An Experimental Comparison of Concurrent Data Structures

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The Problem

- Concurrent Data Structure
  - Designed for access by multiple threads
  - Potential to be highly scalable
- Not much data on comparing the different locking algorithms used in these data structures

The Contribution

- Implemented 3 concurrent data structures
  - Ring Buffer
  - Linked List
  - Hash Table
- Implemented both locked and lockless variations
- Compared them on 3 different systems

Interesting Findings

- Ring Buffer
  - Lockless proved superior with exceptions in the form of TAS & TTAS locks
- Linked List
  - Lockless provided significant performance boost
- Hash Table
  - Locked outperformed lockless across the board