

1. Dads: dynamic slicing continuously-running distributed programs with budget constraints

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Abstract: We present Dads, the first distributed, online, scalable, and cost-effective dynamic slicer for continuously-running distributed programs with respect to user-specified budget constraints. Dads is distributed by design to exploit distributed and parallel computing resources. With an online analysis, it avoids tracing hence the associated time and space costs. Most importantly, Dads achieves and maintains practical scalability and cost-effectiveness tradeoffs according to a given budget on analysis time by continually and automatically adjusting the configuration of its analysis algorithm on the fly via reinforcement learning. Against eight real-world Java distributed systems, we empirically demonstrated the scalability and cost-effectiveness merits of Dads. The open-source tool package of Dads with a demo video is publicly available. (0 refs)

Inspec controlled terms: distributed programming - Java - learning (artificial intelligence) - program slicing - public domain software

Uncontrolled terms: Dads - dynamic slicing - distributed programs - user-specified budget constraints - online analysis - Java distributed systems - reinforcement learning - open-source tool package

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