The huge and complex world of WAR meant we needed a very robust pathfinding solution. Autodesk Kynapse gave us an algorithmic solution enabling fuller exploration of our world.

—Matt Shaw
　CTO
　Mythic Entertainment, An EA Studio

This Means War.

Mythic Entertainment Uses Autodesk 3ds Max and Autodesk Kynapse to Reinvent Legendary Game with *Warhammer Online: Age of Reckoning.*

Image courtesy of Mythic Entertainment, an EA Studio.

Summary

Electronic Arts-owned and Fairfax, Virginia-based online game developer Mythic Entertainment, an EA Studio, recently used Autodesk® 3ds Max® software and Autodesk® Kynapse® middleware to take on the daunting task of reinventing one of the first, and still wildly popular, fantasy war games.

A uniquely gritty fantasy setting originally created by the legendary Games Workshop, the Warhammer world was first presented in the tabletop war game *Warhammer Fantasy Battle* in 1983, and then as the pen-and-paper based *Warhammer Fantasy Roleplay* in 1987. Now, Mythic Entertainment has reinvented the world of orcs, elves, humans, and mutating creatures as a massively multiplayer online role-playing game (MMORPG). Over three years in the making, the company released *Warhammer Online: Age of Reckoning*, or simply *WAR* for short, in September 2008.

Several members of the Mythic Entertainment team spoke with Autodesk about recreating an old favorite.

The Challenge: *Warhammer*

With a long history and a devoted fanbase already enjoying the Warhammer tabletop games, the first challenge for the Mythic Entertainment team amounted to something akin to natural selection. Gamers often do not take kindly to newcomers trying to fix ideas that aren't broken, but neither do they suffer imagination stagnation gladly.

In June 2005, the Mythic Entertainment design and pre-production teams began surveying the environment and, essentially, figuring out what to keep and where to start anew.

"We took a sort of 'greatest hits' approach to *WAR*," says Greg Grimsby, Mythic Art Director on the project. "There was so much material to work from that we knew we couldn't offer it all and still have the fresh, new game we wanted. The challenge was to quickly identify the most vital aspects of the *Warhammer* story. We had to decide what gamers would most expect and want, and then determine whether or not we could take those ideas to a new place."

Adding to that already formidable challenge was the sheer size of the game itself, which comprises over 45 square miles of real estate, all of which needed to be realized knowing players would view them from every possible perspective and game-playing angle.

"That's a lot of territory," says Grimsby, with great understatement. "We had to fill that space with compelling, creative animated creatures, buildings, dungeons, caves, and so on. In the end, we created over 4000 new world objects, more than 1000 spell effects, over 900 weapons, and much more, always ensuring that we remained true to the core feeling and mood of the game."

Autodesk®

"On the animation side, games are always a challenge," says Michael Wallin, Senior Animator at Mythic. "Unlike shooting a movie, where you can pick the angle you want, every angle and perspective of every scene has to be realistically generated. *Warhammer* has so many things happening at once, however, that it had very specific difficulties. We were frequently sharing animations, mixing different parts of animations together, and performing other tricks to properly integrate elements into the environment and keep them looking natural. This certainly challenges the artists, but it also severely tests the technology."

The Solutions

Long-time users of Autodesk 3ds Max, Mythic Entertainment takes pride in actually developing its own technology and techniques along with their animations. Backing up those innovations is its trusted tool of choice.

"You're not just taking the technology and using it," says Wallin. "You need to be able to create animations that will in turn create an even greater list of possibilities. You have to be consistently uncovering and inventing new techniques with the express intent of evolving things forward and keeping everything interesting. Animation goes very much hand-in-hand with software development."

Image courtesy of Mythic Entertainment, an EA Studio.

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"Autodesk 3ds Max is the integral tool in our pipeline," continues Wallin. "If we are creating a new tool for our production, we are creating it to work with 3ds Max."

A relatively new, but very helpful addition to Mythic Entertainment pipeline is Autodesk Kynapse, a popular artificial intelligence (AI) solution for game development. Mythic Entertainment Chief Technology Officer Matt Shaw praises the middleware for its pathfinding capabilities:

"The huge world of *Warhammer* meant we needed a very robust pathfinding solution," says Shaw. "The rather onerous alternative would have been building pathing meshes wherever you want people to go. That was pretty much impossible in an environment like ours, with so much content and iteration. Our entire player movement and collision system is built around enabling players to go wherever they want. Autodesk Kynapse gave us an algorithmic solution helping to enable fuller exploration of our world."

To handle the massive amounts of pathfinding data required on *Warhammer*, Mythic Entertainment employs a formidable bank of Linux® operating system-based servers, running at full speed, all day, every day.

"We have a huge bank of machines doing our pathing on a constant basis, and all using Autodesk Kynapse," says Shaw. "The results of all that processed data are then distributed to the 2000 or so servers running the Warhammer world our players love to explore and conquer."

The Results

Despite its late 2008 release, WAR has already garnered considerable notice from the gaming community, winning a multitude of awards, including Best MMO of 2008 awards from XPlay, Game Focus, GameSpy, MMORPG.com, and more. The game's popularity is inextricably linked to the realistic feel of its fantasy environment, according to Wallin:

"When it comes to MMO's, social needs are just as important as those of combat. Autodesk products have been a big help in creating the realistic worlds and characters that our players interact with on a daily basis. Autodesk 3ds Max scripting with MAXScript has been very useful to us. It has really opened the door to help customizing our workflow, data mining, exporting paths, and more artistic productivity tools. If we didn't have MAXScript, things would have been a lot more difficult."

From a gaming standpoint, at least, humans everywhere will be delighted with this new world of WAR.