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CPL: A Language for Real-Time Distributed Object Programming

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Abstract: As processing and time requirements of computer systems increase over the borders of single processor architectures, it is becoming more and more attractive to use distributed computing with additional real-time capabilities. In several cases, traditional programming languages have become insufficient to build distributed systems easily, especially when real-time issues and basic software quality factors are concerned. In this paper, a concurrent, object-oriented, distributed real-time programming language, CPL, with a supportive run-time system, namely the CORD-RTS, is introduced and new language features are described. The new language provides an efficient solution for command and control systems by embedding distribution and real-time issues within new language constructs. The language preprocessor translates these language constructs into portable C++ code to establish run-time connection with the RTS, which provides real-time communication between distributed objects.

Key Words: concurrent, object-oriented, real-time, distributed, programming language

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