Abstract

Ensuring the qualities of modern software systems like Multi-Agent Systems (MAS) is challenging due to various uncertainties, such as dynamics in availability of resources or changes in environments. Self-Adaptation is an established approach to deal with such uncertainties. Self-Adaptation equips software systems with feedback loop that tracks changes and adapts the system accordingly to ensure its quality goals. Current research in this area has primarily focused on benefits that self-adaptation can offer and cost consumed for adapting that changes. However, not much work has done on cost estimation of MAS which considers the historic interaction while calculating the cost estimation of these MAS. We present CCB@R (chronological cost benefits analysis at run-time), a novel approach for run-time decision making in self-adaptive systems. We evaluate CCB@R for modeled multi-agent systems and after first interaction, we change chronological value on the base of previous and current scenario for further use.