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**Implementing asynchronous remote method invocation in Java.** (English) Zbl 0961.68511

Cheng, Wilson C. H. (ed.) et al., PART '99. Proceedings of the 6th Australasian conference on Parallel and real-time systems, Melbourne, Australia, November 29-December 1, 1999. Singapore: Springer. 22-34 (2000).

Summary: Java's remote method invocation is an example of a synchronous communication mechanism with a well defined protocol. Many software systems require more flexibility in their communication mechanisms, including asynchronous communication and delayed referencing of objects (futures). This paper introduces a novel mechanism allowing Java remote objects to use extended communication protocols without changes to the underlying wire or serialization protocols. These extensions can be utilized by standard remote objects without additional coding changes and can be incorporated with standard Java clients.

This paper explores the possibilities of implementing client controlled versus server controlled asynchronous communication and dynamic selection of protocols through the use of a precompiler for the remote object classes. A discussion of the possibility of integrating futures, and any required programming abstractions, into this mechanism is conducted. It is proposed that this mechanism can be used in any object system that is based on fragmented objects, which use a stub or proxy to provide transparent access to remote server methods.

For the entire collection see [[Zbl 0932.00064](#)].

**MSC:**

[68N15](#) Theory of programming languages

Cited in **3** Documents

**Keywords:**

[Java remote objects](#); [extended communication protocols](#)