

BioWare Builds Massive Multiplayer Online (MMO) Architecture

Slashes Server Development Costs By Multiple Man Years With High-Performance CEP

“After we evaluated StreamBase, we ran the numbers to determine what it would take to develop similar technology internally. We quickly realized that it would be both time and cost prohibitive and would even lead to missing critical deadlines. Therefore, partnering with StreamBase was clearly the right choice to deliver on budget and on time.”

— Bill Dalton, Technical Director, BioWare



Goals

- Deliver a scalable, high-performance Massively Multiplayer Online (MMO) game architecture to support the world's largest online gaming community
- Collapse the development cycle for delivering new MMO products
- Generate the ultimate gaming experience through real-time monitoring of player movements

Achievements

- Developed a scalable gaming experience to accommodate a huge number of multi-player events
- Created an agile MMO architecture to ensure optimal game integrity
- Decreased planned budget and resources by more than 50 percent

About BioWare

Founded in Alberta, Canada in 1995, BioWare is a leader in role-playing games that are rich in both story and character. In 2005, private equity firm Elevation Partners facilitated a merger of BioWare with Pandemic Studios, a leader in the action and adventure gaming category. Together, they have sold more than 30 million copies, and have more than 3 million registered members in their online community.

BioWare's titles include Mass Effect™, Neverwinter Nights™, Dragon Age™, Star Wars®: Knights of the Old Republic™, Baldur's Gate™, and Jade Empire™.

Pandemic's titles include, Star Wars®: Battlefront™ II, Destroy All Humans!™, Mercenaries™ and Full Spectrum Warrior™.

BioWare|Pandemic is focused on creating bold new concepts in gaming and entertainment, with studios located in Austin, TX; Los Angeles, CA; Brisbane, Australia; and Edmonton, Alberta.

Visit www.bioware.com to learn more.

The Challenge

BioWare is well-recognized for its leadership in role-playing games. Recently, the company decided to expand its business model by entering the genre of Massively Multiplayer Online (MMO) gaming, in which thousands of players interact with one another in a virtual world. The pending release of this MMO game has the potential to convert a large percentage of BioWare's loyal fans into paying subscribers, while also attracting many new fans from the rapidly growing pool of MMO game players worldwide.

To support a world-class MMO experience, BioWare understood that they needed to ensure their platform offered robust scalability and persistence capabilities to store, process and query large volumes of data. In particular:

- 1) The MMO architecture would need to scale to support hundreds of thousands of simultaneous events;
- 2) The simulation of dynamic objects in MMO games requires support for a virtually infinite set of player interactions.

While there is a powerful “*Not Invented Here*” bias in the gaming software industry, BioWare's management realized that the internal development of such a robust and scalable environment would be a daunting, expensive and time-consuming project that would threaten the success of their MMO launch and overall business plans.

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StreamBase Powers Next-Generation MMO Architecture (continued)

“Building a comprehensive and fully-integrated MMO architecture – the first of its kind to leverage real-time intelligence through CEP software – ensures that we are poised to deliver a gaming experience unlike anything this industry has ever seen.”

— Bill Dalton, Technical Director, BioWare

Why StreamBase

It is BioWare’s standard practice to extensively analyze every core technology purchase to determine an ROI justification, and to compare it to developing the technology in-house. During its evaluation of StreamBase, BioWare estimated that it would take more than two man-years to develop an architecture that met their basic requirements. The StreamBase solution, however, also offered additional capabilities, such as real-time monitoring for and reaction to malicious behavior within the game, such that BioWare would achieve exponential boosts in game performance, user experience, and cost savings over an internal development effort.

“Everything that happens in an MMO game is characterized as an ‘event’, and in this virtual world, hundreds of thousands of events occur simultaneously making the management of these events extremely difficult,” said Dalton. “BioWare integrated StreamBase to process and manage all of these events; it would have taken us years to architect a solution to handle the volume of information in the same manner, dramatically delaying the release of our MMO game.”

By using StreamBase’s Complex Event Processing (CEP) engine to manage the events within the game, BioWare’s architects and engineers were freed to do what they do best: to develop the best in story-driven games; and to expertly extend their vision to the world of Massively Multiplayer Online gaming.

Business Value

By selecting StreamBase’s CEP engine, BioWare gained instant intelligence in the ability to handle large numbers of player interactions and events within its MMO environment. This choice was not only to maximize resources and ensure alignment and timeliness of deliverables – it was made out of necessity, to help them fulfill their vision of delivering the world’s best story-driven MMO game on schedule.

As a result, the core technical achievement that the company has attained is a next-generation MMO architecture that delivers a gaming experience unlike anything the industry has seen before. BioWare had the foresight to not only disregard any misgivings or insecurities behind the ‘Not Invented Here’ syndrome, but also had the open-mindedness to tap the business world for best practices and solutions behind the processing and leveraging of massive volumes of streaming, real-time information.

The most significant advantages that BioWare has experienced through its use of StreamBase are:

- **Optimize the player experience** – Immediately offer fixes for any game oddities & identify malicious behavior in real time to ensure game integrity.
- **Minimize operating expenses** – StreamBase’s scalability allows BioWare to add commodity hardware as needed.
- **Condense the development cycle and reduce costs** – The budget and resources needed to develop the MMO architecture were reduced by multiple man years.
- **Increases in profitability and market share** – Anticipating a three-fold increase in BioWare’s membership base.

Also, due to the ability to customize and adapt the CEP engine, BioWare has found that StreamBase’s graphical “point & click” development model is many times faster than traditional custom coding, and much less error-prone. By making its MMO immersive and highly-accessible, BioWare anticipates converting its loyal fan base into paying subscribers, and also attracting many new online gaming enthusiasts to join.

StreamBase Locations

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