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Preferential System Connectivity and Its Impact on Performance

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Abstract

During the course of developing system performance requirements, the requirements engineer often refers to the connectivity between external nodes of the system in question. This connectivity is often documented in an adjacency matrix, or N2 diagram, in order to show the one or two way connections between systems. However, there is no means to show preferential connectivity if the system had an option to connect with a different system during the course of the mission, and assess the impact of the overall performance based on the connection selected. This paper develops a means to describe and quantify the impact of the preferential connection on the final outcome through an illustrative example.

Biographies

Dr. David Flanigan is a member of the Principal Professional Staff for The Johns Hopkins University Applied Physics Laboratory, providing systems engineering services to various Department of Defense customers. He currently has over 20 years active and reserve service with the US Navy. A graduate of the University of Arizona, he holds a MS in Information Systems and Technology, a MS in Systems Engineering from the Johns Hopkins University, and a PhD in Systems Engineering and Operations Research from George Mason University.

Mr. Jeffery Dixon is a senior combat effectiveness analyst with 17 years of experience in the design and analysis of future combat systems. Jeff's main area of expertise is modeling, simulation, and analysis using Design of Experiments principles. Prior to joining JHU/APL in 2001 Jeff served in the U.S. Surface Navy as a Missile Officer. He also teaches the course Metrics for Modeling and Simulation in the JHU Systems Engineering curriculum. He is currently employed by The Johns Hopkins University Applied Physics Laboratory as the Tactical Aircraft Platforms Program manager.