

Building Secure Applications with Non-Static Information Flow Policies



PennState

Background:

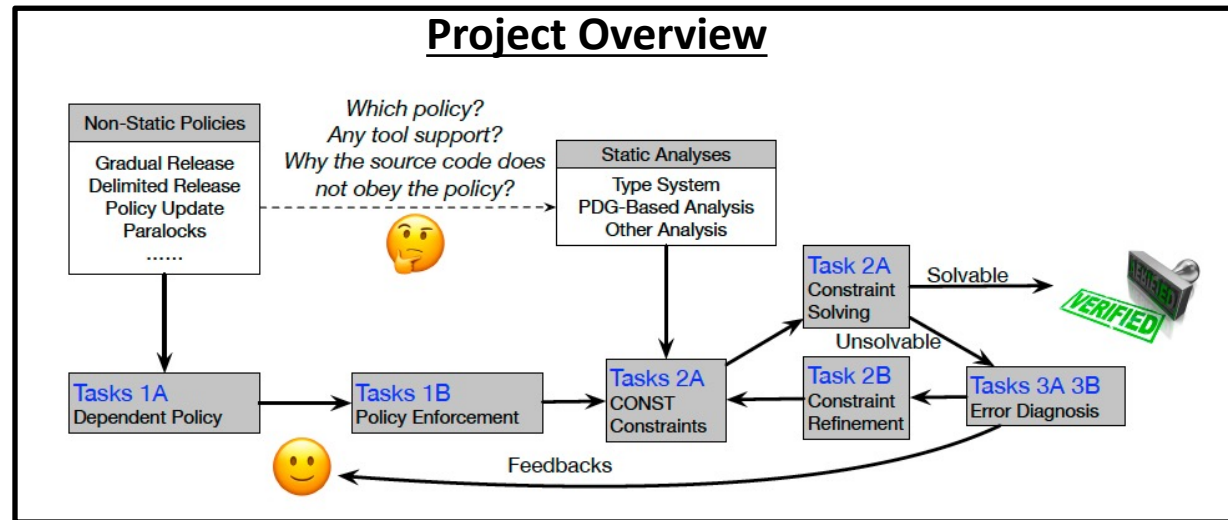
- Information flow policy governs how data and their derivatives can propagate in a computer system
- Many security concerns can be formalized in terms of information flow policies

Challenge:

- Information flow policies in real applications are rarely static: data sensitivity and integrity change over time

Solution:

- Dependent policy: a simple, declarative and unified definition of various non-static information flow policies
- CONST: a constraint language for analyzing non-static policies
- An error diagnosis module for programs that violate the specified policies



Scientific Impact:

- Provide a new foundation of understanding and enforcing non-static policies
- Lead to the development and validation of more secure applications

Broader Impact and Broader Participation:

- Integrated research and educational activities
- Involvement of students from under-represented groups

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