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Dynamic Atomic Snapshots*

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Abstract

Snapshots are useful tools for monitoring big distributed and parallel systems. In this paper, we adapt the well-known atomic snapshot abstraction to dynamic models with an unbounded number of participating processes. Our *dynamic snapshot* specification extends the API to allow changing the set of processes whose values should be returned from a scan operation. We introduce the *ephemeral* memory model, which consists of a dynamically changing set of nodes; when a node is removed, its memory can be immediately reclaimed. In this model, we present an algorithm for wait-free dynamic atomic snapshots.

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