Notes

Why would I want to deliver simulation as an IT service? That is kind of like offering a soldier as a sensor platform or a commander as an information processor. These are certainly viable functions, but they do not sound like the core purpose of the assets.
There are a LOT of unique Military Occupational Specialties in the Army ... everything from Infantryman (11B) to French Horn Player (42R9D).
There are at least 367 specialties, an hundreds of additional job assignments and roles within teams and groups.

How many of these can benefit for training via simulation? How many of these have no simulation because our current approaches just cannot afford it?
Army Size*

- Regular Army: 507,082
- Army National Guard: 333,177
- Army Reserve: 189,005
- Total: 1,029,264

*Numbers as of: Regular Army, 2007; ARNG & USAR, 2005

There are over one million soldiers in the Army. How can we possibly offer training to all of them on any kind of reasonable schedule?

From: http://en.wikipedia.org/wiki/United_States_Army

As of March 31, 2007, the Regular Army reported a strength of 507,082 soldiers.[2] By the end of 2005, the Army National Guard (ARNG) reported 333,177 and the United States Army Reserve (USAR) reported 189,005,[3] putting the approximate combined component strength total at 1,029,264.

Training One Million Soldiers

1,000,000 soldiers =

100 soldiers per event X 10,000 events each year

1,000 soldiers per event X 1,000 events each year

10,000 soldiers per event X 100 events each year

Notes

If we train them in groups, then if we create groups of 100 we only have to create 10,000 training events every year for each soldier to have a single training experience. If we clump those up to 1,000 soldiers per group, we need only 1,000 training events. At groups of 10,000 we need only 100 events per year – which is roughly 2 events every week. These numbers are difficult or impossible to meet.
Are there other organizations that have to deal with millions of customers?

- McDonalds serves 47 million customers per day.
- Google conducts 130 million searches per day.
- World of Warcraft hosts 635,000 players per day.

That last number has some similarity with delivering training events to one million soldiers.
Market vs. Central Planning

Who decides when we have enough options?

Notes

In the United States of America we believe very strongly in the wisdom of market forces. This means that the dynamic interplay of customer demand and provider supply will balance each other. Where there is a profit demand, there will be products to meet that demand. When the demand is satisfied, then the creation of demand will slow-down, stop, or reverse. We do not believe in central planning in which a committee decides how much coffee should be available in a city or a city block; how many MMOGs should be created; or how many mobile service providers should exist.
Most training simulations are heavyweight systems. They have traditionally required dedicated hardware and networks, customer software, large support staffs, and special facilities. Finally, there has traditionally been a one-to-one relationship between all of these and a single training event. We have not learned to take advantage of scale in the same way that the IT world is learning to reduce its footprint, power consumption, and support staff right now.
IT Service Characteristics

- Professionally Managed
- Customer Oriented
- 24/7 Access
- Globally Accessible
- Facility, Geography, and Time Independent
- Light Clients, Remote Updates
- Controlled Access

Notes
Since the 1990’s it has been very popular to work on integrating simulations with C4I systems like MCS, ASAS, AFATDS, FAADC3I, AMDEWS, GCCS-A, etc. But we have not made any moves to integrate our training systems with the business-side IT desktop that is being deployed to soldiers. The goal there is not to “train as we fight”, but to “train wherever we are fighting”. The goal is customer-driven training from equipment that the soldier can access when he/she is ready, not when it comes up on a master training schedule.
AKO is a fantastic resource. It allows soldiers to handle many of their inner Army business needs. But one need that is common to all soldiers is training – we have not looked at AKO, or networks like it, as a means of delivering the training that all one million soldiers need.
Simulation
+ Web-based Training
+ Computer Games
+ Enterprise IT
= A Bloody Mess

http://www.xkcd.com/419

Notes

Delivering training via simulations to soldiers all over the world via their existing desktop computers, networks, and servers is going to require bringing together the ideas behind Simulation, WBT, Computer Games, and Enterprise IT. It is a difficult problem – a Bloody Mess as the British might say.
The desktop that most people experience is a little dated. “Serious business” requires email (Microsoft Outlook), web interfaces (Microsoft Internet Explorer) to server applications (Oracle ERP), productivity tools (Microsoft Office), and document sharing (Microsoft SharePoint). It has not evolved into 3D content or to allow the content that is unique to individual users.

We can deliver training to the desktop in a number of different manners:

- The Web Browser is a great universal tool for accessing HTML content.
- A Plug-in can give the browser even more power to handle content that is 3D, interactive, and multi-player.
- A Driver is a program that does not have content itself, but has the ability to load content on demand. Google Earth is such a driver and could be used as a simulation client.
- Full Applications are those that bring their own software and data that is unique to the application, such as Americas Army or Ambush computer games.
With one million soldiers trolling the web for different kinds of content to train with, it will not be possible to tie each application to a specific server site. This is going to require a system that can dynamically connect the customer (client) to the server based on the content that is needed, the connects available, and the competing traffic that exists. Service Oriented Architectures are working toward this type of connectivity.
Use Cases

1. Lone Player
2. Player w/ Server
3. Multi-player / Multi-server
4. Multi-Event

Notes

Soldiers are going to need more than one way to train. Much content is a single user experience. It allows a soldier to jump-in and pick-up a skill all alone and when he/she needs it. This may be solely on the client-side desktop, or it may include the use of a single server. Other scenarios require that multiple players work together and use the resources of multiple clients and multiple servers to create the shared training experience necessary.
“But even here 80% of soldiers have access to a laptop computer and network”
- SFC Richard Colon, US SOCOM

Notes

All of this sounds a little Buck Rogers-ish given the limited computing power and network bandwidth that is available to soldiers … today. But could the inventors of the Internet have envisioned it support billions of users and millions of servers around the world. Like everyone else, soldiers are getting more network and computing every year. We cannot build “Simulation as an IT Service” in one year. There are too many moving parts. By the time we have created it, there will be enough bandwidth and computing cycles to support it.
Challenges

- **Military IT Infrastructure**
  - Security configurations vary by organization and by day
  - Apps cannot be guaranteed to work from any node in the IT network

- **Ownership of Training Applications**
  - Military apps have typically fallen into at least 3 major camps: Business, Mission, Training
  - Each have their own separate networks
  - Running a Training app across the Business infrastructure raises a number of supportability and contracting questions
Conclusion … Advantages

- Reduced equipment ownership costs and obsolescence
- On-demand user access to the best applications
- Commercial architectures to access advances in IT practices
- Centralized control of server applications
- Currency of client applications