Advancement in Salesforce using CPQ (Configure Price Quote) – Technological Catalyst

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ABSTRACT: The paper is a presentation of the proposed CPQ (Configure Price Quote) solution for companies with complex sales processes helping companies configure complicated product offerings, price them in such a way that the correct discounting and bundling rules apply to products or sets of products, and create fast, accurate quotes based on that information. The CPQ solution is built using Visualforce and Apex and is in seamless integration with salesforce. Salesforce is more than a simple Customer Relationship Management (CRM) application managing contacts ,tracking all sales activity — every lead, opportunity, and customer. More time is spending selling to the right people, armed with their personal marketing data and social insights.

 KEYWORDS: CPQ, Configure Price Quote, Salesforce, CRM, Salesforce Automation, SFA

I. INTRODUCTION

Salesforce.com is a cloud computing and social enterprise software-as-a-service (SaaS) provider based in San Francisco. It was founded in March 1999, in part by former Oracle executive Marc Benioff. Of its cloud platforms and applications, the company is best known for its Salesforce customer relationship management (CRM) product, which is composed of Sales Cloud, Service Cloud, Marketing Cloud, Force.com, Chatter and Work.com. Sales Cloud manages contact information and integrates social media and real-time customer collaboration through Chatter. Service Cloud includes a call center-like case tracking feature and a social networking plug-in for conversation and analytics. Marketing Cloud offers Radian6, a social media monitoring and marketing application. Force.com, the company's platform-as-a-service (PaaS) product, allows software developers to create Salesforce.com add-on applications. Work.com offers Rypple, a social human resource (HR) performance management platform. In addition to its products and platforms, Salesforce.com created AppExchange, a custom application building and sharing platform. The company also has consulting, deployment and training services.

Sales Cloud - For sales and marketing

For sales managers, CRM cloud apps provide real-time visibility into their team's activities so they can forecast sales with confidence. For sales reps, CRM cloud apps make it easy to manage customer information so reps spend less time handling data and more time with customers. For marketers, nothing is more important than tracking the sales that result from leads generated through marketing campaigns on your Web site, in email, or with Google AdWords. CRM cloud apps let marketers track leads and sources, route leads to the right salespeople in real time, and provide the analytics to see what's working and what can be improved.
In particular, organizations are lately taking a closer look at systems that can defibrillate sales processes, allowing them to decrease sales cycle times, increase productivity, reduce order errors, and scale their businesses internally, nationally, or globally. Furthermore, companies are looking for solutions that can integrate with what they already have running, and streamline internal systems rather than over-complicate them.
In looking at those trends, the term "configure price quote" (CPQ) has emerged as one of the ways companies are finding tremendous results in the above initiatives.

The basics

CPQ software helps companies configure complicated product offerings, price them in such a way that the correct discounting and bundling rules apply to products or sets of products, and create fast, accurate quotes based on that information. CPQ software ideally can bridge the gap between front and back end systems, and take companies from lead to order, or all the way from lead to cash.

The acronym

What does each stage in the CPQ process entail?

- **Configure**: Shaping or putting together products and/or services in a particular form
- **Price**: Deciding the amount required for payment, taking into account geographies, local regulations, economic benefits, manufacturing costs, and competition, and determining rules for bundling and discounting in a variety of sales situations
- **Quote**: Providing a document that sets the expectation of what requested products and services will cost

II. RELATED WORK

Salesforce achieves the Quoting functionality through its standard Quote object. The Quote object represents a quote, which is a record showing proposed price for products and services. Quotes can be created from and synced with opportunities, and emailed as PDFs to customers. This functionality is great but some of the missing features are

- Missing Quotes Tab
- Missing Quote Field History Tracking
- Code is required to get the custom line item fields to sync
- More flexible designer templates
- Salesforce quotation templates do not provide any page break control
- Any product fields that don't roll up to the Quote record are not available in the Quote template editor.

III. PROPOSED SYSTEM

The proposed app is intended to provide an integrated set of software applications supporting the configuration, pricing and quote generation activities that accompany solution and negotiated selling. The proposed app is customer's specific which provides a service to the customer and not acts as a product which can be used by any end user. The app is expected to increase the overall profit of the organization (minimum of 10%) by automating the entire Configure Price Quote process. The proposed app handles the major aspects of selling process which involves separate tab for quotes, pricing products, discounting rules, handling the stock (implementing a custom field named quantity in the Product2 Object of Salesforce and apply validation rules for the same), warning when stock drops down a specific margin, customized templates for proposals, approval process, automated approvals. The proposed system runs on Salesforce infrastructure and is entirely within the salesforce developed using Visualforce and Apex.

Visualforce and Apex

Visualforce is a framework that allows developers to build sophisticated, custom user interfaces that can be hosted natively on the Force.com platform. The Visualforce framework includes a tag-based mark-up language, similar to HTML, and a set of server-side "standard controllers" that make basic database operations, such as queries and saves, very simple to perform. Apex is a strongly typed, object-oriented programming language that allows developers to execute flow and transaction control statements on the Force.com platform server in conjunction with calls to the Force.comAPI. Using syntax that looks like Java and acts like database stored procedures, Apex enables developers to add business logic to most system events, including button clicks, related record updates, and Visualforce pages. Visualforce and Apex complete the application development services of the Force.com platform. With these tools, developers have a full spectrum of customization and development options.

The application developed using Visualforce and Apex can be coupled into a single package which can then be deployed as managed or unmanaged package. Packaging the application makes the installation simpler. The package upload URL

is required for installation avoiding any of the pre-installation steps required when an external application needs to be integrated with Salesforce.

IV. SALESFORCE ARCHITECTURE

Salesforce.com's architecture is multitenant architecture. Salesforce.com's platform as a service (PaaS) product is known as Force.com. The Force.com platform allows external developers to create add-on applications that integrate into the main salesforce.com application and are hosted on Salesforce.com's infrastructure.

Fig.1. Salesforce Architecture

Multitenancy

Multitenancy is the fundamental technology that clouds use to share IT resources cost-efficiently and securely. Just like in an apartment building—in which many tenants cost-efficiently share the common infrastructure of the building but have walls and doors that give them privacy from other tenants—a cloud uses Multitenancy technology to share IT resources securely among multiple applications and tenants (businesses, organizations, etc.) that use the cloud. Some clouds use virtualization-based architectures to isolate tenants; others use custom software architectures to get the job done. The multitenant design of a cloud service can have a dramatic impact on the application delivery and productivity of an IT organization, yet most CIOs, CTOs, system architects, and developers who use clouds don't give it a second thought because it's all magic that transparently happens behind the scenes.

Force.com Architecture Overview

Force.com is the proven cloud application development platform that powers many popular Salesforce cloud applications (Sales Cloud, Service Cloud, etc.), as well as custom applications that customers build to satisfy their specific business requirements.

Multitenant Kernel

Force.com is a modern Platform as a Service (PaaS) that's built for cloud computing, with Multitenancy inherent in its design. A quick way to understand what makes Force.com unique is to consider the following figure that compares a traditional application development platform with Force.com's multitenant approach.

At the heart of all conventional application development platforms beats a relational database management system *(RDBMS),* most of which were designed in the 1970s and 1980s to support individual organizations' on-premises deployments. All the core mechanisms in an RDBMS—such as its system catalog, caching mechanisms, query optimizer, and application development features—are built to support single-tenant applications and be run directly on top of a specifically tuned host operating system and raw hardware. Without significant development efforts, multitenant cloud database services built with a standard RDBMS are only possible with the help of virtualization. Unfortunately, the extra overhead of a hypervisor typically hurts the performance of an RDBMS.
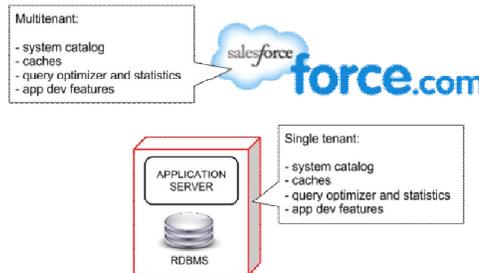
Fig.2. Compare traditional application development platform with Force.com's multitenant approach

In contrast, Force.com combines several different persistence technologies, including a custom-designed relational database schema, which are innately designed for clouds and Multitenancy —no virtualization required. The benefits of Force.com's unique architecture are extraordinary. Force.com is a proven, reliable, and secure cloud application development offering today that serves:

- 100,000+ businesses
- 220,000+ deployed applications
- 3,000,000 users
- 60,000,000,000 transactions per quarter, often with 1,000,000,000+ transactions per day

An average request response time of less than 300 milliseconds
An average uptime of 99.9+ percent

Multitenant App Development
The previous section explains the architecture that Force.com uses to store metadata and data. This section briefly explains how app developers can create a schema's underlying metadata and then build apps that manage data.

The Force.com Browser based Development Environment
Developers can declaratively build server-side application components using the Force.com Web browser-based development environment, commonly referred to as the Force.com Setup screens. This point-and-click UI supports all facets of the application schema building process, including the creation of an application's data model (objects and their fields, relationships, etc.), security and sharing model (users, profiles, role hierarchies, etc.), user interface (screen layouts, data entry forms, reports, etc.), declarative logic (workflows), and programmatic logic (stored procedures and triggers). For example, the following screen is the Force.com Schema Builder, an intuitive, ERD-like data modelling tool.
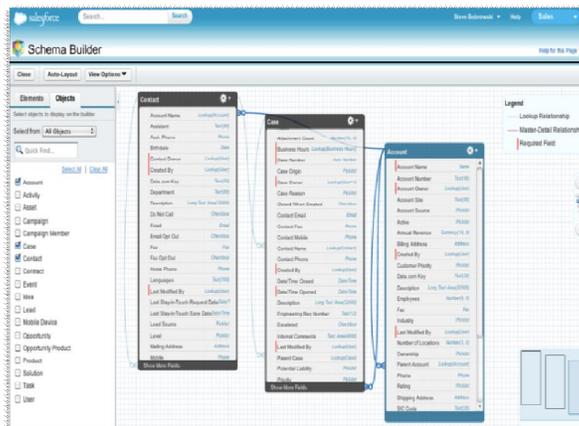
Fig.3. Force.com Schema Builder

Force.com Setup screens provide access to many built-in system features that make it easy to implement common application functionality without writing the otherwise complicated and error-prone code that's required in traditional database systems.

APIs
Force.com provides open, standards-based APIs that developers can use to build apps. Both Restful and Web services (SOAP-based) APIs are available that provide access to Force.com's many features.

Query Languages
Apps can use the Salesforce Object Query Language (SOQL) to construct simple but powerful database queries.
Force.com also includes a full-text, multi-lingual search engine that automatically indexes all text-related fields. Apps can leverage this pre-integrated search engine using the Salesforce Object Search Language (SOSL) to perform text searches. Unlike SOQL, which can only query one object at a time, SOSL enables you to search text, email, and phone fields for multiple objects simultaneously.

Apex & Procedural Logic
Apex, which is similar to Java in many respects, is a powerful development language that developers can use to centralize procedural logic in their application schema. You can store Apex programs in Force.com using two different forms: as a named *Apex class* with methods (akin to stored procedures in traditional database parlance) that applications execute when necessary, or as a *database trigger* that automatically executes before or after a specific database manipulation event occurs. In either form, Force.com compiles Apex code and stores it as metadata in the UDD. The first time that an organization executes an Apex program, Force.com's runtime interpreter loads the compiled version of the program into an MRU cache for that organization. Thereafter, when any user from the same organization needs to use the same routine, Force.com can save memory and avoid the overhead of recompiling the program again by sharing the ready-to-run program that is already in memory.

V. FEATURES

- **Quote and Opportunity are always in sync**

Quote is always in sync with the Opportunity so any changes made to the quote get reflected in the opportunity and vice-versa. Configuring a product or set of products each time a quote goes out is an example of time-consuming repetition. With CPQ, however, the sales organization doesn't have to start from scratch. The technology captures what other sales reps have done with other accounts and provides a wizard-driven process that lets a rep readily create a quote.

- **Custom Tab for Quotes**

The proposed software has a custom tab for Quotes object which displays a list of quotes. Searching and sorting functionality are add-ons to the tab which salesforce out of the box does not provide.

- **Discounting Rules**

Maximum discount can be specified for each product which forces the sales reps to specify discounts from the maximum discount allowed which enhances the guided selling process.

- **Quantity Validation**

This feature tries to handle the stock to a certain limit guiding the sales reps with the quantity available and validating the same. An alert is displayed on org when the quantity drops down.

- **Customized Templates for proposals**

The proposed software provides customized templates which makes an effort to overcome the drawbacks faced by the salesforce built-in templates.

- **Approvals**

When sales reps do go outside the boundaries, there is an expedited way of getting approval from executives which provides a workflow and approval process through this software. A customer can define the people who need to approve

various exceptions, and in what order. There can be multiple approvers as the process moves up the executive chain. Each executive in the chain can give the green light, reject the variance or request more information. The quote enters the automated approval process if the criterion for automated approvals is satisfied.

VI. SIMULATION RESULTS

Salesforce.com has proved to be one of the best CRM and helped sales representatives in increasing sales. Salesforce.com is purely cloud based CRM which makes it easily accessible. Salesforce's force.com allows the developers to highly customize their CRM as per their needs and demands. As an extension to this, CPQ has emerged. CPQ applications are available from different vendors which ultimately helps the companies grow their business. Research shows the application has to be developed using Visualforce and Apex which are application development services of Force.com platform. Create a package of app and the generated URL can be used for installation. This makes the installation simpler thus avoiding any of the pre-installation steps required when an external application needs to be integrated with Salesforce. When an external application is used, any of the changes done in CRM has to be implemented in application also. This can be avoided by the proposed app. The proposed app has the functionalities which Salesforce out of the box does not provide. The proposed app has strict discounting and stock rules. The proposed app is highly customizable and will act as a service.

VII. CONCLUSION

Salesforce.com is a leader in cloud computing, offering a complete set of CRM cloud applications, a cloud platform and a cloud infrastructure – more cost effective for a higher return on investment. With Salesforce as CRM, sales, marketing and customer service teams can understand every customer, better decisions can be made to close more business, reduce the cost of service and keep every customer satisfied. An advancement in Salesforce to customize the CRM as per the business is CPQ – Configure Price Quote. CPQ (configure, price, quote) is a process leading up to generating a sales proposal for companies offering complex product and service combinations. CPQ ideally can bridge the gap between front and back end systems, and take companies from lead to order, or all the way from lead to cash. The proposed app is completely within the Salesforce developed using Salesforce's query languages and application development services of the Force.com platform (Visualforce and Apex). The app is expected to increase the overall profit of the organization (minimum of 10%) by automating the entire Configure Price, Quote process.

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