



CyberSTRIKE

Cyber Simulation TRaining for Impacts to Kinetic Environment

AT A GLANCE

WHAT IS IT?

CyberSTRIKE injects and monitors simulated cyberspace and EW effects within the training environment. The realistic effects it produces are a significant improvement for command staff training to identify and mitigate these effects on shipboard systems. CyberSTRIKE also supports cyber-kinetic training by injecting cyber effects due to cyber range role player actions.

HOW DOES IT WORK?

Provides graphical user interfaces (GUI), services and data model to communicate cyberspace and EW effects in the training environment

- Injects, alters, or stops tactical messages communicated from the simulation to shipboard C4I systems
- Produces effects on a variety of shipboard systems using various tactical messaging protocols, including Link 16 and Over-the-Horizon Gold (OTH-GOLD)
- Integrates with Joint Bus (JBUS) to communicate to the simulation environment and to shipboard tactical systems

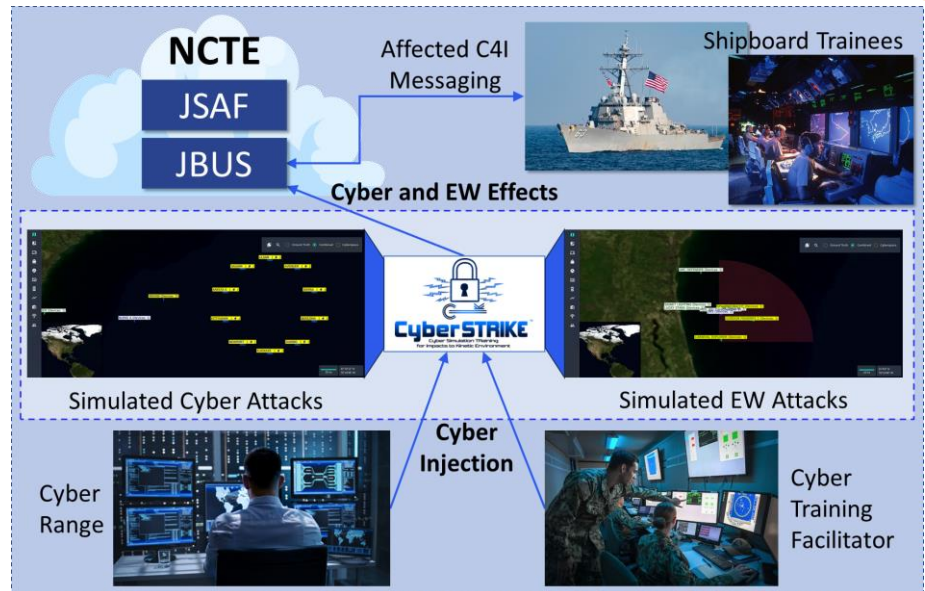
WHAT WILL IT ACCOMPLISH?

- Improves cyberspace training by providing realistic cyberspace and EW effects on shipboard systems
- Trains command staff to identify and mitigate cyberspace threats to shipboard systems, improving fleet readiness in degraded and denied warfighting environments

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Cyber Simulation TRaining for Impacts to Kinetic Environment (CyberSTRIKE) is an ongoing developmental framework to create and communicate simulated cyber and electronic warfare (EW) effects to shipboard systems during Navy training and experimentation exercises.

The current operational environment requires the Navy to participate in multi-domain operations (MDO) that combine cyberspace and EW elements with traditional kinetic warfare operations. However, Naval command staff training to identify, mitigate, and defend against threat cyber operations is currently limited since existing live, virtual, and constructive (LVC) systems such as Joint Semi-Automated Forces (JSAF) have limited ability to model offensive and defensive cyberspace and EW operations. To meet this gap, CyberSTRIKE produces cyberspace effects on shipboard command, control, communications, computers, and intelligence (C4I) interfaces connected to training environments such as the Navy Continuous Training Environment (NCTE). Building upon the Cyberspace Battlefield Operating System Simulation (CyberBOSS) architecture developed under the US Army Development Command, CyberSTRIKE alters information flow to shipboard C4I systems, producing a range of realistic cyberspace effects for identification and mitigation by the training audience.

Research Challenges and Opportunities:

- Naval battle staffs need training incorporating cyberspace operations as warfare threats, in line with traditional kinetic activities that affect warfighting operations. However, existing Navy LVC systems do not incorporate offensive and defensive cyberspace operations as a part of combined training.
- During training events, cyberspace domain activities are currently communicated using *out-of-game* methods that can be ignored and do not affect shipboard systems, limiting training value.
- CyberSTRIKE improves cyberspace training by providing realistic cyberspace effects on shipboard systems, so commanders train better to protect their assets against threat cyberspace and EW operations to operate and degraded and denied warfighting environments.
- CyberSTRIKE technology can benefit other Department of Defense (DoD) organizations, other governmental organizations, and commercial training environments needing to incorporate simulated cyber and EW domain elements.