Game on: Virtual trainer takes serious approach to electronic warfare

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Missiles are launched at a Navy ship, and Sailors must decide in a matter of seconds how to keep from getting hit.

Strike Group Defender: The Missile Matrix prepares Sailors for exactly this scenario, and was named "Best Government-Developed Serious Game" in the Serious Games Showcase and Challenge at the simulation and training industry's premier event last month: the Interservice/Industry Training, Simulation, and Education Conference (I/ITSEC) in Orlando, Florida.

Strike Group Defender is a virtual "demo space" developed as part of the Office of Naval Research Integrated Air and Missile Defense (IAMD) Future Naval Capabilities (FNC) portfolio managed by PMR-51.

It exposes Navy planners, tacticians and operators to different missiles and the best ways to counter them, either through electronic means (soft kill) or with traditional firepower (hard kill). It is the Navy's first multiplayer, game-based training program to test and evaluate personnel in surface electronic warfare.

"Strike Group Defender is an affordable, realistic way for personnel to understand and emulate the capabilities being developed in the IAMD FNC's and learn how those improvements enhance the means to respond to threats Navy ships face around the world," said Scott Orosz, ONR program manager. "But beyond that application, this technology will allow Sailors and Marines to plan, experiment and train whenever they want, whether they are at sea or in a classroom."

More than ever, Navy and Marine Corps leaders are treating the electromagnetic spectrum like a true battle domain, as important as land, sea, air and space. Chief of Naval Operations Adm. Jonathan Greenert's Navigation Plan specifically calls for improving the ability of forces to detect and defeat adversary radars and anti-ship missiles—tasks at the heart of Strike Group Defender.

ONR worked with MIT Lincoln Laboratory and serious games experts Metateq and PipeWorks Studios to develop the game and has received assistance from the Naval Postgraduate School and ONR's own TechSolutions Program, among others.

"While the current content focuses on anti-ship missile defense tactics and training, the larger value of Strike Group Defender is an underlying 'ecosystem' of technologies that we have not yet seen in the Navy," said Perry McDowell, research associate at the Naval Postgraduate School.

This includes a powerful combination of analytics, crowdsourcing, social media and cloud technology that are attractive to the current generation

of Sailors and Marines. This allows for easy collaboration across the Navy and for an even more engaging playing experience.

That experience may begin with a screen depicting incoming threats. In one example, a warning states a missile is 20 seconds from impact.

The "missile matrix" gives users a rundown of different missiles, their locations and how best to defeat them. It then gives specific recommendations, such as using decoy flares to distract an infrared-tracking missile that is not succeptible to radar jamming.

At the end of a session, the game shows them the missiles they hit and the ones they missed.

The game already has received high marks in tests, with nearly 30 units aboard ships. The Naval Postgraduate School and MIT are now studying players' analytic data to make improvements. Meanwhile, various U.S. Navy fleets and commands are continuing to test and evaluate Strike Group Defender.

Experts will be on hand to discuss a range of ONR training technologies at the Naval Future Force Science and Technology EXPO in Washington, D.C., on Feb. 4-5.

Provided by Office of Naval Research