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Enterprise Search Capability for your SaaS Application

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The Cloud and Big Data have provided enterprises with the potential for an exponential increase in data. These new technologies along with mobile, social applications, real-time data from the "Internet of Things" and other new applications have created vast amounts of unstructured data available to the enterprise. These customers also now have higher expectations for insights from this structured and unstructured data. Their expectations are to be able to respond, sometimes in real time, to a much more competitive market: greater segmentation and personalization, smarter customers, fewer dollars, more competitors and faster change.

IDC's 2012 Digital Universe Study concluded that the amount of data will double every two years between now and 2020 and that 40 percent of that data will be stored or processed in a cloud environment.

Search capability is at the forefront of any analysis process dealing with textual data, and in many cases enterprise search capability within applications has not kept pace with the increase in data and the requirements for significant insights into that data.

In addition, there is an increased use of multiple applications and the need to search for information across all the applications a customer is using. Customers are demanding more than federated search results listed by data source. They are looking for integrated search capability where the results from multiple data sources are all integrated together in one list and automatically ranked according to an appropriate ranking algorithm. Applications ecosystems are developing with applications that can share and exchange data and the customer does not want to search a specific silo of data; they want to have insights across several datasets.

If you aren't providing search capability in your Software as a Service (SaaS) application that can deal with this growth in the amount of data and the functionality needs outlined above, then your customers are working harder to use your application than is ideal. You are also providing the opportunity for your competitors or enterprise search vendors to solve this problem potentially in a way that is not to your advantage.

But hasn't the search problem been solved? Not really, when you are looking at SaaS application data. Certainly there is some search capability in most SaaS applications, but often it has real limitations. The question for you as a provider is whether you are making your customers dig and work hard for every insight into the data or are you providing a search capability that really helps lead them to new insights?

Basic search functionality within a SaaS application tends to be taken for granted and the productivity improvements that result from excellent search functionality can sometimes be difficult to quantify. However, many leading SaaS providers are providing a choice of search capabilities and excellent functionality as part of their offerings. As applications have more data, integrate with outside data sources and Big Data becomes part of the application, more application data will be unstructured; this is an opportunity to add significant value through increased search capability. Providing this capability as part of your SaaS application can also increase the time spent in your application, often an important metric of successful customer engagement.

I am a regular user of LinkedIn and until about a month ago I was repeatedly frustrated by the search capability. Names had to be spelled exactly right and to do any sort of search beyond the most basic company name or search for a person required using the advanced search capability and that required filling in many data fields. A search tended to take several passes and often I had to just look through lists of names to find the right person. If possible, I always used a Web search rather than the application search spending significant time outside of the application. Although I did not stop using LinkedIn, I certainly could have been more productive. The lesson here is that your customers may not be using alternatives yet, but they know that a better search capability would help them. Fortunately LinkedIn has improved this capability and searches are now much more efficient.

Clearly there are productivity gains from having excellent search capability. Although specific numbers are hard to find, given the number of vendors in the enterprise search space there is clearly a significant value that CIOs see in this capability. Your customers know what good search functionality is for their needs and they will be increasingly demanding it as part of an application and with the ability to have integrated search results across applications.

As a SaaS provider you have several options to consider to provide search capability.

1. First, you can ignore the issue and provide either very basic or no search capability. In this case your strategy is, if the customer needs excellent search capability, they will solve the problem somehow outside of your application. This approach may be sufficient for an application that has very limited data in it but generally is not recommended.
2. If your business is primarily an add-on to other applications and that application has a great search capability, your strategy can be to make federation easy and count on the overall search solution. This may make sense if your application is an add-on to a major SaaS application as a member of some type of application exchange.
3. You can develop the search capability yourself. The challenge with this approach is that search technology is constantly improving and changing. Unless this is a strategic focus of your business it will take a significant R&D investment to do it well.
4. There are several open source projects that address the need for search capability including Apache Solr. Cloudera's use of Solr as the basis for their search capability for Hadoop implementations is a good example of an implementation. Elasticsearch is another good example of open source software for enterprise search. If your SaaS application is based on a lot of open source software and you do a careful job of selection this can be a good solution. As with any use of open source in a SaaS application, careful selection is important as outlined in my article **"5 Tips for Using Open Source Software for a SaaS Business."**
5. You can incorporate an enterprise search engine as part of your application. However, none of the enterprise search providers have a strategy of focusing on the ISV or SaaS market. They are focused on the enterprise to solve the entire enterprise search problem.
6. You can provide excellent search capability through partnering. Using your application exchange if you have one or whatever partnering programs, you have a great way to provide excellent search capability. This has been done successfully by several SaaS providers including NetSuite and Easy Ask, AWS and Searchdaimon AS, and Bullhorn and Broadbean Search. In the case of Broadbean Search, Bullhorn's partner not only provides search capability but also provides additional data sources that can be integrated with the application.

Some strategic product considerations when addressing your search needs include thinking about your multi-language and international strategy, your mobile strategy and what type of search capability will be required for mobile devices for your application. It's important that your search strategy fit with your security strategy; and performance requirements are another important consideration.

You should also consider your longer-term unstructured data strategy. Will you be adding additional outside data sources to your solution? What type of data will be included? Will you be including non-text data such as video?

All of these considerations can have influence on your solution although some of the technical issues with non-text data such as video haven't been solved yet.

More detailed requirements for your search capability may include:

- Comprehensive search language including nested Boolean logic, wildcards and field specific search.
- Ease of use features including auto-correction and spelling adjustment.
- Text analysis including things like how many times a key phrase has been repeated.

Search language and ease of use are basic types of functionality. Text analysis tools are the kinds of value-added functionality that can really help with productivity and provide real insights when using non-structured data. This kind of functionality can truly add value to your application and not just be "table stakes."

Salesforce has always been a leader in both their vision and implementation of the SaaS business model. They have had a successful application exchange in place for several years. It is successful for Salesforce, their customers and their partners as evidenced by the continued growth of the exchange. Although the Salesforce application has a search capability, it has some significant limitations. Rather than become an expert in search, Salesforce encourages their AppExchange partners to solve this problem.

A good example of this is Kona DataSearch, a relatively new addition to the Salesforce AppExchange program. Because of the success and size of their AppExchange, Salesforce is able to attract applications with significant value add like Kona DataSearch.

Some of the key advantages of Kona DataSearch to both Salesforce and the end customer include:

- Salesforce advantages
  - Integration — The user does not have to leave the Salesforce application to use Kona DataSearch; therefore, there is no risk to Salesforce of a user spending time in another application. Any search can include a variety of other data sources and applications including Google Drive, Box, local files, Web pages and the contents of all Salesforce attachments.
  - Competitive advantage — One of the other data sources is Microsoft SharePoint; so Salesforce has made an application available to their customers that solves the common combination Salesforce/SharePoint integrated search problem without using a competitive Microsoft application.

- End-user advantages
  - It is relevancy based search so the end user is seeing the best results first including all integrated results from multiple data sources so there is no need to look through multiple lists of federated search results.
  - An end user is able to search the contents of all attached documents and all unstructured data. This is an excellent tool for understanding a customer's needs and problems
  - Search capability is available as an integrated part of their normal Salesforce workflow; it does not appear like a separate "search" application.

In this case there are substantial advantages to both Salesforce and their customer in this approach to providing search capability.

Search capability can be either a significant opportunity for SaaS providers or a significant risk. The opportunity is to be the first analytical step for your customers to understand the data in your application and associated applications. This can provide significant additional value to your customers including quicker and better insights into their data.

By not providing excellent search capability the risk is that your customers use either an overall enterprise search application or a search application in another application to gain insights into their data in your application relegating your application to purely transaction management and data storage.

Conclusions:

- It is very likely that your SaaS application needs excellent search capability and that it needs to be part of your product road map.
- Using a partner that is an expert in search makes sense. Unless you have a very large R&D budget, you will find it difficult to develop this capability yourself.
- Excellent search can be a competitive advantage for your product, particularly if you operate in a multi-application environment.

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