



*PROGRAM EXECUTIVE OFFICE FOR
SIMULATION, TRAINING & INSTRUMENTATION*

Simulation as an IT Service

Roger Smith
Chief Technology Officer
US Army PEO STRI
roger.smith14@us.army.mil



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Security and OPSEC Review Completed: No Issues.

<http://www.peostri.army.mil/CTO>

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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.



U.S. Army Military Occupational Specialties

Enlisted MOS Infantry Branch 11B Infantryman 11C Indirect Fire Infantryman 11X Infantryman (ambiguous; turns into 11B, 11C, or 11M) 11Z Infantry Senior Sergeant 11H Infantry Anti-Armor Specialist 11M Mechanized Infantryman Field Artillery Branch 13B Cannon Crewmember 13C TAC Fire Operations Specialist 13D Field Artillery Tactical Data Systems Specialist 13E Cannon Fire Direction Specialist 13F Fire Support Specialist 13M Multiple Launch Rocket System Crewmember 13P MLRS/LANCE Operations Fire Directions Specialist 13R Field Artillery Firefinder Radar Operator 13S Field Artillery Surveyor 13W Field Artillery Meteorological Crewmember 13X Field Artillery Enlistment Option 13Z Field Artillery Senior Sergeant Air Defense Artillery Branch 14E Patriot Fire Control Enhanced Operator/Maintainer 14J Early Warning System Operator 14M Man Portable Air Defense System Crewmember 14R Bradley Linebacker Crewmember 14S Avenger Crewmember 14T PATRIOT Launching Station Enhanced Operator/Maintainer 14Z Air Defense Artillery (ADA) Senior Sergeant Aviation Branch 15B Aircraft Powerplant Repairer 15D Aircraft Powertrain Repairer 15F Aircraft Electrician 15G Aircraft Structural Repairer 15H Aircraft Pneumatics Repairer 15J OH-58D Armament/Electrical/Avionics Systems Repairer 15K Aircraft Components Repair Supervisor 15M UH-1 Helicopter Repairer 15N Avionics Mechanic 15P Aviation Operations Specialist 15Q Air Traffic Control Operator 15R AH-64 Attack Helicopter Repairer 15S OH-58D Helicopter Repairer 15T UH-60 Helicopter Repairer 15U Medium Helicopter Repairer 15V Observation/Scout Helicopter Repairer 15X AH-64 Armament/Electrical Systems Repairer 15Y AH-64D Armament/ Electrical Systems Repairer 15Z Aircraft Maintenance Senior Sergeant Special Forces Branch 18B Special Forces Weapons Sergeant 18C Special Forces Engineer Sergeant 18D Special Forces Medical Sergeant 18E Special Forces Communications Sergeant 18F Special Forces Assistant Operations & Intelligence Sergeant	Armor Branch 19D Cavalry Scout 19K Armor Crewmember 19Z Armor Senior Sergeant Corps of Engineers Branch 21B Combat Engineer (Formally 12B) 21C Bridge Crewmember 21D Diver 21E Heavy Construction Equipment Operator 21G Quarrying Specialist 21H Construction Engineer 21J General Construction Equipment Operator 21K Plumber 21L Lithographer 21M Firefighter 21N Construction Equipment Supervisor 21P Prime Power Production Specialist 21Q Transmission and Distribution Specialist 21R Interior Electrician 21S Topographic Surveyor 21T Technical Engineering Specialist 21U Topographic Analyst 21V Concrete and Asphalt Equipment Operator 21W Carpentry and Masonry Specialist 21X General Engineering Supervisor 21Y Topographic Engineering Supervisor 21Z Combat Engineering Senior Sergeant Signal Corps Branch 25B Information Systems Operator Analyst (to be renamed Information Technology Specialist in Oct/07) 25C Radio Operator Maintainer 25D Telecommunications Operator/Maintainer (to be deleted in Oct/07) 25F Network Switching Systems Operator/Maintainer 25L Wire Systems Installer 25M Multimedia Illustrator 25N Nodal Network Systems Operator/Maintainer 25P Microwave Systems Operator/Maintainer 25Q Multichannel Transmission Systems Operator 25R Visual Information/Audio Equipment Repairer 25S Satellite Communication Systems Operator/Maintainer 25T Satellite/Microwave Systems Chief 25U Signal Support Systems Specialist 25V Combat Documentation & Production Specialist 25W Telecommunications Operations Chief 25X Senior Signal Sergeant 25Y Information Systems Chief (to be deleted in Oct/07) 25Z Visual Information Operations Chief Judge Advocate General Branch 27D Paralegal Specialist Military Police Corps Branch 31B Military Police 31D CID Special Agent 31E Internment/Resettlement Specialist	Military Intelligence Branch 33W (35T) MI Systems Maintainer/Integrator 36B (35F) Intelligence Analyst 36D (35G) Imagery Analyst 36H (35H) Imagery Ground Station Operator 36R (35H) Ground Surveillance Systems Operator 36U (35K) Unmanned Aerial Vehicle Operator 36Z (35X) Intelligence Senior Sergeant 37B (35L) Counterintelligence Agent 37E (35M) Human Intelligence Collector 37L (35Q) Translator/Interpreter 37Z (35Y) Counterintelligence/Human Intelligence Senior Sergeant 38C (35N) Signal Intelligence Analyst (Linguist) 38G (35P) Cryptologic Linguist 38P (35U) Multi-Sensor Operator 38Y (35S) Signals Collector/Analyst 38Z (35Z) Signals Intelligence Senior Sergeant 39L (35V) Translator Aide 05h EW/SIGINT Morse Intercept Operator Psychological Operations Corps Branch 37F Psychological Operations Specialist Civil Affairs Branch 38B Civil Affairs Specialist Adjutant General Branch 42A Human Resource Specialist 42F Human Resource Systems Information Specialist 42L Administration Specialist (to be deleted) 42R9B Trumpet Player 42R9C Baritone or Euphonium Player 42R9D French Horn Player 42R9E Trombone Player 42R9F Tuba Player 42R9G Flute or Piccolo Player 42R9H Oboe Player 42R9J Clarinet Player 42R9K Bassoon Player 42R9L Saxophone Player 42R9M Percussion Player 42R9N Piano Player 42R9T Guitar Player 42R9U Electric Bass Guitar Player 42S Special Band member Finance Branch 44C Finance Specialist/Accounting Specialist Public Affairs Branch 46Q Public Affairs Specialist 46R Broadcast Journalist 46Z Public Affairs Chief Chaplain Branch 56M Chaplain Assistant	CMF 43 - Mechanical Maintenance 44B Metal Worker 44E Machinist 45B Small Arms/Artillery Repairer 45G Fire Control Repairer 45K Armament Repairer 52C Utilities Equipment Repairer 52D Power Generation Equipment Repairer 62B Construction Equipment Repairer 63A M1 Abrams Tank Turret Mechanic/M1 Abrams Tank System Mechanic 63B Light-Wheel Vehicle Mechanic/Heavy Wheel Vehicle Mechanic/Wheel Vehicle Repairer 63D Artillery Mechanic 63H Fuel and Electrical Repairer/Track Vehicle Mechanic 63J Quartermaster and Chemical Equipment Repairer 63M M2-3 Bradley Fighting Vehicle System Mechanic/Bradley Fighting Vehicle Systems Turret Mechanic 63X Track Vehicle Repairer 63W All Wheel Vehicle Repairer 63Z Mechanical Maintenance Supervisor Medical Department Branches 68A Medical Equipment Repairer 68D Operating Room Specialist 68E Dental Specialist 68G Patient Administration Specialist 68H Optical Laboratory Specialist 68I Medical Logistic Specialist 68K Medical Laboratory Specialist 68M Hospital Food Specialist 68P Radiology Specialist 68Q Pharmacy Specialist 68R Veterinary Food Inspection Specialist 68S Preventive Medicine Specialist 68T Animal Care Specialist 68V Respiratory Specialist 68W Health Care Specialist (aka Combat Medic) 68X Mental Health Specialist 68Z Chief Medical NCO Chemical Branch 74D Chemical Operations Specialist (formerly 54B) CMF 79 - Recruiting and Retention 79R Recruiter Noncommissioned Officer 79S Career Counselor 79T Recruiting and Retention NCO 79V Retention and Transition Noncommissioned Officer Transportation Branch 88H Cargo Specialist 88K Watercraft Operator 88L Watercraft Engineer 88M Motor Transport Operator 88N Traffic Management Coordinator 88P Railway Equipment Repairer 88T Railway Section Repairer 88U Railway Operations Crewmember 88Z Transportation Senior Sergeant	Ordnance Branch 89B Ammunition Specialist 89D Explosive Ordnance Disposal Specialist Quartermaster Corps Branch 92A Automated Logistical Specialist 92F Petroleum Supply Specialist 92G Food Service Specialist 92L Petroleum Laboratory Specialist 92M Mortuary Affairs Specialist 92R Parachute Rigger 92S Shower/Laundry and Clothing Repair Specialist 92W Water Treatment Specialist 92Y Unit Supply Specialist 92Z Senior Noncommissioned Logistician CMF 94 - Electronic Maintenance 94A Land Combat Electronic Missile System Repairer 94D Air Traffic Control Equipment Repairer 94E Radio and Communications Security Repairer 94F Special Electronics Devices Repairer 94H Test, Measurement & Diagnostic Equipment Support Specialist 94K Automatic Test Equipment Operator/Maintainer 94L Avionics Communications Equipment Repairer 94M Radar Repairer 94P Multiple Launch Rocket System Repairer 94R Avionics System Repairer 94S Patriot System Repairer 94T Avenger System Repairer 94W Electronic Maintenance Chief 94Y Integrated Family of Test Equipment 94Z Senior Electronic Maintenance Chief Branch Immaterial (not oriented to a branch) 00Z Command Sergeant Major Commissioned Officer & Warrant Officer MOS Officer MOS's are usually two numerical digits plus a letter (most of the time "alpha"). Letterless MOS's are ambiguous and have several specific MOS's within the E.g. 62 contains 62A (Emergency Physician) and 62B (Field Surgeon). Warrant Officer MOS's (known as WOMOS) are three numerical digits plus a letter, except 09W who is not y WO. Officer Candidates 09R Cadet 09S Officer Candidate 09W Warrant Officer Candidate Infantry Branch 11A Infantry Officer Field Artillery Branch 13A Field Artillery Officer 131A Field Artillery Targeting Technician Air Defense Artillery Branch 14 Air Defense Artillery Officer 140A Command and Control Systems Technician 140E Air and Missile Defense (AMD) Tactician/Technician (Patriot Systems Technician) 140X Air Defense Artillery (ADA) Immaterial
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Notes

There are a LOT of unique Military Occupational Specialties in the Army ... everything from Infantryman (11B) to French Horn Player (42R9D).



U.S. Army Military Occupational Specialties

Aviation Branch

15 Aviation Officer
150A Air Traffic and Air Space Maintenance Technician
150U Tactical Unmanned Aerial Vehicle Operations Technician (still classified at 350K until official transfer to Aviation Branch)
151A Aviation Maintenance Technician
152C OH-6 Pilot
152B OH-58A/C Pilot
152D OH-58D Pilot
152F AH-64A Pilot
152H AH-64D Pilot
153A Rotary Wing Aviator (Aircraft Nonspecific)
153B UH-1 Pilot
153D UH-60 Pilot
153DD UH-60 MEDEVAC Pilot
153E MH-60 Pilot
154C CH-47D Pilot
154E MH-47 Pilot
155A Fixed Wing Aviator (Aircraft Nonspecific)
155E C-12 Pilot
155F Jet Aircraft Pilot
155G O-5A/EO-5B/RC-7 Pilot

Special Forces Branch

18A Special Forces Officer
180A Special Forces Warrant Officer

Armor Branch

19A Armor, General
19B Armor
19C Cavalry

Corps of Engineers Branch

21A Engineer Officer
210A Utilities Operation and Maintenance Technician
215D Geospatial Information Technician (Old - Terrain Analysis Technician)
Signal Corps Branch
25A Signal Officer
250N Network Management Technician
251A Information Systems Technician
254A Signal Systems Support Technician
255Z Senior Signal Systems Technician

Judge Advocate General Branch

27A JAG Corps Attorney
27B Military Judge
270A Legal Administrator

Military Police Corps Branch

31A Military Police Officer
311A CID Special Agent

Military Intelligence Branch

35D Military Intelligence Officer
350F All Source Intelligence Technician
350G Imagery Intelligence Technician
350Z Attaché Technician
350K (150U) Tactical Unmanned Aerial Vehicle Operations (transferring to Aviation Branch in Summer 07)
351L Counterintelligence Technician
351M Human Intelligence Collection Technician
351Y Area Intelligence Technician
352N Traffic Analysis Technician
352P Voice Intercept Technician
352Q Morse Intercept Technician
352R Emanations Analysis Technician
352S Non Morse Intercept Technician
353T Intelligence and Electronic Warfare Technician

Psychological Operations Corps Branch

37A Psychological Operations Officer
37X Psychological Operations Officer, Designated

Civil Affairs Branch

38A Civil Affairs Officer
38X Civil Affairs Officer, Designated

Adjutant General Branch

42B Personnel Systems Management Officer
42C Band Officer
420A Military Personnel Technician

Finance Branch

44A Finance Officer

Chaplain Branch

56 Chaplain
56A Command and Unit Chaplain
56D Clinical Pastoral Educator

Medical Department Branches

60A OPERATIONAL MEDICINE
60B NUCLEAR MEDICINE OFFICER
60C PREVENTIVE MEDICINE OFFICER
60D OCCUPATIONAL MEDICINE OFFICER
60F PULMONARY DISEASE CRITICAL CARE OFFICER
60G GASTROENTEROLOGIST
60H CARDIOLOGIST
60I OBSTETRICIAN AND GYNCOLOGIST
60K UROLOGIST
60L DERMATOLOGIST
60M ALLERGIST, CLINICAL IMMUNOLOGIST
60N ANESTHESIOLOGIST
60P PEDIATRICIAN
60Q PEDIATRIC SUB-SPECIALIST
60R CHILD NEUROLOGIST
60S OPHTHALMOLOGIST
60T OTOLARYNGOLOGIST
60U CHILD PSYCHIATRIST
60V NEUROLOGIST
60W PSYCHIATRIST

61A NEPHROLOGIST
61B MEDICAL ONCOLOGIST/HEMATOLOGIST
61C ENDOCRINOLOGIST
61D RHEUMATOLOGIST
61E CLINICAL PHARMACOLOGIST
61F INTERNIST
61G INFECTIOUS DISEASE OFFICER
61H FAMILY MEDICINE
61J GENERAL SURGEON
61K THORACIC SURGEON
61L PLASTIC SURGEON
61M ORTHOPEDIC SURGEON
61N FLIGHT SURGEON
61P PHYSIATRIST
61Q RADIATION ONCOLOGIST
61R DIAGNOSTIC RADIOLOGIST
61U PATHOLOGIST
61W PERIPHERAL VASCULAR SURGEON
61Z NEUROSURGEON

Medical Corps Officer

62A Emergency Physician
62B Field Surgeon
63 Dental Corps Officer
63A General Dentist
63B Comprehensive Dentist
63D Periodontist
63E Endodontist
63F Prosthodontist
63H Public Health Dentist
63K Pediatric Dentist
63M Orthodontist
63N Oral and Maxillofacial Surgeon
63P Oral Pathologist
63R Executive Dentist

Veterinary Corps Officer

64A Veterinary Officer
640A Veterinary Services Food Safety Technician

Medical Specialist Corps Officer

65A Occupational Therapy
65B Physical Therapy
65C Dietitian
65D Physician Assistant
65X Specialist Allied Operations
66 Nurse Corps Officer
66B Community Health Nurse
66C Psychiatric/Mental Health Nurse
66E Perioperative Nurse
66F Nurse Anesthetist
66G Obstetrics and Gynecology
66H Medical-Surgical Nurse
66N Generalist Nurse
66P Family Nurse Practitioner

Medical Service Corps Officer

67A Health Services
67B Laboratory Sciences
67C Preventive Medicine Sciences
67D Behavioral Sciences
67E Pharmacy
67F Optometry
67G Podiatry
67J Aeromedical Evacuation
670A Health Services Maintenance Technician
70A Healthcare Administrator
70B Health Services Officer
70C Comptroller
70D Information Systems Manager
70E Patient Administrator
70F Human Resources Manager
70H Plans, Operations, Intelligence Training, and Security
70K Medical Logistics
70K91 Health Facilities Management

Chemical Branch

74A Chemical, General
74B Chemical Operations and Training
74C Chemical Munitions and Materiel Management

Transportation Branch

88A Transportation Officer
88D Transportation Officer - Motor/Rail
880A Marine Deck Officer
881A Marine Engineering Officer
882A Mobility Officer

Ordnance Branch

91A Ordnance Officer
890A Ammunition Technician
913A Armament Systems Maintenance Technician
914A Allied Trades Technician
915A Automotive Maintenance Technician
915E Senior Automotive Maintenance/Senior Ordnance Logistics Officer
919A Engineer Equipment Maintenance Technician

Quartermaster Corps Branch

92A Quartermaster Officer
920A Property Accounting Technician
920B Supply Systems Technician
921A Airdrop Systems Technician
922A Food Service Technician
923A Petroleum Systems Technician
CMF 94 - Electronic Maintenance
948B Electronic Systems Maintenance Technician
948D Electronic Missile Systems Maintenance Technician
948E Senior Electronics Maintenance Technician

Total = 367 Specialties

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Notes

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?



One Million Soldiers

➤ Army Size*

❖ Regular Army:	507,082
❖ Army National Guard:	333,177
❖ <u>Army Reserve:</u>	<u>189,005</u>
❖ Total:	1,029,264



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

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Notes

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.

2. <http://siadapp.dmdc.osd.mil/personnel/MILITARY/ms1.pdf>

3. <http://www.armyg1.army.mil/hr/demographics/FY05%20Army%20Profile.pdf>



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.

Millions Served



Notes

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?

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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.



Sim Products Characteristics

- Heavyweight computer hardware
- Dedicated computer networks
- Tightly integrated Client/Server software
- Large local support staff
- One-to-one relationships between hardware, software, staffing, and the simulation event.



Notes

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

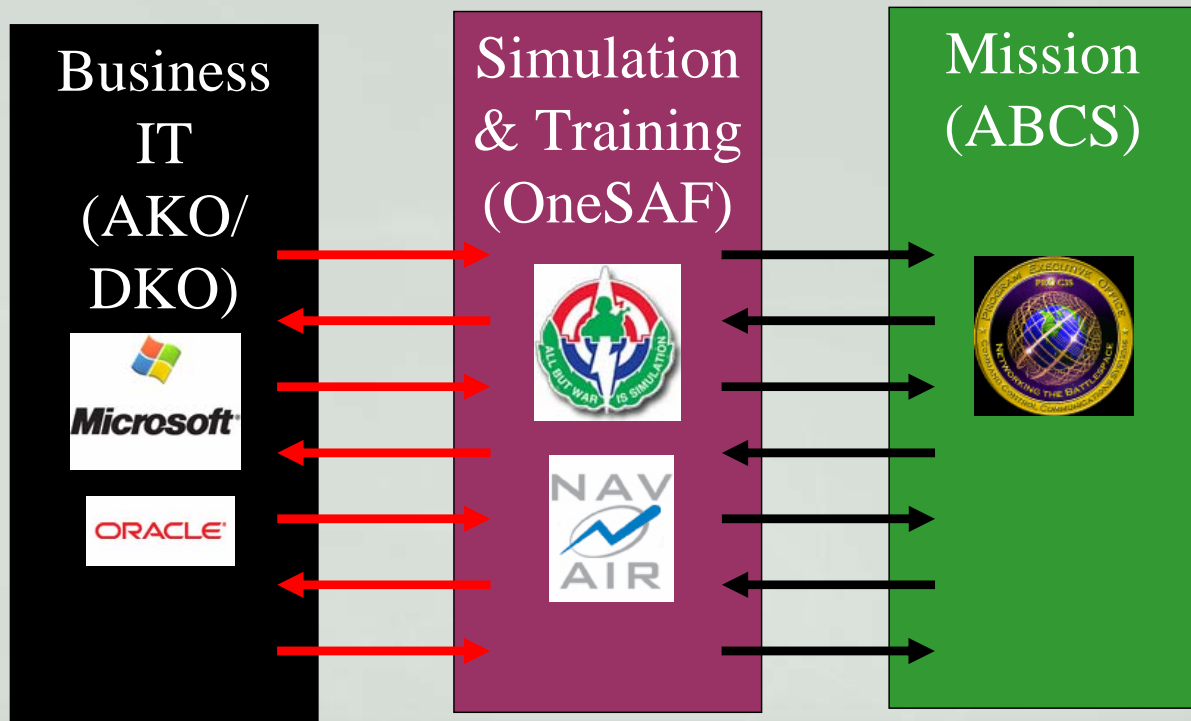


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Notes




Simulation in Your IT




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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.










Army Training Online



Address: <https://www.us.army.mil/suite/portaltop.do?p=139421>



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Topic

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50	100	Per Page
Messages		
Last Message Info ▼		
	196	RE: WoW: Characters and Servers 14 Dec 2007 19:03 GMT By: stephen.toboz
		RE: LOTR online 14 Dec 2007 16:44 GMT
Real-Time Predictions:		
Route: 1 California Direction: Outbound toward the Richmond District Stop: California St at Leaven St Arrivals: Bada, Tada, & Rhoda		
	45	RE: call of duty 4- who plays on PC? 14 Dec 2007 15:53 GMT By: dustin.ducote



[jason.a.rowland](#)

[gary.w.hinton](#)

[dustin.ducote](#)

[michael.sinka](#)



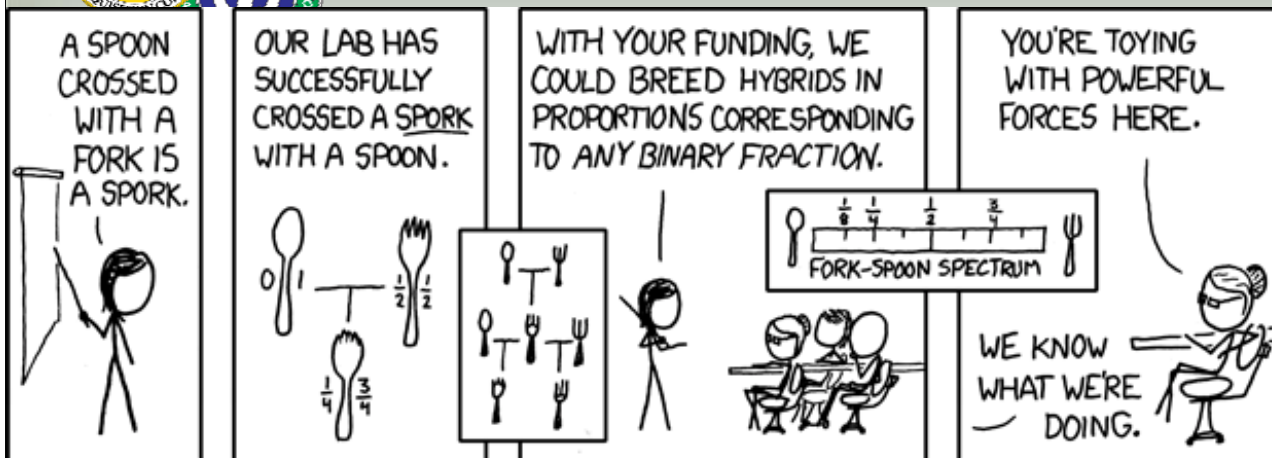
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Notes

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.



Breeding Hybrids



Simulation
+ Web-based Training
+ Computer Games
+ Enterprise IT
= A Bloody Mess

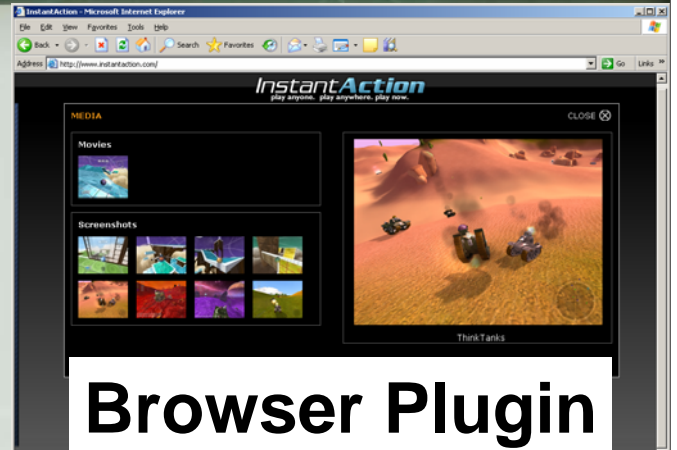
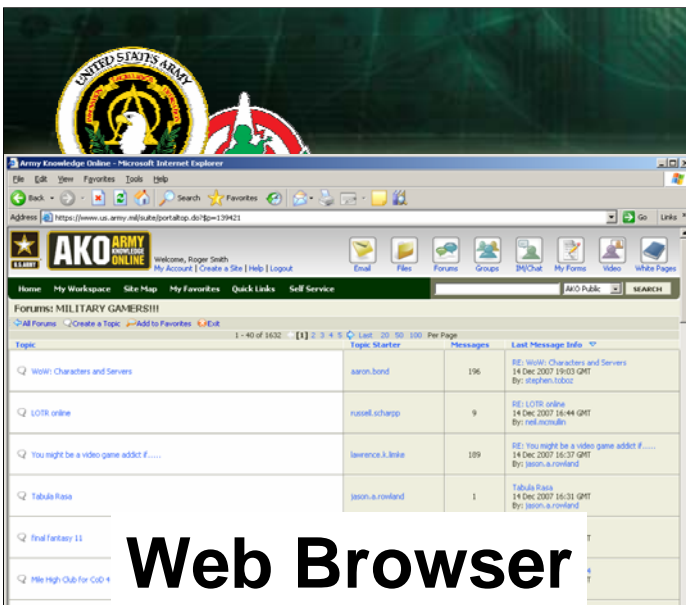
<http://www.xkcd.com/419>



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.

Desktop Client Options



Notes

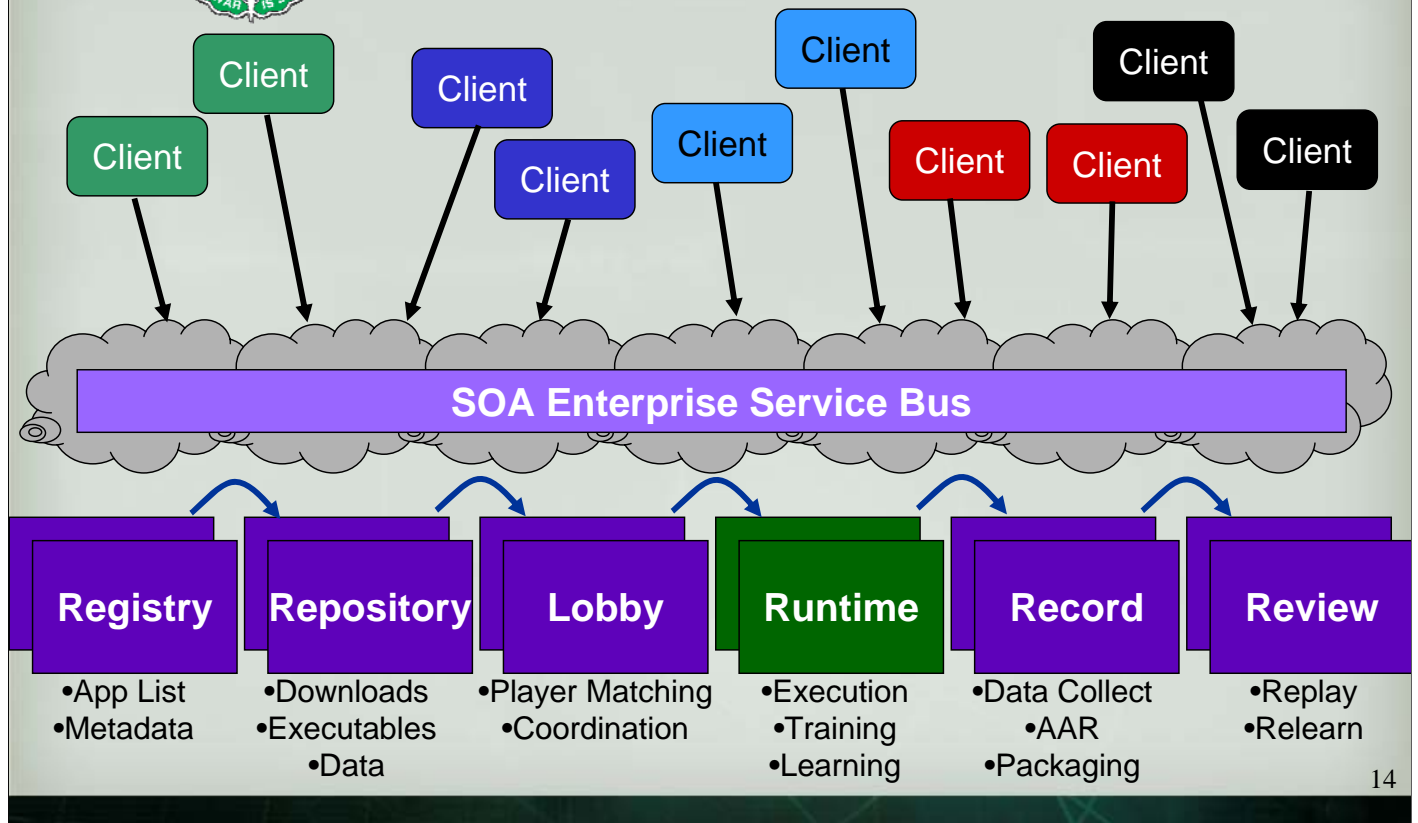
The desktop that most people experience is a little dated. “Serious business” requires email (Microsoft Outlook), web interfaces (Microsoft Internet Explorer) to server applications (Oracle ERP), productivity tools (Microsoft Office), and document sharing (Microsoft SharePoint). It has not evolved into 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.



Matching Customers to Services



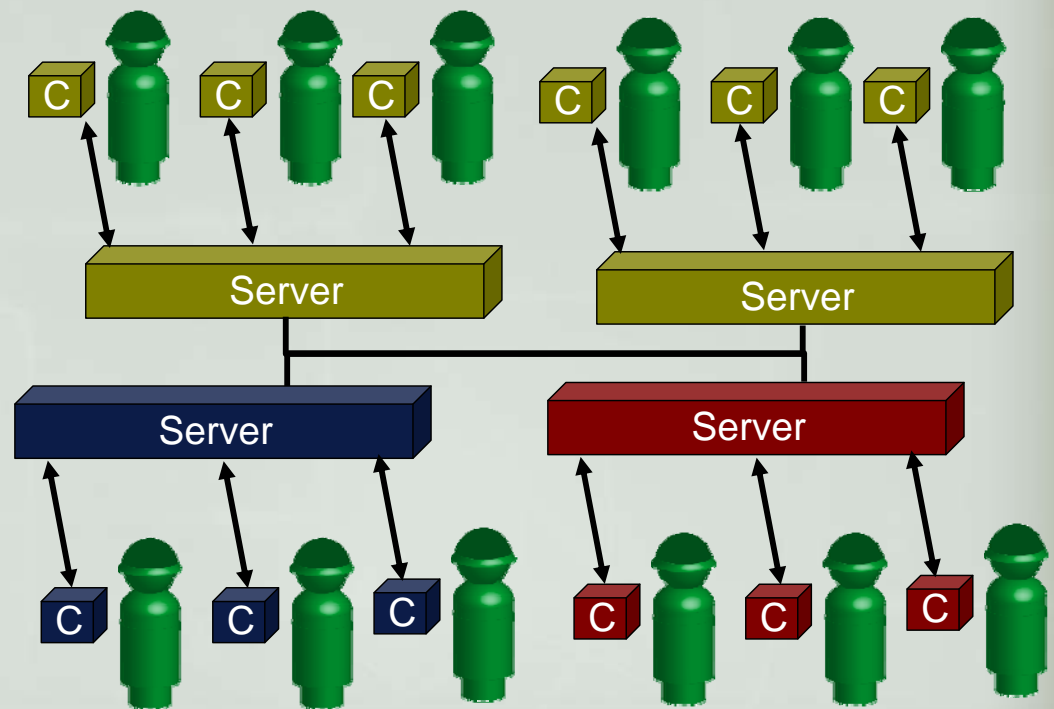
Notes

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



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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.



...not everyone lives in a castle



"But even here 80% of soldiers have access to a laptop computer and network"
- SFC Richard Colon, US SOCOM

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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

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Notes



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

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Notes