

# Design and Study of Security Model for Core Financial System

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## Abstract

*The need of security model is to provide secure data warehouse for core financial institutes. Security model for core financial system is a scheme for specifying and enforcing security policies. A security model is a statement that outlines the requirements necessary to properly support and implement a certain security policy. A security model provides a deeper explanation of various types of access rights by various ways. The security model of data warehouse for financial institutes will provide different level of security to data warehouse. The security model will be secured data warehouse from different illegal accessed and provide security policy for customer, financial institutes, data warehouse and different authorities. The security model will overcome all the drawbacks and will provide the complete solution over the present system. Security model is designed to unite all financial institutes in a network securely.*

**Keywords:-** BUID, CORE, OLTP, OLAP.

## 1. INTRODUCTION

Security model for financial institute uses core banking applications to support their operations where CORE stands for "centralized online real-time exchange".[1] These applications now also have the capability to address the needs of corporate customers, providing a comprehensive financial solution by security model. The security model is designed for core financial system using nine layers with customer BUID and biometric details. The data of customer is stored in Data Warehouse through data mart with BUID. Banks will make available all transactions across multiple channels like ATMs, Internet Banking, Insurances, and etc. using customer BUID through security model. All these facilities have made available to customers using the concept of Data Warehouse where it is a repository of subjectively selected and adapted operational data, which can successfully answer any ad-hoc, complex, statistical or analytical queries. It is situated at the centre of a decision support system of an organization and contains integrated historical data; both summarized and detailed information by providing security. Using BUID card of proposed system,[7] the customers can manages his financial needs and transactions following security level. Security model provide role wise security to government authorities like Income Tax department, Financial Industry Regulatory

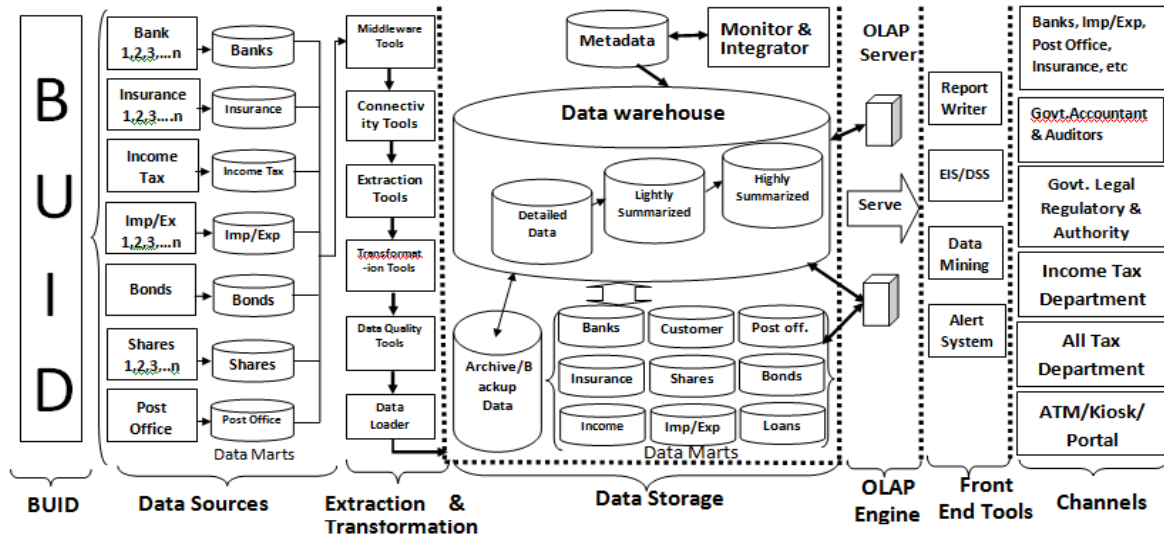
Authority, Financial Services Authority, Reserve Bank of India (RBI), Securities and Exchange Board of India (SEBI), Forward Markets Commission (India) (FMC), Insurance Regulatory and Development Authority (IRDA), etc can easily centralized managed and overall control on all financial system through maintaining data warehouse of either individual or a group. Core banking solutions is new jargon frequently used in banking circles.[2] The advancement in technology, especially Internet and information technology has led to new ways of doing in financial system. The security model is designed for transaction process using overall financial system and the data of customer is stored in Data Warehouse through data mart with BUID. Banks will make available all transactions across multiple channels like ATMs, Kiosk, Funds, Call center, Internet, Portal and Mobile using customer BUID by security model. Data warehouse architecture for financial institute will help to control and monitor the Income details, Transaction details, tax department and other details of the customers.[6] The Data warehouse architecture for financial institute will overcome all the drawbacks and will provide the complete solution over the present system. Here the data warehouse architecture for financial institute is designed to connect all financial institutes in a network under one roof and the data of customers are stored in Data Warehouse through data mart. Security model will facilitate Data warehouse architecture for financial institute by providing security.

## 2. DATA WAREHOUSE ARCHITECTURE FOR FINANCIAL INSTITUTES

The data warehouse architecture for financial institute has seven vertical layers and different process to complete the task. This architecture will help to control and monitor the Income details, Transaction details, tax department and other details of the customers.[6] The architecture will overcome all the drawbacks and will provide the complete solution over the present system. Here the data warehouse architecture for financial institute is designed to connect all financial institutes in a network and the data of customers are stored in Data Warehouse through data mart. As we are maintaining Data Warehouse, the data will be stored in a centralized form and can maintain historical data. Due to Data Warehouse, The Online

transaction processing (OLTP) and Online Analytical Processing (OLAP) can be used for efficient decision making process. The main advantage of data warehouse architecture for financial institute with BUID will become dynamic to perform a role to boost up the present financial system. Here data warehouse architecture for financial institutes needs security that why we introduced security model of data warehouse architecture for financial institutes.

particular person or organization. Data warehouse and its maintenance need Security from illegal access. Every transaction required final authentication point of security through security model for all customers, financial institute employees and all channels employee. The security model will help to address the issues related security like illegal access, authentication, verification etc.

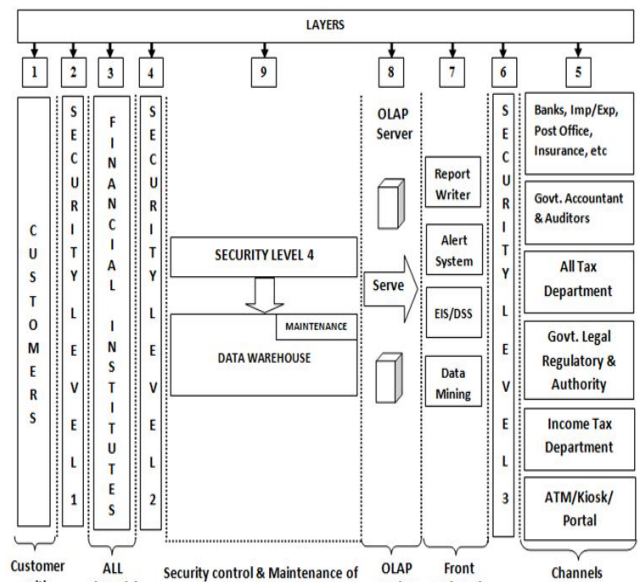


**Figure-1: Data warehouse Architecture for Financial Institutes.**

**3.NEED OF SECURITY MODEL**

The channels, financial institutes and customers will access proposed data warehouse for financial institutes. Data warehouse architecture for financial institutes needed security from illegal access through unauthorized user. Several security levels should provide to data warehouse from illegal access. There should be security level between customers and all financial institutes to make safe every transaction happen using BUID. The BUID based system needs security to customers while opening new account and making transactions. Security model will provide security to customers while opening new account and making transactions. Security model will identify biometric detail of customer and make allow for transaction. Security model should provide security for online, mobile, kiosk, green computing and financial institute etc transaction of customers using BUID. All financial institutes required security for employees because they have biometric details and user ID password according to his role in financial institutes which will be stored in data warehouse for authentication to fulfill the request. The security model will check authentication of each financial institute employees while giving rights to make transaction by verifying biometric detail and user ID. Channels like Government accountant and auditors, government legal regulatory and authority, income tax department, all tax departments, atm/kiosk/portal and all financial institutes are required security. The channels employees also have biometric details and user ID password according to their role in particular department will have authority to view the financial transaction of

**4.SECURITY MODEL OF DATA WAREHOUSE ARCHITECTURE FOR FINANCIAL INSTITUTES**



**Figure-2: Security Model of Data Warehouse Architecture for Financial Institutes**

The security model of data warehouse for financial institutes will provide different level of security to data warehouse by authenticating biometric details and BUID. The security control model has nine vertical layers included four different level of security i.e. Level 1, Level 2, Level 3 and Level 4 and maintenance of data warehouse. Security level will control different type of user in different way. The security model will be secured

data warehouse from different illegal accessed. The security model will provide security policy for customer, financial institutes, data warehouse and different authorities. The security model will overcome all the drawbacks and will provide the complete solution over the present system. Here the security model is designed to connect all financial institutes in a network securely. Due to Data Warehouse, The Online transaction processing (OLTP) and Online Analytical Processing (OLAP) can be used for efficient decision making process by different level of security in security model.

#### 4.1 Model Description

The model has nine layers, these are customer with BUID, all financial institutes, security control and maintenance, OLAP engine, front end tools and channels defined in well manner and process pursues exactly each and every one steps. The description about various layers of security model of data warehouse for financial institutes is as follows:-

**LAYER 1.** Customer with BUID: Every financial institute will be provided and worked through customer's BUID (Bank unique Identification) coded card. The BUID can be easily unified in current financial system. ATM, Kiosk, Funds, Call Center, Internet, Portal and Mobile, etc with BUID will be used to make transaction using data warehouse architecture for financial institute in overall financial system. The BUID will be well-built to execute a position to augment the present financial core system for Bank, Insurance, Shares, Bonds, Post Office, Income tax, Import/Export and loans through several channels.[7]

**LAYER 2.** Security Level 1: It is second layer of security model. The security level 1 is a wall between customers and all financial institutes. Every transaction will be happened using BUID. It will provide security to customers while opening new account and making transactions. Security level 1 will identify biometric detail of customer while making transactions using BUID. Every transaction will be happened using BUID through security level 1. It will identify customer BUID and make allow for transaction. Security level 1 is providing security for online, mobile, kiosk, green computing and financial institute etc transaction of customers using BUID.

**LAYER 3.** All Financial Institutes: In this layer all financial institutes included Banks, Insurance, Shares, Bonds, Post Office, Income tax, Import/ Export, Loan etc in security model will have branches. Suppose, Bank has branches like B1, B2, B3...Bn. The branch B1 have sub branches like Sub B1.1, Sub B1.2, Sub B1.3.....Sub B1.n. The structure will be same for B2, B3 and Bn. The branch B2 will have sub branches like Sub B2.1, Sub B2.2, Sub B2.3.....Sub B2.n, branch B3 will have Sub B3.1, Sub B3.2, Sub B3.3.....Sub B3.n and branch Bn will have Sub Bn.1, Sub Bn.2, Sub Bn.3.....Sub Bn.n. The remaining financial institute like Insurance, Shares, Bonds, Post Office, Import/Export etc in financial transaction model will also be followed the same above said structure of branches to maintain the transparency and financial transaction of particular financial institute.[8]

**LAYER 4.** Security Level 2: The security level 2 is placed in between all financial institutes and data warehouse layer. All financial institute employees have biometric details and user ID password according to his role in financial institutes. The role of employee will vary according to their designations in financial institutes. The employee of all financial institutes will be provided user ID and password with cross checking of their biometric detail, which will be stored in data warehouse for authentication to fulfill the request. The security level 2 will check authentication of each financial institute employee while giving rights to make transaction by verifying biometric detail and user ID. Security level 2 will pass request to security level 4 associate with data warehouse for further access.

**LAYER 5.** Channels: It is a seventh layer of security model. It included with Government accountant and auditors, government legal regulatory and authority, income tax department, all tax department, atm/kiosk/portal and all financial institutes. They are end users of proposed security model.

**LAYER 6.** Security Level 3: The security level 3 is placed in between front end tools of data warehouse and various channels like Government accountant and auditors, government legal regulatory and authority, income tax department, all tax departments, atm/kiosk/portal and all financial institutes. All various channels employees have biometric details and user ID password according to their role in particular department will have authority to view the financial transaction of particular person or organization and The biometric detail and user ID of employee will be stored in data warehouse for authentication purpose. The security level 4 will check authentication of each employee of particular department while giving rights to view transaction of person or organization by verifying biometric detail and user ID.

**LAYER 7.** Front End Tool: It is a seventh layer of security model included report writer, EIS/DSS, data mining and alert system. Data query and reporting tools used for deliver warehouse-wide data access through simple interfaces that hide the SQL language from all financial institute end users. These tools are designed for list-oriented queries, basic drill-down analysis and report generation. EIS and Decision support systems (DSS) are packaged applications that run against warehouse data. EIS and DSS are development tools that enable the rapid development and maintenance of custom-made decisional system. Data mining tools search for inconspicuous patterns in transaction-grained data to shed new light on the operations of the financial institute. Alert system provides alerts from the data warehouse database to support strategic decisions. It will also highlight and get user's attention based on defined exceptions.

**LAYER 8.** OLAP Engine: It is a sixth layer of data warehouse for financial institutes. OLAP applications share a set of user of all financial institutes. An OLAP server provides functionality and performance that leverages the proposed data warehouse for reporting, analysis, modeling and planning requirements.[12] These

processes mandate that the financial institute looks not only at past performance, but more importantly, at the future performance of the business. It is essential to create operational scenarios that are shaped by the past yet also include planned and potential changes that will impact tomorrow's financial institute performance.[6]

**LAYER 9.** Security Level 4: Security level 4 is associate with data warehouse and its maintenance. It is final authentication point of security model for all customers, financial institute employees and all channels employee. Security level 4 will have already stored biometric detail and user ID of all customers, all financial institute employees and all channels authorize employee. Every branch of financial institutes will maintain their data individual level and maintained data will store in data warehouse through security level 2 and security level 4.[8] Security level 1, Security level 2 and Security level 3 will pass request to security level 4 associate with data warehouse for further access. It will give permission after final authentication to access the data warehouse for view or make transaction in account.

## **5. ADVANTAGES OF SECURITY MODEL OF DATA WAREHOUSE ARCHITECTURE FOR FINANCIAL INSTITUTES**

Data warehouse architecture for financial institutes will be out of harm's way by four layers of security model. Security model provide security to customer while making transaction and opening the account by security level 1 to data warehouse. Security Model of Data warehouse Architecture for Financial Institutes will identify biometric detail of customer while making transactions using BUID. Every transaction will be happened using BUID through security model. Security model is providing security for online, mobile, kiosk, green computing and financial institute etc transaction of customers using BUID. The employee of all financial institutes will be provided user ID and password with cross checking of their biometric detail, which will be stored in data warehouse for authentication. The security model will check authentication of each financial institute employees while giving rights to make transaction by verifying biometric detail and user ID. All various channels employees can view the financial transaction of particular person or organization by authenticating biometric details and user ID password according to their role in particular department. Security model have already stored biometric detail and user ID of all customers, all financial institute employees and all channels employee. It gives permission after final authentication to access the data warehouse for view or make transaction in account.

## **6. CONCLUSION**

The security model of data warehouse architecture for financial institutes has provided several level of security to financial institute data warehouse. Every transaction of financial institute has happened using BUID through security model. Security model is providing security for online, mobile, kiosk, green computing and financial institute etc transaction of customers using BUID. The

employee of all financial institutes has provided user ID and password with cross checking of their biometric detail, which is stored in data warehouse for authentication to fulfill the request of customer. All authorized employees of government can view the financial transaction of particular person or organization by authenticating biometric details and user ID password according to their role in particular department. The proposed security model serves comprehensive security to core financial system to make secure transaction using BUID.

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