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## Documents

Celik, R., Isler, V.

### **Applying RESTful web services architecture to HLA based simulation applications**

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#### **Abstract**

High Level Architecture (HLA) is a well known, widely accepted distributed simulation standard. HLA focuses on interoperability and reusability of simulation applications but interoperability between RTI (Runtime Infrastructure) implementations of different vendors could not be achieved properly. Also providing reusability of simulation applications is hard because of tight coupling between application and communication layer of simulation code. On the other hand, Service Oriented Architecture (SOA) and Web Services concept is very popular today in context of providing loosely coupled Systems of Systems. One of the major improvements in the most recent HLA standard, IEEE 1516.2010-HLA Evolved, is definition of the web services API based on SOAP (Simple Object Access Protocol). Web services support for HLA-based simulation applications provides more reusability and interoperability. Also by using HLA Web Services API, simulation applications can interoperate with each other over Wide Area Network (WAN) without restricted by firewall issues. Although SOAP based Web Services has the advantage of providing a formal definition language WSDL (Web Service Definition Language), they are known as "Heavy Weight" services. Another way of SOA integration is using RESTful (compliant to Representational State Transfer) Web Services which is widely used for providing cloud services. In this paper we provide a prototype for RESTful Web Services API for HLA.

#### **Author Keywords**

Distributed simulation; HLA evolved; Performance; REST; Service oriented architecture; SOAP; WSDL

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