A Virtual Insurance Model as a Banking Service by Cloud Computing

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Abstract— **By Providing Insurance in its traditional way, Insurance Organizations should pay enormous money for the IT infrastructure that even maybe don`t have the needed performance. We can reach the goals like flexibility, agility, automation, ability of using big infrastructure and etc. by using Cloud Computing. After providing a virtual insurance model by cloud computing, we can deliver the cloud-based Insurance as a banking service. In this paper, by using cloud computing advantages and challenges that insurers faced with, we have tried to enhance a model which is proper for delivering insurance as a banking service by cloud computing. This model is designed for the first time in the IT world and introduces components that are necessary for insurers.**

Keywords— Insurance, Cloud Based Insurance, Insurance as Banking Services, Cloud Computing, Banking Services

I. INTRODUCTION

Due to the advances in new technologies, the increasing complexity of businesses and customer demands, insurance organizations tend to adopt these technologies for their insurance tasks. The new technologies have got a kind of competitive advantage for insurers.

Among the new technologies, cloud computing is a good choice for insurers. They use this technology because of the fact that cloud computing reduces the IT costs. However in the next parts, we will see that reducing the IT costs, is just one obvious advantage of this technology [2].

IBM in [15 and 16] has provided architecture for insurance model. There have been few studies in transferring insurance industry into cloud. Mphsis as an HP company in [18, 19 and 20] has provided a solution to transfer from the current IT insurance landscape to cloud based IT insurance landscape. Fujitsu in [11, 12, and 13] has discussed about the key features of cloud based insurance and has categorized them. Capgemini has had some studies based on [9, 10] over the different functionalities of an insurance company and delivered a maturity model for cloud based insurance. Accenture plays an important role in cloud based insurance

according to [1 - 8]. There has been no studies around providing a model for virtual insurance as banking services by cloud computing. In this study we will focus on this model and the correlations between bank and a cloud based insurance.

In the proceeding, we are going to explain insurance functions, Current IT and Cloud-enabled Insurance IT Landscape. Then we will describe the use case model for the Virtual Insurance Model as Banking Services by Using Cloud Computing. Finally conclusion is represented.

II. INSURANCE FUNCTIONS

There are different functionalities in Insurance Industry. These consist of core functions, Support Functions, and common functions as general. Basically, there are three core functions in the structure of a typical insurer. These core functions include marketing and distribution, underwriting, and claims. The core functions are considered as a basis functions of an insurance industry. To support the core functions, insurer will need some supporting functions including risk control, premium auditing, actuarial functions, reinsurance, and information technology. In addition to core and supporting functions, insurers adopt some common functions (as in house or outsourcing). Some common functions include investments, accounting and finance, customer service, legal and compliance, human resources, and especial investigation units [21].

Fujitsu indicates all the important insurance processes through Salesforce® CRM and Force.com® solutions. These consist of Marketing and Sales, Underwriting and Policy Administration, Claims, and Customer Service. For more information you can refer to [12].

III. WHY USING CLOUD COMPUTING

Cloud Computing is considered as one of the modern technologies for delivering services and it`s proven that cloud computing have had a good advance in insurance and other

industries mostly for reducing costs. However, this is only one of the advantages of cloud computing. Cloud computing is much more than a technology. It offers insurers to build a more flexible, nimble and customer-centric business model that can cause to an efficient growth and higher performance. Beside reducing costs, cloud computing improves insurance organizations in customer attraction and retention, designing the product and services and also expanding the market [2].

According to [12] the reasons that we tend to use cloud computing for our insurance industry are systems that create complexity and information silos, Data fragmentation and difficulty in accessing to it, workflows are labor-intensive and lack of transparency, Performance monitoring is rudimentary and reporting tools, if available, are isolated and hard to use.

IV. BANK INSURANCE MODEL (BIM)

Bancassurance or Bank Insurance Model is defined as selling insurance policies through banks. Banks would earn revenue through this sale [22]. According to [21] bancassurance was first used in France and is defined as the simple distribution of insurance products by bank branches. Relevant Bankassurance models are: Distribution Agreement, Strategic Alliance, Joint Venture and Financial Services Group [22].

V. CURRENT IT AND CLOUD-ENABLED INSURANCE IT LANDSCAPE

According to [19] The current IT business and IT landscape (state) of an insurance organization includes In-house business applications and services, Large scale business transformation and IT implementation programs, Exclusive IT environments, Project (or program) specific IT budgeting and infrastructure procurement, Extra capacity in IT infrastructure, Heavy weight IT upgrades and Infrastructure refreshes, Need for higher IT budgets, and Outsourced business processes and IT services.

The cloud technologies enable insurers not only to reduce the initial investments for business solutions, but also maintain and sustain the business with lower operational investments. An insurance organization IT landscape that has accepted cloud computing as a technology consists of: Cloud provisioned business services and Applications (Such business application services are built (provisioned) using either some or all of the following cloud computing models: Insurance IT infrastructure as a service (IaaS) cloud and Insurance services built on leveraging platform as a service (PaaS) infrastructure), Insurance services leveraging to purpose built software services, On demand infrastructure provisioning – reduced project implementation timelines, Lower project or programme budgets, Operational costs proportional to business volumes, Increased reuse and sharing due to virtualization, Lean and efficient IT departments, Consolidated IT infrastructure, Rationalized application portfolio, and virtualization at all layers [19].

VI. VIRTUAL INSURANCE MODEL AS BANKING SERVICES BY USING CLOUD COMPUTING

The purpose of this article is to design a virtual insurance model by using cloud computing. We represent a use case model based on the core and support functions. This model has consulted every aspect of insurance business for insurance customers. Different kinds of classifications are applied for this model. This classification is done according to the type of the office users (services and applications related to Front Office, Back Office and Middle Office). The components related to bank and insurance are represented in a separate package. Components related to cloud computing and its relation with virtual insurance are illustrated in another separate package. Besides, a package is used for the use cases of the common services and applications between users and systems of this model. The use case model is shown in

Figure 1 - Use Case Model of Virtual Insurance Model as Banking Services by Cloud Computing. For creating this model, we have used [2, 18, 17, and 14].
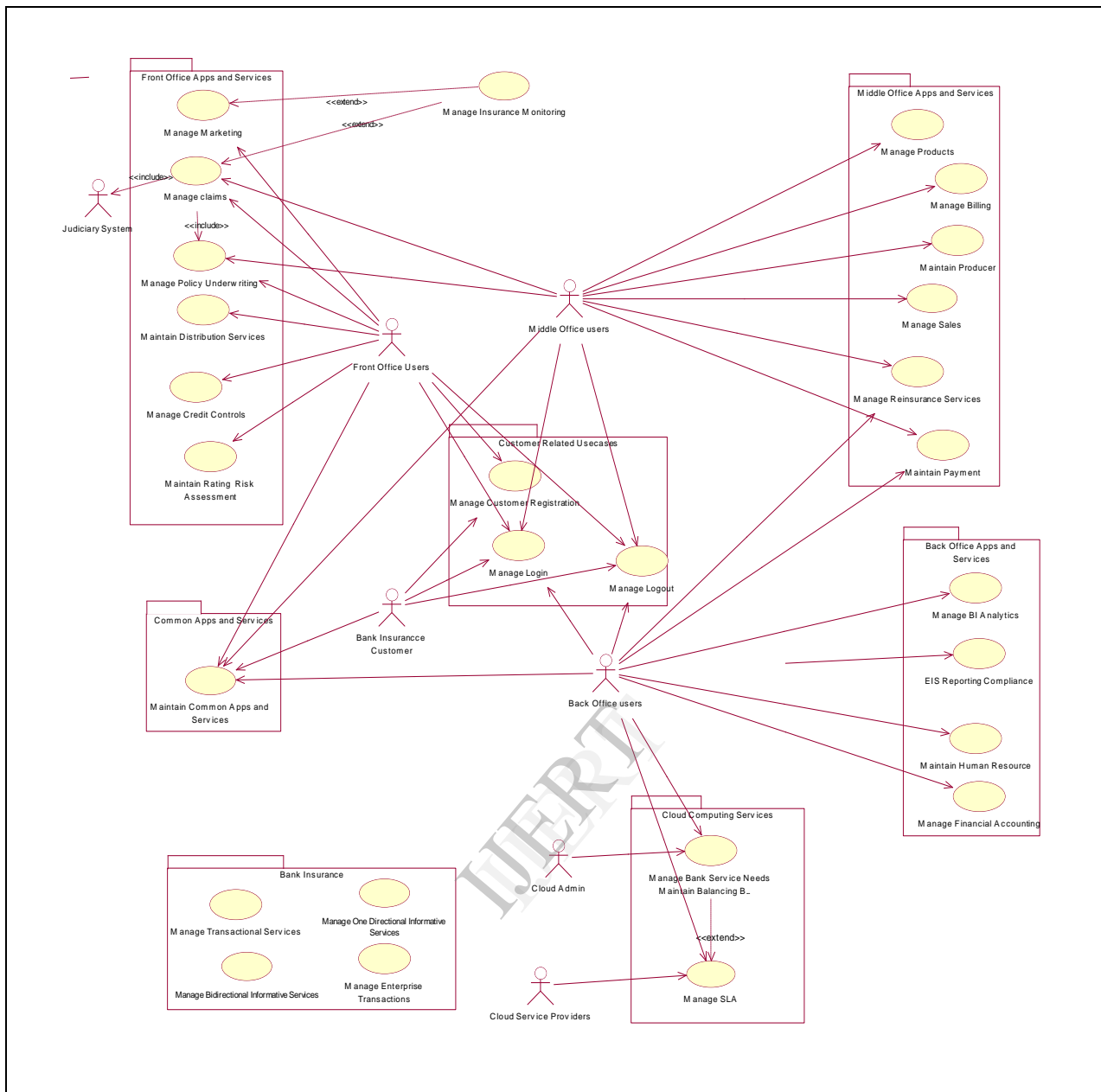
Figure 1 - Use Case Model of Virtual Insurance Model as Banking Services by Cloud Computing

The use cases and their categories are as follow:

1. Front Office Apps and Services (as
2. **Figure 2 Front Office Apps and Services**):

• Manage Marketing Use Case interacts with front office users.

• Manage Claims Use Case includes first notice of loss, claims registration, claim estimation and fraud detection, claim settlement confirmation, claim settlement, claim settlement rejection, claim deletion, claim tracking, claim recheck request, recheck claim, claim litigation management and closing customer`s claim request scenarios. This use case interacts with judiciary system actor, middle office users and front office users.

• Manage Policy Underwriting Use Case includes underwriting simple policy, underwriting complicated policy, policy creation management, policy cancellation, underwriting tracking, policy cancellation tracking, rating management , answering the questions of underwriting scenarios and etc. It is in relationship with front office and middle office users.

• Manage Distribution Services Use Case interacts with front office users.

• Manage Credit Controls Use Case is in contact with front office users.

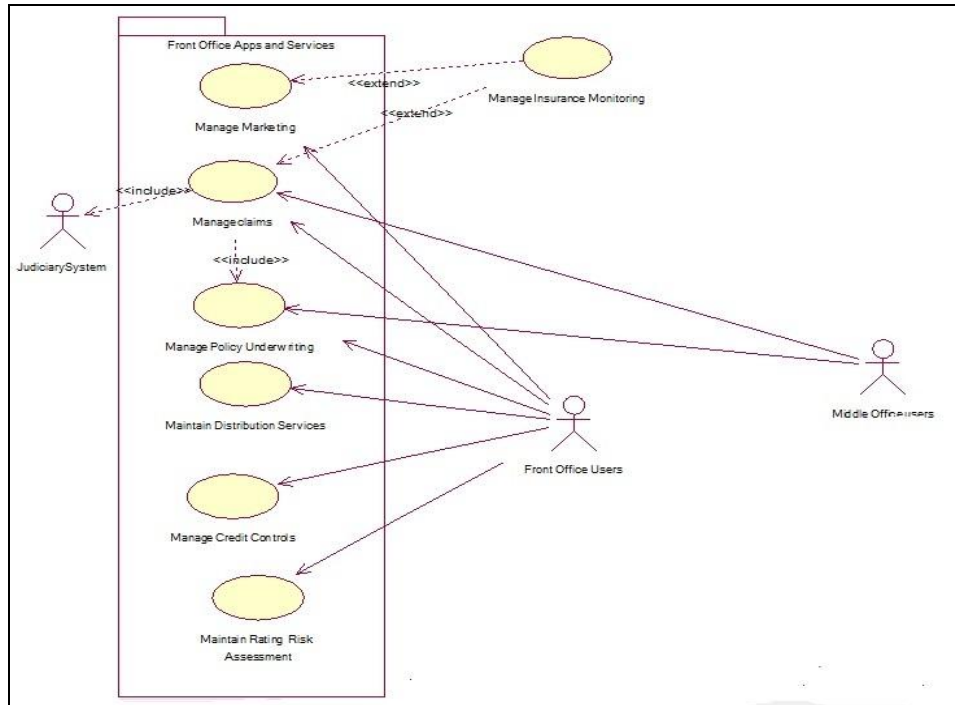• Maintain Rating Risk Assessment Use is in touch with front office too.

Figure 2 Front Office Apps and Services

3. Middle office Apps and Services (as **Figure 3 Middle Office Apps and Services**):

• Manage Product Use Case is constructed from new product insertion, product deletion scenarios and etc. Middle office users interact with this use case.

• Manage Billing Use Case interacts with Middle office users.

• Manage Producer Use Case interacts with this use case.

• Manage Sales Use Case interacts with Middle office users.

• Manage Reinsurance Services Use Case interacts with Middle office and back office users.

• Maintain Payment Use Case is constructed from premium payment, premium settlement and other scenarios. Middle office and back office users interact with this use case.
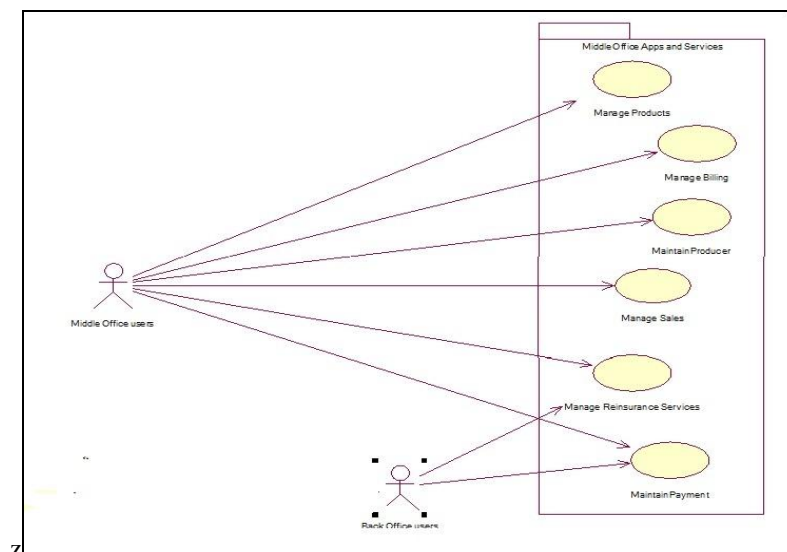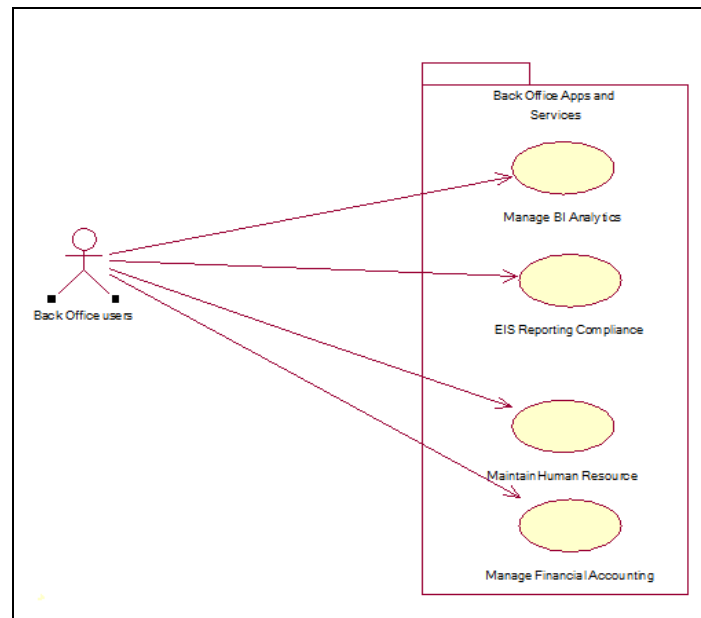

Figure 3 Middle Office Apps and Services
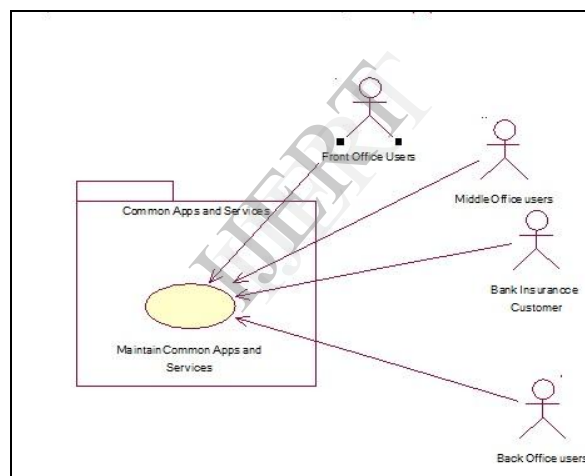
Figure 4 Back Office Apps and Services

Figure 5 Common Apps and Services

4. Back Office Apps and Services (as **Figure 4 Back Office Apps and Services**):

- Manage BI Analytics Use Case
- MIS Reporting Compliance Use Case
- Maintain human Resources Use Case is constructed from new customer insertion, assign access control and other scenarios.
- Maintain Common Apps and Services Use Case includes call center management, email, documents management, prints, communication tools, common software and other scenarios. This use case interacts with back office, middle office, front office users and bank insurance customer.

● Manage Financial Accounting Use Case includes employee`s salary payment, shareholders payment and other scenarios.

All of these use cases interact with back office users.

5. Common Apps and Services (as Figure 5 **Common Apps and Services**):

6. Bank Insurance (as **Figure 6 Bank Insurance Use Cases**):

- Manage One-directional Informative Services Use Case. This use case is included, to make it possible for bank system to inform bank insurance customer about his/her transactions.
- Manage Bi-directional Informative Services Use Case. In this use case, a bank insurance customer can have interaction with our system.

• Manage Transactional Services Use Case is used for delivering some services (like discounts) to the customer that has interaction with the system.

• Manage Enterprise Transactions Use Case gets its meaning when the bank insurance customer gets a part of the system and the system gets a part of the bank insurance customer`s life. At this level, customer can have more important queries via the system.
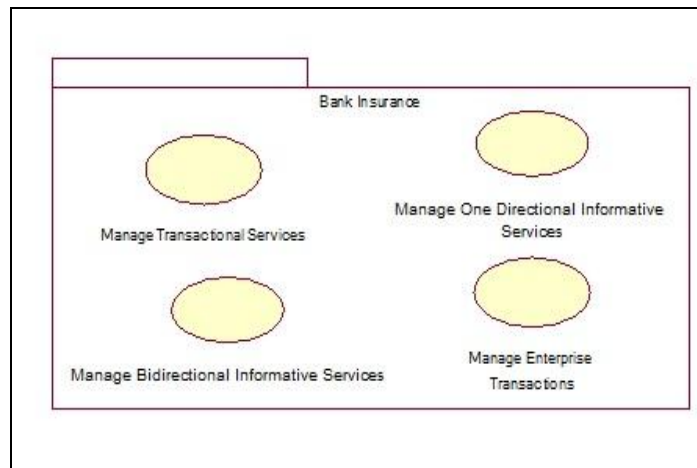

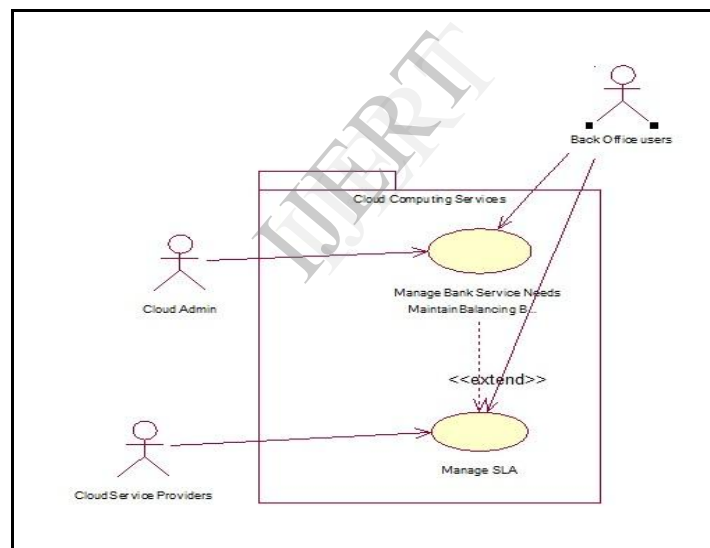Figure 6 Bank Insurance Use Cases

Figure 7 Cloud Computing Use Cases

7. Cloud Computing Services (as **Figure 7 Cloud Computing Use Cases**):

• Manage Bank Service Needs through Cloud Service provider`s Service

• Manage SLAs

VII. CONCLUSION

Today, insurance organizations require more agility and flexibility in delivering their services. Cloud Computing helps organization to decrease initial investments and operational investments. In this study, important insurance functionalities worldwide are investigated and interaction points of bank and insurance are detected to propose an enhanced insurance model based on cloud computing. For the future work of designing this system, more automation can be applied for doing insurance affairs as every function would be done virtually and in real time.

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