AN OPTIMIZED ARCHITECTURE TO IMPLEMENT CRM USING THE SALESFORCE.COM

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Abstract

The customer is changing. Today's Customer is socially and digitally connected, knowledgeable, result oriented, and Empowered. CRM on loud allows companies to experience and increase value from the Customer data. The main advantage is that cloud offers services like SaaS, Paas and IaaS with little project cost in terms Project's infrastructure and skilled resource management. Analytics, a system that gathers data from distributed and distinct sources, Predictive analytics is an advanced algorithm that helps business to make predictions and then proactively act upon those predictions to drive better business outcomes and achieve measurable competitive advantage. Businesses are turning to collaboration tools—such as unified communications, audio and web conferencing, instant messaging, and knowledge bases—to complete transactions and resolve matters quickly. The data is Big and evolving. The one perfect host to cater all of these advanced IT services is implementing CRM on cloud.

This study being carried out will propose optimized architecture to implement CRM and motivation points to shift traditional in-house heavy-weight CRM application to Service based Cloud CRM architecture.

Keywords: CRM, Cloud- CRM, Information systems, Customer relations, Service Oriented Architecture, Data Analytics.

1.) Introduction

CRM software is an extensive set of integrated software and applications designed to support trades manage access business information, customer data and customer interaction, marketing and customer support, automate sales resulting in efficient and streamlined employee, vendor and partner relationships. CRM software is highly customizable and scalable, letting businesses to increase actionable information of customer through back-end analytical engine, creating and nurturing business opportunities with predictive analytics, thus simplifying customer service based operations based out of customer's known history and prior interactions with business.

A typical CRM [1] platform is connected with wide range of users in any business or technical area. The Sales Manager, VP of marketing, Director and the Customer Service Agents - all are connected with each other via standard dashboard and view data catalogued on that customer. Customer Retention, Customer acquisition, Relationship Growth are critical functions for every level of the Cloud CRM applications. Popular Cloud based CRM tools, such as Salesforce.com, Siebel, Microsoft Dynamics CRM, SharePoint provides visual and time-tested analytic platforms which generates efficient, effective data that empower organizations to acquire, retain, and cross-sell or up-sell more. Cloud allows CRM professionals [2] to query data with:

1. **Data Mashup** – Join and Relate data from different sources quickly, without IT Database support and creates view of data to speed decisions.
2. **Dimension-Free Data Exploration** – hassle free Exploration of data to any level of detail.
3. **Contextual Collaboration** - Circulate insights and publish onto corporate portals and social platforms with proper Security to achieve fact-based decision-making.

4. **Predictive -**Anticipate opportunities, discover the hidden impact and take corrective action.
5. **Enterprise-class** - Securely scaled Code across the application with maximum refactoring.

Cloud is an enterprise application[4]. It is the term used to label applications that a business would develop and use to assist the organization in solving enterprise problems. A typical Cloud CRM application could be any one like Vertical Application, Horizontal Application, MAM – Mobile Application Management, Application Topology Mapping, ADN - Application Delivery Network.

Cloud-ing the CRM App: Popular trend to move the CRM to cloud computing, where the enterprise configures some or its entire application set up on the cloud, a type of Internet-based computing, where services are brought to user's devices through the Internet as an on-demand service. Some enterprises may also choose a hybrid solution where cloud applications are integrated with on premise systems.

Proprietary CRM applications are designed and deployed in-house by a specialized IT development team within the organization. However, it is suggested in this paper to transform in-house applications to Cloud CRM applications. Proprietary CRM application [5] is designed by a third-party application service provider and rented to business as a on premise service. It is known as software-as-a-service (SaaS) in the terms of Cloud terminology. SaaS is successful Cloud CRM model. Some of the more common types of CRM applications include the following Automated Billing Systems, Payment Processing, Email Marketing Systems, Content Management, Call Center and Customer Support, Enterprise Resource Planning (ERP), Business Intelligence Apps etc.

1.1.) Customer Relationship Management

CRM is an integrated management system purely focused upon existing and prospective customers. It contains the procedures and processes that form an IT business model centered on a 360º approach to the customer. The CRM technology is developed as per the company's long term strategy and also provides modes to create, nurture and qualify[6] data about the client and other external sources and consolidate that data in a central data-warehouse. CRM software Solutions are classified [7] as: 1) Collaborative CRM: Intended at allocating and collecting information from various transactions that customers have with different departments of the organization. 2.) Analytical CRM: It includes performance analysis and business intelligence applied to specific information. 3.) Operational CRM: Such kinds of applications interact directly with the customer by involving the front office, back office and mobility. It is based around the functional areas of sales force automation, contact management, automation of marketing activities and customer service.

1.2.) Salesforce.com[8]:

Information Technology operations are complicated, expensive and complex. From Buying, installing, administering, managing, upgrading hardware to operating system, software, databases and then configuring networks, security, backups is becoming too much for organizations for using IT.Salesforce.com offers innovative technology and visionary concept that takes such complexities out from businesses. Called "Cloud Computing model", with Salesforce.com business need not to set up any type of IT infrastructure as far as hardware, software, databases is concerned and hence need not to plan about configuring networks, security & backups. The only focus which matters most to organizations is business and that is easily managed by Salesforce.com[9].

- Force.com product is based upon Platform as a Service (PaaS), designed to ease the development and deployment of cloud applications.
- Developers, System Analysts can create apps and websites on the cloud IDE stands for Integrated Development Environment and deploy them quickly to Force.com's servers, which are multi-tenant.
- It uses a logical database without the physical access and control. It promotes logical data entities that are used and reused across an entire project instead of traditional entity relationship designing.
- Database security on the platform service is designed with respect to user hierarchies and other rules. The hierarchies are charted with database

objects so that the rules can be developed for the entities and their fields and records.

- The Force.com platform compiles the strongly-typed programming language Apex. This language is accustomed to languages like Java and C#. The language uses similar syntax but access to architectural elements and database is unique.

2.) Architecture

A PaaS or cloud-oriented architecture in general is designed with principles of Service-Oriented Architectures [9] (SOA) and Event-Driven Architectures (EDA). It integrates some more architectural models like the Resource-Oriented Architecture (ROA) and the Hypermedia-Oriented Architecture (HOA). A ROA is a concept about entity that can be allotted a Uniform Resource Identifier (URI). Implementing new software in a business may face issues like with staff not using software they have invested time, money, and/or resources in.

If IT architects want a new CRM software implementation, features like ease of use, substantial benefits to customers and time saving are generally considered. Cloud CRM offers architects operations friendly life, there might be bit learning and challenge involved in implementing it. It helps business people achieve maximum business with logically and technically refined data. A Cloud CRM software offers architects an easy implementation to integrate communication tools, collaboration software and other in-house applications. It generates same data which can be helpful for sales teams and for sales managers to run and suit their roles of business. CRM software helps users gather prized data in the technique of reports that help teams to analyze the wins and losses and derive a trend with business. Cloud-based storage makes it convenient for users to securely access the data from any location either from home or from a client's site. Tracking your projects on a spreadsheet isn't nearly as effective as cloud-based tool offers.

3.) Background

Traditional CRM is defined as In-house web applications where coding is done per the SDLC to support the business usage and processes. It is focused around the traditional departments of the organization like the "customer-facing" departments - sales, marketing and customer support. The driver for its initial success is sales which manage customers to increase revenue and sell "stuff" in the Business to Customer world.

Such systems use client/server technologies where all programs and applications are executed on one or more centralized servers. The system operations from the front-end interface communicate with the backend through traditional ERP systems. Such architectures do not support data warehouses systems. ERP systems act as data repositories and capture data from both the front-end and back-end operations[10]. As standard, the users in CRM are the employees of the organization. The system provides access via a set of predefined rules, which cannot be customized or changed by the user. Any customization requires making significant changes at the application code level, which requires proper SDLC release planning to include the changes.

The traditional CRM are developed with simple contact management - pipeline management. Further the value to sales is derived by account management, opportunity information. It is distinguished from salesforce automation (SFA). The latter gives management visibility into the sales pipeline of salespeople. Salesforce automation, an important feature is missed from the traditional architectures. It is important because it gives managers high visibility into the key assets - the relationships which sales have with their customers.

Traditional CRM have a high failure rate.

The application programs in CRM are based upon the data collection algorithms and the optimality of interface. Merely web enabling these applications is not efficient as it involves overhead on the ‘client’ computer. Web-enabling CRM application involves downloading applets to the client which is a time consuming process. Furthermore, such CRM applications require that each application and program be rewritten for different platforms. Any modifications should be made in all versions. Traditional CRM systems do not allow the organization to dynamically alter system capabilities. As business conditions change, an application should respond to the change, which is not the case with Traditional CRM.

4) Optimized Architecture

The CRM cloud platform [11] is efficient application for delivering a highly customized experience to any business and its customers, employees, and partners. Using the proposed architecture, a developer can customize and

enhance standard functionalities and create custom pages, components, apps, and other functionalities with ease and efficiency.

4.1) Architecture Basics

Trusted Multitenant Cloud: Trust is the priority at Salesforce, which is why the multitenant cloud is a basis of every design developers build upon the platform and system. Here the question is What do we mean by multitenant cloud? It means that all licensed customers either from small businesses or from enterprise companies, are given same level of services and all get the same functionality, features and upgrades.

Scalable, Metadata Platform: The main important feature of this platform is its metadata-driven architecture. All customizations[12] in the Salesforce schema, including code, configuration, and applications are created and declared as metadata. In this proposed architecture, we have kept metadata layer (Data logic layer) from the services layer(business logic layer), which allows developers to give users seamless experience and easy upgrades.

Fast App Dev & Customization: The Cloud metadata layer is scalable what helps developers to go faster to get easy production deployments.

Complete CRM: Complete CRM functionality which in best term means sales, service, analytics, marketing, community, all are getting served and valued from this trusted platform and proposed architecture.

API: It is worthless if we don't mention the powerful suite of APIs, which eases development and cater change requests. Application program interface (API) is a set of routines, protocols, and tools for building software applications. This architecture supports various API, e.g. REST API to Access objects in different applications using REST. SOAP API which integrates 1 applications' data with other applications using SOAP. API is basically an agreement between two different types of systems, allowing them to connect, exchange and transact.

Security and the Cloud: This architecture supports the platform built around robust and regulated security architecture. Using standard functionality in Salesforce, only authorized user can get a security control over object cloud objects and data, mostly through administrative permissions to the data access and sharing model.

Another important feature is about the automatic upgrades. "Enterprise software upgrades" typically have a bad reputation due to post deployment affects created by bugs, defect and other synchronization issues. But Cloud CRM, Salesforce's automated upgrades are seamless.

4.2) Metadata:

Metadata is defined as data about data. In Salesforce with its efficient scalable, engineers can have configuration and customization specific to the business need or change request. This includes things like page designs and layouts for standard (platform given) and custom (user defined) objects. It also includes assignation rules, sharing rules and security settings. It is about Visualforce pages and Apex triggers when it comes to the programmatic side. So user data in the cloud CRM instance is created with specific and particular structure. Imagine a scenario where the data is lost and we need to export the new and similar set of record. Since the underlying a metadata is still present, so user can complete most of his operations. This makes the engineering jobs like coding, refactoring and automation to standard and custom functionalities very efficient.

Salesforce's SaaS model means it avails the metadata immediately available for configurations, further developments and usage in the application. Unlike Traditional CRM, if you wanted to build an application, a developer would have need hardware and software. It would have demanded to define the architecture first and then the design documentation related to access, security, set ups, reports and analytics. Developing an application with Salesforce is easy. The present proposed architecture is fueled with the power of the Salesforce platform which is further enhanced by easy accessibility of the metadata layer, SaaS and the Cloud. It allows faster innovations and faster 'get to market' faster solutions for wider range of businesses.

5) Cloud CRM System with Distributed Security Cloud.

The core concept is about the separation of the storage layer from encryption/decryption mechanism of user. Encryption/Decryption in any standard business model as Service and Storage as another Service (SaaS) is not provided by a single facilitator. Moreover, The SaaS model does not the store unencrypted data once the supplier of Encryption/Decryption as a Service has completed changing the same data and passed it to the CRM system.

In Cloud CRM service, it proposes the accumulation of an independent encryption/decryption cloud service to the business model, appended with the result of service providers responsible for data storage and data encryption/decryption. For example if a user creates data in a CRM. His data is encrypted and stored after getting encrypted by a separate security service provider. The Cloud CRM applications are generally not designed with cryptography. The encrypted data will first be stored in separate storage system. The encrypted data is then stored in the Storage cloud. This is about the data storage algorithm. Another concept is about the Data Retrieval algorithm. If a user wants to retrieve the data from application, then the user needs to enter the unique ID provided by the CRM application first. Upon ID matching only, it will give a request to the encryption/decryption system to decrypt the data and process it further for analytics or intelligence purposes.

7.) Benefits

The reasons why this Cloud-based CRM Architecture [13] companies should consider:

Hassle-free Installation: Complexity involved in installation process is no longer valid with Cloud CRM. All we need is the internet connection.

Seamless Access: Round-the-clock accessibility is by far the greatest benefit of Cloud CRM. Cloud CRM gives us access to the system from anywhere and on any device.

Affordable Product: Another benefit is that this business-enhancing product certainly a cost effective enhancement. Cloud CRM generally operates on the pay-as-you-go subscription model, which demands affordable upfront investment. Such investments reduce the risks in business.

High Security Levels: The most common reason why businesses are eager to adapt a cloud solution is software-as-a-service or (SAAS) security model. Cloud CRM service providers also offer advanced automatized back-up and data recovery services. It also let individual to further improve their data protection by allowing two-step authentication and strong passwords.

Enhanced Compatibility: Stand-alone products in today's IT world have less scope of improvements. Success of an IT application demands integration flexibility. Especially in a small business environment, information exchange between other applications is paramount. Cloud CRM on the other hand can be easily integrated with other applications. It is this enhanced and efficient compatibility that makes Cloud-based CRM an even more appropriate choice for businesses.

7.1) Technical Perspective: This Customized Cloud will help with following services:

- Centralize customer database with backups.
- Provide comprehensive view of interactions with customers.
- Provision of instant access to have real-time insights into business and other sales opportunities.
- Automation of task management processes such as following up on leads, closing sales deals on time and ensuring better service deliverance
- Ensures high data protection.
- Requires no hardware to maintain the system
- Supports Multiple Devices
- Compatible with third-party products and other integrations.
- Adaptable to changing business requirements.

7.2) Management Perspective: This Customized Cloud can lead to better marketing of products or services by focusing on:

- Effective target marketing aimed specifically at customer needs.
- A personalized approach and the improved products line and services in order to make success in business.
- Enhanced customer satisfaction and retention
- Increased value derivation from existing customers
- Reduced business costs related with CRM support services, thus increasing overall business performance
- Improved profitability by focusing more on profitable customers along with focused approach to prospects.

8.) Scope of Future Development:

Here are the scope of improvements which needs to amplify the above-mentioned "umbrella" benefits.

Immediate "Savings" Benefits: Cost saving should not be expected from this architecture immediately. Yes , With Cloud CRM- there is no need for infrastructure, networking and complicated set up. Instead it promotes pay as you go model which eliminate upfront costs. Employees need to be trained quickly and

projects can be deployed and shared over the internet. As a result, project budget may increase in two areas: IT labor and Application management.

User-Driven Customization: There's no need to predetermine customization capability of the system. With pre-built flexibility offered by Cloud CRM providers, it is still facilitated to support customization by end-user who can add logos, personal messages and enhance the user experience or business process as per the requirement. But since this platform lacks the personnel infrastructure, there are limitations to cater the customizations or changes.

24/7/365 Accessibility: When data stored is stored in the cloud, sales and marketing teams or any authorized user can access it directly any time they want, from anywhere. This adds a real edge to distant and virtual workforces and distributed teams. Though cloud servers are supported by various backup servers, we may experience some inconvenience when system beaks.

Synchronization with Mobile: The cloud supports any business that wishes to move into mobility and develop a mobile device management strategy. However, there are synchronization issues which doesn't occur or happen in system application but may occur prevalent when it comes to use it in the mobile.

9.) CONCLUSION

With the increased innovation and development in CRM strategies in organizations and the huge increase in people and products to implement them, it is evident that cloud technology will be the core factor in companies to work and develop long term business model. However, there is a big difference between spending money on resource training, personnel development and products that are making it all work: implementation of CRM practices in cloud can't be looked as ideal system. We should expect more innovations in technologies and methodologies to implement efficient CRM system. Companies are recognizing the importance of creating dynamic databases with efficient data extraction and retrieval systems and methodology to capture the customer information with creatives of behavior analysis and intelligent comprehensions. So far , to have CRM implemented in the Cloud technology is the best deal. Cloud CRM is essential to compete effectively in the world of changing technologies. The more effectively Cloud can use the information about CRM's customers to meet their needs the more profitable the business is. But operational CRM needs analytical CRM with predictive data mining models. The route to a successful business requires a marketing manager that understands its customers and their requirements and implements data mining with a good different model.

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