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Service Oriented Architecture Based Customer Relationship Management For Full Service Integration

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Abstract -As customer started getting more and more importance in enterprises, it resulted in the development of Customer Relationship Management (CRM) module. Service Oriented Architecture (SOA) based CRM is introduced to enhance business based on sales, services etc,. Initial focus of full fledged CRM was towards mobile telecom sector. Here a study of CRM that is designed to offer full telecom service, covering both fixed and mobile telephone services is done. In this CRM, the existing mobile CRM is reconstructed by service atomization method, to offer full telecom service. The service atomization layer concept basically introduces a new layer into existing mobile CRM architecture. The merits and demerits of this system are identified. The merits include the ability of such a system to accommodate all service requirements of telecom, its capability to support continuous release of new telecom products and services and its advantage of decreasing the maintenance complexity of business logic code. The demerit of the system is that such a system results in increased database storage since both mobile and landline systems data need to be stored. It is concluded that such a system will enhance the efficiency of telecom system.

Key words - *CRM; SOA; Full Service Integration.*

I. INTRODUCTION

CRM is the front-end system which holds all the customer related data. It is the entry point. CRM started gaining more and more importance and several features got introduced into CRM. In recent years, there has been a market demand for landline + mobile services. In countries like China and Italy, the operators started thinking about accommodating the landline services into mobile CRM. If the mobile CRM can accommodate the landline services too, the operators will get benefited in many ways. The business requirement of accommodating landline services into the mobile CRM led to the research in SOA based CRM.

A. CRM

CRM is a business strategy to acquire, grow and retain profitable customer relationships, with the goal of creating a sustainable competitive advantage. Product/price-based differentiation is waning because of four broad trends: maturing markets, global trade, efficient manufacturing and the Internet. Now CRM is emerging as a critical strategy simply because relationships are coming to the forefront of the competitive battleground. The beneficiaries of the competition being consumers, the telecom players in today's environment are required to design and deploy customer-centric strategies not only to grab a share in the market but also to sustain in the market in the long-run. The players have realized the importance of constant service-quality delivery to the customers for long-run sustainability. Customer relationship signifies identifying the needs of the customers and stretching out ways and means to satisfy them. To be precise, it means achieving high customer profitability and customer revenues over and above customer costs, which demands matching customer expectations with customer satisfaction. The high cost of customer acquisition is making today's businesses understand the importance of retaining the customers for long-run sustainability. CRM aims at narrowing the gap between the company and its customers. In Telecom Sector, CRM plays a vital role in bringing the customers close to the company, and in identifying the changing behavioral pattern of the customers as well. In technology-dynamic markets like telecom, an efficient CRM system is essential, since the customer attrition is high due to the presence of close substitutes and near-zero switching costs.

B. Service Oriented Architecture (SOA)

A SOA is essentially a collection of services. These services communicate with each other. The communication can involve either simple data passing or it could involve two or more services coordinating some activity. SOA is a flexible set of design principles used during the phases of systems development and integration in computing. A system based on a SOA will

package functionality as a suite of interoperable services that can be used within multiple, separate systems from several business domains.

CRM is built on business demand (or services). These services are to be loosely coupled from each other. Only then, it will be flexible enough to modify the services easily on business demand change. The code changes can be easily one without much impact on other services. For SOA based, the basic necessity is to identify the services.

Few of the services identified are [3]: (i) Customer Information Management, (ii) Business Management, (iii) Sales Management, (iv) Service Management, and (v) Call Centre.

These services, combined with a lot of other service modules are defined and the CRM is built on these modules. Thus the CRM becomes SOA based CRM. In SOA based, each service modules talk to each other through well-defined interfaces. The modules are loosely coupled from each other, making it flexible for any enhancements.

C. *Integration of mobile + landline services*

A CRM strategy assists firms to earn advanced profits, increase customer perceived value, and acquire new customers. The existing mobile CRM caters the needs of customers to access, update and interact with customer data wherever they are. This functionally is to be extended to cover the landline users also without much complexity on the entire system. This can be achieved by the service atomization techniques supported by SOA.

The rest of the paper is organized as follows: Section II surveys the historical development of full service CRM in telecom. Section III describes full service integration in detail. The merits and demerits of full service integration systems are discussed in section IV. Section V concludes the work and mentions its future enhancements.

II. LITERATURE SURVEY

Service providers are very much concerned about reducing cost per service and increasing the average revenue per user. Bundling of services in combination with different tariff schemes is adopted as a viable strategy by the service providers for this purpose. In [4] it was investigated how service oriented principles already introduced in the business domain can be extended to telecom domain, to achieve the service bundling. An approach for telecommunication service creation on SOA through service orchestration was detailed. The advantages of this include transformation of telecom services into loosely coupled reusable communication component. It was easy to develop, deploy, execute, monitor and manage user centric applications in this flexible service environment. The cost of service delivery was also lowered.

In [3] a new approach to build a CRM based on SOA was investigated. The advantages include identification of service requirements needed for telecom manufacturing enterprises and introduction of architecture for CRM solution based on SOA to represent the interconnection of different value added activities which could bring profits with enterprise. Due to these advantages it was able to adapt to the ever-changing demands of the market to speed up the accomplishing process of information. In addition to this several case studies based on SOA embedded with CRM could be seen in the literature ([6] for instance).

The effect of a paradigm shift from Data Oriented Approach (DOA) to SOA in telecom CRM is the topic of study in [2]. The dependability between the existing three layers in DOA (application layer, middleware layer and database layer) resulted in the forced alteration of other layers if one layer is changed. An architecture of CRM system based on SOA for telecom was presented [2]. The advantages of SOA based CRM over DOA based CRM include, introduction of loose coupling and well defined interfaces.

In [1] the existing mobile CRM was reconstructed by a new technique called service atomization method to offer full telecom service including fixed and mobile telecom services. The service atomization layer concept basically introduces a new layer called the service layer into the existing mobile CRM architecture. The advantages of this new architecture are: (i) it helped to support continuous release of new telecom products and services by flexible combination and separation of telecom business, (ii) the maintenance complexity of business logic code of CRM was decreased, and (iii) it also smoothened the information gap and helped to promote the transaction processing throughput rate of business operating system by decreasing average business transaction handle time

It can be concluded that the research direction is towards providing SOA oriented architecture for CRM, as an alternative to existing DOA oriented architecture. SOA principles that existed in business domain are extended into telecom sector to meet the growing needs of the telecom customers. The SOA based CRM helped to meet the increasing demand of customers for full service by reconstructing existing mobile CRM, to offer full telecom service including mobile and fixed telephone services.

With a view to integrating mobile CRM with landline services, SOA based service atomization

store where they can be accessed if needed. In telecom, data may need to be retained for both internal and external reasons. Internal reasons are driven by company needs. If an organization business requires the data to conduct business and make money then that data will be retained. But external reasons, typically driven by the mandate to comply with legal and government regulations are another significant factor driving the need to store more data.

IV. CONCLUSION

CRM is an important application of today's convergent technology. Using SOA in CRM will decrease the maintenance complexity of business logic code of telecom CRM. In this paper a new framework based on real telecom CRM system reconstruction to accommodate full telecom service is studied, and its merits and demerits are identified. Such a system will increase the efficiency of telecom system by smoothening the information gap and will promote the transaction processing throughput rate of business operating system with decreasing average business transaction handle time. However it results in an increased requirement of database storage and archival mechanism. Future enhancements include adding more features to the CRM system to improve its applications.

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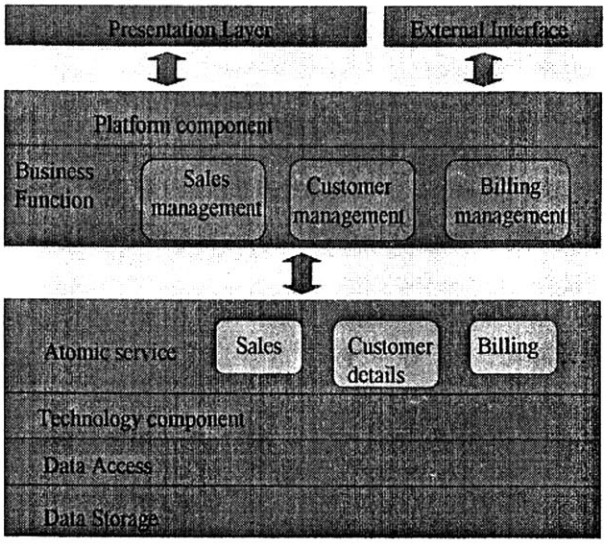

Fig. 1 : Service Layer introduced into SOA based CRM

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