Toppling the Open Source Stack

WHITE PAPER

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**By
Steve Repetti
FifthGen CEO/CTO**

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Fifth Generation Systems, Inc.

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Recent aggressions by the commercial software sector have sent shockwaves through the open source community. The cover of *Information Week*[1] asks, "Are we witnessing a promising new model? Or the decline of open source as we know it?"

February's acquisition of database middleware provider Sleepycat by Oracle was the opening salvo in a skirmish that threatens to pit the likes of JBoss and Zend (PHP) against the very community they serve. Along the way, Oracle's actions have significantly altered the plans of MySQL and could well affect any direct or indirect competitor of Oracle that has embraced open source.

The largest unknown, however, is the acceptance and tolerance of these moves by the open source developer community – a traditionally independent and outspoken group. As *Business Week*[2] states, "Selling the open-source community on Ellison's plan might prove just as hard as selling it to Wall Street."

And what of Oracle's competitors that have embraced open source? How will it sit with their arch rival controlling, or at least significantly influencing, critical portions of their open source strategies? Will Oracle successfully replace the LAMP, WIMP, and WAMP software stacks with LOOO and WOOO – or just LW for short – as in Larry's World?

The Emergence of Open Source as a Business

While open source has been around since before the original creation of the internet, the players, products, and technologies have continued to change. Of those associated with Oracle's most recent initiatives, Sleepycat was founded in the early 90's, Zend in 1999, and JBoss Group, Inc. was formally incorporated in 2004.

Each of these companies was able to successfully navigate the path between the open source community and running a commercial enterprise. The result of these efforts is they are now in the midst of negotiations that place a collective value on them rumored to be in excess of $600 million.

Yet these are just the latest in a long succession of companies cashing in on the open source initiative. Netscape arose from Mosaic and was later sold to America Online for over $4 billion, and Red Hat (NASDAQ:RHAT) commercialized Linus Torvald's Linux and now has a market cap that exceeds $4.5 billion.

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[1] Information Week issue #1077 dated February 20, 2006
[2] Business Week article "Oracle's Open-Source Shopping Spree" dated February 9, 2006

Despite these successes, even larger opportunities loom on the horizon. Large commercial hardware and software enterprises including Sun, Oracle, and IBM are actively embracing open source as a means to strengthen their core products, expand their influence in the open source community, reduce dependence on other commercial providers, and increase their bottom line through added service and support revenue.

These factors, coupled with the evolutionary (and often revolutionary) nature of open source players, products, and technologies promise continued enhancement, positioning, and headlines for the open source industry.

The Importance of Community

The talent, strength, diversity, and flexibility of the open source community, not to mention its sheer size, are the very things coveted by the large commercial players. Its independence, outspokenness, inability to be controlled, and aversion to authority are the very things the large commercial players fear. Nevertheless, good, bad, or indifferent, the open source community is the heart, soul, and front-line of the open source movement.

Oracle's recent efforts seek to influence this community and realize value from it. They hope to provide a bridge between their commercial world (and products) and the open source community. And they very well may succeed, although, as *Business Week*[3] points out, "Oracle could be setting up a culture clash the likes of which it has never seen".

Oracle is not the only company that sees value in courting the open source community. Company's like IBM and Sun have ongoing efforts to support open source initiatives and see value ahead in a number of areas related to the open source community.

In buying their way into the open source arena does Oracle think they can control the open source community? Not likely, though they probably hope they can significantly influence it. Can they influence the open source community enough to take business away from IBM and Sun (and others) and redirect it onto their own balance sheet? Quite possibly – if the stars properly align for them.

Which raises the larger question: who controls the open source community? Certainly not Zend, or JBoss, or Oracle (whatever their aspirations). There is an actual answer, though it may not be the answer Oracle wants to hear. The answer may very well be the savior for IBM and Sun and everybody else that has jumped on the open source bandwagon. The answer to who controls the open source community is – the marketplace.

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[3] Business Week article "Oracle's Open-Source Shopping Spree" dated February 9, 2006

The Rise of the Stack

Necessity created the open source community – and the marketplace sustains it. Despite altruistic motives, no programmer ever created a program that they thought would not be used. The open source community is not against making money – far from it. But they are against the monopolistic tendencies of large commercial enterprises and the attempt to infringe on their right to reasonably make a living. Likewise, they are not too keen on being forced down a path that they themselves have not chosen.

Just as importantly, once a programmer has made a commitment to a specific path, they have a reasonable expectation that all party's interests are aligned. Why does Microsoft have a bug in their browser in version 3.0 that is not fixed until version 7.0? It is not like a programmer can pick up the phone and say, "Hey Bill, can you help me out? That z-order thingee with drop down boxes is really a pain in my a**."

It is these frustrations that drive programmers to platforms where they have more control over their own destiny. Open source provides the source code and shared knowledge base that eliminates the "I can't get Bill to pay attention to me and it's hurting my business" syndrome.

[It should be noted that the ability to deal with all of your problems does not in fact solve all of your problems. All too often it represents a panacea that masks the true problem. However, sometimes spinning your own wheels is better than waiting for someone else to give you the time of the day – and every once in a while brilliance strikes even the densest object…]

Software "stacks" emerged out of such necessity. It is not enough to have a great language, delivery platform, database, or operating system. These components must work in concert and at a level of optimization as to provide compelling arguments for their use – and be available in integrated cost-effective packaging. Unfortunately these components do not exist in a single optimized environment, hence the creation of the software "stack".

Stacks consist of (1) operating system, (2) web/application server, (3) database, and (4) language. The most popular stacks are:

- LAMP   (Linux, Apache, MySQL, PHP/Perl/Python)
- WAMP   (Windows, Apache, MySQL, PHP/Perl/Python)
- WIMP   (Windows, IIS, MySQL, PHP/Perl/Python)

Of these, the only 100% open source solution is LAMP, which likely explains why it is the most popular stack on the planet.

LAMP's operating system component competes with Microsoft and Sun, its web/application server with Sun and Xitami, database with Oracle, IBM, and Microsoft, and language component with Java and .NET. And, for every competitive

product listed, there are dozens more displaced by open source options. LAMP appeals to the open source community as the result of its integration and price (free).

Even so, all software stacks involve some element of compromise. This includes lack of kernel-level optimization, integration of multiple disparate systems, and acceptance of third-party involvement in your development world – commercial, open source, or otherwise.

Oracle's involvement in the open source effort would likely have a profound effect on the concept of software stacks. At the very least they would seek to drive business to their commercial products (and other revenue initiatives). At worst, they would change the available options of the stack to the detriment of Oracle's competitors and possibly the open source community itself.

Stack Overflow

All good things do not necessarily come to an end – though the focus is frequently a moving target. The open source community has demonstrated the viability of non-commercial development platforms, and the commercial sector has demonstrated that successful open source business models do exist.

The open source marketplace, and in fact the commercial software market as a whole, has a long history of evolution and displacement. It is unreasonable to believe that suddenly today that long-standing tradition ends in the hands of Oracle or any other single party.

Open source software stacks emerged as a means for developers to practice their craft without intervention of the commercial giants or unfair taxation. Individual components of the stack provided opportunity for developers when combined in a cohesive unit.

From a pure technology perspective, however, software stacks lack the integration and optimizations found in single-kernel based solutions. Likewise, orphaning of individual components, or, worse, individual components coming under the influence of non-impartial third parties, provides developers with a level of comfort that is less than desirable.

All of this provides the framework for change – if not today, then soon. History shows that this is the true definition of evolution in technology. When it is "perfect", then perhaps things will slow down. Until such time, the pursuit of cost-effective stabilized perfection is the right of every developer.

Already cracks are emerging in the current model. Oracle raises the concept of fragmentation which likely does not sit well with Oracle competitors committed to open source initiatives. Transference of implied power from the JBoss and the Zends

of the world to commercial entities does not likely sit well with the independent open source community either. And technological evolutionary "patching" never equates to technical excellence.

An opportunity exists for the open source community. An alternative exists for the right combination of technology, positioning, and participation aligned with the specific needs of the open source community and its supporters. An opportunity exists that would trivialize the actions of Oracle or any other monopolistic third party. The opportunity, as always, is innovation and evolution. Good stuff packaged fairly will always generate a following – great stuff will generate a lands rush.

The Next New Thing

Coming to the party with nothing but rhetoric makes you a dreamer or at the very least an optimist – but certainly not a realist. Careful understanding, planning, a bit of talent, and execution bridges the gap from surreal to real – from dream to reality.

The fact of the matter is that the upper ends of the technological boundaries have not been hit. Absence of such screams opportunity. In the specific case of open source, the most obvious technological opportunity arises from the disparate nature of the components of the software stack. Applications (languages) will never be able to optimally speak with servers and databases when they do not share a common kernel. Component-based environments will never be fully comfortable to the open source community when the opportunity always exists for an Oracle to step in. The solution involves a carefully crafted balance of acceptance, arrogance, and humility.

First and foremost, the next displacing iteration of the open source evolution is based on technology. Better, faster, cheaper is a mantra that will always be augmented by vision, understanding, comfort, commitment, and compatibility – and independence free from the Oracle's of the world.

The next breakthrough will be a single-kernel implementation of three of the four components of the software stack tightly integrated into a single solution. It will contain a high degree of optimization and integration between the language, web/application server, and database components, and provide developers with unprecedented performance and flexibility as well as single-source solutions across multiple operating systems. The stack will be transformed from LAMP, WAMP, and WIMP to LX and WX.

Even so, the arrogance it would take to presume such an offering would have to be mitigated by the acceptance (and embracement) of alternatives. It is not enough to provide a highly integrated single-kernel server/language/database development platform across Windows and Linux (and ultimately others). Such a platform would have to embrace other servers, languages, and databases in a single environment such that developers are not forced into any specific path – but rather provided with

layers of optimized options. In fact, it would have to be a better Apache than Apache, be fully compatible with PHP yet be a better PHP than PHP, and apply this philosophy to every aspect of its integration.

History has taught us so much, and best of breed is always a moving target. The magnitude of the idea is humbling – and at the same time exhilarating. The concepts of pure technology should never be compromised – for any reason. It is itself a moving, evolving, living thing that demands scrutiny, invites collaborative association, and forever strives for the next new thing – which, after all, is always evolutionary and sometimes just a bit revolutionary!

About the Author

Steve Repetti is the CEO/CTO of Fifth Generation Systems and has spent the last 20 years actively involved in the commercial software development industry. He is the award-winning co-author of the FGL programming language and was most recently identified as "Heavy Hitter in Technology" for the second year in a row alongside executives from IBM, AT&T, Citrix, and Siemens. Mr. Repetti's company, Fifth Generation Systems, Inc., believes that it has created a solution that solves the problems raised in this white paper – but respectfully defers such conclusions to the individual members of the open source community.

Please visit the following resources on the web for additional information:

>   http://www.fifthgensys.com
>   http://www.fglfoundation.org
>   http://www.brtsystems.com
>   http://www.insmgmt.com

Mr. Repetti may be reached at:

>   Fifth Generation Systems, Inc.
>   600 N Pine Island Rd, Suite 350
>   Plantation, FL 33324
>
>   954-473-6868 x4120
>   954-473-9776 fax
>
>   steve.repetti@fifthgensys.com

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