

Performance and Security issues in the software design

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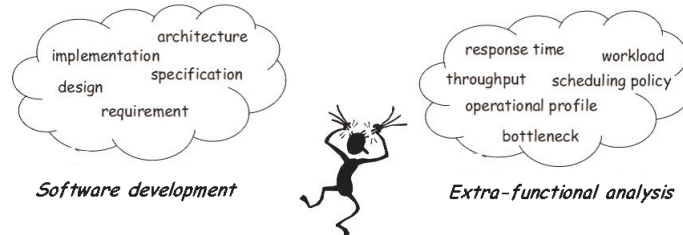
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Roadmap

- » Motivation
- » Performance vs Security
- » Performance Improvement
- » Discussion

Motivation

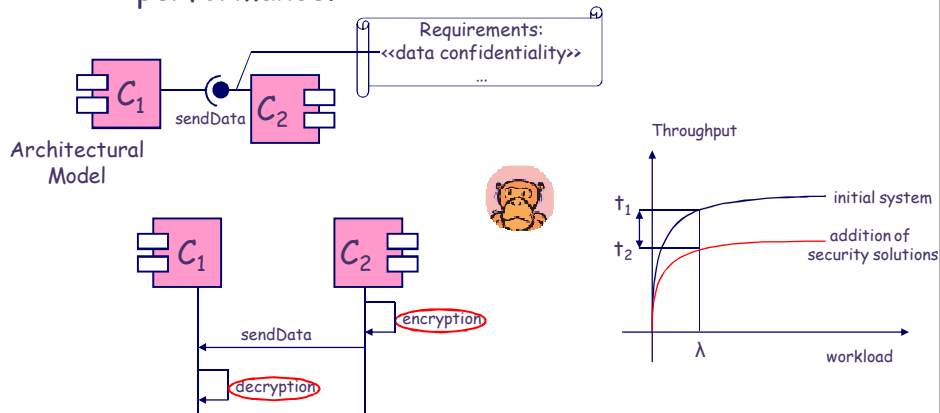
- » Software developers' world (vocabulary) is intrinsically distant from extra-functional analysts' one



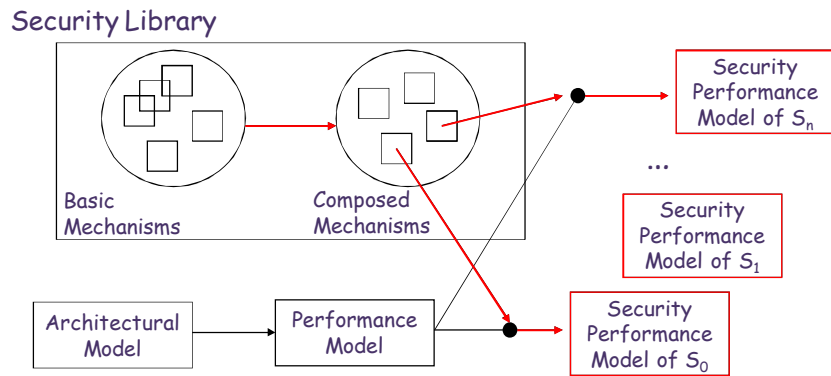
- » Target: investigate the relationship of the software system design and its measurable quality attributes

Performance vs Security

- » How much the security solutions degrade performance?



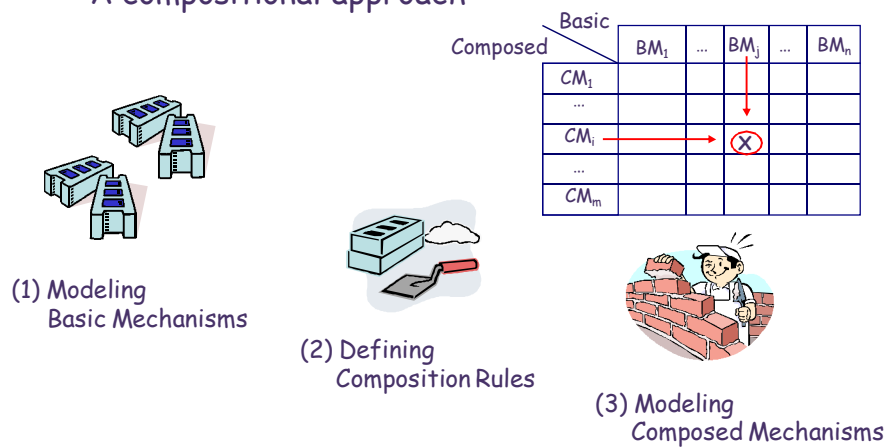
Performance vs Security Process



» Trade-off decisions driven by the system configurations !!!

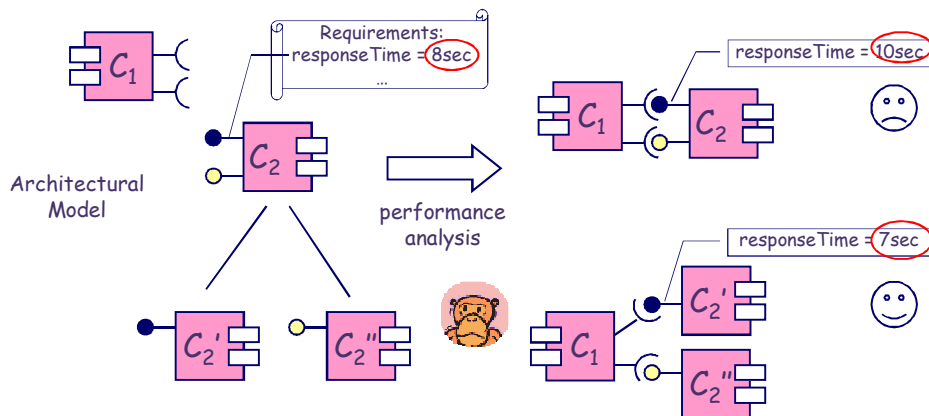
A vision of our Security Library

» A compositional approach



Performance Improvement

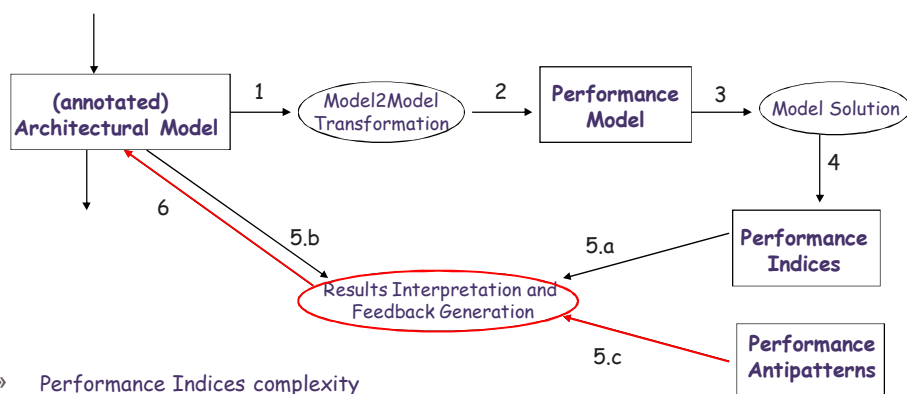
» What to change to improve the software design?



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7

Performance Improvement Process



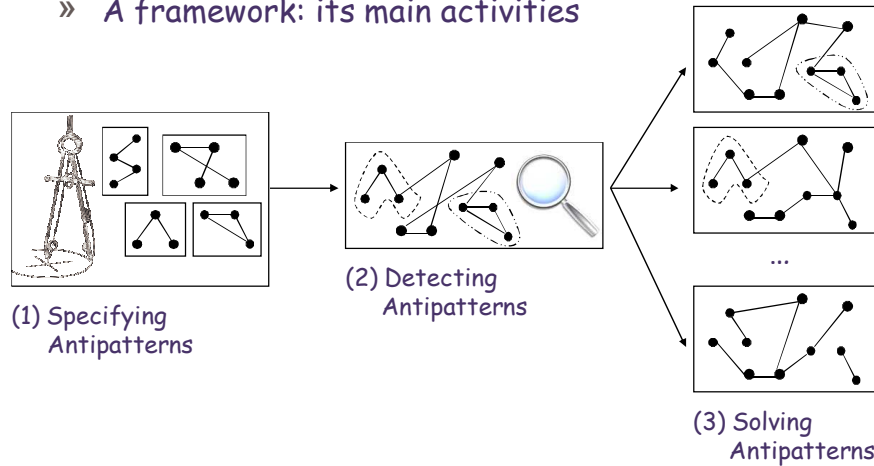
- » Performance Indices complexity
- Numbers to be interpreted
 - Different levels of granularity
 - Cross-checking of software system characteristics

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8

A vision of our approach

» A framework: its main activities



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9

Discussion



» Some issues and current works

- Performance vs Security
 - > Security Mechanisms: modeling, monitoring, validation
- Performance Improvement
 - > Antipatterns: specifying, embedding, rating, combining, solving

» Open issues and future works

- Performance vs Security
 - > What happens in the existing protocols (e.g., openssl)?
- Performance Improvement
 - > What happens if design and architectural changes are performed at run-time?

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10