaboration.
- **Productivity** – Accelerate game development and distribution.
- **Intelligence** – Leverage advanced analytics for streaming insights.
- **Player satisfaction** – Build better games.
- **Sustainability** – Enable ongoing innovation.

[Google Cloud and AMD](#) are empowering game companies to excel in all areas. Our industry-leading cloud solutions enable peak performance so that organizations can

operate efficiently and intelligently. By minimizing infrastructure complexity, companies can create rich player experiences without the need for difficult or expensive deployments.

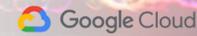
[Google Cloud Confidential Virtual Machines \(VMs\)](#) powered by [AMD EPYC™ 7002 series processors](#) deliver extraordinary processing capacity for rapid data transmission, reduced latency, and seamless delivery. These solutions are a robust foundation for secure game production and delivery at extreme scale. Google Cloud Confidential VMs offer unparalleled compute power and speed to execute the most demanding tasks.

As the industry evolves, Google Confidential VMs help to protect their data, regardless of the location. [AMD Secure Encrypted Virtualization](#), a cutting-edge feature of AMD EPYC™ processors, provides an additional layer of security that encrypts data while it is in use. Now, companies can innovate and grow knowing their valuable information is safe.

Cloud productivity can help you lead the gaming industry. Visit [Google Cloud](#) and [AMD](#) to learn how.



PROTECT YOUR INTELLECTUAL GAMING PROPERTY IN THE CLOUD



The gaming industry is changing constantly as players demand more creative and immersive gameplay experiences and developers build more sophisticated games. To please the growing population of players, companies are stepping up to scale their games around the world while offering a broader selection of products and services.

But this growth strategy requires massive amounts of data, which companies use to better understand players as well rapidly develop, distribute, and host their games. This data is highly valuable and includes players' personal information, critical insights to improve customer service in order to deliver personalized offerings, and even confidential details about the next great game. With so much sensitive data at work, [protecting intellectual property](#) is paramount for game companies.

The ability to use information quickly and securely is a top priority in the gaming industry. But companies often lack the technology resources to effectively innovate and compete while keeping their operations secure. Companies built on outdated or legacy infrastructure struggle to meet the high levels of compute power, flexibility, and security required to manage streams of gaming data for a variety of uses. To overcome these challenges, game companies must transform the way they operate with a more powerful breed of computing.

Advancements in gaming technology along with the widespread availability of broadband and mobile platforms have skyrocketed the demand for cloud computing. [Cloud technologies](#) let game companies connect, analyze, and visualize their data all in one place. Many companies have already migrated to the cloud, leveraging high transmission speeds and reliable access to data to reimagine how they think, work, collaborate, and enhance gameplay. Cloud infrastructure provides a seamless and secure foundation that is enhancing the [future of gaming](#):

- Gaining deeper insight to improve player engagement
- Accelerating the development of new games
- Delivering faster, more effective customer services
- Scaling countless games across remote locations

- Easily deploying and managing game servers globally

[Google Cloud and AMD](#) have teamed up to make cloud adoption and development faster and more secure. Together, these companies lead the industry in cloud solutions for gaming.

[Google Cloud Confidential Virtual Machines \(VMs\)](#) powered by [AMD EPYC™ 7002 processors](#) deliver extreme performance and memory bandwidth for intensive workloads—in addition to advanced data security unlike any other VMs on the market. Google Cloud Confidential VMs enable game companies to share confidential data sets and collaborate on research in the cloud, without compromising privacy. With advanced threat protection, these VMs help game companies safeguard their intellectual property, regardless of their location or workload.

Google Cloud Confidential VMs leverage [AMD Secure Encrypted Virtualization \(SEV\)](#), a breakthrough feature of 2nd Gen AMD EPYC™ processors that encrypts data and memory, even while it is in use. AMD SEV was initially developed to provide [unrivaled data security](#) for Xbox One and PlayStation 4 video game consoles. Today, this technology supports 509 encryption keys, significantly increasing the number of VMs that can be protected at once.

Google Cloud Confidential VMs with 2nd Gen AMD EPYC™ processors empower game companies to innovate and perform with confidence. Now, you can harness your confidential data to conquer tomorrow's challenges.

[Visit us online](#) to learn how these cutting-edge cloud platforms can transform your business.

REDEFINE THE GAMING EXPERIENCE WITH REAL-TIME CLOUD ANALYTICS

AMD | Google Cloud

Data intelligence is the most valuable asset in the gaming industry. Data is the key to unlocking insights into players' needs, anticipating trends, and meeting demand for new and immersive content. As a result, today's game companies are looking for more effective ways to leverage their data to deliver superior gameplay experiences. With over [2.5 billion players worldwide](#), the ability to quickly uncover insights from massive amounts of data is widening the gap between successful companies and those that struggle to evolve for future requirements.

To overcome this challenge, many game companies are creating strategies to build [smarter, faster operating environments](#). The right technologies will provide extreme compute performance and flexibility, allowing them to gain insight and control into their operations and harness valuable intelligence to enable great gaming everywhere.

Cloud computing is powering the next generation of gaming, where companies rely on high transmission speeds and seamless access to data to make smarter decisions and empower real-time actions. Cloud infrastructure is the ideal foundation for [advanced analytics tools and capabilities](#) that can improve a wide range of gaming operations:

- **Remote productivity** – Rapidly capture and share data and insights between distributed teams to operate with greater intelligence and efficiency.
- **AI-enhanced gameplay** – Improve the player experience by applying AI capabilities to areas like on-demand customer service, content moderation, chat translation, and toxicity detection.
- **Audience engagement** – Respond to player needs immediately and effectively by ingesting, processing, and analyzing event streams in real time.
- **Streaming analytics** – Rapidly collect, analyze, and visualize player data in the cloud to accelerate time-to-insight and time-to-action.

[Google Cloud and AMD](#) are helping game companies reimagine how they think, create, and make decisions by migrating to the cloud. These companies are adopting a new breed of solutions to facilitate cloud AI and analytics on an unprecedented scale.

[Google Cloud Confidential Virtual Machines \(VMs\)](#) powered by [AMD EPYC™ 7002 series processors](#) offer high processing capacity and memory bandwidth to fuel the most demanding data workloads. Google Cloud takes these capabilities one step further with the development of the N2D family. Google Cloud Confidential N2D VMs built on the latest generation AMD EPYC™ processors deliver up to [39% better processing performance](#) and memory bandwidth for critical gaming workloads, when compared to previous N1 instances. These breakthrough machines achieve up to [13% greater cost savings](#) versus N1 and N2D nonconfidential VMs. Now, you can capture and act on insights in real time to understand players more deeply and equip your teams to deliver the next great game. Google Cloud adds an additional layer of security to help protect your work through [AMD Secure Encrypted Virtualization \(SEV\)](#). AMD SEV is a feature of AMD EPYC™ processors which encrypts data, even while it is in use.

Together, Google Cloud and AMD's breakthrough solutions enable game companies to utilize AI and analytics at scale, so you can unlock critical insights faster.

Data-driven innovation has the potential to transform your business. Visit [Google Cloud](#) and [AMD](#) today to enhance game development and build compelling player experiences in the cloud.



CLOUD TECHNOLOGY ELIMINATES LAG AND LATENCY ISSUES TO ENHANCE GAMEPLAY

AMD | Google Cloud

For today's game companies, [providing a seamless player experience](#) is the foundation for brand loyalty and customer satisfaction. The gaming industry is highly competitive, with more and more companies developing new products and services. To differentiate their offerings from the rest of the market, game companies must find ways to deliver diverse and sophisticated products based on industry trends, along with convenient customer support that players demand. The latest games and services must be easy to access from anywhere in the world, on a variety of gaming devices.

Lag and latency are two of the most pressing concerns for game companies—and legacy IT infrastructure is often the culprit behind both. Legacy infrastructure can lack the high speed and capacity that are needed to deliver games quickly and to scale up changing business requirements and a growing population of players. Without the right technology in place, game companies are facing network bottlenecks that lead to delays in streaming, resolving player issues, and innovating to develop new offerings.

To solve these problems, game companies are investing in cloud technologies to optimize their infrastructure and unlock greater levels of performance. [IT environments built on cloud computing](#) are flexible and scalable, leveraging greater memory bandwidth to eliminate lag and latency and enhance gameplay everywhere.

Cloud gaming allows game companies to operate more efficiently and support more players, without exhausting their IT budgets. Cloud gaming also helps deliver responsive games faster so that players on any device have a seamless experience. Because cloud gaming technology requires high transmission speeds, deploying a robust cloud infrastructure is a major step toward resolving network issues and improving player experiences. With more than [2.5 billion gamers worldwide and counting](#), the time to migrate to the cloud is now.

[Google Cloud and AMD](#) are empowering game companies with the agility and elasticity of the cloud. These capabilities make it possible to execute workloads quickly and efficiently, so companies can adapt to new challenges with ease.

Google Cloud offers the largest virtual machines (VMs) available on the market in conjunction with latest generation AMD processors that are [breaking world records](#) in performance. [Google Cloud Confidential VMs](#) powered by [AMD EPYC™ 7002 CPUs](#) deliver high processing power and memory bandwidth to optimize the most intensive gaming workloads. Our powerful solutions are critical to avoiding slowdowns and increasing productivity, so companies can develop and distribute higher quality content and respond to player needs immediately and effectively. AMD also provides enhanced data security through [AMD Secure Encrypted Virtualization](#), a breakthrough feature of AMD EPYC™ processors that encrypts data even while it is in use. Now, game companies can innovate and grow with the utmost speed and confidence.

Together, Google Cloud and AMD are reimaging how game companies work, collaborate, and satisfy their customers. Our [cloud solutions](#) are transforming player experiences. [Learn more](#) about how your company can benefit.



SCALE YOUR GAMES GLOBALLY WITH INNOVATIVE CLOUD SOLUTIONS

AMD | Google Cloud

Cloud gaming is more than a trend—it's a way of operating that's transforming how game companies deploy and host their content. Widespread broadband services combined with direct access to content in the cloud are quickly taking the place of installed games on computers and consoles. This shift is rapidly improving player experiences and opening up the market to a growing number of players worldwide. But as more players turn to cloud gaming and multiplayer options, companies are struggling to keep up with increasing demand.

Today's games include some of the most complex content to enter the streaming revolution. As cloud gaming continues to gain popularity, game companies are feeling the pressure to deliver competitive products and services—but they're often doing so using the legacy or outdated IT infrastructures. These networks are no longer equipped to handle the new demands for high bandwidth and low latency, which has a dramatic impact on the delivery of games and support services. Streaming games from the cloud requires [high speeds and seamless network access](#), which has game companies looking for ways to scale their content rapidly.

To overcome these challenges, game companies need an IT environment that is extremely flexible and scalable. The ideal infrastructure can provide high transmission speeds and an optimal level of performance to accommodate changes in player demand and deliver sophisticated content to players everywhere.

[Google Cloud and AMD](#) offer comprehensive cloud solutions that are designed to make companies more agile and productive. We make it simple to manage and control cloud infrastructure, so that companies can transform quickly and effectively. Together, we help game companies reimagine how they operate and innovate by migrating their most complex workloads off-premises, to a secure, highly scalable cloud environment.

Our cloud infrastructure includes [Google Cloud Confidential Virtual Machines \(VMs\)](#) powered by [AMD EPYC™ 7002 processors](#) to deliver tremendous processing power. With the added benefit of high memory bandwidth, this robust pairing allows game companies to scale elastically while lowering their IT costs, so they can deliver content

globally and focus on driving new business opportunities. AMD architecture and core density provide the [best x86 performance-per-dollar](#) for the largest VMs available on the market. The x86 architecture makes Google Cloud Confidential VMs with AMD EPYC™ processors compatible with almost any application, providing the ability to choose the right configuration for a range of business and IT requirements. As game companies adapt and grow, their sensitive workloads are secured through [AMD Secure Encrypted Virtualization \(SEV\)](#). AMD SEV is unlike any security feature in the industry, encrypting data even when it is in use.

[Industry-leading cloud technologies](#) are paving the way for greater efficiencies and improved gameplay experiences. Solutions from Google Cloud and AMD put the world at your fingertips. [Visit us online](#) to get started today.

