

Mobile First Notice of Loss: Web Service-Based Enterprise Integration of the Android Platform

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Abstract. After car accidents, people are stressed out and overstrained, even if no one is hurt. They also lack adequate and immediate support, for example to get their car fixed or to organize a rental car. In addition, they may have doubts regarding their insurance coverage and worry about the lengthy and paper-based loss report. On the other hand, it is crucial for insurance companies to get detailed case circumstances as early in the claims management process as possible, in order to decrease costs and processing time. Against this background, we propose the direct integration of mobile phones with claims management enterprise systems. Our demonstrator shows how an Android-based mobile phone is used to directly create an insurance claim in the SAP Claims Management solution. In addition, we demonstrate subsequent value-added services on the mobile phone, like directions to the next authorized repair shop or the arrangement of a rental car, and show how an insurance representative evaluates the submitted information in the enterprise system.

1 Introduction

When it comes to emotionally stressful events like car accidents, people usually are overstrained and lack adequate and immediate support. This includes the arrangement of a towing service as well as the navigation to the closest repair shop. In addition, they worry about their insurance coverage and the associated paperwork they need to complete as part of the loss report (also known as “first notice of loss”). While people want to talk to a human counterpart in this highly stressful situation, we believe that mobile phones can play an important role in both supporting them with the first notice of loss and offering value-added services in the aftermath of a car accident. On the other hand, insurance companies suffer from problems with respect to data quality, data completeness, timeliness, and media breaks, which lead to high costs. As recent studies indicate, potential cost savings based on pro-active claims management are

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estimated to be 15 % [1]. In addition, more detailed context information about an accident also enables an insurance company to offer value-added services like directions to the next authorized repair shop or the arrangement of a rental car.

We believe that many of the outlined shortcomings can be addressed by applying ubiquitous computing [2] technology in order to integrate insurance business processes implemented in enterprise systems with actors and insured objects located in the physical world. Possible applications of ubiquitous computing in the insurance industry were discussed by Coroama et al. [3] and first prototypes that apply ubiquitous computing technologies in the insurance domain were presented (e.g. Well-Being Store [4]). We propose to use mobile phones to report insurance claims and consume value-added services. Our approach targets a user need as well as a business need in the insurance industry since it enables a pro-active claims management.

2 “Mobile First Notice of Loss” Demonstrator

Insurance companies use enterprise systems such as SAP Claims Management in order to support the overall claims management business process ranging from the first notice of loss to the claim settlement. While the respective business processes are concerned with the physical world of insured objects and people, they are poorly or not at all integrated with the latter. Therefore, the most important technical challenge of our approach is to bridge this gap and enable an Android-based mobile phone to interact with rather heavy-weight SAP “Enterprise Services”, which are essentially web services. In order to decouple the mobile phone application from the enterprise system and to allow for the easy integration of third party service providers, we highlight the need for an integration architecture and propose the exploitation of the Service-Oriented Architecture (SOA) paradigm. Using web service technology [5], we developed a service-oriented Device-to-Business integration architecture [6], which enables the integration of mobile phones with claims management business processes. The underlying demonstrator scenario is visualized in Fig. 1.

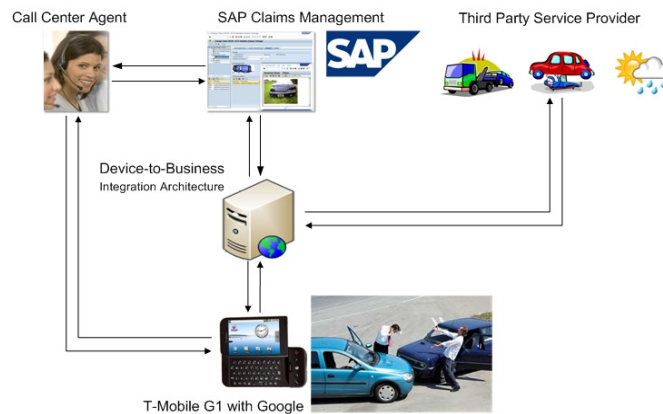


Fig. 1. Demonstrator scenario

As such, the demonstrator incorporates three major components:

- Client application for mobile phones*
- Device-to-Business integration architecture*
- Claims management enterprise system*

For a) we built an application using the open-source platform Android [7] and deployed it on a “T-Mobile G1 with Google” mobile phone. Component b) is realized as a set of Java Enterprise Edition applications that support web service communication. Finally, the SAP Claims Management solution is used as component c). The customer’s mobile phone is used to submit a loss report including information such as GPS location data and the car registration. In addition, the camera of the mobile phone is used to take pictures of the accident, which are attached to the loss report. The demonstrator also shows how the exchange of insurance data between involved parties could look like. Using a barcode reader application, a “QR code” (a two-dimensional barcode) is read from the insurance card of the other party [8]. This code contains insurance-specific data, like the insurance company and the policy number of the insurance holder, which is also sent to the SAP Claims Management solution. After the claim was successfully created and respective further actions were triggered (e.g. the notification of a towing service), value-added services are offered on the mobile phone. For example, the user can utilize Google Maps to navigate to the closest authorized repair shop or request a tow truck by the click of a button. The mobile phone application also provides details about the customer’s insurance policy, like his eligibility for a rental car as well as the ID of the recently created claim. Fig. 2 shows screenshots of the insurance card, the mobile phone application, and the SAP Claims Management solution.



Fig. 2. Demonstrator screenshots

3 Discussion and Conclusion

We presented a demonstrator that provides end-users with adequate and immediate support in the direct aftermath of a car accident. Using a mobile phone application,

users are freed from troublesome paper-based loss reports and can benefit from value-added services. In addition, the customer satisfaction is increased because of a faster claim settlement and fewer inquiry calls due to incomplete data. In order to collect end-user feedback, we conducted a web-based user survey with a panel of 800 participants. The quantitative results indicate a high perceived utility and intention to use. The qualitative end-user feedback focused on usability aspects, because several participants expressed doubts that they would report insurance claims via mobile phones, if this would require further manual input. This feedback supports our goal to limit the user interaction to a single emergency button on the mobile phone. Pressing the emergency button will directly initiate a voice connection with a call center agent, while the available data is transmitted in the background. From the perspective of an insurance company, the demonstrator shows how claims management processes can be improved. This includes enriched claim circumstances and the avoidance of media breaks and leads to a faster claim settlement as well as reduced loss expenses. Our assessment that an earlier involvement of an insurance company can lead to decreased costs and processing time, is supported by qualitative statements during expert workshops with representatives of the five leading non-life insurers in Switzerland.

In summary, we showed how mobile phones can be used to support end-users in the direct aftermath of a car accident and how claims management processes can be improved based on ubiquitous computing technologies. To the best of our knowledge, this is the world's first web service-based enterprise integration of Google's Android platform for mobile phones. As future work, we will increase the amount of real-world interaction. For example, we plan to use mobile phones to retrieve crash data from the on-board unit of a car. We also envision identifying a damaged car or even single components based on identification technology like barcodes or NFC.

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