

**System of Systems Engineering
Collaborators Information Exchange (SoSECIE)**

**May 14th, 2019
11:00 a.m. to Noon Eastern Time**

Toward Scaling Model-Based Engineering for Systems of Systems

Presenter: Dr. Ryan Jacobs, The MITRE Corporation

Abstract

This briefing describes an effort to improve the scalability of traditional model-based engineering (MBE) techniques for systems of systems (SoS) applications. On the one hand, the complexity and scale of many SoS suggest that model-based approaches can be an important tool for SoS engineering. On the other hand, this complexity and scale challenges the application of current model based approaches. This work aims to lower the barrier to entry for complex enterprise-level SoS, to identify areas for MBE capability improvements to facilitate scalability, and to explore how new MBE methodologies could enable domain experts with little to no software background to start designing executable system architectures via MBE tools and software plugins. In addition, the briefing will discuss preliminary efforts developing scalable, network-theoretic SoS analysis methods that could address the combinatorial explosion associated with the analysis of SoS architecture alternatives to inform SoS design and evolution.

Biography

Dr. Ryan Jacobs is a lead systems engineer in the MITRE Corporation Systems Engineering Technical Center. He currently supports DARPA programs that are formulating and implementing advanced SoSE methods. He received a BS degree in aerospace engineering from Embry-Riddle Aeronautical University in 2008. He received MS and PhD degrees in aerospace engineering from the Georgia Institute of Technology in 2012 and 2016.