Abstract

With support from DMSO, we have been developing tools and techniques for measuring and characterizing the performance of HLA Federations operating with various simulation Federates and RTIs. This effort has led to the development of a general transaction-based model for representing the performance of a wide variety of Federations, ranging from real-time man-in-the-loop Federations to as-fast-as-possible time-managed Federations.

This paper describes the essential features of this model and identifies key parameters that enable quantitative predictions of Federation performance. Identification of these parameters has significant implications for (1) the information that needs to be captured in the Federation Execution Planner's Workbook (FEPW), or in a similar form, and (2) the tools required for operational measurement of critical performance parameters. Some of these tools are available off-the-shelf; others can be adapted fairly easily by straightforward extensions of existing tools; a few may need to be newly developed.

The general transaction-based model described in this paper is intended to be extensible to incorporate more detailed models of Federate interactions and RTI functionality such as Data Distribution Management (DDM), which is addressed only in broad terms at the current state of development of the model.