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Using REST Web-Services Architecture for Distributed Simulation

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Abstract: In recent years, Web services technologies have been successfully used for simplifying interoperability while providing scalability and flexibility in multiple applications, including distributed simulation software. The RESTful-CD++ simulation server provides Web services according to the REST principles by exposing services as URIs and consumed via HTTP messages. Therefore, the server becomes a service part of the Web that can be easily mashed-up with other applications and simulation software. In contrast, RPC-style SOAP-based Web services use the Web as a transmission medium by exposing few URIs and many RPCs. RESTful-CD++ is (to our best knowledge) the only existing RESTful system in this area. Further, this distributed simulation package provides pioneering distributed simulation services using the Web architectural style. We present an overview of the principles, design and implementation of the RESTful-CD++ HTTP server and DCD++ simulation. We show that REST fulfills WS objectives with a much better and easier style than the SOAP-based systems.