

Virtual Training Update

ENRICHING THE VIRTUAL WORLD WITH MORE INFORMATION AND EXPANDING THE SYSTEM.

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Given budget reductions and the current constraints that are placed on the DoD, virtual training allows the U.S. military to stretch their dollars by saving on travel and ammunition costs.

John Foster, assistant project manager for the U.S. Army's Close Combat Tactical Trainer, said the Dismounted Soldier Training System (DSTS) is a virtual collective training system that supports individual to company level training in unified land operations. "DSTS is a component of the CCTT family of virtual simulators and consists of: nine virtual soldier manned modules (VSMM); five virtual soldier multi-functional workstations; one exercise control workstation; one semi-automated forces (SAF) workstation; and one after action review (AAR) station," he said. "DSTS will enable dismounted units to train as part of an LVC [live, virtual, constructive] and integrated training environment. The VSMM is an untethered fully immersive system allowing soldiers to move, shoot and communicate. The VSMM enables expansion of the training audience up to company level exercises."

The DSTS can support training interoperability with CCTT/AVCATT/RVTT/OneSAF software and SECORE databases. DSTS operating software is Virtual Battle Space 2, Foster added.

What is down the road in the next three-to-five years to enhance this training? Foster said bringing DSTS to be interoperable with the CCTT and AVCATT; enriching the virtual world with more information; the capability to give orders at the unit level up to Company; bringing more of the environment to life with the activities of the people in the region being trained; and expanding the system to be able to train an entire company of soldiers.

What technology shortfalls and gaps does PEO STRI need industry's help to address? According to Foster, natural movement through the virtual world, increased capability to interact with the virtual world, delivery of the virtual world through wireless technology to increase the graphics rendering process, and capability to give orders at the unit level up to company could be improved.

There are not any RFPs currently out from PEO STRI in this area.

VIRTUAL TRAINING ADVANTAGES

Virtual training has become increasingly important in military training because of several inherent advantages. "It avoids issues with requiring large amounts of physical space and offers the ability to avoid weather issues while offering the ability to train in any desired environmental condition or location. Additionally, it offers the flexibility of training individual military members without requiring large numbers of additional resources to carry out the training," said Brian Domain, director of business development at Saab Training USA. "Virtual training also offers the ability to tailor a training program to the specific level of experience of the trainee and the ability to focus on skill areas requiring particular emphasis."

Virtual training also offers significant savings on vehicle and aircraft maintenance costs, fuel and ammunition, etc., while allowing training to be conducted extremely realistically, added Domain. Finally, it includes the ability to conduct AARs containing all aspects of the training event.

The Air Force was probably the first military service to put emphasis on virtual training through the use of flight simulators. "Originally, early simulators taught not only routine flight operations but allowed the trainee to be placed into situations that could be hazardous in flight or which by their nature could not be performed in actual flight, such as aircraft component failures, which not only could not be induced on command in flight but which would be extremely dangerous," Domain said. "As the fidelity of simulators has increased, so have the ways in which they can and are being utilized. Virtual training now is the backbone of all the services for training on a wide variety of systems. Virtual training is used for many facets of the training process including maintenance training on specific systems, small arms training, vehicle operation, emergency procedures, mission rehearsal, tank gunnery, missile operation and many others."

One area that currently is receiving much attention is in the training of call for fire, such as the JFIST system. "This allows the student to call for either artillery or aircraft weapons support without requiring actual artillery or air assets and allows the scenario to be easily adjusted for location, target type, weather conditions, asset availability, etc., ensuring extremely realistic training offering a complete AAR capability," said Domain. "Of particular importance to the special operations community, virtual training allows highly classified scenarios to be rehearsed with multiple options in a totally protected environment."

One of the largest challenges to both the military and industry is a cost-effective method of keeping up with advances in technology and interoperability between systems and subsystems, concluded Domain. This is fairly easy to address through the use of consistent standard open interfaces, so that as the technology improves individual components or subsystems can be easily and quickly upgraded.

VIRTUAL TRAINING SAVES LIVES

Virtual training saves lives by training our warfighters better and augmenting their live training. It ultimately saves lives, said Floyd West, director of strategic programs at Intelligent Decisions. "You have a lot of live training going on today; that will never go away completely. But on the virtual side, you are able to reduce costs. So when you look at the climate we're in with budget reductions and the constraints that are placed on DoD, virtual training allows them to stretch these dollars," he told *MT2*. "So whereas in live training they may be using real bullets, they may be having to take their unit out to a combat training center (JRTC or NTC). Virtual training allows them to stay at their home station and maintain that training, and do it in a cheaper way because they are saving on travel costs and ammunition costs. They are essentially using commercial off-the-shelf type equipment so they are able to stretch those dollars and maintain that training."

Virtual training has been used across all the branches. West said they have done a great job of getting this technology and supplementing this training for the warfighters. "So you have everything from aviation training, Air Force, Navy, Marines and

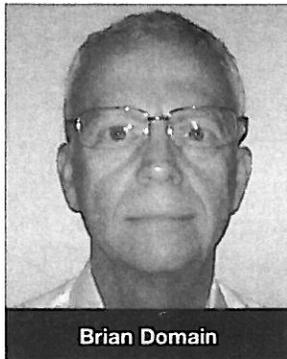
Army—all have aviation trainers that are virtual simulator trainers, everything from F16s to UH60s. On the armor side you have tank trainers with programs like CCTT and AGTS, which allow tankers and tank gunners to train in a virtual environment and replicate that environment as closely as possible and the inside of a tank as closely as possible," he said. "With our most recent program—the Dismounted Soldier Training System—this is something that is unique and first ever for the military branches, and in this case specifically for the Army because aviators and tankers have been using virtual simulation for 20-plus years. The boots on the ground guys—the dismounted infantry and soldiers—haven't had a virtual training device to be able to allow them to train as they would fight.

So that is the uniqueness of the dismounted soldier training system."

The U.S. military has covered everything from part-task trainers to full mission rehearsal trainers, individual trainers to fully collective trainers. "Some of the challenges are the reduced budget: 'How do they stretch those dollars, how do they better use those dollars?' And some of it is by the virtual training we talked about," said West. "Other ways they are looking to do that is 'How do we automate more, how do we reduce the operational cost and maintenance cost of these systems?' And in the case of a dismounted soldier, one of the challenges DoD was facing was they didn't have a way of training the dismounted soldier in a virtual environment."

DoD had live training for years but they did not have a virtual training device. They are now able to do that. "The other challenge they face is they have live training devices, virtual training devices, and constructive training devices, so getting those in a fully integrated environment is key. The government has poured millions of dollars into each of those areas," said West. "So how do we get the best of all of that and get them in an integrated common environment so we can link up the live, virtual and constructive?"

The dismounted soldier training system "allows them to augment their live training, supplement that live training so now they can, for example, go train that squad in the virtual environment, replicating as close to possible as their common operating environment," concluded West. "And then they can go and augment that live training. They can do additional live training or, for example, if they don't have access to that live training, now they have a virtual device and system that they can maintain those skills on. From an integrated standpoint, we're part of that live, virtual, constructive and will be able through the DIS standards to integrate into that LVC construct. So if you have live participants or perhaps you have live systems (C4I systems), you can integrate those into the dismounted soldier training system as well as the constructive simulations that may provide that wrap-around or additional support forces." ★



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