

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 keynote, 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.

Keywords

Survivability; Transient Analysis; Smart Grid; Fault Tolerance

BIOGRAPHY

Alberto Avritzer received a Ph.D. in Computer Science from the University of California, Los Angeles, an M.Sc. in Computer Science from the Federal University of Minas Gerais, Brazil, and the B.Sc. in Computer Engineering from the Technion, Israel Institute of Technology. He is currently Lead Performance Engineer at Sonatype. Before moving to Sonatype, he held Senior positions at Siemens Corporate Research and at AT&T Bell Laboratories. In these positions



he developed new tools and techniques for performance testing and analysis. He spent the summer of 1987 at IBM Research. His research interests are in software engineering, particularly software testing, monitoring and rejuvenation of smoothly degrading systems, and metrics to assess software architecture, and he has published over 60 papers in journals and refereed conference proceedings in those areas. He is a Senior Member of ACM.

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