Czech Technical University, Prague
Faculty of Electrical Engineering

Master's Thesis

Performance Profiling for .NET Platform

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Declaration

I hereby declare that I have completed this master thesis independently and that I have listed all the literature and publications used.

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Abstract

The so-called cascading undo command has been introduced by Aaron Cass and Chris Fernandes [CF06]. This new approach to the undo command overcomes the weakness of the linear undo command. It allows undoing an arbitrary action from the history while watching the dependencies among the actions. However, there is not a visualization of cascading undo yet. Thus, in this thesis we discuss, introduce, develop, and evaluate several visualizations for cascading undo. Unlike the linear undo visualizations, cascading undo visualizations have to deal with dependencies among user actions. We believe that an overview of the dependencies should be presented to a user before committing and undo command. The visualizations we proposed are flexible enough to reflect the possible complexity of the user actions and their dependencies.

Abstrakt

Aaron Cass a Chris Fernandes představili takzvaný kaskádový příkaz zpět [CF06]. Tento nový způsob příkazu zpět překonává slabiny všudypřítomného lineárního příkazu zpět. Umožňuje totiž zrušit libovolnou akci z historie akcí dokumentu. Při tom bere v potaz závislosti mezi těmito akcemi. Nicméně nikdo ještě nevyvinul vizualizaci pro kaskádový příkaz zpět. V této práci diskutujeme, představujeme, vyvíjíme a hodnotíme několik vizualizací kaskádového příkazu zpět. Na rozdíl od vizualizace lineárního příkazu zpět musí kaskádový příkaz zpět počítat se vzájemnými závislostmi provedených akcí. Věříme, že uživatelé by měli mít přehled o těchto závislostech ještě před jejich vlastním odebráním. Námi navržené vizualizace jsou flexibilní natolik, aby zvládly zobrazit komplexitu uživatelských akcí a závislostí mezi nimi.

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Chapter 1

Introduction

According the Pareto's law (also known as 80/20 rules) 80% of the effects comes from 20% of the cause [Koc99]. It mean [CFP06]

Performace profiling dynamically analysises execution behaviour of a program. It tracks various runtime related data as frequency and duration of function calls. Analysis and visualition of the gathered data provides useful hint on the program's code runtime characterics and helps during optimalization and exploration of the program.

Profiling can be achived by various means as e.g. by inserting tracing code into either the source code or the binary executalbe of the program or by runtime sampling of thread call stacks of the program or by listening to events invoked by a program's runtime engine.

Each of aforementioned approaches differs in overhead imposed to the program and in kind, precision and granuality of the gathered data.

In the world of .NET performace profiling exist already few full-fledged solutions targeting almost all .NET platforms from desktop to Windows Phone applications. However, they are mostly commercial and do not provide deep integration into development tools.

In the

Bibliography

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[Koc99] Richard Koch. *The 80/20 Principle: The Secret to Achieving More with Less.* Crown Business, 1999.