



Critical Infrastructure Protection and Recovery Working Group Mid-Year Virtual Meeting September 9, 2021, 1500-1630 US EDT

AGENDA for September 9, 2021		
Time (Eastern Daylight Time US)	Topic	Speaker
1500-1600	The Case for Control Systems Cybersecurity Capability	Aleksandra Scalco, Ph.D. Candidate, M. ENG., M.B.A.
1600-1630	Q&A and Discussion Continued	All Attendees

Abstract

General principles of cybersecurity risk are probability- and consequences-associated with a threat agent exploiting a vulnerability to harm. Critical infrastructure control system cybersecurity risk is difficult to quantify in dollar costs. Qualitative Risk Assessment (RA) based on scenarios does not attach numerical costs. Typically, RA uses scoring based on a high, medium, low scale by people knowledgeable of the system threat severity, potential loss, and effectiveness of protective measures that can be visualized using a traditional risk matrix approach. Such an approach is appropriate if reasonable qualitative RA factors are unavailable. Using a commercial approach to assigning a numerical value or cost to assets allows for a cost-benefit analysis that may be a more precise and concise characterization of risk. This presentation looks at the Colonial Pipeline ransomware example as a case study for cybersecurity controls' return on Investment (ROI) for critical infrastructure control systems.

Bio



A. SCALCO received an M.ENG. degree in systems engineering from Iowa State University, Ames, IA, USA in 2012, an MBA from the University of Phoenix, Phoenix, AZ, USA in 2009, and a B.J. degree from the University of Missouri, Columbia, MO, USA in 1988. She is currently pursuing a Ph.D. degree in systems engineering at Colorado State University, Fort Collins, CO, USA.

From 2012 to 2016, she was an Information System Security Designer (ISSD) and Client Advocate with the National Security Agency/Central Security Service (NSA/CSS). Since 2016, she has been an Engineer with the Naval Information Warfare Center Atlantic, United States Department of the Navy. She is the author of several articles about cybersecurity for control systems. Her research interests include cybersecurity of control systems, digital transformation of cyber-physical systems and control systems, engineering of cybersecurity capabilities for context-sensitive, dynamic-classes of critical infrastructure, multi-concern assurance, Operational Technology Software Defined Networking (OT-SDN), and the development of Tactics, Techniques, and Procedures (TTP) using software orchestration to achieve cybersecurity for control systems.

Ms. Scalco's awards and honors include membership by invitation of the seventh cohort of the International Council on Systems Engineering (INCOSE) Institute for Technical Leadership and the NSA/CSS Crescent Performance Award for Mission Excellence in 2013. She is a member of INCOSE, the Institute of Electrical and Electronics Engineers (IEEE), Society of Women Engineers (SWE), Project Management Institute (PMI), National Defense Industrial Association (NDIA), Women in Defense (WID),



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and an officer of the Colorado State University INCOSE Student Chapter. She is an INCOSE Certified Systems Engineering Professional (CSEP), Information Technology Infrastructure Library (ITIL) Expert Certified in IT Service Management. In addition, she is Defense Acquisition Workforce Improvement Act (DAWIA) Engineering Certified at the highest Level 3.

Meeting Information.

Topic: CIPR WG Monthly Meetings (2nd Thurs @ 3pm eastern time)

Time: Sep 9, 2021, 03:00 PM Eastern Time (US and Canada)

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