The Enterprise, Mobile, and Semantic Technology

Salesforce.com, the cloud enterprise service, has moved even farther from its original business of contact and sales force management. In January 2011, Salesforce.com acquired the Web conferencing service provider Dimdim. Dimdim provided a free Web conferencing service. Users can share desktops, show slides, collaborate, chat, talk and broadcast via webcam.

In a matter of seconds, a user could sign up for a Dimdim account and meet using "just a browser." The Dimdim approach was different from that of Cisco's Webex. To participate in a Webex meeting requires downloading and installing software on my machine. With Dimdim, I did not have to do much more than fill in some Web forms and perform other routine housekeeping.

The enterprise technology of Dimdim "snaps in" the Salesforce.com cloud. In addition, the enterprise version of Dimdim supports a number of third party cloud based applications, including Salesforce.com competitors' SugarCRM www.sugarcrm.com/ and Zimbra www.zimbra.com , an open source email server. Dimdim also offers an open source version of its technology.

When I look at this acquisition in the context of Google's support for video within Google documents, I know a shift in enterprise content has occurred. Many organizations may not yet be immersed in compound documents, rich media, and content that contains multiple objects in radically different formats. Going forward, the very idea of content in an organization will be different from what it was a year or two ago.

In my travels over the last month, I heard a range of opinions about the enterprise, mobile devices, and semantic technology.

In London, I listened to a detailed discussion about Enterprise 2.0. Today's work environment, as I understood the expert, would change more rapidly than at any previous time since the Industrial Revolution. A bold statement indeed. Instead of desktop and notebook computers, workers would use devices like the iPad and smart phones. Face-to-face meetings would still be necessary, but the social interaction would be provided by various types of real-time and collaborative interaction. The speaker was a consultant and a high-profile columnist for an American news service. Salesforce.com has also embraced collaborative and social functions.

After hiring Steve Gibson, associated with the phrase "the attention economy", Salesforce.com has added features and services that provide to an enterprise customer tweets (short text messages), collaborative services (Dimdim), and encouraged Salesforce.com third-party developers to build apps that provide additional functionality to the "Chatter" platform.

One question that resonated with me was, "What and how will a person search content created in a cloud-based, collaborative enterprise solution?" The content created within these multi-object systems can be captured. Salesforce.com's multi-tenant technology keeps each corporate client's information and activities in what amounts to a separate secure server. The

corporate client's individual authorized users have discrete accounts within the virtual server. Even third-party or customized applications built specifically for an enterprise customer run within that discrete space. The benefit of the Salesforce.com platform is that the data are stored, backed up, and available.

In my tests of the Salesforce.com search system, I was able to locate documents by key word, entity, or a user- or curator-assigned tag. However, when I looked at the system, Salesforce.com had not implemented the social messaging functions nor had it purchased a video-conferencing service that allows users to "see" documents and content.

One of the challenges for Salesforce.com, Cisco Webex, and Google will be providing users of these systems with ways to find information in these "compound" or "hybrid" cloud services.

I spoke with Luca Scagarelli, one of the founders of Modena, Italy based Expert System. I had heard a talk by Mr. Scagarelli and I recalled his pointing out that search systems had to deal with the particular challenges of the many different types of content.

A Microsoft Word document or an email can be indexed and, in most cases, located. The technology for basic document search may not be perfect, but it works reasonably well. "Compound" content or information created "on the fly" was a different story.

Short messages, emails, and time shifted message threads were problematic. Among the reasons listed by the speakers were unusual spelling. Examples ranged from "gr8" for great and similar abbreviations. The challenge was that short strings were often ambiguous and difficult to disambiguate. "Disambiguate" is a $5 word for the work required to "figure out what something means." The problem was often one of "space". That is, the form factor of mobile devices imposes constraints on messaging and document creation. The other constraint was "time." Since mobile devices were often used without the person sitting in a fixed location like at a desk in a office, users omitted certain information due to an interruption or the need to squeeze in a message between meetings.

I spoke with Luca Scagarelli, one of the senior executives of Expert System, a search and content processing development company headquartered in Modena, Italy. Expert System has developed COGITO. Here's how Mr. Scagarelli described the technology to me:

> *Our COGITO technology enables conceptual and natural language-based search and provides higher precision and recall in automatic categorization and concept extraction compared to traditional keyword, statistic or shallow linguistic based technologies.*

This type of technology is "semantic"; that is, the system uses various methods to figure out what content means. As important as this function is for traditional search and retrieval,

semantic technology seems to be a must-have when it comes to the type of content that is a natural consequence of the Enterprise 2.0 trend.

I asked Mr. Scagarelli how his system worked. He laughed and reminded me that COGITO was the result of many years of development. Although the firm has patented its technology, COGITO uses systems and methods that are kept under wraps. He did tell me:

> *The system automatically extracts a very rich set of entities (named and not*) and relationships between entities, starting from logical ones (subjects and objects) to semantic ones (thanks to the semantic disambiguation), and like roles and attributes, family relations and much more. It understands sentence structure as a human would, understanding the tone, context, slang and major brand names.*

Exalead, now owned by Dassault Systems, offers its Voxalead and Tweepz services to showcase Exalead's technology for handling the new types of content. The Voxalead service http://voxaleadnews.labs.exalead.com/ converts audio or video to text and then indexes that content. One of the most interesting features of the Exalead rich media implementation is that the result list provides a link directly to the point in the video where the search word or phrase appears. The Exalead Tweepz service allows you find and discover interesting people on Twitter.

Autonomy, Google, IBM, Microsoft, and other companies have demonstrated technologies that can make sense of the new types of content making their appearance in organizations.

But organizations, by their very nature, change slowly. The larger the organization, the more difficult it is to keep search synchronized with the needs of the users. My view is that semantic technology can play a significant role in providing context and functionality to queries for new types of content. The types of technology available from Exalead can make the information in a compound document available for search, retrieval, and text mining.

The hurdles may be organizational, managerial, and financial. Cloud services like those provided by Salesforce.com and Amazon, to cite two high profile vendors, may be better placed to process and make available to an enterprise the "information" locked in these new message types and hybrid content containers. Most companies who try to implement this type of next generation semantic and rich media content processing system may be unable to deploy the system quickly. If I am right, then the Amazons and the Salesforce.coms will become increasingly important in the enterprise content processing sector.

The reasons range from economies of scale to the ability to meet the needs of a distributed workforce. If I am correct, we may be entering a transition period during which the types of enterprise content processing performed on premises is sharply defined; for example, litigation support or specific business intelligence functions. Broader types of communication services and the content generated within these services will reside in the cloud. One thing is certain, the shift from text to compound content is taking place.

As Yogi Berra allegedly says, “It’s déjà vu all over again.” Semantics, on-the-fly speech to text, image recognition—the technology is available. The change is inevitable.

Stephen E Arnold, January 31, 2011

Mr. Arnold is a consultant. More information about his practice is available at www.arnoldit.com and in his Web log at www.arnoldit.com/wordpress.