

Initial results of a project utilizing Modeling and Simulation (M&S) to evaluate Information Assurance (IA) policies, guidance and systems designs

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Abstract

A joint STRICOM and DARPA project is utilizing M&S technology to develop an approach to bridging the very large experimental gap between existing laboratory practice of the DARPA Information Assurance and Survivability (IA&S) program and real-world application of multiple, integrated IA&S technologies for strategic cyber defense. The M&S techniques to be applied in this project will enable reproducible studies to be conducted of the behavior of large scale information systems incorporating diverse IA&S technologies under multiple and varied attacks. It is projected that using this approach will result in a significant reduction in resources. There will no longer be the need for very large numbers of computers, long experimental runs, or extensive operational staff as is the current practice.

The current project is a Proof of Concept (PoC) approach to prove the viability of utilizing M&S. An architecture was developed to define the M&S system. A base case was then selected and its basic components modeled. These models will then be run against the results of the base case to verify and validate those models. An experiment will then be conducted that expands on what the base case did and implements what it was hoped to achieve. A final experiment that will include a larger scope, expanded metrics and attacks not envisioned in the base case experiment will then be conducted to verify the potential of M&S for analyzing IA policies, guidance and systems designs.