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# Automation of Continuous Services: What Companies of Latvia says about it?

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## Abstract

Automation is a one of mandatory success factor of continuous services in the software development area. There are many challenges related to automation of different IT operations to support continuous services up time. The story of current paper has been started a couple years ago, when a novel EAF approach has been designed. The main scope of this approach is decreasing of implementation time of automation of IT operation using model-driven paradigm and reusable functions. Based on first results of approbation of EAF, a survey has been developed to get opinions about challenges of automation and possible EAF improvement topics. Current paper provides results of mentioned survey where more than 40 IT companies provide the opinion about challenges in continuous services automation. Based on these results, EAF improvement topics are defined. All these topics are devoted to make EAF approach more useful and friendly for IT companies of Latvia, taking in account needs and challenges of mentioned companies.

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## 1. Introduction

Continuous services in context of this paper considered as a set of processes related to continuous updates of test and production environments during software development lifecycle. In this paper, these processes are operations with bug tracking systems, operations with version control repositories, software builds and deployments and

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operations of software release management. Some years ago, a novel model-driven approach has been designed. The main goal of approach is to automate mentioned processes. Now this model-driven approach is implemented in one of the biggest ICT companies of Latvia. The survey for other ICT companies has been designed to detect actual problems in the automation field and to detect improvement directions of mentioned model-driven approach.

The paper provides results of survey about automation of continuous services. Based on these results, a new vision of automation approach has been introduced. To make this vision real, further research directions are justified in the conclusions of current paper.

## 2. EAF approach: background and introduction

Current research has been started few year ago, after paper<sup>1</sup>, where conception of intellectual model-based software configuration management has been designed. Later, after reading the paper<sup>2</sup>, author of this paper has designed novel EAF approach, which allows to make continuous process model and choose reusable automation solutions for automation of mentioned continuous process. DSL language for continuous process model is described in paper<sup>3</sup> and called as Environment model. Later in the papers<sup>4,5,6</sup> DSL language has been improved and the name has become Platform Independent Environment Meta-Model. Finally, mentioned meta-model has been implemented with MetaCase toolset and particular implementation has been described in paper<sup>5</sup>.

Current version of EAF approach contains the following parts:

- Platform Independent Environment Meta-model – a modelling language implemented at MetaCase platform. The scope of this language is modelling of continuous process, which should be automated later
- Reusable Function Library – a repository with scripts and tools for automation of particular parts of continuous processes. Really, this is a physical directory in file system where reusable scripts and tools are stored under version control
- Automation Framework – a tool, which connects together a model of continuous process, designed using Platform Independent Environment Meta-model and Reusable Function Library. The framework analyse and parse Reusable Function Library. During the next step, other parser get structure of Platform Independent Environment Model. When all parsing are completed, user is able to choose particular automation solutions from library. Finally, source code for automation of process described in model could be generated as well representation of automation buttons

The Fig. 1 provides a general picture of EAF approach. Automation Framework provided at Fig. 1, contains Reusable Function Templates. Software develop automation source code as a reusable function and add it to library. Automation framework could generate general structure of library using library physical directory in the file system and pre-defined function template. The structure of reusable functions is human readable and provides scopes for each reusable function.

The second developer works with Platform Independent Environment Meta-model using MetaEdit tool. He design a process model which should be automated. The model contains such concepts as environments (dev, test, production), a set of bug tracking systems (JIRA, Redmine), a set of software components (database nodes, application nodes etc.), processes with steps<sup>5</sup>.

When Platform Independent Model is ready, it could be parsed by PIEM Parser. The parser provides a structure of designed model with action flows. Then developer could select a platform for automation of particular process. Starting from this moment, developer works with Automation Source Code Generator and selects reusable functions for each ActionFlow<sup>5</sup> from Platform Specific Action Model. When all flows are fulfilled with reusable functions, Automation Source Code Generator generates a source code for automation.

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