

Model-based Security Testing in Automotive Industry

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Model-based Testing

Security Testing

Model-based Security Testing

Model-based Testing

- Model Specification
 - Data included, construction of system
- Test Generation
 - Algorithms, coverage
- Test Execution
 - Online/Offline

Security Testing

- Verification of security requirements
- Approaches
 - Penetration testing
 - Risk-based testing
 - Vulnerability scan testing
 - Fuzz testing
- Performed late in the development cycle
 - Time & cost

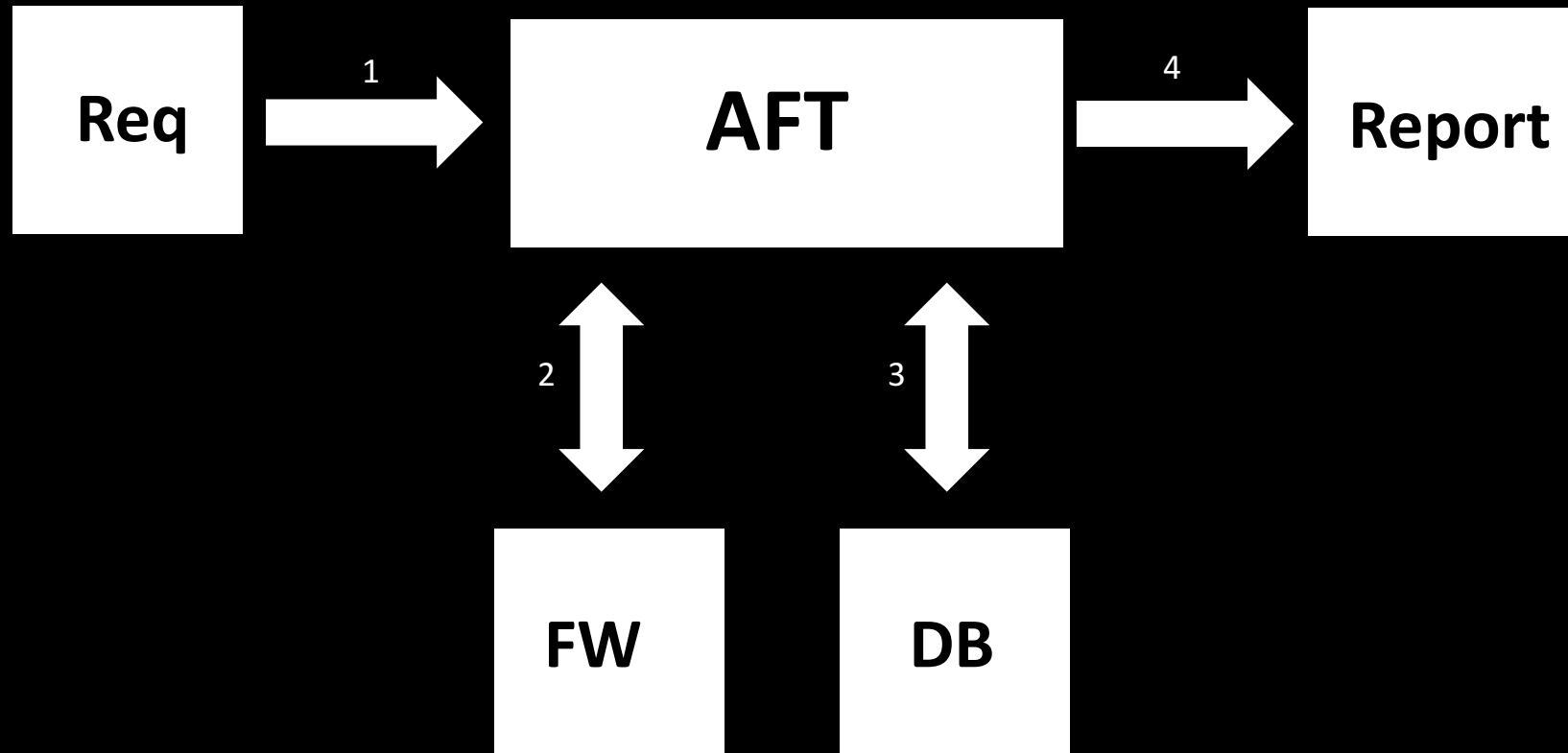
Model-based Security Testing

- Filter Criteria
 - Model of System Security
 - Security Model of the Environment
 - Explicit Test Selection Criteria
- Evidence Criteria (optional)
 - Maturity of Evaluated System
 - Evidence Measures
 - Evidence Level

Thesis

- Investigation at VCC
 - Security requirements
 - Maturity in modelling
- Evaluation of tools
 - Model-based security testing
 - Model-based testing
- AFT
 - Functional security

Proof-of-Concept



Conclusion

- Model-based Security Testing seems promising
- Further research
- VCC needs to mature more within this area to introduce such an approach
- Limited PoC