CyberCIEGE: A Video Game for Information Assurance Training and Awareness

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Abstract

Good security is not intrusive and can be almost invisible to ordinary users, who are often unaware of or take it for granted. However, good security practice by user populations is a critical element of an organization's information assurance strategy. Although education, training and awareness activities may temporarily raise user interest in security, for many, mandatory education is considered a distraction from "real work" and a waste of time. A new approach is needed that will engage the user's imagination.

Interactive games show considerable promise as educational tools. By generating a sense of competition, games provide an exciting environment in which the participant has a stake in the outcome. For many learners, visualization can help to teach or re-enforce concepts.

The Naval Postgraduate School and Rivermind, Inc. have developed CyberCIEGE, a game to teach information assurance concepts. CyberCIEGE is a resource management game in which the player plays the role of a decision maker for an IT-dependent organization. The player's objective is to keep the organization's virtual users happy and productive while providing the security measures needed to protect valuable organizational information assets. Within a given game scenario, the player has a budget and must make choices regarding procedural, technical and physical security. With good choices the organization prospers and game play continues; poor choices often result in disaster.

CyberCIEGE consists of several elements: a unique game engine, a scenario definition language, a scenario development tool, and a video-enhanced encyclopedia. CyberCIEGE is extensible in that new CyberCIEGE scenarios tailored to specific audiences and topics are easily created. Scenario-based event triggers are used to introduce new problems for the player to solve and to generate log entries for subsequent student assessment.

The extensibility of CyberCIEGE as a training and awareness tool will be discussed.