

## **A Stochastic hierarchical system steady-state availability**

### **Model**

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Stochastic models are adept at modeling the dependability attributes of critical systems. The dependability attributes include availability, reliability, safety, integrity, maintainability, survivability, performance and confidentiality. This paper presents a novel method of computing the steady-state availability of a system using the closed form approach. Continuous Time Markov Chain models are instrumental in deriving the steady-state availability balance equations of the system modules from which the closed form solutions are obtained. Imperfect coverage and switch-over are incorporated into the Continuous Time Markov Chain models where applicable.

**Keywords:** Availability; Continuous Time Markov Chains; Dependability attributes.