

SHOPS - Smart HOme Payment Services.

A support for the liberalisation of utilities industry in Europe

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Abstract— By the year 2010, the de-regulation of Europe's utilities industry will create a dynamic market of production, distribution and reselling organizations where quality of service, personalization and smart marketing, as well as an attentive attitude towards ecology and preservation of resources will play a major role. Advancement in information technology in domains such as remote monitoring, communication networks, security and control of distributed systems, as well as innovative payment schemes will enable new ways in which customers consume and pay for their utility services.

I. INTRODUCTION

Following the telecoms revolution, the utility market is following the European movement towards deregulation. Competition will lead to the development of services related to home utilities distribution (Electricity, Gas, Water) and these will be sustained by open smart payment solutions.

II. ENVISION THE FUTURE

By the year 2010, a deregulated utilities industry, in combination with advanced technology and marketing schemes, will enable a higher level of consumer's satisfaction, better production and distribution planning along environment and resource conservation sensitiveness.

SHOPS architecture inheritance, advancement in information technology in domains such as remote monitoring, communication networks, security and control of distributed systems, as well as innovative payment schemes enable new ways in which customers consume and pay for their home utilities services.

III. PROJECT GOAL

SHOPS aims to support advanced functions for the payment of home fluids utilities leading to innovative solutions and a new generation of services. We propose an open, cross-domain, platform neutral system for delivery of services provided by devices and applications.

IV. THE MAIN CHALLENGES

Smart home payment services are emerging through different initiatives in Europe and in the rest of the world. The market is driven today mainly by prepayment systems dedicated to "fluids", but experimentation is beginning with IT-oriented systems. The metering industry has to face a dilemma: either develop proprietary solutions to try and maintain the market share of legacy metering systems or open their systems to a more global "IP" world, where the meter itself will not necessarily remain the main component but will be operated alongside new, services-oriented, business opportunities.

The challenge of the project is to propose a framework from within which open and standard payment architectures can be derived, enabling an easy integration of home services. Having a common European solution for home services payment will improve products and system interoperability and consolidate the European position.

V. KEY ELEMENTS OF A FUTURE OPEN SYSTEM

As part of the SHOPS project definition, the key technology elements that are necessary to an open and standardised solution will be put into place. Technological

building blocks delivered by the project will be re-usable and will help European companies to face the worldwide competition.

The main innovative work concerns the global system architecture and the choice of common services view. Security as well as user authentication and user privacy are key embedded software functions that are necessary to SHOPS and source of innovation to reach the project objectives. Component and interface definitions have to conform to global security patterns so as to guarantee a coherent security throughout the whole system. We are also developing generic methods for preserving the security level after system updates or integration of new functionality.

As a global technical innovation constraint, we pay particular attention to the provisional cost of the elements of SHOPS, as new services should be comparable to the basic home utilities services price level.

The architecture is based on advanced network and web technologies. Through the new solutions developed, we provide services that have come a long way from legacy Automatic Meter Reading and pre-paid systems. We are concentrating on modelling and implementing three subsystem (payment, consumer, provider) demonstrators in order to prove the feasibility of the concepts we imagined.

VI. CREATING A NEW MARKET

While every home might not have a TV, telephone or PC, we can be sure that every home has at least one meter, and is likely to always have one. There is a massive opportunity to create a new market value, both on equipment and application services. The SHOPS project will supply the technical

foundation to support new models of home utilities supply businesses, promoting higher quality of service, social sensitiveness for basic services, brand strengthening and attention to natural resources protection.

Open demonstrators based on the smart payment of energy will illustrate SHOPS concepts on the three subsystems covered by the project: consumer, provider and payment. The on-going process of deregulation in the electricity domain represents a concrete case study pushing for inter-operable payment solutions and smart pricing support.

VII. BENEFITS

These are exciting times for the Energy providers and utilities in Europe. E-commerce and the internet are stimulating interests and the tide of deregulation and competition is creating unprecedented opportunities for innovation. While dealing with application types, involving information technologies in a novel application context, SHOPS is opening the door to new market opportunities both on equipment and services.

VIII. KEY ACTIONS

Starting from the market requirements and state of today's fluid networks, there will be an analysis of the different concepts and define a global architecture model. Then we shall perform a detailed analysis of the three subsystems using a component model approach. The last step will be the components' implementation on the three demonstrators (payment, consumer, provider).

The main objective is to show that the architecture as well as the ideas of services described can be implemented.