System of Systems Engineering Collaborators Information Exchange (SoSECIE)

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System of Systems Interoperability Challenges and Potential Approaches:
[Reports from the Field]

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Abstract:
This presentation identifies challenges and some potential approaches to achieving interoperability in systems of systems. Although systems of systems and their interoperability challenges are not limited to the U.S. Department of Defense (DoD), this presentation is based on the challenges and successes reported in interviews with various DoD personnel, with assurances of anonymity for those interviewed. Reported challenges and problems far exceeded the number of successes.

Reported successes with interoperability typically involved: (1) key individuals who had the knowledge, experience, and determination to ensure systems successfully interoperate in particular environments of use in the field; (2) systems incrementally developed and evolved, with continual integration incorporating tests for interoperability issues as they are discovered; or (3) systems of systems of smaller scope, constructed and fielded outside of the usual DoD acquisition program model.

The information in this presentation does not necessarily represent the opinions of the author or the Carnegie Mellon® Software Engineering Institute.

Biography:
Carol Sledge is a senior member of the technical staff at the Software Engineering Institute (SEI) and is currently working in the area of system of systems (SoS) software assurance. She recently completed a highly successful 6-year effort (the last two years as co-PI) for the NSF-funded Information Assurance Capacity Building Program at Carnegie Mellon, targeting Minority Serving Institutions. Previously, during her 6 years as full-time member of the SEI's CERT® Program, she led the development of a three-semester-course survivability and information assurance curriculum, worked in the area of executive education, and investigated enterprise management practices. In previous positions at the SEI, Sledge developed courses on, and investigated COTS-based and open systems (both from a senior executive and program management point of view.) Sledge also led the academic education project team within the SEI's software engineering education program, and developed continuing education courses for software professionals within that same program. At Carnegie Mellon, Sledge has taught software project management in the Master of Software Engineering program, co-taught the Security Architecture and Analysis course in the H. John Heinz III College (Public Policy and Information Systems), and currently teaches an upper class/graduate-level information security and information assurance elective in the Information Systems Program in the College of Humanities and Social Sciences. Sledge has also lectured on COTS-based systems in the Industrial College of the Armed Forces. Prior to joining the SEI 21 years ago, Sledge managed the acquisition and development of large, multi-platform software product lines at a number of corporations, including a venture-capital-funded firm she co-founded. Previously, Sledge has developed and taught a variety of software engineering and computer science courses at the University of Pittsburgh, and co-taught a course at the Industrial College of the Armed Forces. She is a senior member of the Association for Computing Machinery (ACM), a senior member of the Institute of Electrical and Electronics Engineers (IEEE), a senior member of the American Institute of Aeronautics and Astronautics, and a member of the IEEE Computer Society.

For more information: http://www.acq.osd.mil/se/outreach/sosecollab.html