Efficient Synchronization of Linux Memory Regions over a Network: A Comparative Study and Implementation (Notes)

A user-friendly approach to application-agnostic state synchronization

Felicitas Pojtinger (Stuttgart Media University)

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Unsorted Research Questions

Structure

Structure

- Abstract
- Introduction
- Theory
- Implementation
- Results
- Conclusion

Content

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- Introduction
  - Memory management in Linux
  - Memory as the universal storage API
  - What would be possible if memory would be the universal way to access resources?
  - Why efficient memory synchronization is the missing key component
  - High-level use cases for memory synchronization in the industry today
- Pull-Based Memory Synchronization with userfaultfd
  - Page faults occur when a process tries to access a memory region that has not yet been mapped into a process’ address space
  - By listening to these page faults, we know when a process wants to access a specific piece of memory
  - We can use this to then pull the chunk of memory from a remote, map it to the address on which the page fault occured, thus only

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- Prior Works
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