# FAST Platform: A Concept for user-centric, enterprise class Mashups

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**Abstract:** A new kind of Web-based application, known as Enterprise Mashups, has been gaining momentum in the last years: Business users with no or limited programming skills are empowered to leverage in a collaborative manner existing Mashup components and to combine and reuse existing Web-based resources within minutes to new value added applications in order to solve individual and ad-hoc business problems. In the frame of the EU funded research project FAST, we are currently developing a new platform which allows business users to build user-centric, enterprise class Mashups. In contrast to existing approaches focusing on mashing up heteogeneous data sources, the envisioned FAST platform proposes a screen flow design resulting in so called gadgets which can be executed in various environments – reaching from Enterprise Mashup environments, social networks, and mobile devices to local desktop applications. The underlying concepts and a first prototype of the FAST Platform are presented in this poster session.

## 1 Motivation

Most of today's software applications still lack in providing its users intuitive ways to modify or to extend them according to their individual and ad-hoc needs. These needs and expectations are relatively modest and can be described by expressions such as *''quick and dirty''*, *''just good enough''*, and *''the perpetual beta''* that are the mantras of situational application developers [CBG+07]. New development approaches are needed to overcome theses hurdles and to involve the group of non-technical business users into the development process in order to address the long tail of their requirements. If the mass of non-technical business users is enabled to actively participate in the application development, cost-effects and efficiency gains could be realized.

Especially Enterprise Mashups, a new generation of Web-based applications, seem to adequately fulfill the individual and heterogeneous requirements of end-users. In literature, the exact definition of Enterprise Mashups is open to debate. In this work, we refer to the definition of [HSSJS08]. *"An Enterprise Mashup is a Web-based resource that combines existing resources, be it content, data or application functionality, from more than one resource in enterprise environments by empowering the actual end users to create and adapt individual information centric and situational applications"*. By simplifying concepts of Service-Oriented Architecture and by enhancing them with the Web 2.0 Philosophy of peer production, Enterprise Mashups focus generally on software integration on the user interface level instead of traditional application or data integration

approaches. In contrast to SOA that is characterized by high technical complexity of the relevant standards (SOAP, WSDL, UDDI, BPEL, etc.) [SJ07] and requiring specialists' technical knowledge, the simplified Enterprise Mashups enable the integration of end users with no programming skills in the development process.

The relevant components of the Enterprise Mashop paradigm are resources, widgets, and Mashups [HSSJS08] and can be structured in an Enterprise Mashup Stack comprising three layers: **Resources** represent actual contents, data, or application functionality that are the core building blocks of Mashups. They are encapsulated via well-defined public interfaces (Application Programming Interfaces; i.e., WSDL, REST, RSS, Atom, XML, etc.) that allow for the loose coupling of existing resources – a major characteristic stemming from the SOA paradigm. These resources can be provided by enterprise systems or by external Web providers (i.e., Amazon, Google, etc.) and are created by traditional developers who are familiar with the technical development concepts. The layer above contains **gadgets** which are responsible for providing graphical and simple user interaction mechanism abstracting from the complexity of the underlying resources. For example a gadget "Customer Data" might provide results for a predefined query requesting the data for all customers of a sales manager. The creation of these gadgets can be done by consultants or key users in the business units who understand the business requirements and know basic development concepts. Finally, end users from the business units are able to combine and configure such visual gadgets according to their individual needs, which result in a **Mashup**. The sales manager (end user) for example wires the "Customer Data" gadget with a map to show the location of the customers on an interactive map.

## 2 FAST Project

The FAST project [FA09] is a FP7 Framework Programme funded project which will set the base for a new software development paradigm that will facilitate the development of complex gadgets involving execution of relatively complex business processes that rely on back-end (semantic) Web services. In contrast to existing approaches and Mashup prototypes (like Yahoo Pipes, Microsoft Popfly, SAP Research Rooftop, IBM Mashup Center, etc.), the FAST tool allows to compose user-centric, enterprise class Mashups instead of data-centric Mashups [HF08]. The industrial relevance for such kinds of Enterprise Mashups has been identified by the industrial partners of the FAST consoritum (SAP and Telefonica) during the implementation of several Mashup scenarios in their enterprise environment.

To reach this vision, the FAST project follows a user-centric approach. The FAST developer will visually manage and connect front-end gagdets, screen flow resources and back-end services. In a top-down approach, the backend acts as a repository of services, data and functionality ready to be integrated in any front-end Mashup platform. Besides social platforms or networks (Facebook, iGoogle, Netvibes, etc.), desktop environments (Microsoft Vista Gadget, Yahoo Widgets, etc.), and mobile devices (Apple iPhone, Google Android, etc.), the resulting screen flow gadgets will be published and executed in Enterprise Mashup platforms (i.e, EzWeb) to demonstrate the business impact of the

Enterprise Mashup paradigm. To characterize and conceptualize complex gadgets in their entire magnitue (graphical elements, user interaction models, data flows, etc.), we specify a FAST ontotoly. It defines the conceptual model for organizing the various components (gadgets, screens, flow operations, resources). Enriched with user profiles and history data, FAST efficiently supports its users by only providing the relevant mashable components according to the users' current context. By reducing and hiding the complexity of technical resources, users with limited or no programming skills are able build complex gadgets and Enterprise Mashups with the FAST platform.

The figure below depicts the relevant elements to compose process-oriented Enterprise Mashups. In contrast to existing consumer-oriented gadgets characterized by one screen, we propose a screen flow oriented gadget model. It can consist of various *screens* (ready-to-compose building blocks that can be considered fully functional by itself) that are connected with each others by *flow operations* (i.e., by a gateway operator). Besides the actual *form* representing the graphical user interface of the screen, a set of *resources* builds the content of a screen.

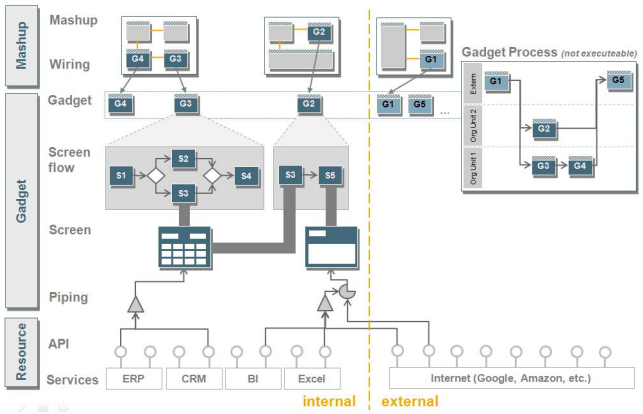


Figure 1: Composition of complex, user-centric Enterprise Mashups

## 3 Demostration: FAST Platform

In the poster session, we will present a first prototype of the FAST platform that realizes an e-Commerce business scenario. As depicted in the figure below, the demonstration will focus on the screen flow design of a complex gadget and the execution within the Enterprise Mashup platform EzWeb[1]. By composing several screens with each other (product search, product details, shopping cart, product comparative, etc.) into a FAST gadget, we will demonstrate how a key user with limited programming skills is able to build a process-oriented Enterprise Mashups and to provide the created gadget to the end users from the business units. Thereby, the FAST platform supports key users to select

[1] http://ezweb.morfeo-project.eu

interoperable screens according to the underlying semantics expressed in post and pre conditions. A first video of the e-Commerce scenario can be found on YouTube[2].

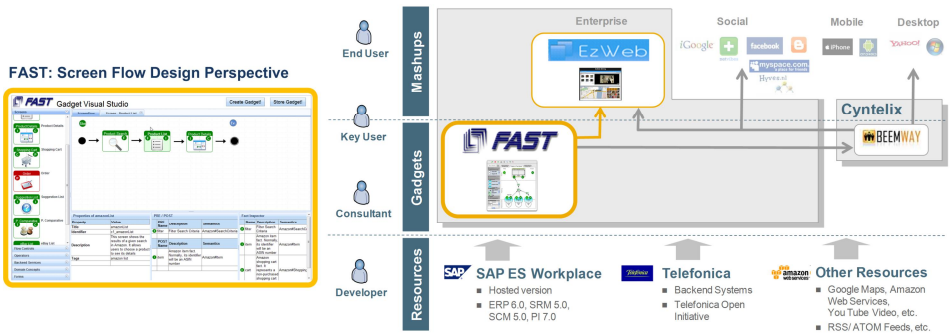


Figure 2: Scope of the FAST Demonstration

In addition, we will provide a poster to present and discuss the vision and the underyling architectural components of the FAST platform. The poster can be found in the annex of this paper.

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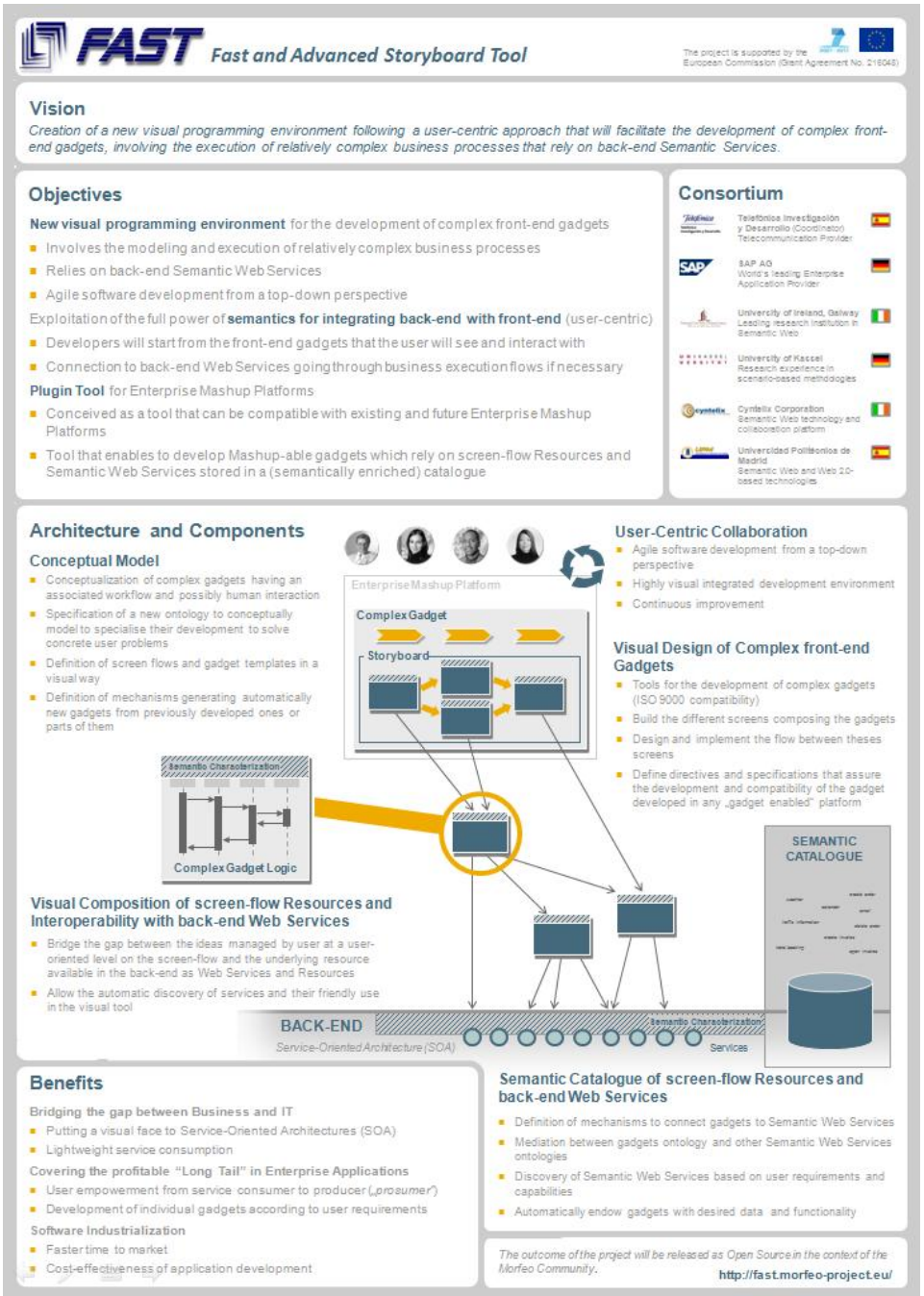
[2] http://www.youtube.com/watch?v=PMYPyTLkBq0

# Annex – FAST Poster