

# Towards the Vision of Simple Mobile Services

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## **Abstract**

*The vision of the Simple Mobile Services (SMS) project is to provide the means for end-customers to create and provide mobile services as easily as a website in order to leverage the dissemination and usage of mobile services. The submitted video introduces the SMS project and its vision, presents its features in a use case scenario and puts a focus on service authoring.*

## **1. Introduction**

Despite the evolution of mobile applications, the acceptance and usage of mobile services is still lagging behind their actual potential. The technology for using services anywhere and at any time is already available. What is missing are the tools that make the setup and provision of such services as easy as the creation of a website. In this context, the goal of the *Simple Mobile Services* (SMS) project [1] is to provide the means to allow individuals and small businesses to become mobile service providers. For that purpose, SMS develops tools for the creation of a new class of mobile services that are easy to find, easy to use, easy to trust and – most important – easy to set up. This paper accompanies a video that presents the SMS vision of easy development and usage of mobile services for both service providers and end customers. The next section describes this vision in more detail. Section 3 presents different features of SMS in the context of a use case scenario, and section 4 takes a closer look at service authoring in SMS.

## **2. The Vision of Simple Mobile Services**

Simple Mobile Services is a cooperative EU project with several commercial and academic partners (RadioLabs, Università di Roma – Tor Vergata, Athens International Airport, France Telecom, Institute of Communication and Computer Systems of the National Technical University of Athens, Ludwig-Maximilians-Universität München, Sagem Orga, Siemens Business Services, TriaGnoSys, Telecom Italia Group, University of Lancaster, VTT Electronics, XiWrite). The goal of the SMS project is to facilitate the creation, setup and management of mobile services to allow individuals and small businesses to become service providers. It is motivated by the fact that mobile services have not yet used their full potential and matched the success of the World Wide Web. SMS identifies 4 main reasons for this problem: Mobile services are difficult to find, difficult to use, difficult to trust and difficult to set up. In order to overcome these problems, the SMS project will specify requirements for a new class of services, meeting the specific needs of mobile users. It will develop a software engineering methodology and a set of tools, allowing individuals and organizations to develop, deploy and manage their own Simple Mobile Services.

In the vision of SMS, these services will be simple to find as users can choose from a set of services that are automatically adapted to their environment, interests and activities. The availability of Simple Mobile Services can be advertised with posters, leaflets or public displays

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which make them attractive for users and advertisers alike. Simple Mobile Services will be easy to use as they support automatic authentication and configuration. User interfaces and content will be automatically adapted to the characteristics of different mobile terminals. Simple Mobile Services will be simple to trust, providing end-to-end standards-based mechanisms for positive user identification, authentication, and data encryption. Security and privacy characteristics will be designed to take account of provider and end-user requirements, including ease-of-use and the need to understand the implications of specific security options. Most importantly, Simple Mobile Services will be easy to set up. The SMS project will develop and use standards and standard-based tools that will not be more complex than current Web authoring tools.

### 3. A Use Case for Simple Mobile Services

The vision of SMS as an empowering technology for providing and using mobile services starts with the end-users' point of view. The following travelling-business-man-scenario from the SMS video is typical for mobile services but helps outline the features of SMS in more detail. SMS networks can be set up by different providers, e.g. at airports, malls or restaurants. In the scenario, the SMS client on the user's mobile device automatically connects to the airport's SMS network to discover locally available services (Figure 1a) which are sorted by the user's personal preferences and their relevance for him. The information service "Flight Status" is shown on top of the list (Figure 1b). The actual flight data is received via the airport's SMS network and is combined with data stored on the device, a so called *Mobile Electronic Memo* – short MEM.



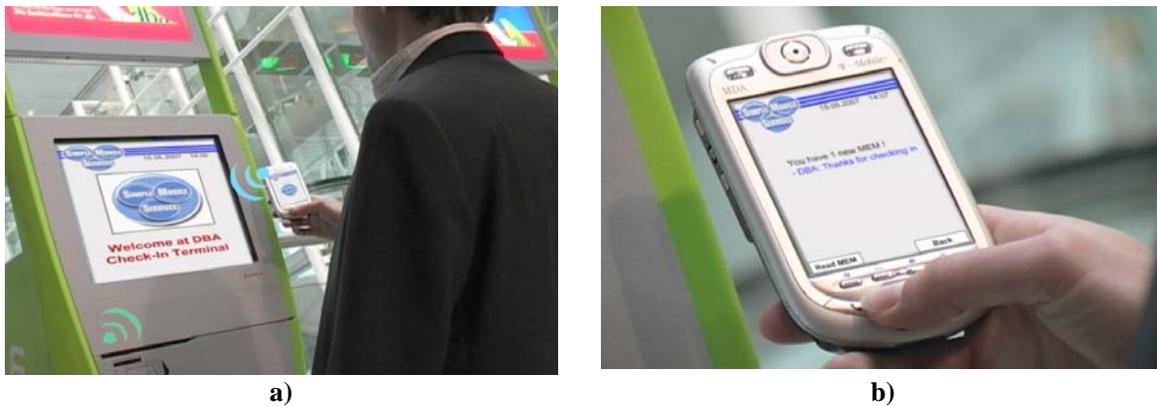
**Figure 1: Automatic service discovery (a) and sorting (b)**

MEMs are data containers created by providers, users or services for storing and exchanging all kinds of information for service invocation and interaction. MEMs are the internal data exchange format within the SMS system. Providing a clear, standardized interface, it facilitates the integration of new internal components as well as the interaction with external systems. A user could for instance order an airline ticket from an SMS-enabled website that uses its own SMS services for verifying the credentials of the customer and executing the booking. The transaction is confirmed by sending a MEM to the user's email account and mobile device where it is stored in his user profile. The MEM acts as a legally valid receipt to prove the booking of the ticket as it contains details about the flight and is digitally signed for secure transactions. At the airport, the content of this MEM is used to automatically personalize available services, e.g. to check information about a flight (Figure 2a) or to guide the user to the check-in terminal, using the *TakeMe2* navigation-feature of SMS (Figure 2b).



a) b)  
**Figure 2: An MEM providing details about a flight (a) and showing the way to the next check-in terminal (b)**

The SMS system uses prominent objects such as check-in terminals as *SMS points* (Figure 3a). These are special, interactive locations or objects in an SMS network. They support technologies such as NFC, RFID, Bluetooth or WiFi in order to provide special, service-related functionalities like user authentication, access control or payment. Mobile SMS clients can detect and communicate with SMS points as well as with associated services. SMS points can facilitate the invocation of associated services. Instead of complex interactions, users can simply submit their MEM to a service using their mobile devices and technologies like NFC or Bluetooth. As the result of a transaction, the user receives another MEM (Figure 3b).



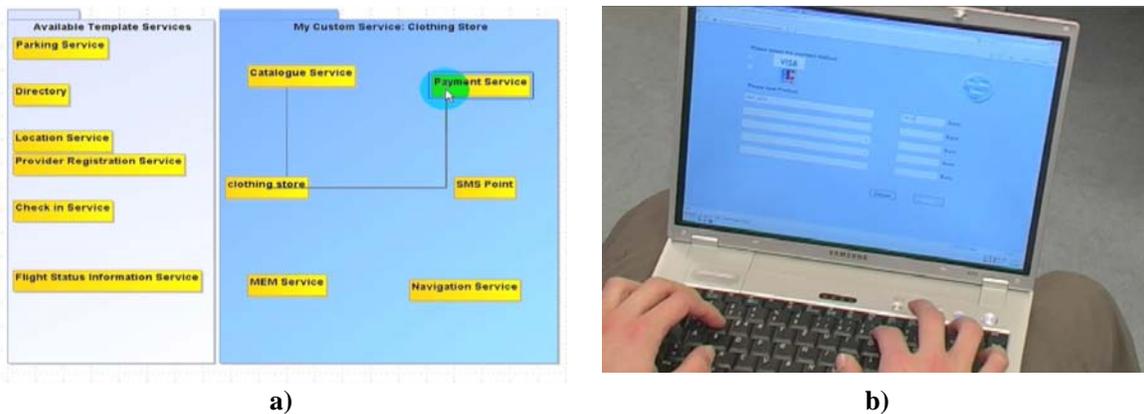
a) b)  
**Figure 3: Using an SMS-point for interaction with a check-in service (a) and confirming the transaction with an MEM (b)**

#### 4. A Framework for Service Authoring

MEMs and SMS points are only 2 features of the SMS framework that provides a platform for the creation, management and provision of mobile services. Service providers such as an airport can use it to make basic services available to employees and customers. On the other hand, subcontractors such as shops or restaurants can adopt the system to create, deploy and provide their own decentralized mobile services, targeting specific groups of customers. For these purposes, the features of the SMS framework can be explained within the 3 basic layers of its architecture: On the hardware layer, the SMS framework is integrated with an existing hardware infrastructure, e.g. at an airport. That way, mobile services managed by the SMS framework can use different basic features of an infrastructure, e.g. to set up SMS points, access a local WiFi-network or use location

tracking systems for navigation services. The next two layers manage the development and provision of services: The *Core Services*-layer comprises a set of basic services for e.g. navigation, registration, payment, MEM management, information or the localisation of SMS points that are provided to all users of an SMS framework, e.g. at an airport, a museum or a university. On the third layer, these core services can be reused, customized or complemented with more specialized services by different smaller service providers.

A core feature of SMS is the easy creation, setup and management of mobile services. For that purpose, professional service providers can use a complete authoring tool to assemble service components from a shared SMS repository, connect them with each other and set their parameters (Figure 4a). Analogue, providers without a technical background - like shop owners - can use a much simpler *Service Authoring Wizard* to set up mobile services for their individual businesses in a step-by-step process (Figure 4b). They simply specify the name of the service, its components, its spatial availability or the Look&Feel of the mobile interface that is presented to customers.



**Figure 4: SMS service development for professional (a) and non-professional service providers (b)**

## 5. Conclusion

These scenarios are only a few examples for Simple Mobile Services and how they can be used. But of course, the scope of SMS is much wider. Staying with the airport scenario, SMS could also be used to simply set up a service for technical maintenance. SMS could help technicians find, tag and report technical failures of airport equipment. Other technicians can pick up these notes and carry out the required repairs. In another scenario, SMS could be installed on the campus of a university. Lecturers could use the Service Authoring Wizard to easily configure web services for their different lectures, defining details about their location, time, literature or exams. Students can look up this information on their mobile devices and stay up to date about their curriculum. For these and many other examples, the vision of SMS as an empowering technology promises the simple design, management and provision of mobile services that accommodate to a multitude of different requirements and tasks in order to enrich our daily lives.

## 6. References

[1] Simple Mobile Services (SMS) Website. <http://www.ist-sms.org/>