

DeltaDNA Selects VoltDB to Enable State-of-the-Art, Real-Time Personalization

Delivering Real-Time Player Engagement for Game Developers and Publishers

deltaDNA is utilizing the VoltDB high-performance in-memory NewSQL database to power its **real-time game analytics and marketing platform**. In-memory analytics on high-velocity data enable deltaDNA customers to instantly track, anticipate and respond to individual player behavior. Leveraging VoltDB, the deltaDNA platform empowers game developers and publishers to perform in-depth player analysis on colossal amounts of data streaming in from each game and take action within a quarter of a millisecond. Real-time player engagement enhances the in-game player experience and drives player retention and monetization. This innovative solution can help customers increase player retention by as much as 200% and revenues by as much as 40% by providing micro-personalization of each player's experience.

Tracking, anticipating and responding to player behavior

deltaDNA has combined gaming industry heritage and marketing analytics expertise to create the online gaming industry's first dedicated real-time personalization and player insight platform. With cross-platform and rich data capabilities, this end-to-end solution enables game publishers and developers to better understand different player behaviors and create personalized experiences by targeting individual players in real-time. Being responsive to players significantly increases engagement and unlocks retention and monetization opportunities. deltaDNA puts the power of data into the hands of game developers and publishers by providing a flexible platform to maximize player engagement for Free-2-Play (F2P) games, social casino games and real-money online gambling sites.

This high-performance platform analyzes the immense volumes of fast-moving data generated by each game in real-time, gathering behavioral information about each player, such as their spending behavior and skill level. With this insight, deltaDNA's customers are able to personalize the gaming experience by changing the gameplay and making targeted offers and incentives. This can increase player engagement by as much as 50% and boost in-game purchases by as much as 30%.

"VoltDB is enabling us to solve a needle-in-the-haystack problem for our customers," said Chris Wright, Co-founder and CTO of deltaDNA. "The high-performance VoltDB database gives our platform the ability to perform real-time analysis on hundreds of millions of events as they occur. In a quarter of a millisecond, we're able to turn data into actionable intelligence that fosters player loyalty, extends a game's value and increases overall game revenues."

Increasing player loyalty and engagement

The deltaDNA platform is designed to achieve hyper-fast performance on huge data sets. The back end of the platform has two state-of-the-art database clusters, with Vertica serving as the data warehouse and VoltDB as the in-memory, real-time database. deltaDNA uses VoltDB's in-memory database to provide real-time responses to player behaviors, so deltaDNA platform users can respond automatically as their players continue to play the game. This real-time analytics approach ensures that offers to players can be made at exactly the right time to optimize player acceptance.

While some very popular games can have as many as 100 million players, game providers usually need to have four to five million players to become profitable.

Typically, only 1 or 2% of these players will spend any money. "If you can boost the number of paying players from 1% to 1.2%, you can massively increase revenues," Wright explained. "The ability to identify a small set of very important users based on a huge number of events lets us identify players likely to spend money. We need the ability to make the right decision, based on the right data at the right time, so each gaming experience can be tailored in real-time to encourage retention."

Keeping players engaged and enjoying themselves leads to monetization, but this requires the ability to quickly adjust the game based on the interests and skills of each player. According to Wright, "Our customers need to be able to track each player, analyze their experience, and make intelligent decisions to encourage retention so they can maximize revenue opportunities. VoltDB allows our customers to make the right decisions based on fast analysis of a very small percentage of a very large volume of data. We can help customers increase player retention by as much as 200% and revenues by 20-40% by providing micro-personalization of each player's experience."

A significant shift to FTP across all gaming platforms has made it critical for developers to increase player loyalty and engagement by creating a "sticky" experience that translates into increased revenue. Giving players the kind of game they want means being able to monitor and respond to different behaviors instantly via micro-personalization. But performing this level of in-depth analysis on high-velocity event data streaming in from games—many of which have millions of monthly active users—requires data management that's smarter and faster than ever.

deltaDNA selected VoltDB after performing an extensive market evaluation of big data and in-memory databases. VoltDB supports deltaDNA's high throughput and scalability

requirements while also enabling complex decision making on real-time data streams. It is an in-memory SQL database that combines analytics on live data feeds with transaction processing in a single, horizontal scale-out platform. It runs on commodity hardware in a parallel processing, shared-nothing architecture, and is built to tap the value of fast data, or data in motion.

"We needed a front-end database that could complement our existing big data analytics, ingest massive volumes of data, and enable automated decisions for each player to optimize revenue opportunities," Wright stated. "When we looked at the databases available, we couldn't find anything that could match VoltDB and could allow us to respond to each player in sub-millisecond timeframes. We couldn't find anything else that could deliver in-memory, fast processing capabilities while maintaining transaction consistency."

Managing the threshold of engagement in real-time

As players progress, there are inevitably points in the game when they are at rest, such as when they are between levels or moving to the main game menu system. "These moments are the ideal time to interact with players," said Wright. "Our customers can make the next level slightly harder or easier based on user behaviors, or present targeted offers to encourage monetization. We offer the ability to analyze real-time game behaviors to instantly present the right offers or incentives at the time the player is most likely to accept them."

All games have a broad spectrum of players reacting to challenges and rewards in their own way. Treating all players the same inevitably means that some will be disappointed with the experience and will leave the game, leading to a failure to monetize that player relationship. With ever-increasing competition in a crowded marketplace, game developers and publishers need to better understand their customers and respond to individual player behaviors to keep them playing.

Micro-personalization involves using segmentation to find groups of players who are similar, and then designing game changes for that group. deltaDNA's platform is based on the premise of understanding that there is a threshold of engagement for all players that ranges from boredom to anxiety. When players cross this threshold, they will leave the game they are playing. Adapting the gameplay for each player segment helps keep players engaged.

But segmentation isn't just about player skill—game providers often find a player segment which is using a game's social features much more frequently. deltaDNA's platform also allows its customers to target these players with offers to keep them sharing.

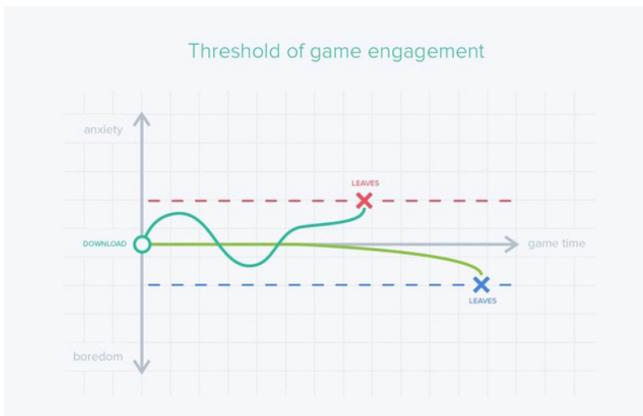


Figure 1: Managing the threshold of engagement in games.

The first advantage of treating player segments differently is that players enjoy the game more. A player whose experience is tailored to what he or she enjoys — whether it's fast game play, building up coins, tricky puzzles, or plenty of hints — will keep playing and is more likely to be monetized. While it's not possible for every game to appeal to every audience, a fixed difficulty curve excludes a huge group of players who could potentially enjoy a game but are either just a little too experienced or inexperienced for it. For example, customers might find a group of players who are novices and are struggling to move through the levels. They can be targeted with advice or bonuses, while other players find the game easy and need the difficulty levels ramped-up.

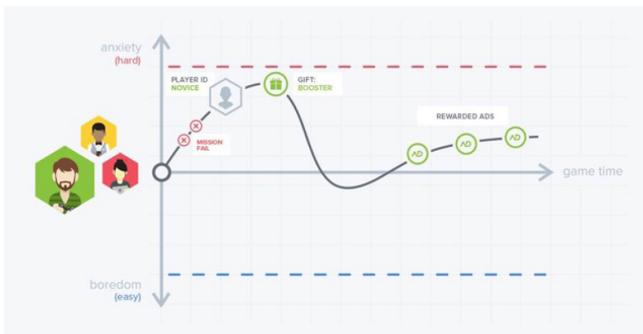


Figure 2: Boosting the skill level of novice players who are struggling with the level of difficulty keeps them in the game.

Implementing real-time player analytics

Segmenting players in real-time delivers major monetization benefits. Understanding what the big spenders want and treating them accordingly can have large payoffs. “Our customers first need to define player segments based on past behaviors, and the only way to do this is to refer to game data,” Wright explained. deltaDNA’s game analytics and marketing platform has a range of sophisticated algorithms which can automatically define segments, simplify, and speed up the segmentation process while providing reliably accurate results.

Once customers have accurately defined player segments, deltaDNA’s **Analyze** toolset can be used to determine why these players are leaving or failing to monetize, and deltaDNA’s **Engage** toolset can be used to change the game to stop this from happening. With these tools, deltaDNA’s customers can respond to behavioral characteristics of segments in-game and change player journeys using automated player campaigns that feature image-based rich messaging. Game balancing can be implemented at any point to provide players with additional resources — or make obstacles tougher.

deltaDNA has a number of unique features that sets it apart from other platforms. The platform offers API-level direct access, enabling analysts to plug-in their own preferred tools to the database live. Custom dashboards provide a personalized view of the game for those doing analysis in the platform. Advanced data drill-down and complex SQL queries can be built with the platform’s query designer, while data mining tools grant the ability to recognize and visually define behavioral patterns. Predictive modelling capabilities can be used to determine which players are likely to leave and to assess the lifetime value of player acquisition channels. Player progress through games can be tracked with custom funnels to identify the problem areas causing churn, while messaging can be optimized with multivariate A/B testing.

At any point within a game, deltaDNA’s customers can employ campaign activities targeted at different player segments. The tools give the option to change game parameters, such as the difficulty, and to use push notifications or in-game messaging to foster retention or present marketing offers. Gamers can be targeted as they play with incentives, offers, hints, tips, and rewards to enhance their playing experience.

Improving games, increasing revenues

VoltDB's innovative architecture makes it easy to build fast data applications in a way not possible with existing technologies, analyze real-time streaming data, automatically make decisions and swiftly adjust the game player's experience to encourage retention and monetization. deltaDNA's real-time, state-of-the-art micro-personalization solution benefits players by delivering a better game, while developers and publishers benefit from more loyal players and increased revenues.

deltaDNA's use of VoltDB is a prime example of the kind of transformative impact micro-personalization can have on an industry. The ability to implement real-time personalization translates into unique competitive advantage for game developers and publishers, and is leading deltaDNA to develop solutions for related industries, such as real-money gambling, social casinos, and television applications.

About VoltDB

VoltDB is an in-memory transactional database for modern applications that require the ability to manage data at unprecedented scale and volume, with 100% accuracy.

Unlike OLTP, Big Data, and NoSQL offerings that force users to compromise, only VoltDB supports all three modern application data requirements:

Millions – VoltDB processes relentless volumes of data from users, devices and sources.

Milliseconds – VoltDB ingests, analyzes, and acts on data instantaneously.

100% – Data managed by VoltDB is always accurate, all the time, for all decisions.

Telcos, Financial Services, Ad Tech, Gaming and other companies (including IoT technologies) use VoltDB to modernize revenue-critical applications. VoltDB was founded by a team of world-class database experts, including Dr. Michael Stonebraker, winner of the coveted ACM Turing award.

