



Driving Game Development Forward with Data

How game developers can personalize to thrive in a crowded market

The gaming industry is on the precipice of a great shift toward more data-driven personalization that surpasses just gameplay, helping to reduce churn and increase profits.

The world is full of gamers – 3.4 billion at last count¹ – and games. In 2022, 10,963 games were released on Steam, a huge jump from 7,816 just three years prior in 2019.² According to Data.ai, there were 89.7 billion mobile game downloads in 2022, a large increase of 6.7 billion over 2021...yet revenue decreased five percent.³

With such competition, it can be difficult to get noticed, become sticky with players, and drive revenue. Data-driven personalization addresses this challenge. While player modeling has long been used within games to track progress and preferences and to create more personalized experiences, player profiling rounds out your view of each player with additional data.

These deeper player profiles include player modeling data along with social graph (friends) data, historic game data, and demographics and gaming personality information that helps with player segmentation.

To build these player profiles, as well as to keep up with the demands of gamers for new features, games developers need a more agile approach to data modeling. By moving away from rigid schemas to flexible data structures that can change and evolve as the game progresses, you can accommodate the infinite variation in players' profiles while still providing the low latency, high uptime, and robust security players expect.

More robust player profiles can help your gaming company:

- **Easily add** and associate new features to objects like achievements and progression-based unlocks so you can iterate on engagement loops to preserve player retention
- **Offer dynamic difficulty** adjustment upon first play based on the player profile rather than needing to gather the player's behavior data over time to adjust difficulty later
- **Quickly and reliably match** players in one-to-one or one-to-many sessions based on real-time player analytics
- **Inform content generation** by player or segment, such as level challenges
- **Better personalize** monetization efforts, including ad targeting, marketplace presentation, and selection and development of in-app purchases
- **Identify and segregate** high-value players, such as whales and community influencers
- **Understand the community** as a whole by looking at profiles in aggregate
- **Publish stats** and data feeds to enrich the community and support fan site engagement

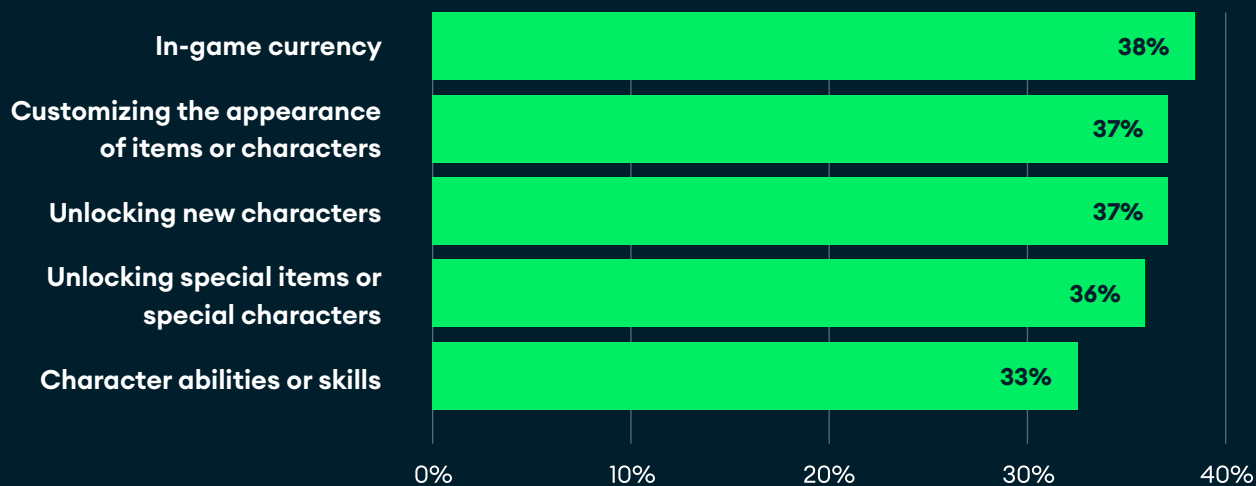
Battling Data Infrastructure and Industry Challenges

In an industry where latency and stagnant gameplay send gamers running for the next shiny new title, selecting the right database infrastructure is no small matter. Gaming companies that rely on databases with inflexible schemas – which slow down new game feature development, require complex ETL pipelines or ORM configurations for data flow, or don't provide elastic scalability – will find it challenging to compete for gamers' attention and dollars.

Other trends that demonstrate the need for flexible, elastic database infrastructure include:

- **Cross-platform play is rising.** Nearly three-quarters (72%) of players are more likely to play games that support it – usually with or against other players on different devices (76% of the 72%) – necessitating real-time data flows that don't require transformation.
- **Live-service games** (a.k.a., games-as-a-service) like Fortnite or Rocket League remain a primary service model, requiring developer agility and acceleration when releasing new features to fulfill gamer's expectations for their subscription dollars.
- **New privacy frameworks** by Apple and Google limit cross-app tracking and third-party data sharing, increasing the importance of segmentation to deliver relevant ads, as well as to make in-app purchases more attractive to users.

What are PC and console game players spending money on?⁴



Leveling Up with a Flexible Document Model

Building out your data infrastructure on MongoDB Atlas and Google Cloud gives your gaming company the agility, elasticity, and scalability to create engaging gameplay experiences and to deliver on player profiling opportunities to build revenue.

MongoDB Atlas, a developer-focused data platform built for the cloud, offers a flexible data model that stores data as JSON-based documents, which align with the internal structures already used within games.

This model provides the flexibility needed to bring in external data sources (with user permission and aligned with platform guidelines) to create robust player profiles

for more accurate segmentation. It also makes it easier to support cross-platform gameplay and federate current and historical data to tailor and enhance player experiences. And because you can so easily evolve your data model over time, it accelerates the development and release of new content, character personalization, classes of gear, and more to drive deeper engagement and increase player retention.

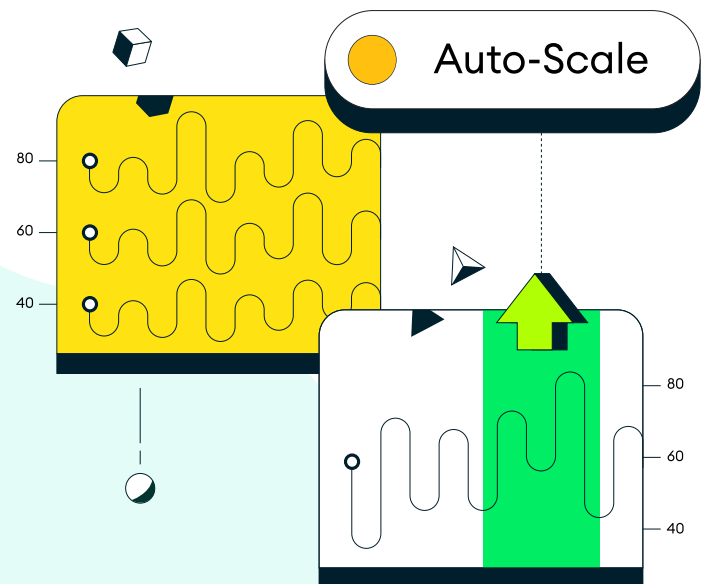
Differentiating with MongoDB and Google Cloud

MongoDB's distributed architecture – backed by Google Cloud's powerful capabilities – offers levels of scalability, availability, security, and performance that were challenging to reach in the past.

With global availability (and a 99.995% SLA), you can deploy around the world for low latency, geo-redundancy, and data sovereignty. Keep costs under control with data tiering for active and historic data and federated queries of both. Match hour-by-hour traffic profiles with elastic provisioning, so that you can scale out to meet peak demands and scale back when fewer players are active.

To build better with data and to create the types of personalized and engaging experiences that reduce churn and increase revenue, you can depend on MongoDB Atlas and Google Cloud for your game database needs.

Visit [MongoDB Atlas on the Google Cloud Marketplace](#) to learn more.



1. Newzoo, "Global Games Market Report," August 2023. 2. Statista, "Number of Games Released on Steam Worldwide 2004-2022," February 2023. 3. Data.ai, "State of Mobile Gaming Report 2023," March 2023. 4. Google/VGM, "PC and Console Insights Report," January 2022. 5. Data.ai, "State of Mobile Gaming Report 2023," March 2023. 6. Google for Games, "Upcoming Gaming Trends," 2023