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Security Engineering in a System of Systems Environment

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Abstract

This presentation describes an actionable engineering framework for security engineering of a system of systems (SoS). The framework is envisioned as a tool for assessing security risks to critical missions based on an analysis of the contributing systems and the SoS supporting them.

An SoS security risk framework is needed to manage the problem of identifying the key elements of risk to SoS missions. The issue is the complexity resulting from the large number of logical paths through an SoS that could represent a security risk. Effectively managing this problem enables the application of security specific analyses to the SoS elements that have been identified as critical.

The framework is a bridge between the operational and acquisition/engineering communities that draws on the foundational elements of SoS engineering, particularly an understanding of the SoS components, interdependencies and dynamics.

The results of the SoS security engineering analysis can be used to support investment decisions about the constituents of a SoS. While the focus of this framework is on acquisition and engineering materiel solutions, it also accommodates the consideration of non-materiel solutions.

Biography

Mr. George Rebovich is the director of the MITRE Systems Engineering Practice Office and a member of corporation's Systems Engineering Technical Center. He has held a variety of systems engineering, project and organizational leadership positions at MITRE.

His experience includes strategic planning, concept exploration and program development, systems engineering and acquisition of surveillance and C2 information systems, multi-sensor information systems, and combat identification systems.

Mr. Rebovich serves on a number of systems engineering professional technical committees and he has authored or co-authored numerous articles, papers and books.

Mr. Rebovich holds a BS from the U.S. Military Academy, an MS in mathematics from Rensselaer Polytechnic Institute, a certificate of administration and management from Harvard University, and is a graduate of the U.S. Army Command & General Staff College. Before joining MITRE, he served in the U.S. Army, including assignments in the U.S., Europe, and with the 101st Airborne Division in Vietnam. Mr. Rebovich is a former assistant professor of mathematics at the U.S. Military Academy.