

# Verification Tools Secure Online Shopping, Banking



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## Originating Technology/NASA Contribution

- ◆ Space operations require robust, fail-resistant programming to ensure the safe, effective execution of mission-critical control systems
- ◆ NASA developed a powerful verification toolkit called Java Pathfinder (JPF) for software written in the popular Java programming language



## Partnership

- ◆ JPF's Symbolic Pathfinder tool could automatically analyze code structure to find defects but could not handle text inputs, or strings
- ◆ Fujitsu built upon the open-source NASA software to create string input capabilities, increasing the tool's effectiveness

## Product Outcome

- ◆ The enhanced technology unearths software bugs not found with existing technologies
- ◆ The software helps ensure operation and security of Web-based Java programs like banking applications and shopping carts
- ◆ Fujitsu open-sourced its string input extension for NASA and others to continue development