

## **A Soft Real-Time Precise Tracing Garbage Collector for C++**

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**Abstract.** The paper presents an efficient garbage collector that can be used in soft real-time and interactive applications written in C++. The garbage collector is tuned to best meet requirements of Internet server-side applications. It collects and sweeps garbage concurrently to application threads, thus it minimizes unpredictable execution delays and can increase applications' performance. The article shows how such a garbage collector is built, what data structures and algorithms are used, and how they can be efficiently implemented in C++.

**Key words:** memory management, mark-and-sweep algorithm, smart pointer, real-time application, concurrent garbage collection, object finalization, write barrier, reference cycles