

White Paper

SALESFORCE: WHAT A DIFFERENCE A DECADE MAKES

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INTRODUCTION

It's clear that 21st century technology consumers have outgrown 20th century legacy models. As we move forward, the age of machine learning, advanced predictive analytics, and artificial intelligence are leading the evolutionary changes.

Technology partners within life sciences organizations face increasing pressures to evolve their commercial models, products, and approach to meet growing business demands. Technology giants such as Google, Amazon, and Facebook have already shaped consumer expectations through their engagement with interactive, intuitive, and simple applications for consumers to accomplish their tasks. An evolution towards systems of engagement is underway, and now is the time to join that evolution.

The Salesforce Platform has joined this evolution, and is quickly becoming the industry standard platform to deliver complex applications in the cloud at a global scale. One way to accomplish this is by moving away from monolithic, on premise systems, to Platform as a Service (PaaS) and Software as a Service (SaaS) solutions. PaaS and SaaS solutions are better architected to enable the speed that business requires to evolve. Tools such as Lightning, Managed Packages,

Shield, Big Object, and Heroku are giving rise to a new era of human centered design applications which are easier to use, faster to deploy, and operate seamlessly for global deployments.

Capabilities for today's life sciences companies

A number of specific Force.com capabilities are ideally suited to deliver the complex requirements of the life sciences industry, including the data model, workflows, open APIs and mobile - plus machine learning and artificial intelligence, which are driving the next frontier in sales and marketing applications.

"Believing that products developed a decade ago are better because they are stable is a myth."

These new capabilities fit into six categories



1. DEPLOYMENT

MANAGED PACKAGES

Deployment capabilities and capacities have evolved to meet greater demands. Previously, this capability was limited in facilitating the deployment of developed apps for partners. Code deployments to Salesforce instances risked code overwrites during upgrades, and developers had to manually ensure code patency during these processes. A managed package is a deployment technique provided by Salesforce for partners to deploy apps on personal, office, and mobile devices by accessing Salesforce - similar to a user installing an app on their iPhone.

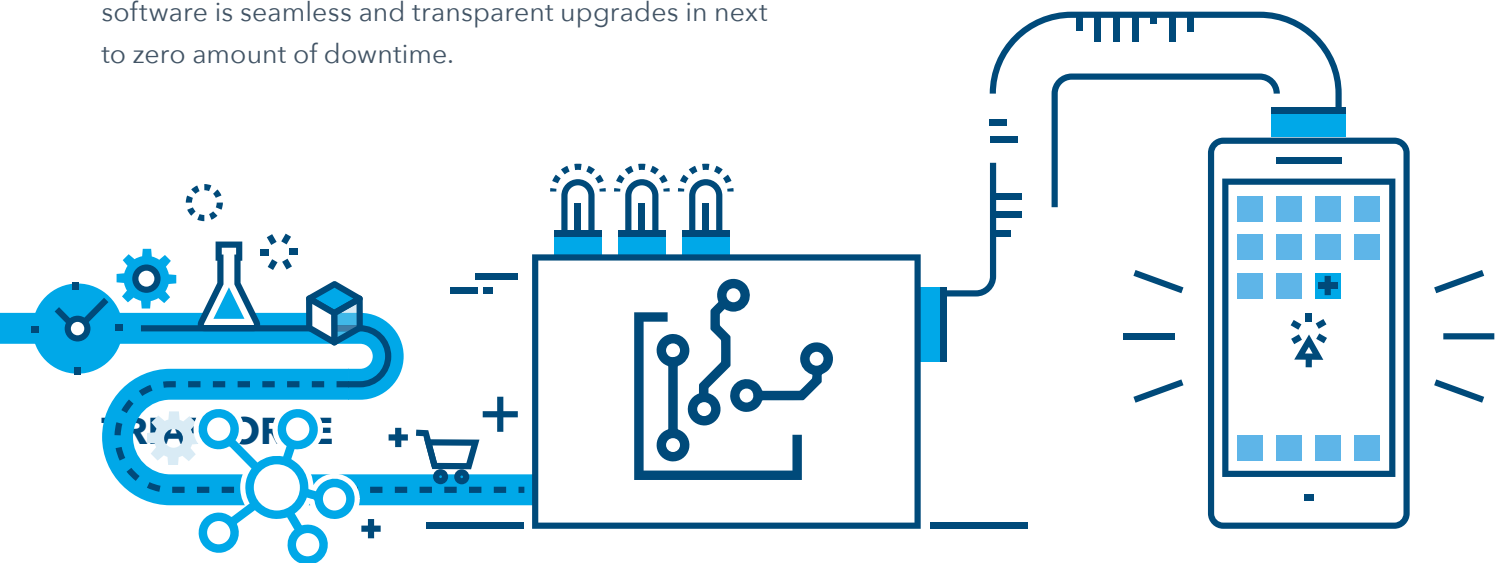
Today, managed packages provide seamless upgrades by not allowing:

- Overwriting of components customized by a customer
- Built-in version support (updates and patches)
- Auto deployment of updates and patches to subscribers
- Different naming conventions to ensure conflict free installations

One main advantage of the new cloud-based (SaaS) software is seamless and transparent upgrades in next to zero amount of downtime.

Salesforce allows customers and partners to activate a limited-time, free trial offer to test drive their platform. All partners who develop products on the Salesforce Platform as managed packages have multiple options for giving trials to their prospective customers, and converting them to a production environment at a flip of a switch at their convenience.

Options now exist to run a test drive environment with read-only data, provide a package with trial licenses to be installed on a customer's current Salesforce instance, or give a prospect a new Salesforce instance with a package and some demo data pre-installed. The last option, called Trial Force, is particularly helpful to partners. A partner can create multiple Trial Force templates (with different types of configuration, or various types of data, or no data) through which they can create instances for the use of their sales teams, prospects, or existing customers. This functionality is now available out-of-the-box in Force.com to make client adoptions faster and simpler for partners developing products on Salesforce today.



2. APIs

COMPOSITE APIs

One of the most complex challenges for any sales rep-centric product in the life sciences industry is the trifecta requirement of offline applications, compliance and regulations for sample disbursement, and electronic signature capture. There is an expectation of 0% data loss for these use cases. To alleviate this strain, Salesforce.com released a new type of API this year called Composites APIs.

Composite APIs allow an application to send a hierarchy of data, or batch of records, to Salesforce, which ensures the atomicity of a transaction (standard in life sciences to have 15 records from different connected entities). They also reduce the number of round-trips needed to transmit data to Salesforce. Legacy versions can only send one data record per REST API call, impacting the chance of data loss, quadrupling the network overhead data connection (4G connections), and decreasing the processing speed of sales rep applications, making it difficult for sales representatives to function effectively in the field.

STREAMING APIs AND EVENTS

As massive data collection and storage increases, and “Big Data” makes its mark, there is a need for multiple channels to make proactive decisions based on streams of transactional data. There is also a glaring need for near real-time conversions of data sets sent from Salesforce.com to devices, other apps, and end users, to make proactive and predictive decisions - for instance, taking action to increase brand awareness while following compliance with regulations protocols.

Recognizing the need for such capabilities, Salesforce released an API for streaming data from Force.com

in near real time. This capability gives partners the flexibility to build industry-specific use cases, and make products more engaging for users. The managed packages of data can be deployed and delivered using asynchronous notifications, and the industry standard Bayeux protocol.

These new capabilities play a vital role in breaking down vertical silos between departments such as sales and marketing, to enable a life sciences company to act fast when responding to brand awareness and loyalty challenges. The agility, flexibility, and speed of these near real time responses are poignant solutions for responding to 21st century business challenges.



SALESFORCE REPORTS AND DASHBOARDS REST API

All personas in commercial operations at life sciences companies need operational and tactical reports. Some examples include reach and frequency of a territory or a district, or call attainment for the year or plan cycle. Salesforce has made it incredibly simple to generate these reports and dashboards using the report and dashboard builder in the platform.

Recently, Salesforce released the reports and dashboards REST API, which gives you programmatic access to your report and dashboard data. The API lets partners read the summary data and metadata of each dashboard and report, and dynamically represents them in any custom application.

For partners making new products on the Salesforce Platform, this is very powerful, as the clients are not required to have a separate app to depict tactical and operational reports. Also, as these reports are different from one client to another, an out-of-the-box product provides the flexibility to configure and customize the dashboards, and dynamically depict them on the home page or customer profile page.



3. USER EXPERIENCE

VISUALFORCE

The complex processes required by a highly regulated life sciences industry are often difficult to satisfy through out-of-the-box models, creating the need for complementary solutions such as Salesforce applications. Previously, partners had to create S-Controls to host HTML and JavaScript from a different server, or static resources to use out-of-the-box models, which led to the need for additional upgrade time dependencies and points of failure. Salesforce applications, such as page layouts and Lightning app pages, enable partners to innovate and overcome these legacy limitations.

Life sciences sales and marketing users seek familiar UI functionality that mirrors a modern and fast web application.

Salesforce also created and released Visualforce, which enables partners to create immersive custom user interfaces to optimize performance by making apps configurable and easier to use. Furthermore, Visualforce enables remote objects, allowing partners to develop an immersive fast client UI using the latest JavaScript frameworks like Angular JS, React JS, or other similar frameworks. Visualforce can be packaged using managed packages so a partner can upgrade the Visualforce pages for new functionality with transparency.

LIGHTNING

As web technologies become more responsive, asynchronous and fluid, life sciences sales and marketing users seek familiar UI functionality that mirrors a modern and fast web application. Technically, this has been made possible by the advent of advanced JavaScript frameworks, turbocharged JavaScript parsers used by browsers like Chrome, and sophisticated capabilities of CSS to respond to the resolution of the viewing channel.

Salesforce created Lightning for their apps in 2016 to provide a better experience to customers and partners at the UI layer. Lightning provides an upgraded WYSIWYG page builder, giving an enhanced experience over page layouts. In the classic UI, Salesforce uses a set of design libraries, standards, and an improved open source development framework called Aura, also known as the Lightning component framework.

Additionally, Salesforce has also opened up the development of Lightning components to partners, so they can develop custom components for niche requirements, as well as list them on the Lightning exchange, to foster collaboration and disruption on the new UI platform.

4. CONFIGURATION

FIELDSETS

Partners developing products on a Salesforce.com platform require ways to change the product behavior and functionality without code changes to the product. These behavioral changes include changes to the user interface, such as customer created custom fields. Addressing this issue, Salesforce.com released a feature called Fieldsets to assist partners with building flexible and dynamic user interfaces.

A fieldset is a collection of fields on a Salesforce Platform that can be used in a Visualforce page, or a custom Lightning component during development to be looped over, and render the fields in the fieldset dynamically. Traditionally, customers had to create custom settings or custom objects with commas separating field names. These custom components had to be parsed to determine if there were any custom fields to render on the user interface, often leading to error prone parsing logic, and error prone configuration, if a customer needed to add or remove a new or existing field. The Fieldset feature enables customers to add a field to existing Fieldsets during implementation, without requiring any code change at the UI layer. These changes are safe during upgrades, and customer changes are protected from any changes future updates.

CUSTOM METADATA

The maturity of Salesforce platform allows partners to develop large apps with hundreds of tables for storing both business and configuration data. The rise in this complexity created an acute need for

ways to extend the Salesforce Platform with custom data types, and custom metadata types in addition to the custom objects and existing custom settings. Salesforce responded by releasing a feature called custom metadata, which creates custom data types, streamlines the process to move configuration from one environment to another manually.

Custom metadata is managed package friendly, customizable, deployable, and safe between updates. A partner can then create reusable functionality using these metadata types, as well as the metadata inside these metadata types. Additionally, custom metadata alleviates the need for testing unrelated functionality of tables with new records. It also lessens the necessity of writing scripts to add configuration data with unique IDs, after installing the package, to ensure that customers don't change the out-of-the-box records. Partners can now deploy configurations as metadata and sub package deployments. Custom metadata reduces the errors in configuration, and reduces the time taken to setup a product on Salesforce instance by two times.



5. SECURITY

PERMISSION SETS

An increase in the number of products developed and installed on Salesforce created a concomitant need for assigning permissions to users on an ad-hoc basis - for pilots, trials, phased rollouts, etc. Previously, the only way to accomplish concomitant assignment of permissions was through the creation of multiple profiles, and some trickery around what permissions get assigned to what profiles. This process is time-consuming and complicated to maintain. Permission sets allow individual users to gain access to tools and functions in Salesforce from the settings and permissions assigned to that permission set. Unlike profiles, multiple permission sets can be assigned to a user, simplifying administration, the roll out of new features, and functionalities to sales and marketing users



OAUTH

The commoditization of cloud services in the enterprise creates one of the biggest changes to security landscapes. It is in the authorization and authentication of internal users, who may access Salesforce from their intranet, at home, and when traveling. Adding to this dynamic is the availability of a host of different apps providing access to their Salesforce instance.

OAUTH is an industry standard open protocol which standardizes and simplifies the authorization to secure APIs from the web, tablet, and PC applications. OAUTH 2.0 enhances the first OAUTH to make it simpler for developers of web applications, desktop apps, tablet, phones, and living room devices to authorize to cloud services. The Force.com platform implemented OAUTH 2.0 for developers of apps to use Salesforce authorization protocols for all their APIs, whereby end users don't have to reveal their passwords to apps. OAUTH 2.0, addresses one of the biggest security concerns for end users as they become increasingly mobile and distributed.



6. SCALE

HEROKU

The changing landscape of commercial models in life sciences created a shift from health care professional-centric apps, to patient-centric apps, and integrated pre-commercial and commercial processes. This shift now requires customer-facing apps to gain access to datasets which enterprises traditionally replicate in intranet and internet applications. Salesforce.com avoids such duplications with the use of cloud applications. Salesforce as a multitenant SaaS and PaaS platform also leverages governor limits. These limits range from data, to files, emails, API access, Metadata, SOQL (structured object query language), SOSL (structured object search language), and UX (Visualforce and Lightning). These limits can be challenging for data heavy or large clients' transactional applications.

Heroku enables partners and customers to extend the core Force.com platform to perform massive data activities, make customer facing apps at the scale of Google or Facebook, and simultaneously

have seamless integration with the core Salesforce data and functionality. The Force.com platform has a component called canvas, which has native integration with any user interface built on Heroku, providing users with access to the same app built for customers. As the newest frontier of life sciences applications - artificial intelligence - begins to demonstrate how it can help users be efficient, Heroku apps are becoming reliable tools in the building of apps.

The shift from HCP-centric apps, to patient-centric apps requires access to datasets which enterprises traditionally replicate in intranet and internet applications.



HEROKU CONNECT

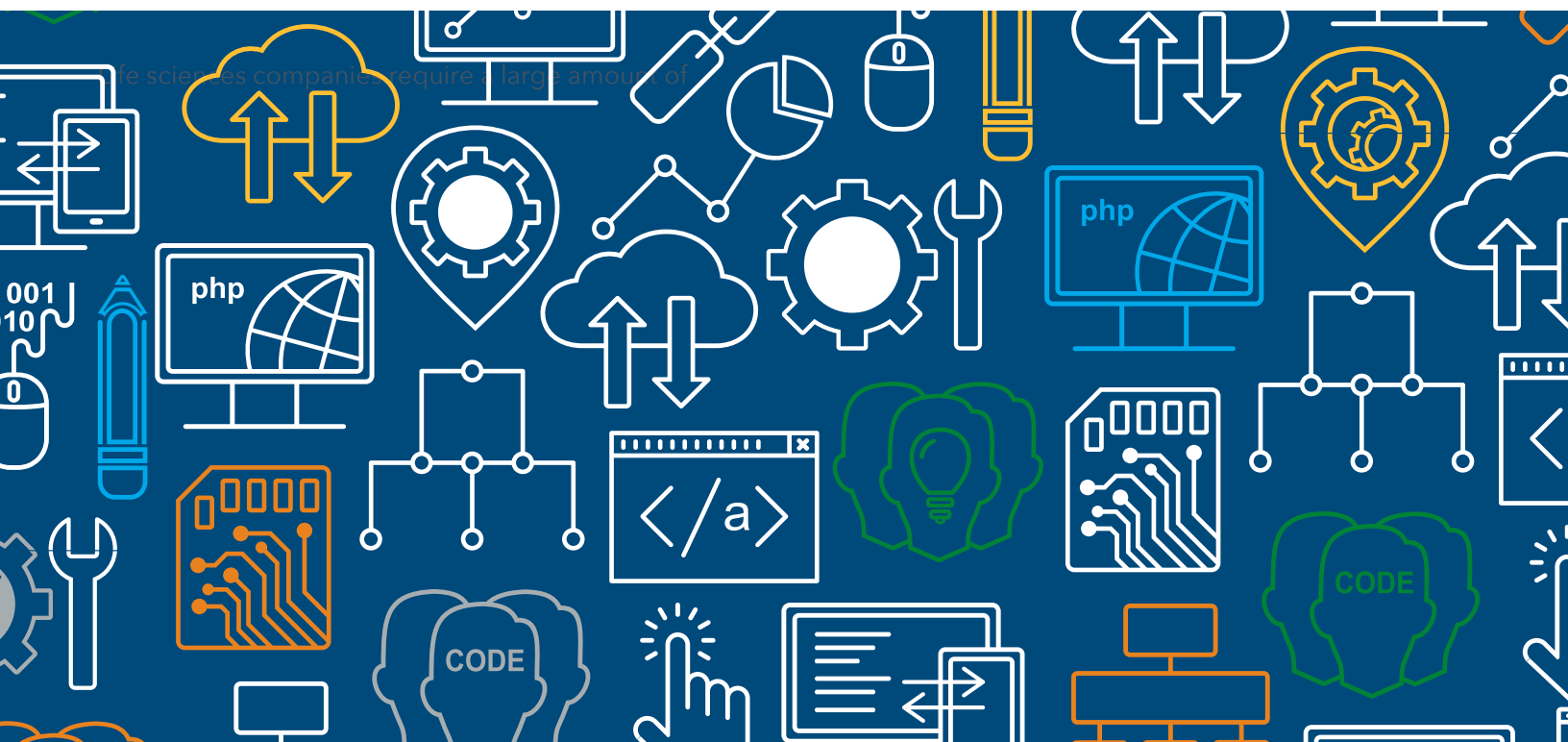
As partners and customers start extending their products to build use cases around artificial intelligence, support for multiple devices, or creation of a disruptive user interface, there is a need to regularly synchronize individual datasets between Salesforce and Heroku. Heroku Connect is a product from Salesforce that does precisely that. Using Heroku Connect, an administrator needs to select the tables and the two platforms automatically sync updates to data on both sides. Heroku and Heroku Connect are great options to make and render disruptive UI, as they seamlessly embed and integrate intelligence with other apps for designing applications.

BIG OBJECT

storage in order to comply with regulations. Adequate storage impacts the quality of work processes such as data retention, storing granular level prescription data, and creating multiple metrics to assist sales reps with interfacing with physicians to increase brand loyalty.

To address the storage needs of life sciences clients, Salesforce launched Big Object in the summer of 2017. Big Object is a custom object, similar to other custom objects implemented by using a NoSQL database. Internal implementation of Big Data objects allow customers to store and query high volumes of data, making it particularly useful for life sciences companies to store large quantities of records for calls, CLM clicks, journey response data, prescription data, and more.

Big Object, like other objects, is API enabled, including bulk. These objects come with a call Async Structured Object Query Language, which can be used to query billions of rows of data, make real-time calculations, and store pre-grouped or summarized data to core custom objects. These new capabilities provide a comprehensive set of features that can help life sciences partners developing disruptive products on the Force.com platform.



CONCLUSION

The Force.com platform has evolved drastically in response to the growing demands for greater capacity, capability, usability, connectivity, efficiency, and security. In fact, legacy products must also evolve to stay in a steady state, as they were created using custom features, which are now “out of the box” capabilities of the Force.com platform.

Believing that products developed a decade ago are better because they are stable is a myth. Partners embracing the vision to develop and customize products on Force.com now have an edge over partners with legacy solutions. New product development teams have access to all features with minimal effort to custom design, and can disrupt the life cycle by spending time on industry-specific functionalities featuring embedded intelligence, a world class user interface, and an integration framework built for the future.

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ABOUT IQVIA

IQVIA (NYSE:IQV) is a leading global provider of information, innovative technology solutions and contract research services focused on using data and science to help healthcare clients find better solutions for their patients. Formed through the merger of IMS Health and Quintiles, IQVIA offers a broad range of solutions that harness advances in healthcare information, technology, analytics and human ingenuity to drive healthcare forward. IQVIA enables companies to rethink approaches to clinical development and commercialization, innovate with confidence as well as accelerate meaningful healthcare outcomes. IQVIA has approximately 55,000 employees in more than 100 countries, all committed to making the potential of human data science a reality. IQVIA's approach to human data science is powered by the IQVIA CORE™, driving unique actionable insights at the intersection of big data, transformative technology and analytics with extensive domain expertise.

IQVIA is a global leader in protecting individual patient privacy. The company uses a wide variety of privacy-enhancing technologies and safeguards to protect individual privacy while generating and analyzing the information that helps their customers drive human health outcomes forward. IQVIA's insights and execution capabilities help biotech, medical device and pharmaceutical companies, medical researchers, government agencies, payers and other healthcare stakeholders tap into a deeper understanding of diseases, human behaviors and scientific advances, in an effort to advance their path toward cures. To learn more, visit www.IQVIA.com.

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