Memory Management in the TIBCO Enterprise Runtime for R (TERR)

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Most people using R don't need (or want) to know about its internal architecture: How it represents data objects, allocates memory, and frees unused objects. Sometimes, though, the internal details of memory management make a difference when trying to write efficient R code. Experience shows that many R performance problems are best viewed as memory problems.

TIBCO has recently released the TIBCO Enterprise Runtime for R (TERR), a new R-compatible engine. Our team had a unique opportunity to redesign and rebuild the internal data representation and memory management facilities from scratch, and we attempted to address long-standing problems with the internal architecture of R and related systems (S and S+). This talk will describe design decisions we made developing TERR, and discuss how they affect time and memory efficiency when executing R code. Having another R-compatible engine to compare with R presents a new perspective that may inform R engine development in the future.