HTTP MAILBOX - ASYNCHRONOUS RESTFUL COMMUNICATION

by

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ABSTRACT

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Traditionally, general web services used only the GET and POST methods of HTTP while several other HTTP methods like PUT, PATCH, and DELETE were rarely utilized. Additionally, the Web was mainly navigated by humans using web browsers and clicking on hyperlinks or submitting HTML forms. Clicking on a link is always a GET request while HTML forms only allow GET and POST methods. Recently, several web frameworks/libraries have started supporting RESTful web services through APIs. To support HTTP methods other than GET and POST in browsers, these frameworks have used hidden HTML form fields as a workaround to convey the desired HTTP method to the server application. In such cases, the web server is unaware of the intended HTTP method because it receives the request as POST. Middleware between the web server and the application may override the HTTP method based on special hidden form field values. Unavailability of the servers is another factor that affects the communication. Because of the stateless and synchronous nature of HTTP, a client must wait for the server to be available to perform the task and respond to the request. Browser-based communication also suffers from cross-origin restrictions for security reasons.

We describe HTTP Mailbox, a mechanism to enable RESTful HTTP communication in an asynchronous mode with a full range of HTTP methods otherwise unavailable to standard clients and servers. HTTP Mailbox also allows for multicast semantics via HTTP. We evaluate a reference implementation using ApacheBench (a server stress testing tool) demonstrating high throughput (on 1,000 concurrent requests) and a systemic error rate of 0.01%. Finally, we demonstrate our HTTP Mailbox implementation in a human-assisted Web preservation application called "Preserve Me!" and a visualization application called "Preserve Me! Viz".

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Beneath my mother's feet...

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VITA

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2008 - 2009	Computer Scientist, Belzabar Software, India
2006 - 2008	Research Assistant, CIT Jamia Millia Islamia, India
2006 and 2008	Research Fellow (Two Urdu Related Projects), Sarai CSDS, India

PUBLICATIONS AND PRESENTATIONS

HTTP Mailbox - Asynchronous RESTful Communication
Document Compression and Ciphering Using Pattern Matching Technique
WIDE - Web-based Integrated Development Environment
Various Workshops on Software Localization and Rapid Web Development Using Ruby on Rails
A complete list is available at `http://www.cs.odu.edu/~salam/pubs.html`

AFFILIATIONS AND ACTIVITIES

Active Administrator, UrduWeb - A mission to bring Unicode Urdu language on the Web
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