the Availability Digest

On-Demand Software Utility Hits Availability Bump

October 2007

Salesforce.com is a software on-demand utility providing Customer Relationship Management software services to its customers. With data centers in many countries, it serves over 35,000 businesses worldwide. According to Gartner Group, it is one of two leaders in Sales Force Automation.

Salesforce.com is a utility. Its users depend upon critical customer and sales data held by the Salesforce.com data centers to run their daily businesses. As a utility, the Salesforce.com services are expected to be always available.

However, a year ago, Salesforce.com had several major outages over a period of a few months, outages that left their customers looking for other alternatives and that left the entire philosophy of software utilities in question.

What Do We Expect of a Software Utility

A software utility such as Salesforce.com hosts an entire customer application on its servers. This includes not only the application programs but also the customer's entire database. Customers pay by usage rather than by a license fee as they would with acquired software.

Customers expect that their applications and data will always be available. Certainly, the availability of these services should be much greater than that which could be achieved in the customers' own data centers and at a much reduced price.

Availability of service is key to a successful software utility. After all, from an availability viewpoint, a software utility is like a power utility or the telephone system. It is expected to be there whenever we need it.

Salesforce.com

Salesforce.com (www.salesforce.com) was founded in 1999 by Marc Benioff, an executive out of Oracle. Salesforce.com's mission is to provide Customer Relationship Management (CRM) services on an on-demand basis. It was a pioneer in providing software as a service rather than as an application package to be run by the customer. Its CRM services include Sales, Service and Support, Partner Relationship Management, Marketing, and Analytics. It also provides other application services such as accounting and Human Resource Management (HRM) via seamlessly integrated services from its partners.

Headquartered in San Francisco, Salesforce.com operates data centers in North America, Europe, the Middle East, Africa, and Asia Pacific. Through what has been described as an innovative business model and brilliant marketing, it has grown to over 35,000 customers, including Chase Paymentech, Bear Stearns Asset Management, Daimler Chrysler Financial, Avis, Kaiser Permanente, and Dow Jones Newswires.

Salesforce.com has become a leader in the rapidly growing field of on-demand software to manage customer data. Its goal as a software utility is to provide critical CRM customer data and application services at any time to its customers.

The Data Center Upgrade

Salesforce.com has been an Oracle user since its founding. By 2005, it had become an Oracle RAC user, along with Oracle's TimesTen memory-resident database. However, Salesforce.com was pushing Oracle to its limits. Salesforce.com's database measured in the multiterabytes, and its systems supported over 350,000 users from 18,700 companies generating millions upon millions of queries and transactions per day. Though other companies such as Amazon and eBay were using larger databases, none of them faced the number of simultaneous users and the transaction rates that Salesforce.com found itself supporting.

Therefore, Salesforce.com decided to upgrade to Oracle 10g. The installation of this database went live in November, 2005.

Salesforce.com had also announced a $50 million data center expansion in August of 2005. Called "Mirrorforce," the expansion added a new data center on the U.S. East Coast and two new data centers on the U.S. West Coast. These data centers were scheduled to go into operation during the winter of 2006 and would act as mirrors of other data centers to provide rapid failover in the event of an outage. Unfortunately, this expansion proved to be too late.

Cutover Plagued By Problems

Salesforce.com almost immediately started to have problems with the new database. Oracle kept crashing, and Salesforce.com struggled to keep services up and running.[1]

Then, on Tuesday morning, December 20, 2005, users started to receive an ominous message when they tried to log on:

> "The Salesforce.com servers are temporarily unable to respond to your request. We apologize for the inconvenience.
>
> Thank you for your patience, and please try again in a few moments."

Unfortunately, the minutes turned into several hours as the Salesforce.com services were out for most of the day. The outage affected users in North America, Europe, and Asia/Pacific.

To add insult to injury, there was no communication from Salesforce.com to its customers indicating the severity of the outage. Telephone calls went unanswered. It wasn't until the following day, after services were restored, that management started apologizing to customers.

Customers were so angry that an active blog was set up. Entitled GripeForce, this blog aired many complaints by Salesforce.com's customers; and it was to remain active for several months as Salesforce.com suffered additional outages.

On Thursday, January 5, 2006, Salesforce.com suffered a smaller outage. This one lasted for two or three hours. In response to this outage, further poor communication from Salesforce.com management, and the outrage expressed by customers through GripeForce and other blogs, Salesforce.com added to their web site a system status page that would reflect the current status

[1] Information for this article was obtained from TheStreet.com, eWeek, InfoWorld, news.com, c/Net news, Business Week, zdnet.com, accessmylibrary.com and brucedaley.typepad.com for the period from December, 2005, through April, 2006.

of the system. Initially, however, access to this status page was limited to only Salesforce.com's premium customers.

Then another big one hit. On Monday, January 30, 2006, errors in the database cluster caused the cluster to crash. Salesforce.com had to restart each database instance in the cluster, a process that took hours to perform. This outage affected mainly users in the U.S. and Canada for hours.

However, even with the previous experience with poor management communication, it took more than a day for Salesforce.com to post a status update to its new system status page. To make matters even worse, in an email to his customers, Salesforce.com's CEO Marc Benioff called the January 30th outage a "minor issue." This sparked an outpouring of particular anguish on the blogs. How could an outage that took down the daily operations of thousands of companies for hours be deemed a "minor issue"?

In the following weeks, there were continuing intermittent outages, like aftershocks following a major earthquake. On February 9, an outage occurred due to a failover fault. Another outage occurred on February 16th.

After that, operations returned to normal. Salesforce.com proudly reported that in March, they had achieved 99.7% availability. They had measured only 100 minutes of downtime in 36,000 minutes.

As impressive as this may sound, this amounts to two hours of downtime per month. Would you like your telephone to be dead for two hours each month? This does not seem to be a particularly aggressive goal for a utility of any kind.

The User Response

The user response to this level of availability performance and lack of communication was understandably strident. The rapid emergence of blogs such as GripeForce was a testimony to this.

In addition, competitors gleefully jumped on the bandwagon. Salesnet, a Salesforce.com competitor, acquired a logon to the Salesforce.com services and monitored their availability. Any glitch was immediately reported to the press.

A user-initiated survey (albeit of only sixteen customers) indicated that over 60% of customers were considering other options. Whether Salesforce.com lost any significant business or any large customers is a closely-guarded company secret.

Management's Response

Following the second outage, management got the message about their poor communication skills and set up the system status page on their web site. However, this was made available only to premium customers, a point sourly noted on the blogs. Even then, it took over a day to post the status of the third outage on January 30th.

Since then, Salesforce.com has taken a major step in customer communications by establishing a tracking facility available to its customers called "trust.Salesforce.com." This facility shows the current status of each server in the data centers, making such status clear via color coding. For full operation, the server is colored green. Should a server go down for more than ten minutes, its color is changed to yellow. After thirty minutes of outage, it becomes red.

However, management has still not set its sights very high for availability. In another email, Mr. Benioff states that "outages and downtime are an unavoidable reality of computing." He points to statistics for the first seven years of operation showing an availability of three 9s. We submit that if this is a level of availability of which software utilities will be proud, that industry is not going to grow very much. Availabilities of five 9s and beyond are achievable with today's high availability technologies and are needed for any service to be considered a utility.

Oracle and Salesforce.com – Strange Bedfellows

Oracle and Salesforce.com have had an up-and-down relationship. Salesforce.com was started in 1999 by Marc Benioff, a protégé of Larry Ellison. Ellison invested $1 million in the startup and became the company's first Chairman of the Board.

At the time, Oracle had a strong database which Salesforce.com needed, but it had no significant strength in CRM. If Salesforce.com could be successful, Oracle would gain a very large customer (and this, in fact, happened).

But Oracle then acquired PeopleSoft and Siebel. With the Siebel acquisition, Oracle suddenly became the largest player in the CRM market in terms of both revenue and seats deployed. The relationship between Oracle and Salesforce.com immediately changed as a result. Oracle and Salesforce.com were now strong competitors and the dominant players in CRM. At Oracle World in September, 2005, Ellison said, "We want to go after Salesforce.com as much as we can. I'm an investor, and I want to see my investment go to zero."

Having said that, Oracle nevertheless pulled out all the stops when Salesforce.com began to have outage problems. Though Oracle had the most to gain from a Salesforce.com failure, Larry Ellison was on the phone personally with Marc Benioff and arranged the assignment of a whole team of Oracle's best people to solve the outage problems.

Postscript

By late 2006, the new data centers went online. Things seem to have quieted down on the Salesforce.com front. The blogs have gone silent, and Salesforce.com has been growing at a 50% annual rate. They now have over 35,000 customers.

Recently, Gartner Group has included Salesforce.com in its leaders' quadrant of its Sales Force Automation Magic Quadrant. Salesforce.com shares this prestigious position with only one other product – Oracle's Siebel CRM.

Lessons Learned

It seems that there is one lesson that must be learned repetitively, and that is good communication with customers, especially during times of strife. In earlier Never Again articles, we have seen this over and over (see our May, 2007, article – BlackBerry Gets Juiced and our September, 2007, article – Hostway's Web Hosting Service Goes Down for Days). Customers will show a lot of patience (and maybe even some sympathy) if they just know what is going on.

We feel that another lesson that may be learned by Salesforce.com in the future is that three 9s is simply not good enough for a software utility. When large systems today are routinely providing four 9s of availability, and five 9s and beyond are achievable with clusters and active/active architectures, users are not going to be willing to accept hours of downtime per year when they know that they can get minutes or less of downtime per year. If Salesforce.com doesn't provide this level of availability, you can be sure that a competitor will.