Mission Critical Systems: Project Proposal

Due: March 1, 2016
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Overview

I would like to extend the JPF model checker to add functionality for database accesses. Java has functionality to interact with these database, some of them are native methods. In general, JPF does not play will with native methods.

Objective

My project proposal includes extending the JPF model checker to add functionality for database accesses, specifically MySQL. Java has functionality to interact with a MySQL database through some native methods. In general, JPF does not play will with these or any other native methods.

I propose the implementation of a native peer as it will allow JPF to reach into the JVM and execute the native methods as desired.

This is an interesting topic to me because many applications rely on interacting with a database; this can and will fail. I believe, we can use model checking techniques to catch these potential errors before they surface.

Goals

Some target goals that I would like to reach include, but are not limited to:

- Implement Native peer for Database connection.

- Implement Native peer for Database interacts.