Performance assessment of high-availability systems using Markov chains

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ABSTRACT

As our society evolves, more and more aspects of our daily life depend on large-scale infrastructures such as software intensive computer infrastructures, rails and road networks, gas networks, water networks, power networks, and telecommunication networks, including the internet, wired and wireless telephony. Critical infrastructures are everywhere and they are becoming increasingly more interconnected and interdependent. Open source software repositories (e.g. Sonatype Nexus) have become central to these critical infrastructures, as they are used to support continuous system integration in several critical domains such as telecom, banking, airlines and government. In this tutorial, we present an approach for Survivability Evaluation of Critical infrastructures and its application in a DevOps environment. We present examples of application to Water, Gas, Power, and Computer infrastructures. This work is the fruit of open global research collaboration with many colleagues in several Universities and research Labs.

Categories and Subject Descriptors

C.4 [**Performance of Systems**]: Modelling Techniques

Keywords

Survivability; Transient Analysis; Smart Grid; Fault Tolerance

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