Enforcing Authorization Policies using Transactional Memory Introspection

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Andreas Ecke

Summary

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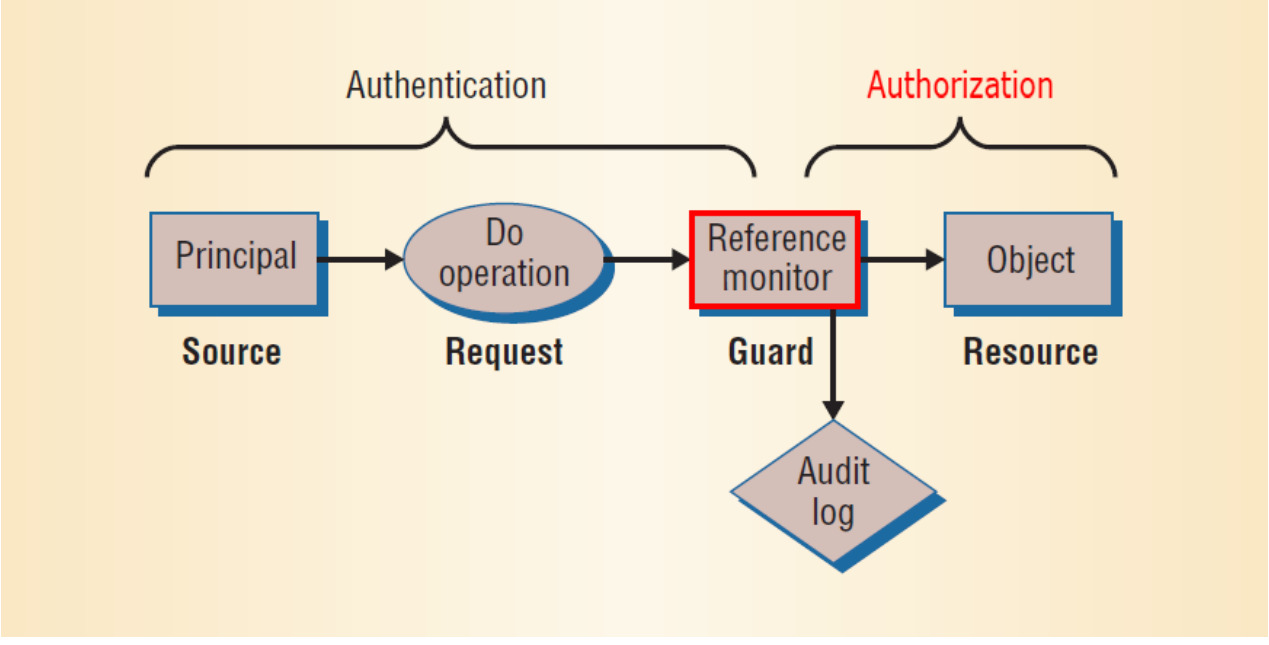

from B.W. Lampson, "Computer Security in the Real World," doi:10.1109/MC.2004.17

Appreciative comment

Authorization enforcement is done inside transactions

- everything is rolled back if one authorization check fails
- writes to the security-relevant resources are reverted
- deferred authorization checks preserve integrity

$\Rightarrow$ lazy and overlapped enforcement

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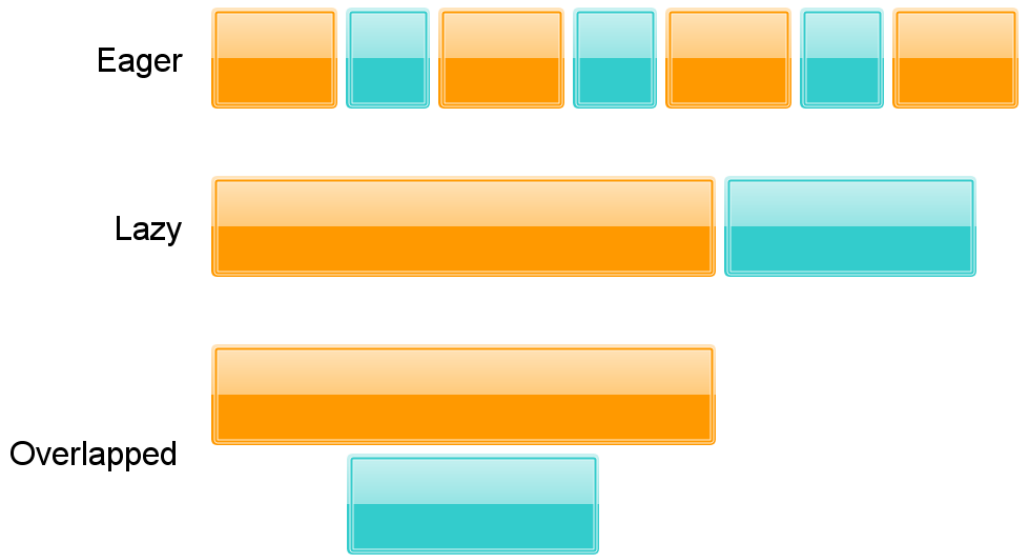

Appreciative comment

Lazy and overlapped authorization enforcement

- speculative execution of transactions
- yields better performance
- not suitable to ensure confidentiality

Critical comment

Measurement with a single STM system only

- DSTM2 is a unoptimized research STM library
- overhead of TMI compared to pure DSTM2-version is less then 11%
- real-world STM implementations might yield a bigger overhead for TMI
- tests with other optimized STM systems needed!
- measurements based on single client settings only

Question for you

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