



Energy-directed Test Suite Optimization

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Message

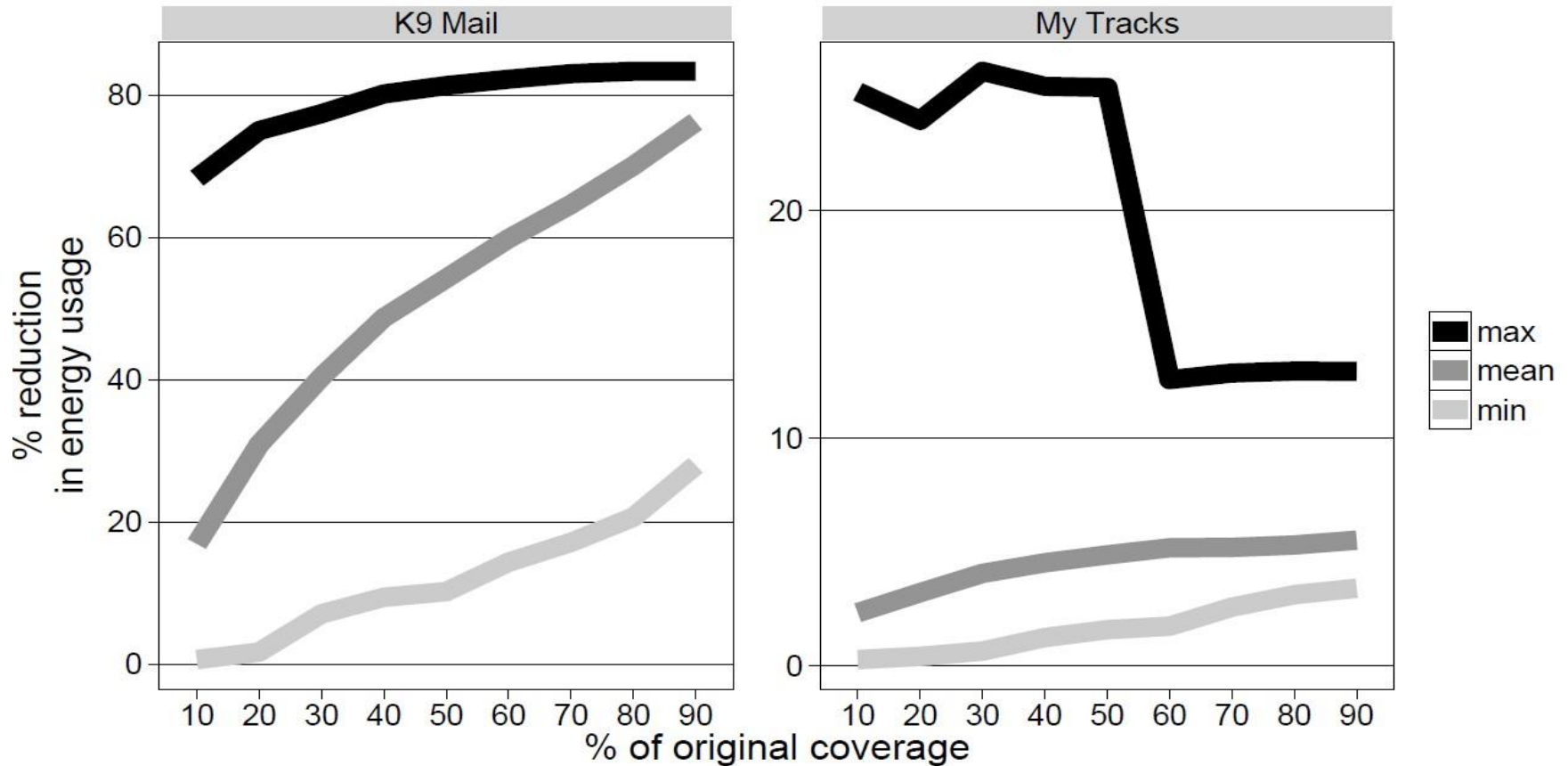
- In situ testing is necessary
 - But will consume battery power
- Idea: optimize energy usage of test suite
- How much energy can we save?



REFTEK™ Earthquake Sensor

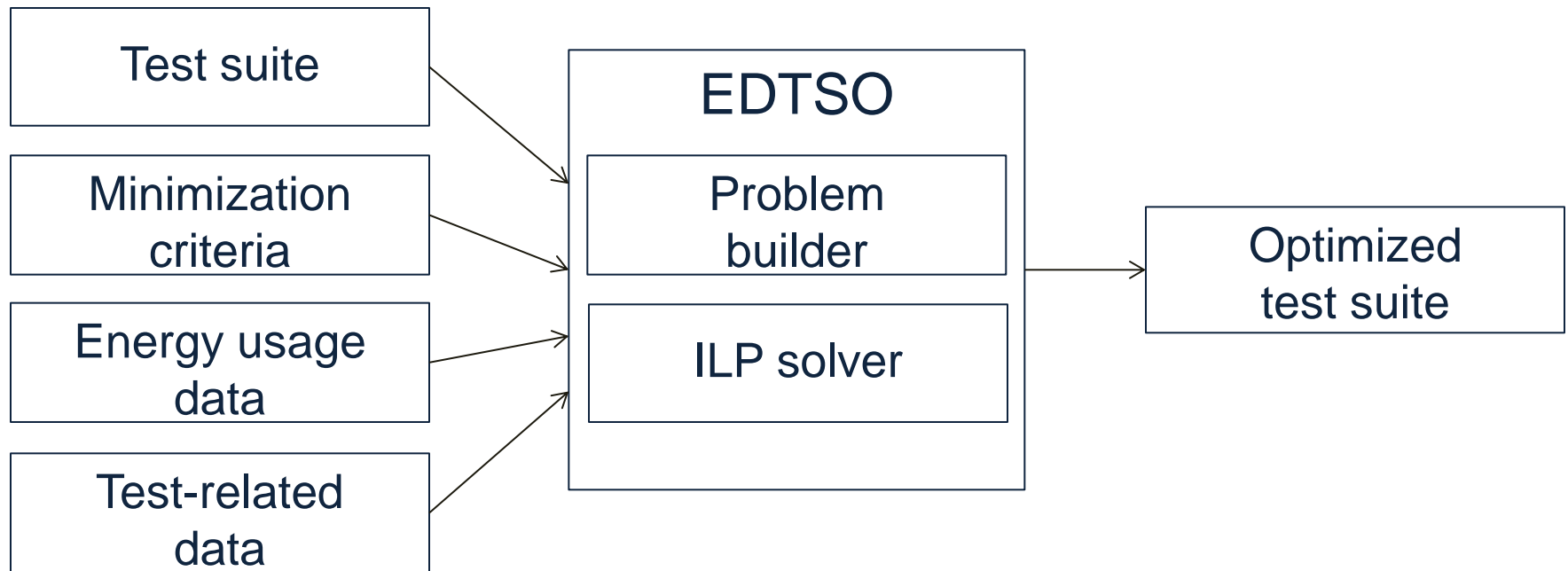


Message





Overview of the Process





Difficulties

- How to maintain code coverage?
 - Encode as an Integer Linear Programming(ILP) problem
- ILP problem is NP-hard
 - Usually solvable in a reasonable amount of time
- How to measure the energy consumption?
 - Use the LEAP platform with Android x86



Thank You



Future Questions

- How to measure the energy usage of very short test cases?
- How to integrate energy usage information into the development process?