A Method for Modeling and Quantifying the Security Attributes of Intrusion Tolerant Systems

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Overview

- Authors developed a general model for quantifying security attributes using probabilities and Markov processes.
- They present an example of model application to specific security threat: DoS attack.
- They also present example with numbers for testing the model

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Intrusion tolerance vs Fault Tolerance

- They are similar.
  - Failures are almost always accidental. Intrusions are caused by deliberate actions.
  - Active attacker and failure occurrences may be modeled with random processes
  - Attacker has to identify vulnerabilities before attack. Fault tolerance assume system is always vulnerable
  - After attack, intrusion tolerant system responds in a similar manner to actions initiated by fault tolerant system

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