

CORBA-JS: An Open-Standards Framework for Distributed Object Computing over the Web
Tejal B. Parulekar¹, Dennis C. Feiock¹, and James H. Hill¹

¹Department of Computer and Information Science, Purdue School of Science

Distributed object computing (DOC) is a well-established software engineering paradigm for implementing distributed real-time and embedded (DRE) systems, such as real-time monitoring systems. Likewise, CORBA is a well-established DOC open-standard used in DRE systems. Due to many technological limitations, DOC was traditionally unavailable in Web-based applications (*i.e.*, stateful applications that communicate over HTTP, and are accessible via a Web browser) without the use of proprietary, custom technologies. The problem with using proprietary, custom technology is it creates fragmentation in the solution space where some solutions are not available to all end-users (*e.g.*, Web sites that only work within a certain Web browser because of the used technology).

With the advent of HTML5 and WebSockets, which is an open-standard for enabling two-way communication over HTTP, DOC now has the necessary technological foundations to be realized within Web applications without the use of proprietary, custom technologies. To date, however, no researchers have attempted to apply DOC over HTTP using well-established DOC open-standards, such as CORBA. This research therefore is an initial investigation into implementing CORBA atop of HTML5 and WebSockets. As part of this research, we are investigating the challenges in realizing the solution, and proposing ways to improve the target programming languages and CORBA specification. Doing so will enable developers to create feature-rich real-time Web applications that improve upon current state-of-the-art approaches, *e.g.*, Asynchronous XML and JavaScript (AJAX), that are resource intensive (*e.g.*, use a lot of CPU, network bandwidth, and memory) and hard to program.