Security Testing

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What is Security Testing?

Validate security controls operate as expected

What to Test?

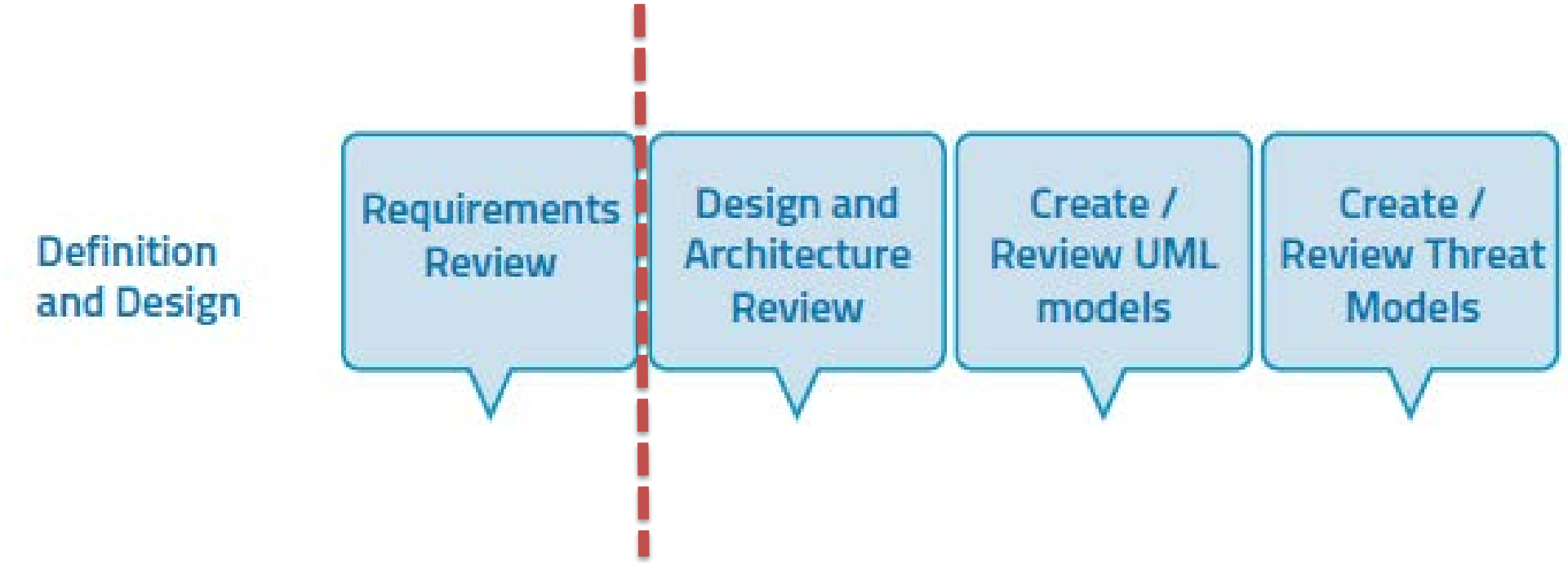
- People
  - Ensure there is adequate education and awareness
- Process
  - Ensure there are adequate policies and standards and that people know how to follow these policies
- Technology
  - Ensure that the product has been effective in its implementation

When to Perform Security Testing?

Before Development

Metrics
Criteria
Measurement
Traceability

When to Perform Security Testing



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How to Perform Security Testing

- Manual Inspections
- Threat Modeling
- Source Code Review
- Penetration Testing
- Tool-based Testing
  - Static Code Analyzers
  - Dynamic Code Analyzers
  - Fuzz Testing
- Security Test Suites

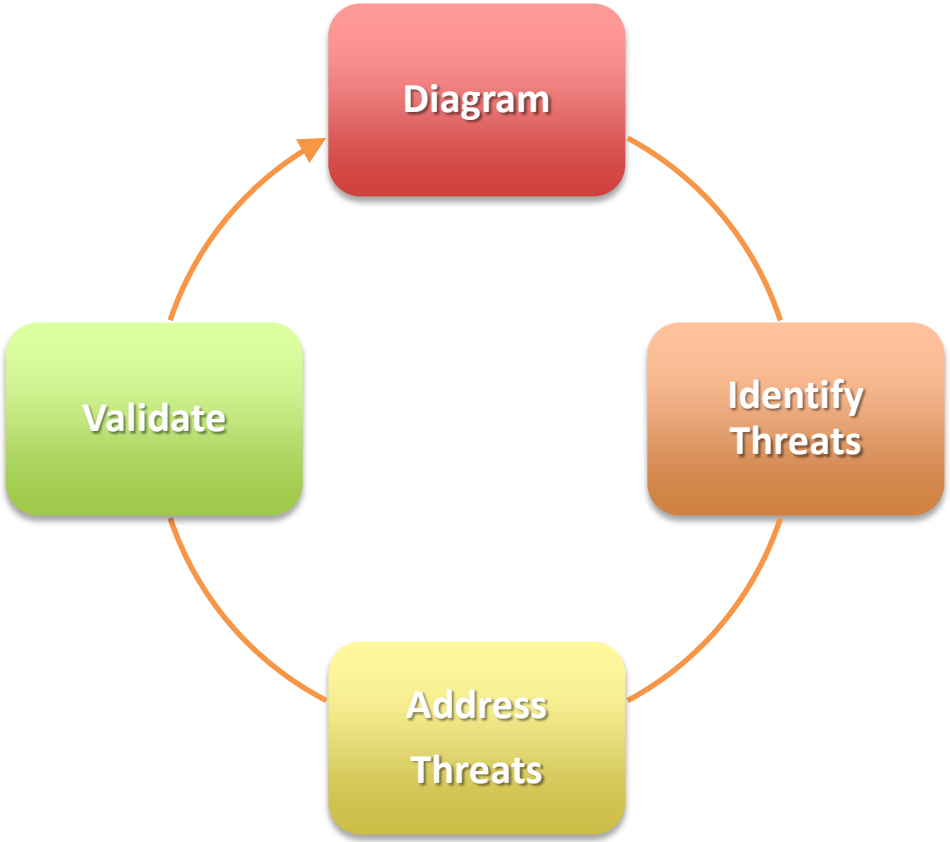
Manual Inspections

- Human reviews
- Analyze documentation, models, and other artifacts
- Interviews

- Advantages
  - No technology needed
  - Use throughout the SDLC
  - Flexible

- Disadvantages
  - Time consuming
  - May not have supporting materials
  - Requires significant security skill

Threat Modeling



- Advantages
  - Attacker's point of view
  - Early in the SDLC
- Disadvantages
  - Good threat models don't automatically mean good software

Source Code Review

- Manually check the source code for security issues
- “If you want to know what’s really going on, go straight to the source”
- Examples that can be found:
  - Concurrency issues
  - Flawed business logic
  - Backdoors (Trojans, Easter Eggs)
  - Weak cryptography
  - ….

- Advantages
  - Complete, effective, accurate

- Disadvantages
  - Requires skilled developers
  - Can’t find issues in 3rd Party or compiled libraries
  - May miss runtime issues

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