Development and Industrial Application of Multi-Domain Security Testing Technologies

Innovation Sheet
Test-Based Risk Assessment
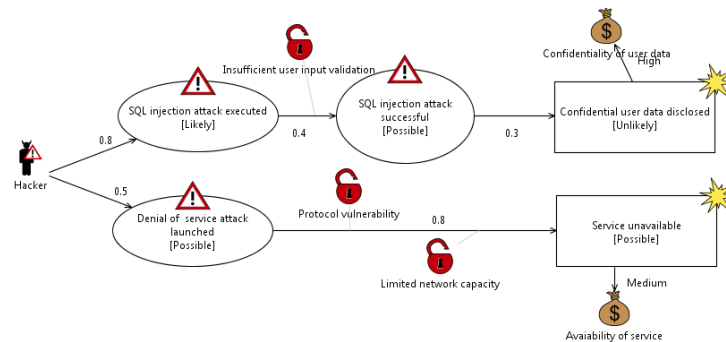
Test-Based Risk Assessment
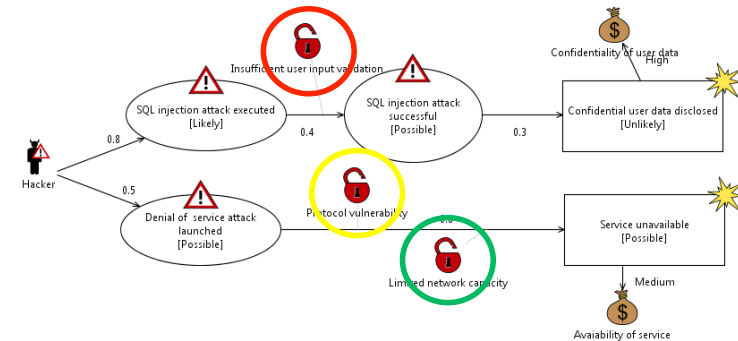## Description

1. Risk assessment
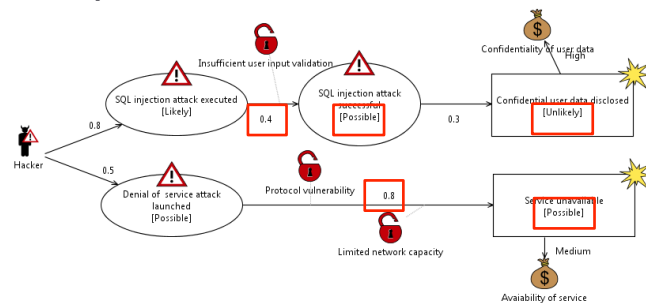- A CORAS risk model is specified

2. Vulnerability prioritization
- Vulnerabilities are prioritized

4. Risk verification
- The likelihood estimates are updated based on test results

3. Test selection, specification, and execution
- The vulnerabilities with the highest priority are select.
- Tests are specified and executed for the selected vulnerabilities

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Test-Based Risk Assessment
State of the art

- Many approaches to risk-base testing have been proposed. However,

  - Most approaches to risk-based testing consider either test identification or test prioritization based on risk assessment results. We consider both.

  - Very few approaches to risk-based testing use the test results to update/verify the risk assessment.

  - Very few approaches to risk-based testing targets *security* in particular.

  - Few techniques have been proposed that are specific to risk-based testing. Most approaches rely on already established techniques from risk assessment such as HAZOP analysis or fault tree analysis.

Test-Based Risk Assessment
Advances beyond the state of the art

- The CORAS method for risk assessment has been extended to support both security test identification and test prioritization into account has been proposed.

    [Deliverable D3.WP4, Section 2]

- A conceptual model combining concepts from the risk assessment and the testing domain has been developed.

    [Deliverable D3.WP4, Section 1]

- An empirical evaluation of the extend to which testing results may impact the risk model has been conducted.

    [Deliverable D3.WP4, Section 3]

- An algorithm for prioritizing vulnerabilities and threats scenarios that can be used for test selection and prioritization is under development.

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Test-Based Risk Assessment
Exploitation and application to case studies

- The method for test-based risk assessment was applied in the Accurate Equity case study.

- Accurate Equity will continue to use risk assessment as part of the business process also after the DIAMONDS project has ended.