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Creating a VW Killer App for the Department of Defense

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Abstract

Organizations within the Department of Defense have adopted a large number of first person shooter games for use in military training. However, the use of virtual worlds has been much slower and no large investments have been made to date. This article explores some of the reasons for this slow progress and suggests some features that might make virtual worlds more attractive to DoD users.

Keywords: military training, enterprise management, experiential learning, game-based operations

The Department of Defense (DoD) has a unique characteristic to most of its operations – they are generally focused on a geographic location. We move Armies from one country to another, from one city block to the next, and we try to integrate and aggregate all of that information so we can manage a large organization and execute both large and small missions. Being so heavily geographic in its operations and global in scale, DoD would appear to be a natural user of virtual worlds which have a similar structure and scope.

Virtual worlds attempt to create a very large and integrated space for their users. Information is partitioned, aggregated, and integrated so that avatars can experience their immediate area at great levels of detail. But users can also view large swaths of the world to gauge its activity and to navigate quickly over long distances. The theme of the virtual world means little to the way the software is architected and delivered to a user. Creating and managing fantasy worlds requires many of the same solutions that would be used to do the same for a world that mirrors real world military operations.

We have watched and participated in the rapid adoption of first person shooters (FPS) by the militaries of multiple countries around the world. Since these kinds of games were born with a military theme, they have been adopted and adapted much more quickly than have virtual worlds. First person shooters provide a much smaller and more focused solution. They can be acquired, modified and fielded with minimal effort, which is within the budgets of independent departments and commands. Virtual worlds, on the other hand, address much larger issues and areas. They are capable of mirroring the operations of tens of thousands of users across multiple continents all at the same time. This means that they are effectively "enterprise level solutions" which require a commitment from a much larger organization to

realize the benefits that they offer. Certainly a VW can be used as an alternative to an FPS. But that does not leverage the real strengths of the VW. In such a limited comparison, the FPS can usually demonstrate more relevant capabilities. This is not because the FPS is inherently better than the VW, but because it is better suited to smaller problems.

But if challenged to track, manage, and control the operations of the entire United States Army spread across all seven continents, then an FPS is much too small in its focus to handle this problem. Operating at this scale is more attuned to the qualities of a virtual world.

To date, few if any enterprise level organizations within the Department of Defense or the US government have launched programs to integrate and manage their global operations inside of a dynamic 3D environment. Without such high-level efforts, there are few customers clamoring for the capabilities that VWs can offer to government operations.

MMOGs are known for creating large persistent worlds. They offer a world with a history that has created the current state of the game. The actions of players today create and influence the state of the game tomorrow. The same is true of virtual worlds when they contain actors which have consistent long-term objectives that they pursue within the context of the VW. When mirroring the real world, the missions and objectives of that world become the persistent mission and objectives of the virtual world.

But the most common virtual worlds have carefully differentiated themselves from MMOGs in an attempt to maintain their "not a game" status. In doing so, they have failed to create many of the features that would make a virtual world really attractive and useful to organizations like the DoD. Military operations contain a great deal of dynamic behavior which is carried out from orders sent down the command chain. The individual vehicles, avatars, and objects that reside in the virtual world need models which can mimic their behaviors in the real world. On the server side of these VWs there need to be models of movement, engagement, communication, suppression, and hundreds of other actions that can be triggered by orders delivered from external sources. Most virtual worlds lack the modeled behaviors that are central to first person shooter games – the automated patrols, attacks by enemy avatars, the exchange of gunfire, the resulting attrition of forces on both sides, and the decisions by AI to retreat from a lost engagement.

Creating such a wide variety of models is a mission beyond any one company and distinct from the creation and operation of a virtual world infrastructure. Because such models can be incredibly diverse and specialized, they are best created by people and organizations with expertise in the field that is being modeled. Allowing them to work with and within the VW product will require a software API that allows third party developers to create applications that can be added on both the server and the client sides of these worlds. In such an environment, maintaining consistency and compatibility among the models is a significant challenge, and perhaps a challenge that is beyond the VW industry's current maturity. Diverse third party models can pull the virtual world in multiple conflicting directions. One customer may need to represent the physics of soil-water absorption on an island, while another needs to create hundreds of simple animal avatars living on that same island. The constantly changing soil under the animals may interfere with their ability to navigate the terrain effectively or realistically.

Within DoD simulation programs, these kinds of conflicts between third party models have been a constant challenge.

The creation of an industrial ecosystem of many third party developers is also consistent with DoD business practices. Through competitive procurement, different offices and agencies will certainly acquire and adopt different virtual world solutions to meet their needs. However, they will also expect to be able to integrate those products to support collaboration across organizational boundaries in the same way that they have communicated with different telephone and video systems in the past. Standards for interoperability across worlds need to be developed to allow organizations to use virtual worlds to address the problems that they actually face in their organizations.

If the avatars in a virtual world are just digital puppets that must be directly controlled by a human player, then the product remains far too primitive to be very useful to most military customers. Some virtual worlds must venture beyond the traditional definition of a VW as "not a game" and seek to integrate powerful gaming and simulation capabilities that have been so attractive to military users. The virtual world needs to be as alive and as dynamic as that found in an FPS. With these capabilities, they can serve a much more valuable purpose than they have to this point.

The initial use of virtual worlds as collaboration environments is commendable. There is certainly a large need for collaboration within the military. But the military already has a number of collaboration tools from video teleconferencing, to web conferencing, to battle command mapping and messaging systems. It is doubtful that a VW that is just a collaboration environment will ever be sufficiently attractive to make significant headway into the Department of Defense.

There is a really powerful opportunity for VWs to capture real world operational data and make it available for decision making, analysis, training, intelligence, logistic planning, and other operations. But to support this we need VW server-side models of military dynamics, scripts for future actions, and report generation capabilities.

Virtual world developers who are interested in addressing government problems should consider refactoring their worlds to include some of the capabilities described here. A solution like this will still face the significant challenge of getting a large organization to adopt an enterprise-wide tool to handle problems of a global scope.

It is common for a technology provider to have a solution available years before a customer is ready to adopt it. Paul Saffo, a noted Silicon Valley futurist, has said that,

> *"Silicon Valley is littered with the corpses of companies who mistook a clear view for a short distance. One of the secrets in my business is that everything changes slower than people imagine. Change only seems fast because people overlook the antecedents. Most ideas take 20 years to become overnight successes."*

Though it seems inevitable that large, globe spanning organizations could benefit from the application of an integrated 3D world which will allow them to manage their assets and run predictive scenarios with the data, it is less clear where we are today in Saffo's twenty year overnight success story.

Aside from 3D collaborative communication, ask yourself, "If your organization were given a free enterprise license for any of the VW products now available, what could you use it for out of the box?" I think the various answers to this question illustrate the limitations that are holding back the virtual world industry.

References

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