

PROGRAM EXECUTIVE OFFICE FOR SIMULATION, TRAINING & INSTRUMENTATION

Delivering Simulation-based Training to the Soldier's Desktop

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Scale of the Problem

> Army Size*

* Regular Army: 507,082

Army National Guard: 333,177

❖ Army Reserve: 189,005

❖ Total: 1,029,264

- How do you serve one million customers on their schedules?
 - McDonalds does it (47 million/day)
 - Google Search does it (130 million/day)
 - World of Warcraft does it (675,000 /day)
- How can the Army do it with training?



Top Sites English

Browse the most popular sites on the web. Learn more

The second secon

Yahoo! Personalized content and search options.

www.yahoo.com - Site Info 🗐



Microsoft Network (MSN)

Dialup access and content provider. www.msn.com - Site Info (§)



Serving One Million Customers

- > World of Warcraft
- > Army Knowledge Online
- > Yahoo Mail
- Google Search
- > Facebook
- Cellular Telephones
- Skype
- Satellite Television
- AOL Instant Messenger





















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





U.S. Army Military Occupational Specialties

Enlisted MOS **Infantry Branch**

11B Infantryman

11C Indirect Fire Infantryman

11X Infantryman (ambiguous; turns into 11B,11C, or

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 Pneudraulica Repairer

15J OH-58D Armament/Electrical/Avionics Systems

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

or Branch

D Cavalry Scout

9K 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) 46R Broadcast Journalist

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

96B (35F) Intelligence Analyst

96D (35G) Imagery Analyst

96H (35H) Imagery Ground Station Operator

96R (35H) Ground Surveillance Systems Operator

96U (35K) Unmanned Aerial Vehicle Operator

96Z (35X) Intelligence Senior Sergeant 97B (35L) Counterintelligence Agent

97E (35M) Human Intelligence Collector

97L (35Q) Translator/Interpreter

97Z (35Y) Counterintelligence/Human Intelligence Senior

98C (35N) Signal Intelligence Analyst (Linguist)

98G (35P) Cryptologic Linguist

98P (35U) Multi-Sensor Operator

98Y (35S) Signals Collector/Analyst 98Z (35Z) Signals Intelligence Senior Sergeant

09L (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

46Z Public Affairs Chief Chaplain Branch 56M Chaplain Assistant

CMF 63 - Mechanical Maintenance

44B Metal Worker

45G Fire Control 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

63H Fuel and Electrical Repairer/Track Vehicle Mechanic

Mechanic

63W All Wheel Vehicle Repairer

63Z Mechanical Maintenance Supervisor

Medical Department Branches

68E Dental Specialist

68H Optical Laboratory Specialist

68K Medical Laboratory Specialist

68M Hospital Food Specialist

68P Radiology 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

74D Chemical Operations Specialist (formerly 54B)

CMF 79 - Recruiting and Retention

79R Recruiter Noncommissioned Officer 79S Career Counselor

79T Recruiting and Retention NCO

88H Cargo Specialist

88L Watercraft Engineer

88P Railway Equipment Repairer

88U Railway Operations Crewmember 88Z Transportation Senior Sergeant

44E Machinist

45B Small Arms/Artillery Repairer

45K Armament Repairer

52C Utilities Equipment Repairer

63D Artillery Mechanic

63J Quartermaster and Chemical Equipment Repairer 63M M2-3 Bradley Fighting Vehicle System

Mechanic/Bradley Fighting Vehicle Systems Turret

63X Track Vehicle Repairer

68A Medical Equipment Repairer

68D Operating Room Specialist

68G Patient Administration Specialist

68J Medical Logistic Specialist

68Q Pharmacy Specialist

Chemical Branch

79V Retention and Transition Noncommissioned Officer

Transportation Branch

88K Watercraft Operator

88M Motor Transport Operator 88N Traffic Management Coordinator

88T Railway Section Repairer

Ordnance Branch

92F Petroleum Supply Specialist

92L Petroleum Laboratory Specialist

92R Parachute Rigger

92W Water Treatment Specialist

92Z Senior Noncommissioned Logistician

CMF 94 - Electronic Maintenance

94D Air Traffic Control Equipment Repairer

94E Radio and Communications Security Repairer 94F Special Electronics Devices Repairer

94K Automatic Test Equipment Operator/Maintainer

94M Radar Repairer

94T Avenger System Repairer

94Y Integrated Family of Test Equipment

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

ambiguous and have several specific MOS's within the E.g. 62 contains 62A (Emergency Physician) and 62B

Warrant Officer MOS's (known as WOMOS) are three numerical digits plus a letter, except 09W who is not y

Officer Candidates

09W Warrant Officer Candidate Infantry Branch

131A Field Artillery Targeting Technician Air Defense Artillery Branch

140A Command and Control Systems Technician

140E Air and Missile Defense (AMD) Tactician/Technician (Patriot Systems Technician) 140X Air Defense Artillery (ADA) Immaterial

89B Ammunition Specialist

89D Explosive Ordnance Disposal Specialist Quartermaster Corps Branch

92A Automated Logistical Specialist

92G Food Service Specialist

92M Mortuary Affairs Specialist

92S Shower/Laundry and Clothing Repair Specialist

92Y Unit Supply Specialist

94A Land Combat Electronic Missile System Repairer

94H Test, Measurement & Diagnostic Equipment Supr

94L Avionics Communications Equipment Repairer

94P Multiple Launch Rocket System Repairer 94R Avionics System Repairer

94S Patriot System Repairer

94W Electronic Maintenance Chief

94Z Senior Electronic Maintenance Chief

letter (most of the time "alpha"). Letterless MOS's are (Field Surgeon).

09R Cadet 09S Officer Candidate

11A Infantry Officer Field Artillery Branch 13A Field Artillery Officer

14 Air Defense Artillery Officer

6

U.S. Army Military Occupational Specialties

Aviation Branch

15 Aviation Officer

150A Air Traffic and Air Space Ma

150U Tactical Unmanned Aerial Vehicl

Operations Technician (still classified at 350K unti

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

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

420C Bandmaster

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

60G GASTROENTEROLOGIST

60H CARDIOLOGIST

60J OBSTETRICIAN AND GYNECOLOGIST

60K UROLOGIST

60L DERMATOLOGIST

60M ALLERGIST, CLINICAL IMMUNOLOGIST

60N ANESTHESIOLOGIST

60P PEDIATRICIAN

60Q PEDIATRIC SUB-SPECIALIST

60R CHILD NEUROLOGIST

60S OPHTHAL MOLOGIST

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

62 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

64A Veterinary Corps Officer

640A Veterinary Services Food Safety Technician

65 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 Gyneco

66H Medical-Surgical Nurse 66N Generalist Nurse

66P Family Nurse Practitioner

67 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 70K9I 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

Ouartermaster 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



IT Service Characteristics

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















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.









Desktop Client Options











Client Operations

Visual Presentation

- Maps, 3D, HTML, Tables
- Overlays

Behavior Representation

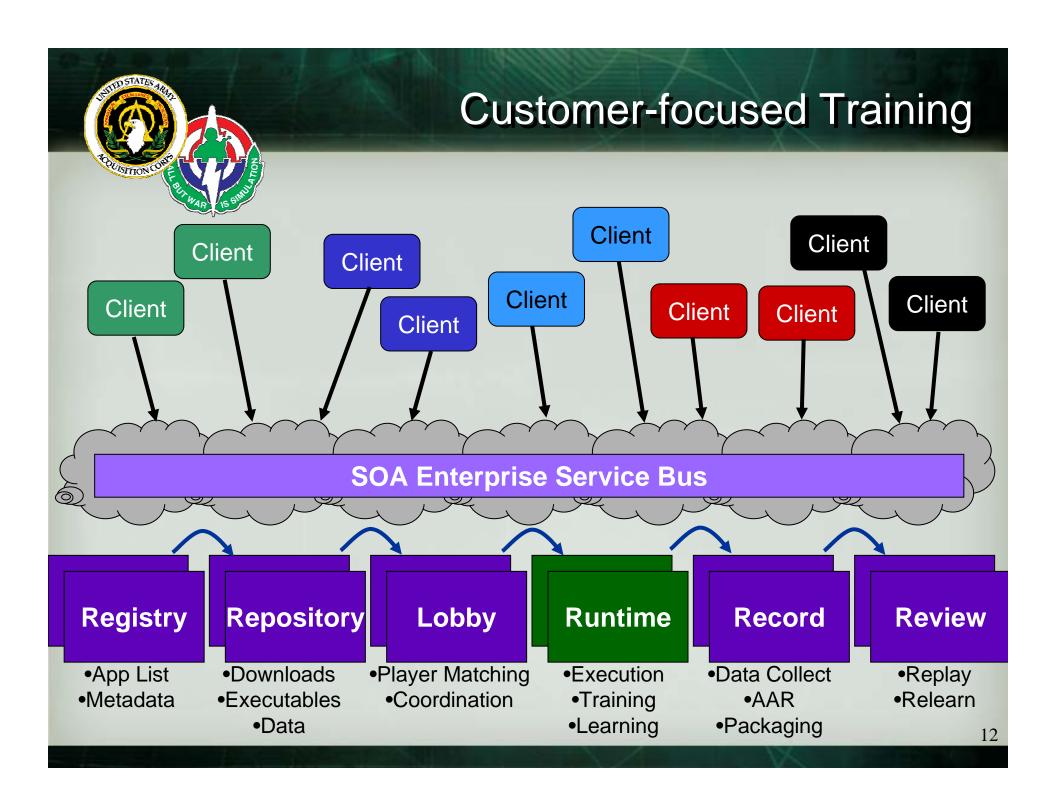
- Client-side Actions
- Models

Client Application

- Navigation, Identification
- Loading Data

Network Communication

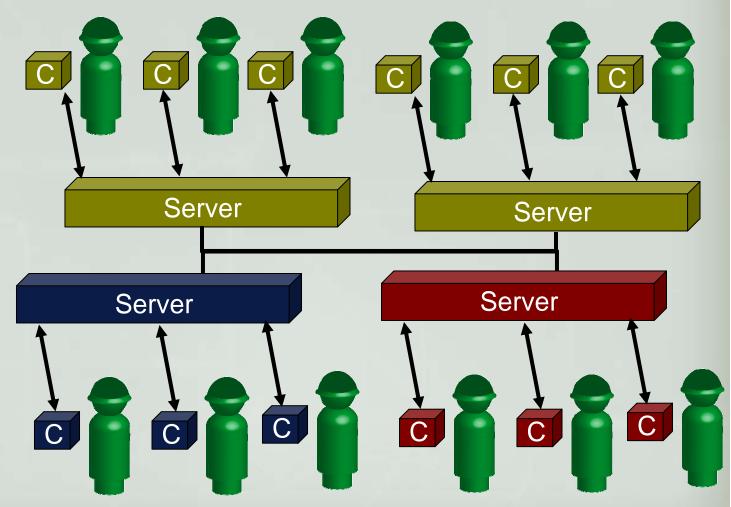
- Multi-player Collaboration
- Server-based Scoring







- Lone Player
- Player w/ Server
- Multiplayer / Multiserver
- 4. Multi-Event





SOA-based Simulation Services

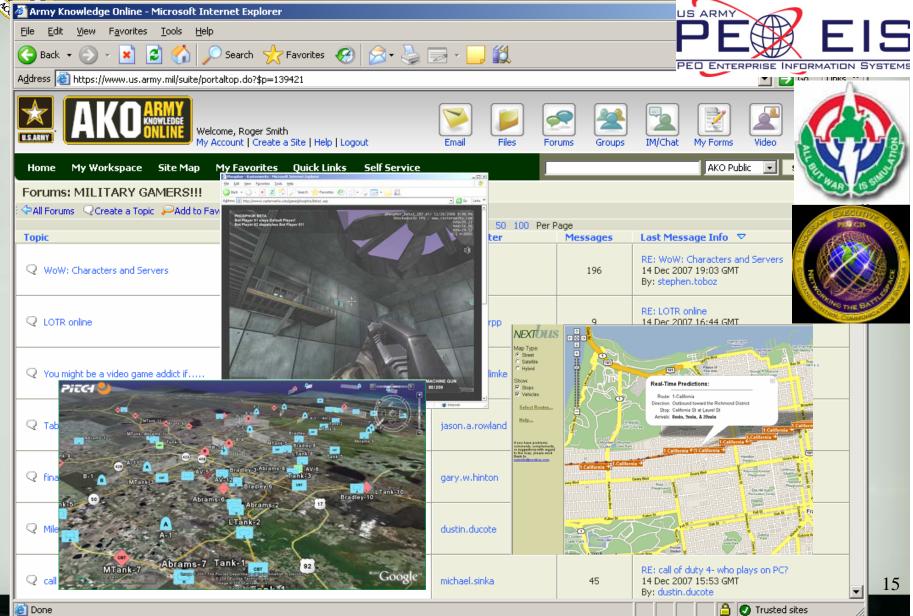
- Scalable Simulation Services provided on the customers' schedule
- Break the 1-to-1 relationship between equipment and events
- Light simulation client as an application on IT Desktop or C4I system
- Evolving Services
- Service Global Customers
 - Units in Country, Homestation, National Guard



[Commercial SOA Diagram]



Army Training Online



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