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The United States of a Meta-model build with MyDraft

An agile model-driven cloud-based platform for data-oriented rich web applications

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Abstract

This is the true story of the unification of the various states of an executable meta-model living in a nascent cloud-based environment. Tracing his adventures will uncover short iterations where design time and runtime activities are collapsed in a storage space-time continuum. His personal goal: improving himself. His day job: empowering domain experts to build and run data-oriented rich web applications without technical skills. Global warming side effects: a new social model and division of labor and fun.

Categories and Subject Descriptors D.2.2 [Software Engineering]: Design Tools and Techniques.

General Terms: Design, Experimentation.

Keywords: meta-design, model-driven, domain-specific modeling, traceability, time machine, rapid development, cloud computing

1. Speaker

Michel Zam, PhD, is co-founder and CSO of KarmicSoft, Associate Professor at Paris Dauphine University, and member of IEEE Computer Society. He holds innovation awards and patents on evolution and traceability of both data and software. He and his team build reflexive tools, flexible applications and traceable solutions. He faced design challenges, meta bugs, and knows the real story of aggressive software evolution from inside.

2. Description

Building data-oriented web applications is a highly demanding and well-codified specific domain. Nevertheless, delivering such applications in time and budget remains a challenging mission. The main cause is the increasing rate of business requirement evolutions that need to be impacted concurrently through data, model and even through the meta-model. Usually, final users input data minute by minute, domain experts and developers need to adapt data models and user interface hour by hour, and eventually gurus add new features to the platform itself every day.

MyDraft is a platform designed to cope simultaneously with evolution at several levels: data, model and meta-model. MyDraft manages data, models and meta-models in a unique versioned repository, embracing the executable model-driven paradigm rather than code generation techniques. Design time and runtime activities are therefore unified and the system almost never stops. In MyDraft, domain specific modeling for collaborative data-oriented

rich web applications includes specific high level abstraction constructs as screen fragments and composition mechanisms.

The demonstration will illustrate how to model, build and run a specific data-driven rich web application from scratch in minutes, with no technical skills. As these activities are notoriously collaborative, we will also reveal the traceability support including automatic versioning and the integrated time machine. The audience will travel in space and time through the evolutionary process of an emerging application, where models and data are changed in an unpredictable order, just like in the real life.

Then, we will show how to build and run a simple domain-specific model meant to orchestrate remote statistical computations, still keeping track of the state of every single running task.

These adventures will inspire new features to the platform itself, so we will finally demonstrate an open-heart surgical operation. This will enhance the DNA of every single citizen of the sustainable cloud-based software environment. Instant jump back in time shows initial versions of data and earlier development states of the application and the environment itself. Trace pattern mining stimulates insight, new ideas and better ways to rebuild the system. Changing the past is tempting, but this could alter the timeline and change the course of the history, including the mindset of the audience.

The demo is relevant to the DSM community members that face evolution as a day-to-day challenge. We share the same quest for higher productivity and taste for raising the level of abstraction, but we choose to boldly eliminate the gap between problem and solution modeling. In MyDraft data and programs co-exist in a causally connected system and their interactions are traced on the fly and used to impact changes. Therefore final users, domain experts, developers and gurus can finally share a common peaceful world located in the cloud.

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