

Graduate Student Research Day 2010

Florida Atlantic University

COLLEGE OF ENGINEERING AND COMPUTER SCIENCE

A Methodology to design Fault Tolerant and Reliable Architectures.

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We intend to find ways to add fault tolerance and security to architectures using patterns. An approach on how to apply these patterns in a system will serve as a guide to engineers on how to implement fault tolerance and reliability in critical applications. We have surveyed and evaluated existing fault tolerance patterns. This knowledge is required to identify areas for improvement, as well as to identify and write new fault tolerance patterns for areas that have not yet been addressed. We are also studying software architecture quality. Service Oriented Computing (SOC) and cloud computing are becoming the preferred way to support IT functions. SOC systems provide functionality to servers while Cloud Computing allows platform support for those services to be virtualized. A virtual machine is a software process of a real server. We will provide a way to incorporate patterns to make system architectures more reliable and secure. A pattern is an encapsulated solution to a software problem. We are finding ways to build systems that are both secure and fault tolerant. We already have a variety of patterns for security and fault tolerance. There is little work on fault tolerance patterns and even less work on including fault tolerance and security to improve architectural quality.