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The SESMU Project:
Integrated customer management
for multimedia services

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Abstract

This paper presents the integrated customer management functionality for
multimedia services defined in the SESMU project. This functionality includes
subscription and billing management, customer trouble ticketing, work force
management, inventory control and marketing support for different multimedia
services, all this in an integrated way.

Keywords

Integrated customer management, multimedia services, business model, service
management layer, call center, subscriber management system, SESMU

1   INTRODUCTION

There is an increasing number of multimedia activities nowadays: from
demonstrators for the technology that supports multimedia (MM) services, to real
commercial services offered to final customers (like satellite digital television or
interactive services). A broad range of management solutions can be found in these
activities: from almost non-existent in the former, to ad-hoc solutions in the latter.
In these solutions services are managed separately, several independent systems are
used (i.e., one for billing, another for ticketing, etc.), and almost no relationships
exist with the network management systems. Even more, there is a lack of
international recommendations about how to manage MM services. Although some
activities exist in DAVIC, EURESCOM or NMF, one service management aspect

is left outside in most cases: customer management. In order to deal with this, Telefónica I+D started the SESMU project, whose final objective was the definition of the needed functionality for fully manage customers of any multimedia service in an integrated way regardless the access network used. SESMU stands for Multimedia Services Management System.

2   THE SESMU APPROACH

Before defining the desired functionality, it was needed to obtain the global picture for MM services by means of a business model, as well as to identify the requirements to be satisfied. Taking all this as input, SESMU defined not only that functionality, but also executive information support, organisational aspects and interfaces with other systems (see Figure 1 and Section 3).
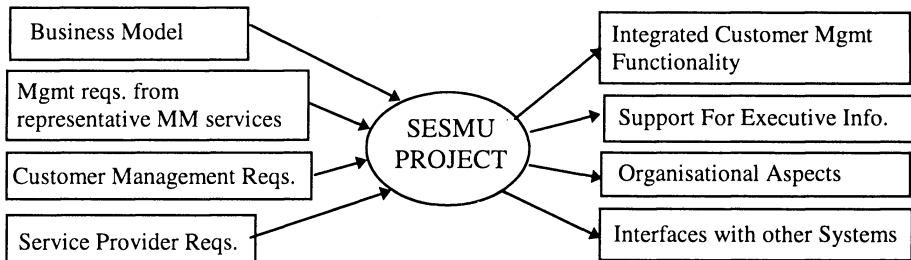

Figure 1 The SESMU approach.

The business model and the requirements are commented below:
- The business model obtained for MM services considered all aspects, not only the management ones. It provided roles, actors, processes, information flows and relationships identification. A special focus was given to the service provider (customer management belongs to him) and customer roles.
- Management requirements were identified from representative MM services: services based on digital TV distribution (PPV, IPPV, NVOD), on-line services (e-mail, ftp, www, Internet access), and interactive services (home-banking, home-shopping). These services covered different transmission media (copper, cable, satellite), different customer equipment (cable modem, PC, set-top box) and different service characteristics (interactivity, user profile, info flows, etc.).
- The requirements identified as essential for customer management were: customer availability of one-stop window for any aspect (queries, subscription, ticketing, etc.) of any MM service, and personalised customer care.
- From the service provider side, the following requirements were identified: integration of individual service management aspects, integrated services

management, interworking with other management systems (even from different actors), and modularity, scalability and flexibility.

3 THE SESMU RESULTS

3.1 Integrated customer management functionality

It fits into the Service Management Layer (SML) and covers the following areas:
- Subscription management, considering new subscriptions (with triggering of provisioning activities), cancellations (temporal or definitive originated either by customer or service provider), and modifications. Distinctions between customer (the one that signs a contract for a service) and user (the one that uses the service) are made because of the different implications for them.
- Customer trouble ticketing, supporting different subjects (billing, provisioning and faults) and including opening, treatment, tracking and closing of tickets.
- Customer queries, from current and potential customers, requesting information on service characteristics, technical aspects, billing data or current campaigns.
- Work force management, for provisioning or ticketing related activities, including order generation, scheduling, assignment, dispatching and tracking.
- Inventory control, for identification of customer equipment and its related state (inventory, assigned to customer, assigned to field technician, lost, stolen, etc.), and as support for subscription management and trouble ticketing.
- Billing management, with functionality for recovering service usage data, tariffs, discounts and taxes application, different ways of payment (credit card, bank transfer, direct debit, etc.) support, settle accounts, bill personalization (format, language, level of detail, etc.), sending of billing data to external printing houses, disputes and credit management, auditory facilities, etc.
- Support for marketing activities, for converting potential customers into current ones and for expanding current subscriptions, providing tools for campaigns definition, assignment of specialised personnel to them, reporting, etc.

3.2 Executive information support

Executive information summarises essential business parameters and it's used by high-level managers to take decisions about business strategy. This fits into the Business Management Layer. From the integrated customer management, some useful information for the executive levels can be obtained, like:
- Key data about customers and services (number of customers, incomes by billing, number of subscriptions to services, etc.)
- Comparative analysis of the evolution of the key data over time.
- Evaluation of marketing activities results (for measuring degree of success and planning of future activities).

3.3 Organisational aspects

Two main subsystems were identified for the deployment of the defined functionality: the subscriber management system (SMS) and the call center (CC). The SMS contains the customer management application, as well as customers and services data. It receives information from the service management system of each MM service considered, and can have a distributed implementation. The CC acts as the one-stop window for the customers that access typically via phone -WWW access is also considered-. Operators that work here use precisely SMS terminals from where the customer management application and any relevant data stored in the SMS are accessed, providing a personalised customer care. One SMS can support several CC, that, in turn, can be organised in different ways: by number of customers, geographical distribution, service, etc., providing a high level of flexibility. At the same time, operators of the CC can be organised by service specialisation, languages spoken or topic expertise (billing, trouble ticketing, etc.).

3.4 Interfaces with other systems

A set of interfaces were identified with other management systems from both the Network Management Layer (NML) and the SML. Belonging to the NML are management systems for the transport and access networks and for the head-ends, that typically provide information about network faults impacting the services and about network deployment (for provisioning). Belonging to the SML are management systems for each individual MM service (for sending service alarms and service usage data in one sense, and for sending enabling and disabling commands in the other one concerning addition and removal of subscribers and service degradations for bad payment, for instance), as well as external (and optional) billing systems.

4   CONCLUSIONS

The customer management integration is valuable for customers (giving them one-stop window for all their needs of any MM service) and for service providers (improving customer satisfaction, providing executive information, allowing flexibility, reducing management costs and easing integration of future MM services). The SESMU project has defined a suitable integrated customer management functionality, support for executive information, organisational aspects when deploying, and interfaces with related management systems.