

## Waiting for the Dot.Sim Boom

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Simulation has not had its dot.com boom. Our field has always grown in lockstep with a number of high technology areas. We have ridden right along with, and in some cases have driven, the leading edge of new technologies. As mainframe computers became workstations, and then PC's, simulation products leveraged all of this equipment and became better for it. As computer graphics moved out of the university research labs, we were quick to adapt these new technologies to our flight and driving simulators. We moved from large cabinet-sized image generators, to smaller graphics boxes, to dedicated workstations, to internal graphics cards. As networking and the Internet became prolific we connected our simulators together, created standard networking protocols, and constructed distributed events across all of our facilities.

We have always been very hungry for advanced technologies because our customers constantly demand more capability, better performance, and lower costs. Working in the simulation and simulator business has always given engineers the opportunity to apply the newest technologies emerging from research labs and commercial vendors.

But all of a sudden this stopped. The commercial world discovered that the Internet allowed them to do business in an entirely different way. They were able to connect directly to millions of customers around the world without creating physical stores and without shipping special equipment to every customer. The Internet opened the door to delivering products and services to every single customer in the world. With it the Amazon.com website could sell more books than Barnes & Noble with its 800 physical stores. This was a huge change in the relationship between a vendor and its customers. I grew up in a small town in Southeast Colorado with very limited access to retail products and professional services. A big shopping center was the Sears Catalog store. It contained a refrigerator, a dishwasher, and a table full of catalogs. If you needed appliances, lawn equipment, tools, or clothes you shopped for them in the catalog and placed your order. There were only a couple of storefronts on Main Street and not a single bookstore. My bookstore was a single small shelf at the local drugstore. My Amazon.com was the mail-in form on the back pages of the books I purchased from the drugstore. Barnes & Noble could not reach out to me with its vast selection. I had to reach into the inventory through the soda straw listed on one page of a paperback book.

Amazon.com is not just a huge warehouse of books. It is a delivery system that can reach every single person in the networked world. It allows a child in a small town of 500 people to access the same books as a child in the heart of New York City. It breaks down the location-specific barriers that prevent people from learning and exploring on their own initiative. That is the real power of the dot.com boom. In the simulation community we have not created this kind of service for our customers.

Simulation systems are still delivered like heavy products to specialized facilities. We create destination sites in the pattern of Disney World that soldiers have to visit physically to experience. And like Disney World, such visits can be once-in-a-lifetime experiences. Our soldiers cannot travel to our high-end destinations every time they want to improve their performance or explore a new idea. A dot.com boom in simulation would extend our systems through the military Internet to every soldier's desktop computer. It would allow every soldier to browse our offering of simulation services, enter the one of their choice, and join a team to explore a new idea or receive a lesson from a leader.

The technologies to do this are available now and pooling at our feet. But we continue to insist that training via simulation requires a dedicated facility, specialized equipment, and a large support staff. We insist that simulation cannot do a soldier any good unless it is custom crafted by an experienced professional and makes scant use of the newest technologies. To continue the Amazon.com analogy, we are insisting that books should only be sold in physical stores by a trained staff, and that an online bookstore would corrupt this process by allowing people to select their own books without explicit human guidance. This same argument was made against online education for years. Online universities were once considered the lowest form of crass commercialization of a much higher calling, not much above a diploma mill. But today, every university from Harvard to the local Community College offers some or all of their degree programs on the Internet.

The technical tools already exist to provide Internet-delivered, simulation-driven, training and exploration. What does not exist is the will to customize and extend our resources to reach every soldier in the service. We still want the soldiers to come to our specialized facilities and our dedicated staff. We are not ready to let soldiers take a hand in guiding their own training.

We currently have wargames that can be adapted to run on the server side of these training networks. We have computer games that can provide the intuitive client side interface. We have IT infrastructure tools that can tie the right soldiers to the right applications. New "Web 2.0" applications are opening the door to user created and modified content like our simulation scenario databases. These will allow a soldier to modify existing scenarios and select specific AAR products from within a standard browser. User interfaces like Google's Earth and Map products can provide a window into a simulation running in the military computer cloud. Though DOD security regulations may make the use of such tools difficult, they do not make it impossible. What is really difficult is to get our community to see simulation as a service that can be extended to millions of soldiers, rather than as a device, a facility, or a destination experience.

Each time our industry grasps new technologies there is the fear that we might abandon the good work that is being done with the older methods. But these fears are never realized. There was a time when all training was Live. The emergence of board wargames

provided tools to supplement and extend that live training, but not to replace it. The computer revolution brought us virtual flight and vehicle simulators, but these did not replace live training. Instead they allowed pilots and vehicle crews to experience situations that were impossible to create in the live world. *Simulation as a Service* will expand and extend the value of our products to the soldier in the same way that virtual and constructive systems have done in the past. Some tasks can be trained very effectively from a standard desktop computer. Other skills must remain in the live, virtual, or constructive systems that we already have.

A dot.com boom in simulation will do the same for the soldier that Amazon.com did for the reading children of small town America. It will make huge volumes of training material accessible to every soldier, everywhere, all the time.

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