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The ObjectWatch Newsletter

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Now in Our Tenth Year

Contents

Software as a Service: Another Perspective

by: Roger Sessions

Sometimes country living isn't all it's cracked up to be. Okay, the stars at night are incredible (a by-product of being 50 miles from the nearest large city). And yes, the spring flowers are breathtaking (Bluebonnets, Texas paintbrushes, and now Blue Flax bringing wave after wave of splashy colors). And of course, the sounds of nature are much more relaxing than city sounds (bird choruses in the morning, the distant sound of cows braying, coyotes yipping under the full moon).

But country living still has its challenges. Not the least of which is getting my morning doppio macchiato. Back when I lived in Austin, Texas, my nearest Starbucks was a mere half mile away. Now that I live in the sleepy little droplet of Chappell Hill, Texas, my nearest Starbucks is ten miles away. It now costs more for gas to get to my doppio than for the doppio itself!

Deep down inside, I know this is as good as its going to get. Given that Chappell Hill has a total population of 450 (including the flock of chickens that think they own Main Street) I just don't think that Chappell Hill is on the radar screen of the bean counters at Starbucks. So I am resigned to make the daily trek into Brenham.

I considered another alternative. I thought about dedicating a corner of my office to an espresso bar. Then I figured I could get doppio macchiatos any time I wanted, day or night. I would no longer be at the mercy of the Starbucks Corporation. I would be my own man, self sufficient and free! I even put together a shopping list for what I would need. For those of you that may be considering a similar venture, here is what I came up with as my absolute *minimum* requirements:

Italian Andreja Premium Espresso Machine	$1395.00
Gene Cafe Drum Coffee Roaster	$495.00
Solis Maestro Plus Conical Burr Coffee Grinder	$149.00
Twenty pounds of Sweet Maria's Classic Italian Espresso Blend of Green Coffee Beans	$39.84
Total Cost:	$2,078.84

With this setup, I figured I could make my own doppio macchiatos anytime, night or day, for fifty cents a cup, one quarter of what I now pay at Starbucks. And the cool factor would be awesome.

Quotation of the Month

The Future of Java EE

Monson-Haefel's [senior Burton Group analyst] conclusion is as stark as any death certificate: "JEE5's failure to address complexity is a harbinger of the Java EE platforms' fall from dominance in the enterprise development platform arena. Organizations should look elsewhere when considering new enterprise development and should plan for the eventual sunset of Java EE as an enterprise solution."

- Analysts see Java EE dying in an SOA world By Rich Seeley, 10 Jul 2006 in SearchWebServices.com available at searchwebservices.techtarget.com

There is only one minor problem: the $2078.84. Yes, the doppios are now one quarter the price that I would pay at Starbucks but at an average of one doppio per day, it will take me 3.8 years to pay back the cost of the equipment. That is, *if* nothing breaks down. And *if* the equipment doesn't short out my electrical system. And *if* the roaster doesn't burn down my house. Oh yes, and *if* I can actually figure out how to use all of this stuff.

It is this analysis that keeps me drinking my doppios in a corner of the Starbucks on US-290 and Hwy 36 in Brenham,Texas, watching the cars whiz by for Houston, instead of on my back porch watching the Blue Heron fishing in my pond.

Now you might wonder what possible relevance this discussion has for software architectures. Well I am glad you asked. Because it turns out that the same analysis that has me driving to Brenham once a day is also convincing many enterprises to adopt a novel approach for software systems. This strategy is called Software as a Service (abbreviated SaaS), or sometimes, Software on Demand.

The idea behind SaaS is that you do not buy (or lease) software; you do not buy (or lease) hardware on which to run that software; and you do not hire (or contract) the staff to maintain either the hardware or the software. Instead, you pay somebody else for the right to use *their* software running on *their* machines maintained by *their* staff. The only things that you buy are Internet connections and a bunch of cheap browser babies.

You can see the analogies between my doppio dilemma and this software issue. Setting up my own espresso corner is like the traditional self-maintained software system. Going to Starbucks is like SaaS. The analogy would be even better if I could figure out how to order my doppio macchiato over the Internet.

Many vendor companies are interested in the concept of SaaS, among them, Microsoft. Microsoft, who often seems to have the attention span of a gnat, has at least temporarily forgotten about its

preoccupation with Web services and is now fixated on SaaS.

There are two main varieties of SaaS. One is pay-as-you-go, in which you pay your SaaS provider for the right to use their systems. The other is watch-as-you-go, in which you watch advertisements that your SaaS provider displays in return for using their system. The most familiar example of a well established watch-as-you-go system is Google's search engine. Perhaps the best example of a well established pay-as-you-go system is salesforce.com.

Microsoft traditionally makes money selling software. So why is Microsoft so interested in SaaS, which seems like it could dramatically reduce Microsoft's sales opportunities? There are really two answers.

First, Microsoft has concluded that SaaS is going to be an important part of the future, with or without its help. It can either join the bandwagon or they can abandon the bandwagon to Linux. And we know how they feel about Linux!

The second reason is that Microsoft doesn't see SaaS as competing with its existing sales. Instead, it sees SaaS as opening up new revenue opportunities. In fact, Microsoft has three major opportunities to increase its revenue stream assuming that SaaS takes off.

The first opportunity is for Microsoft to become a watch-as-you-go player. It has had limited successes through its hotmail application (www.hotmail.com) and its MSN Web site (www.msn.com) and is trying to move forward with its Windows Live site (www.live.com). At this point, none of these applications appear to be particularly compelling, so we can assume that this is, for Microsoft, a long-shot at best.

The second opportunity for Microsoft is as a service provider. Microsoft is now beta testing three products that it hopes will give it a hefty slice of the SaaS pie. All go under the moniker of Microsoft Office Live (officelive.microsoft.com, not to be confused with its www.live.com venture). These products are as follows:

- Live Basics: A free teaser product, supported either by advertising or by driving users to the more serious Live Essentials site (or perhaps by both).
- Live Essentials: A SaaS suite of office management software, including Web site design and hosting, customer management, and project organization.
- Live Collaboration: a suite of products to support collaboration among employees, customers, and partners.

At this point, Microsoft's Office Live is pretty mundane, although the Web site design and hosting may be adequate for some small organization needs. Microsoft's current pricing model is about $30 per month which includes a domain name registration, the Web site design tools, the domain hosting, and support for ten users. The most compelling part of this is the domain name registration and hosting, both of which are available at no cost through Live Basics.

Microsoft's other opportunity for cashing in on SaaS is through supporting the SaaS vendors with Microsoft products. Given that Microsoft has had little success in the watch-as-you-go model, and that its own pay-as-you-go SaaS product line is rudimentary at best, it appears that Microsoft has its most immediate revenue opportunity in supporting SaaS vendors.

The first major white paper on the subject has been released on the MSDN library. It is titled *Architecture Strategies for Catching the Long Tail* by Frederick Chong and Gianpaolo Carraro.

You might wonder the why Chong and Garraro are worrying about long tails. This is even more interesting if you are following an area that is unrelated to SaaS, but, like SaaS, has a long tail fixation. This area is client-focused security.
In my May Architect Technology Advisory (ATA), I

discussed Security in a Connected World. I looked at the architectural implications of a new Microsoft technology that was, at that time, called InfoCard (now renamed as Windows CardSpace, or WCS). WCS is a client-facing interface for managing security relationships with Web sites. IBM has recently announced that it is supporting another technology called Higgins. Higgins is either in competition with WCS or complementary to WCS, depending on whom is talking on which day. But what is interesting for the present discussion is not the technology of Higgins, but the name Higgins.

Higgins is named after a Tasmanian mouse whose primary identifying characteristic is that it has a long tail. So we now see both Microsoft and IBM both suddenly interested in long tails. What do long tails have to do with either Microsoft or IBM?

In both cases, "long tail" refers to the tail end of a curve describing size of organizations. If you were to analyze the number of companies versus the size of the companies, you would find that there are relatively few very large organizations and many, many small organizations. Plotting these numbers gives a curve that can easily be overlaid on top of IBM and Microsoft's traditional strengths and shows a large area of potential market opportunity that today neither company addresses well. This curve and overlay are shown in Figure 1.

In looking at Figure 1, you can see how the market breaks out. IBM is strongest in the very large companies, companies that need, or think they need, large expensive computers to run their organizations. Microsoft does well with medium sized organizations, organizations that know they do not need large expensive computers and are focused more on cost competitiveness.

With IBM owning the large corporations and Microsoft owning the middle size organizations, we still have a large number of organizations unaccounted for. It is this "long tail" of organization opportunity on which both Microsoft and IBM are now focused. These are small companies that individually do not spend very much money, but collectively spend a lot of money.

What does a long-tail company look like? Here are some characteristics that I believe define most

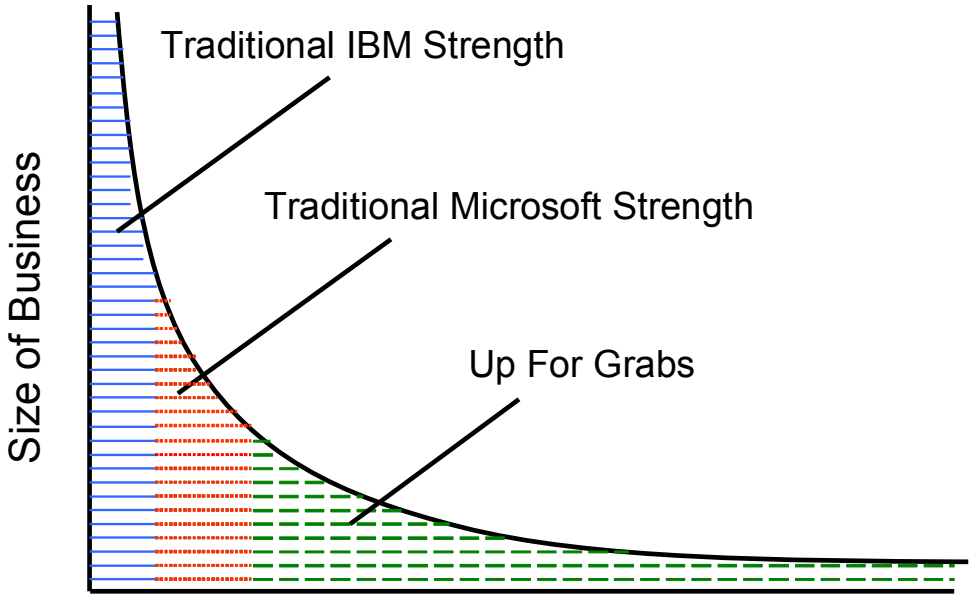

Figure 1. Number of Businesses

long-tail companies:

- Most have fewer than 100 employees.
- IT budgets, including hardware, software, and personnel costs are less than $100K annually.
- IT is seen as a necessary, and often frustrating, tool.

So how does one compete for the long-tail companies? Microsoft is betting that you do so by offering SaaS.

To get an immediate idea of why SaaS seems to make so much sense, let's consider a typical data tier, the collection of machines that run a database. A data tier is usually very expensive to set up because you have a number of high ticket items. First there is the database itself. But even more expensive than the database software is typically the hardware. In order to have a reasonable expectation of high availability, you need a great deal of redundancy. This redundancy is expensive. You also need people who understand how to manage a data tier. This is expensive. And finally, you need to develop the applications to access that data. This, too, is expensive.

Let's take a look at some prices. TPM-C is an industry standard benchmark that can be used to compare the price and performance of different database systems. In the most recent TPM-C benchmarks, the least expensive database configuration was a Dell PowerEdge system equipped with Microsoft SLQ Server 2005 standard edition and using COM+ as a TP Monitor. The entire system costs approximately $36,000 (including software, hardware, and three years of maintenance agreements, but not including development and administrative costs). How much performance would such a system give?

This system benchmarked at more than 28,000 transactions per minute. This is more than 40 million transactions per day. How many tail-end organizations are going to require a throughput of more than 40 million transactions per day? Not many.

Let's say a typical organization is taking in ten orders every single minute (a very lucky tail-end organization). Let's further say that every order requires an average of 10 database transactions to process. This organization requires a transactional throughput of 100 transactions per minute, which is less than one percent of the capacity of the cheapest available TPM-C rated database system. In fact, that database (the $36,000 Dell system) has enough transactional capability to support 300 such tail-end organizations, all running their 10 orders per minute every minute of every hour of every day of every ... You get the picture.

And this cost does not include the cost of system administrators, backup procedures, floor space, air conditioning, electricity, or a dozen other similar costs. The bottom line is that it simply doesn't make financial sense for each one of these tail-end organizations to duplicate this $36,000 facility. It makes much more sense to share it.

And this, in a nutshell, is what the SaaS story is about. It gives the tail-end organizations the chance to share expensive resources by pooling those resources with a service provider.

You can also see the financial opportunity for the service provider. Suppose the provider acquires the $36,000 Dell system and sells services to tail-end organizations for an average cost of $3,000 per year, a fraction of what that same system would cost a tail-end organization to purchase its own system. The tail-end organization is happy; it has saved more than $30,000. And the provider is very happy. The provider can service 300 similar organizations on the same equipment, yielding a potential income stream of $900,000 per year on a $36,000 three year cost investment. Over three years, that $36,000 investment can earn $2.7 million. Not a bad return.

So both parties are happy. The tail-end organization has spent only $9,000 over three years rather than the $36,000 the system would have cost to

purchase. The provider has earned more than $2 million in that same time frame on its $36,000 investment.

The financial impact gets better and better. The tail-end organizations aren't just sharing databases, they are also sharing the administration of those databases and the cost of the software that runs their organizations. The same arguments that apply to sharing the cost of the database also extends to these other costs as well.

So you can see why this strategy could be good for Microsoft. If it can convince those SaaS providers to build their systems on Microsoft technology, then it gets a slice of each SaaS pie. And Microsoft, like IBM, is betting that there is a lot of SaaS pie out there.

In fact, the only person who loses on this arrangement is me. Because, if I buy into this analysis, it is very hard to justify my very own $2,078.84 espresso set-up. I am definitely a tail-end doppio macchiato consumer. So, for the foreseeable future, I will be making the ten mile trek into Brenham. Until I can get my espresso intake up to at least 500 cups of doppio machiatos per day, I just can't justify the expense. There is one bright spot in this analysis. At least I don't have to wash my own cups.

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ROGER SESSIONS is a well known speaker and consultant in the field of high-end enterprise software architectures, SOAs, and Web Services. He is the originator of the Software Fortress Model for enterprise architectures and the author of the book *Software Fortresses; Modeling Enterprise Architectures*. Roger is the author of six books, dozens of articles, and many white papers. Roger writes and publishes the Architect Technology Advisory, a widely read and highly regarded newsletter on high-end enterprise software technologies. He is on the Board of Directors of the International Association of Software Architects and is recognized by Microsoft as an MVP in Architecture. More than 50,000 people have attended his workshops on scalable software systems design throughout the world. He can be reached at roger@objectwatch.com.

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