

Core Banking Software Based Oncloud for Credit Societies

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Abstract: Credit Societies Are Small Establishments That Are Similar To Banks But For A Restricted Range Of Users. These Societies Need A Standard Platform For Maintaining Their Data And Transactions. The Aim Is To Create A Cloud-Based System For The Credit Societies Such That They Will Have A Core Banking Application Which Can Connect Them With Other Small Financial Establishments. The Development Of The Project Is Relevant To Agile Methodology. The Software Will Offer High-Level Security And Will Be Mobile And Cheap.

Key Words: Core Banking, Cloud-Based System, Cloud-Computing, Credit Society, Indian-Client Base,

I. Introduction

As The World Is Moving Towards Digitization, An Assorted Set Of Web-Based Solutions In The Different Aspects Of Life Are Emerging. Retail, Finance, Entertainment, Etc. Are All Going Digital. With Digitization, There Is A Necessity For The Development Of A Platform For These Services. Notably Within The Banking Sector, A Complex Platform For The Intricacies Of The Banking World Is Required. A Recent Trend Of Using Cloud-Computing In The Banking Sector To Reduce Development Costs Is Emerging.^[3]

Various Solutions In The Form Of Paas (Platform As A Service), Saas (Software As A Service) And Iaas (Infrastructure As A Service), Which Are The Three Models Of Cloud-Based Technology, Are Being Developed.

Credit Societies Are Primarily Small Institutions Established By A Group Of People Which Work Like Banks For A Limited Number Of Users. The Number Of Members May Be In The Range Of 20 And 2000. Still, It Is A Small Range To Actually Form A Bank But Larger Than Just One Account. Lending Money, Buying Shares Within The Societies, Forming Groups To Save Money, Depositing Money For Safekeeping Are Some Of The Features Of A Credit Society Referred To As "Patpedhi". These Establishments Need A Digital Platform For Maintaining Their Database And Transactions. Our Aim Is To Fulfil This Need.

This Application Is Based On The Idea Of 'Software As A Service', In Which Software And Associated Data Are Centrally Hosted On The Cloud(A Remotely Located Server).One Of The Most Important Constraints Of Small Financial Institutions To Implement Automated Banking Services Is; Huge Investment Involved In Software Package Development. One Of The Biggest Selling Point Of 'Cloud-Based Credit Banking Software' Is That It Has The Potential To Reduce It Support Costs By Outsourcing Hardware And Software Maintenance And Support To The Saas Provider. It Will Provide Network-Based Access To, And Management Of, The Banking Software. It Is Based On A Single-Instance Multi-Tenant(One To Many) Architecture With A Multilevel And Multilateral User Hierarchy, Including Valuation, Partnering And Management Characteristics.

II. Overview

Sometimes Known As "On-Demand Software"^[4], Saas Is Usually Accessed By Users From A Thin-Client Via A Web Browser. Saas Has Become A Standard Delivery Model For Severalbusiness Applications. The Cloud Data Distribution And Storage, As Well As The System Infrastructure And User Hierarchy Are Managed By The Service Providers And The Users Have Access To The Application And Only Their Database.

One Of The Restrictions On Small Financial Institutions To Get A Digital Platform Is The Large Initial Cost Involved In Product Development And The Successive Maintenance Costs. The Invisible Investments Required For Individual Project Development Are As Shown In The Fig.1.

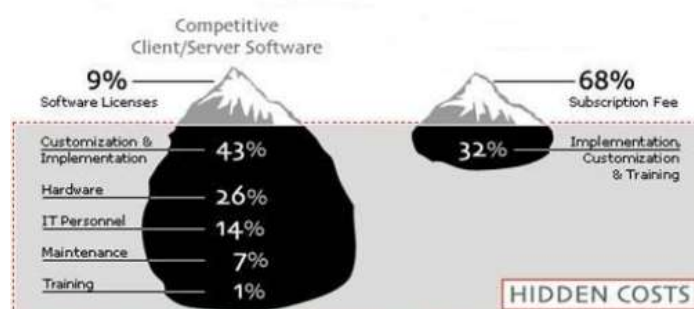


Fig.1. Hidden Costs In Existing System

Our Target Is To Overcome This Drawback By Creating A System Which Will Be Based On Monthly Billing And Pay As Per Usage.

III. Proposed System

“Mahcredit” Is A Cloud-Based Credit Banking Software For Small Financial Institutions. The Proposed System Architecture Is Shown In Fig. 2.

The Feature For Devanagari Display Will Also Be Incorporated In The System To Make It Easier To Enter The Data For People Who Are Not Comfortable With English. Also, Standards For Security And Privacy Of Data In The System Will Be Maintained. The Privacy And Privileges Of Different Users Will Be Maintained By The User Hierarchy. The Users Will Have Access To Separate Databases According To Their Level In The Hierarchy. For Example, State Level Users Will Have A More Aggregated View Of The Transactions While The Accountant And Branch Manager Can View And Edit The Day-To-Day Transactions.

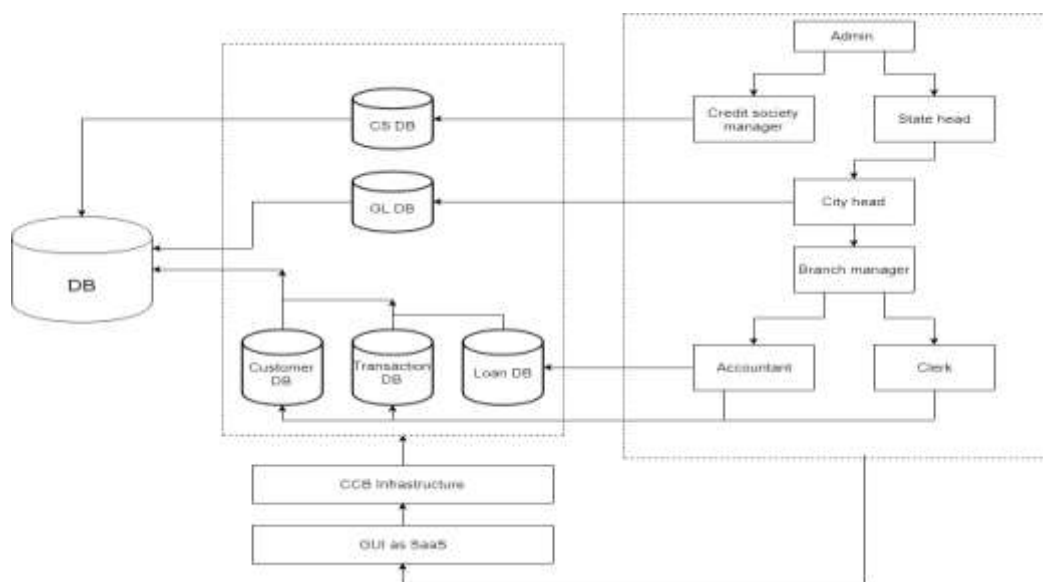


Fig.2. System Architecture

A. *Users*: The Administrators Are Level 0 Users Who Have The Highest Privileges. The Owners Or Managers Of The Individual Credit Societies Are Level 2 Users Which Avail The Services Provided By Mahcredit. The Accountants And Clerks Are The Level 4 Users. There Is Also State Level (Level 1), District Level And City Level Abstraction For The Given User Hierarchy. Accountants And Clerk Are The Users On The Lowest Level Of Users Who Will Take Care Of The Day To Day Transactions And Updates. The User Hierarchy Is Multi-Level As Well As Multilateral As Shown In Fig.2

B. *Gui For SaaS*: This Is Only Part Of The System In Which User Can Enter Features According To Their Requirements. Gui For SaaS Is The Graphical User Interface Provided By The System To Its Users. It Is The Topmost Layer Of The Cloud-Based System. It Is Necessary For User Interaction. All The Forms And Tables Are Displayed Or Edited Using The Graphical User Interface.

C. *Ccb Infrastructure*: It Is Basically The Connection Between The Database And The Graphical User Interface. Data Processing, Validation, Authentication And Conclusions Are Drawn In This Layer Of The Architecture. This Layer Is Vital To The Proper Working And Functionality Of The System.

D. *Db*: Db Stands For Databases Created For Different Entities Of The System. The First Step When A User Avails The Services Of Mahcredit Is His Registration In The Cs Db I.E. The Credit Society Database.

IV. Methodology

We Aim To Develop This System Using Free And Open Source Software (Foss). For The Development Of The Client-Side Infrastructure Laravel 5.3^[2], Currently The Most Popular Framework, Is Chosen. The Database Will Be Created And Maintained Using Postgresql.

Ascii Cannot Be Used To Represent More Than One Script, Therefore To Store The Data In Devanagari Script Unicode Is Necessary. For Unicode To Work In A Website, The Browsers Should Be Unicode Enabled. Unicode Is The Way To Store Indian Script Data In Sql Databases. Utf-8 And Utf-16 Are The Two Versions Of Unicode Available.^[5] Utf-8 Is Required For The Devanagari Data Storage For Customer Information In Mahcredit.

The Images In The Database Will Be Stored In Bytea Format Which Is A Standard In Postgresql. Bytea Is Equivalent To Blob Data Representation. Maintaining Consistency Will Also Be Important And Complex As There Is A Lot Of Dependency And Connectivity Amongst Different Tables In The Database. Laravel Documentation Is Limited As It Is A Comparatively New Framework, So It May Present Some Difficulties In Implementing Certain Features. We Will Be Using Bootstrap For Layout Design As The Focus Is On Functionalities And Not On Gui Design.

We Will Be Developing The System Module-Wise Which Will Later Be Integrated To Form The Fully Functional Software.

V. Conclusion

This System Has The Indian Credit Society Community As Its Target Demographic. The System Will Be Developed Using Foss Technologies To Minimize The Development Costs. Mahcredit Will Be Created Using Laravel Framework As It Is The Most Popular Framework With Numerous Functionalities. Laravel Also Provides Smooth Database Connectivity And Migration. We Have Chosen Postgresql Because It Is A Foss And Currently Available Data In Can Be Incorporated In It. When Mahcredit Is Successfully Implemented, It will Provide An Effective, Easy-To-Access Solution For The Credit Societies (Patpedhi) In India.

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