



From Open Source to Open Platform for HCM Applications:

Database.com throws down the gauntlet

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On the 7th of December 2010, at the Dreamforce conference in San Francisco, Salesforce.com's Chief Executive Marc Benioff announced a new Salesforce.com product – Database.com. Available in 2011, the product represents the separation of the database layer within the Force.com product and offers it as a new product. The database is the foundation layer of Force.com that allows developers to build business applications on a cloud platform.

The new Database.com product represents a shift for Human Capital Management (HCM) systems from **open source**, where code is available to developers, to **open platform** where plug-in points may be publicly exposed via APIs (Application Programming Interfaces) to allow applications from multiple vendors to operate together on a common database platform.

The Promise of Database.com

The promise of Database.com is:

- Any Developer
- Any Platform
- Any Language
- Any Device

Some of the many platforms and development languages are shown in the diagram below.

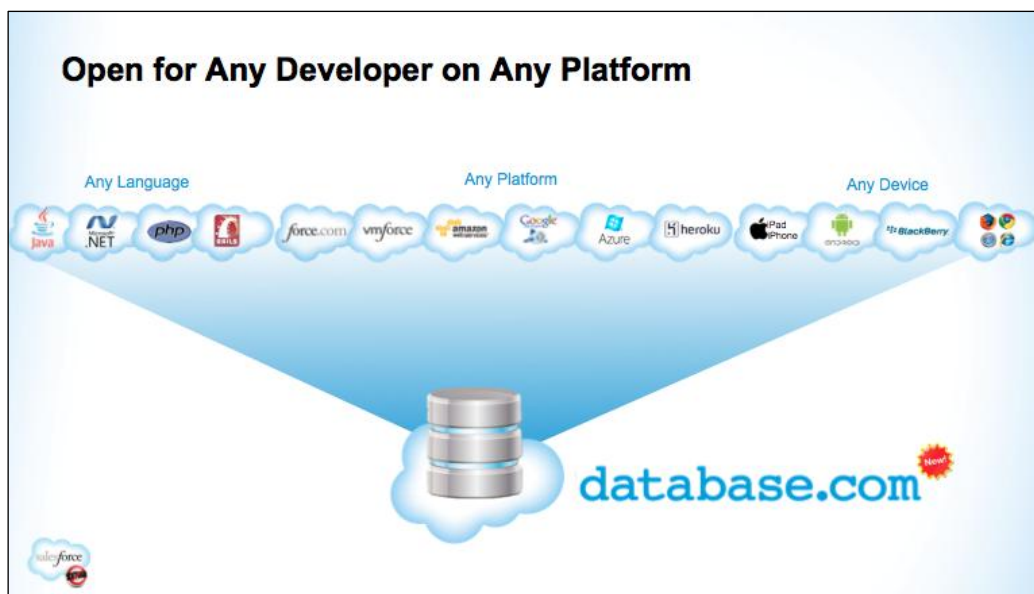


Figure 1: The open database architecture (Image from Salesforce.com website)

To many the announcement may only mean another name on a cloud diagram but in practice the Database.com product throws down the gauntlet to all existing members of the trillion dollar software industry. Irrespective of delivery method (SaaS or On-Premise) all software companies, including giants like SAP and Oracle, should now sit up and take notice of the very different options buyers of business software will have in 2011. This White paper identifies some of the changes we will see in 2011 and the impact on HCM products.

The HCM Purchase Decision

The new business decision for software purchase is simple: Why would anyone pay millions of dollars to install an HCM that probably only satisfies 70% of their requirements, at best, and will cost more money to modify if the business requirements change, may not have an integrated social media collaborative environment (the expectation of modern systems), and if it becomes outdated in five years time will cost the same or more to replace?

Now there is an opportunity to purchase a database product that provides a constant layer irrespective of what software acts as the front-end. The database layer may never need replacing, any type of application (including social media – see Figure 2. diagram below) can plug in, if the business changes a new component(s) can be substituted for the old without altering the database, workforce information can be obtained from one source without maintaining costly data warehouses, and by using the HR Cloud Solutions' advanced Best Fit Analyzer the time taken from initial specification to final assembly is a fraction of the time taken and cost compared to using traditional methods.



Figure 2: The Database.com pluggable platform (Image from Salesforce.com website)

The Significance of Database.com for HCM Applications

Not since the arrival of client server technology in the early 1990s has the HR software industry experienced such an important technology opportunity. Database.com not only puts the focus back on data but has the potential to flatten the playing field entirely and the larger software companies are back on equal footing with the independent software vendors. There will be greater choice and more options when purchasing HCM products in 2011.

The Focus on Data

Data drives the business: It is the essential component of information delivery and supports HR processes in the performance of almost all HR functions. Database.com puts the focus back on data and assures its' independence from the flashy user interface that has memorized project teams and masked some pretty ordinary HCM solutions for the last decade.

Now the emphasis is on getting the database layer right through detailed specification of business needs and then making the platform available to whatever application wishes to process and manage the data.

The HCM Options

In 2011 the buyer of HCM solutions will need to determine what IT architecture is preferred by the business in relation to the various system layers before going to market. The layers are the interface, the application (programs) and the database. The decision will impact how the solution is viewed by the users, the cost to customise, and will determine the level of flexibility. The options for HCM applications are now: Legacy HCM only, Legacy HCM + Force.com, Hybrid, Force.com only.

Options Explained

1. **Legacy HCM only:** Buyers may purchase an HCM via the traditional method and live with the functional short-fall or incur the integration difficulties or pay for costly customization on the vendor's proprietary platform. This approach can also be used to assess the suitability of the incumbent HCM product and determine whether it satisfies current requirements. Things change and what was suitable three years ago may not be now.
2. **Legacy HCM + Force.com:** This option is similar to the Best-of-Breed model where the buyer selects the best product for Performance Management, Recruitment, Learning and Development, etc. and then sets about integrating the various modules to minimize data duplication and additional maintenance. The difference is all the additional modules are developed on the Force.com platform and whilst there is no functional gap in the Force.com components the buyer is still left with the gaps in the legacy HCM modules.
3. **Hybrid:** In the hybrid model the buyer joins their existing legacy system to the Database.com platform via the API (Application Programming Interface) layer published by Force.com and made available to third party developers. The Create, Read, Update and Delete (CRUD) functions are executed on the database from the legacy application input but are not seen by users. Custom development on the Force.com platform adds the missing fields and the user only sees the Force.com interface. The Legacy screens can still live on and be accessed in a separate environment.
4. **Force.com only:** The buyer may build their own HCM application on the Database.com platform using one of the many tools available, including the Force.com product.

HR Cloud Solutions has a Purpose Built Platform for Database.com

HR Cloud Solutions parent company, Competitive Edge Technology (CET), has been advocating this form of software delivery since 1994 and has been a bystander during periods of middleware change leading to the birth of the Cloud that has now enabled an open platform for component software assembly. HR Cloud Solutions is now ready to roll out the supporting ecosystem needed by the HR industry to build solutions on an [OPEN](#) Database.com platform. The supporting ecosystem includes:

- ✓ **A Data Model:** A published common data model listing all the data elements needed to build an HCM solution and construct a Database.com HCM product (the model is known as the Component Assembly Model – CAM, and is the enhanced version of the Human Resource Component Software Application Standard - HR-CSAS first published by CET in 2004)
- ✓ **A Packaged Force.com Database:** A Force.com packaged set of Force.com objects, consistent with the data model, ready to install on the client's Force.com platform (over 100

objects and 2,500 data fields) and create their Database.com HCM platform. It is the *Server* side of the HCM architecture.

- ✓ **A Force.com HCM Mashup Builder:** A working Force.com model of the CAM called the HCM Mashup Builder representing the *Client* side of the HCM architecture with the Force.com page layout, object joins, reports, database views and populated with test data.
- ✓ **A Detailed Product Selection Tool:** HR Cloud Solutions use their own Best Fit Analyzer product to identify the best product, or combination of products, to satisfy clients' requirements. Features include:
 - A portal for clients to specify requirements: Using the HR Cloud Solutions portal clients can specify their requirements and assign importance weightings down three levels (function, process and data) consistent with the CAM structure.
 - A corresponding portal for software vendors to specify their products' functional capability down three levels
 - A Force.com application that calculates a total for each product out of 100 and ranks them for client consideration
 - A detailed report of the functional gap down to the data level. The report lists:
 - All of the data elements not provided with a single product
 - Analyses the gap according to the field type and amount of development effort needed to build the solution on the Force.com platform
 - Provides a link to the HR Cloud Solutions Wiki to access developer material available to help accelerate the development process.
 - Provides an estimate of time and cost needed to implement a 100% fit HCM solution.
 - Provides a component assembly map for companies wishing to build the entire system themselves.
 - Provides an API map for clients wishing to integrate current legacy systems into the final solution.
- ✓ **A Community Wiki:** Access to a supporting HR Cloud Solutions Community Wiki. The Atlassian wiki contains a library of HCM component information catalogued consistent with the CAM and populated with sample code for formula fields and values for picklist fields.
- ✓ **A Global Component Exchange:** HR Cloud Solutions' Wiki has a database of global HCM product information, including functional capability. HCM software vendors can list their products on the Global Component Exchange (GCX) that is used by consulting partners to identify the most appropriate products for clients to consider during the HCM selection process.
- ✓ **A Commercial Component Registry:** The registry is set up as a vertical marketplace within the Salesforce.com AppExchange. Vendors of component products may list their products at the data level of the Component Assembly Model. Products may be open source and free for HR Cloud Solutions Community members to copy and paste into their applications or may be "black boxed" and deliver functionality but hide the code.

In practice what HR Cloud Solutions offers is a support community and ecosystem for HCM development on the Force.com platform. The HR Cloud Solutions environment is perfect for clients wishing to build an HCM system on top of the Database.com product. The front-end offered by HR Cloud Solutions is built with native Force.com features that can be further enhanced with

VisualForce pages or Apex code. Salesforce.com offers their Database.com platform to other products that can access the platform via API calls.

Integration Made Easy

Another option for both business clients and HCM software vendors is to map their current HCM product to the Database.com platform. By adopting that strategy companies are able to integrate all of their HCM applications on ONE platform. By using any of the compatible front-end development tools companies can extend the functional capability of their legacy system, respond quickly to changing HCM system requirements and take advantage of the fully integrated platform for information reporting, workforce analytics and production of HR metrics in one consolidated database.

Integrating data from multiple sources on the Force.com platform can be as easy as creating custom objects or mapping to the Component Assembly Model set of objects and joining the tables (see the diagram below).

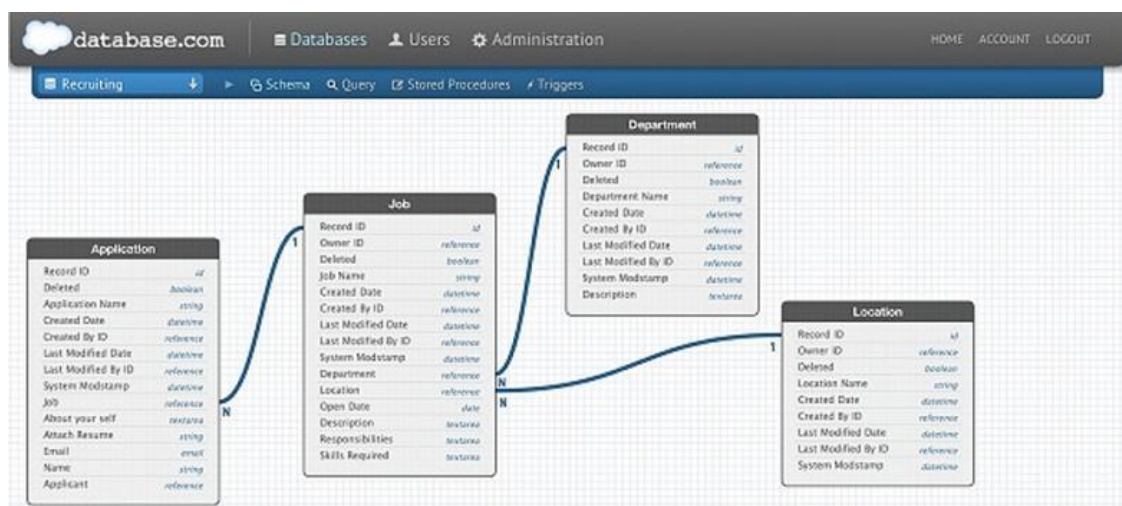


Figure 3. Joining Force.com objects (Image from Salesforce.com website)

Data can be imported using the custom object import facility within Force.com or Salesforce.com's Data Loader. Once imported data can be combined in the Force.com report writer to produce reports and export to Excel for further analysis.

Database.com in Perspective

Although Database.com represents a great step forward it is not the end of the journey. The separation of the database layer from the body of the application is the first major step towards component-based HCM solutions. In the book 21 Tomorrows: HR Systems in the Emerging Workplace of the 21st Century, published by IHRIM (International Association for Human Resource Management) in 2000 (11 years ago) the article Component-Based Technology for the Next Decade by John Macy predicted:

The Database Component: This permanent layer of the component architecture is the first purchase made. It does not change when plug-in components change or need to be upgraded. The table and file structure are defined by a Standard (expected to become available soon) and, if it becomes

necessary to add fields or tables at a later stage, the database management system has the capability of doing that.

The standard referred to in the IHRIM publication became the Human Resource Component Software Application Standard (HR-CSAS), published in 2004 by Competitive Edge Technology in the book *Component Class Framework for Human Resource Information Systems: A draft standard for component-based software development*. The standard is now adapted to the Force.com relational database model and is referred to as the Component Assembly Model by HR Cloud Solutions. The book described 33 component classes, based on HR functions, over 200 component sub-classes based on HR processes and listed over 2,000 data elements. Data elements were defined by field type and arranged into tables. The book also referred to the role of the database:

Data will be protected from new system purchases and upgrades, because component changes will only affect the application layer and not the database. Irrespective of which components are used, the database remains constant.

CET published two other books in 2004 to describe how component-based technology will change the HCM landscape. They are *Component-Based Human Resource Information Systems* and *Human Resource Information System Specification and Selection*. The books describe how component assembly will impact HR and current processes.

Since the 2004 publications CET has continued to evangelize the benefits of component technology and the separation of the layers. Salesforce.com has made a bold step in productizing the database layer and making it available as a platform to build on. HR Cloud Solutions has the essential data model and supporting ecosystem to help make the venture a success.

To keep things in perspective, Database.com addresses one layer only in the progress towards providing the right technology for the HR business community. The business rules and application programming layer of the component-based architecture are still to be addressed by Salesforce.com.

The Likely Short-Term Outcome

Nobody knows for certain what will happen in the long term, but it can be confidently predicted that the potential of the Database.com product will be realized by the software industry in a very short time. There are already several HCM products developed on the Force.com platform but most are specialized applications for recruitment and talent management. Expect to see many more soon.

The reason HCM software vendors must take the Database.com announcement seriously is Salesforce.com's CRM is software designed for business users. Not only can they use the standard Salesforce.com Customer Relationship Management (CRM) product but they can customize it as they wish using very simple features. Business users determine what they need and change the application to suit their business process mainly without code or developers. The same design principles have been applied to Database.com. The uniqueness of the simple user customization tools places Database.com ahead of cloud platform competitors Microsoft Azure, Google App Engine and Amazon web services. Those products are designed for developers.