



Opinion

IBM's System Software: A Closer Look at Heterogeneous Systems/Storage Management

Executive Summary

A recent *Clabby Analytics* report described the strategic importance of systems software (middleware, operating environments, virtualization software, etc.) to systems vendors. Without ownership of a systems software stack, we contended, a vendor puts itself at the mercy of key software partners — and sometimes that doesn't work out to well (witness the withdrawal of Oracle and Microsoft from HP's Itanium-based platforms as an example).

In the computer industry, there are four vendors and/or system software makers that own their own software stacks — and thus define and manage their own developmental destinies. They are:

1. Microsoft;
2. Red Hat;
3. IBM; and,
4. Oracle.

Of these, only two make hardware and own their own systems software stack: IBM and Oracle. (Fellow analyst and editor of the *Pund-IT Review*, Charles King, suggested that I should include HP in this list — but I argue that when Itanium croaks — as I have argued it will in my report entitled “Should You Fire Your CIO for Recommending Itanium?” — all the HP systems software tied to it on HP/UX, NonStop, etc. croaks with it...). Bearing this in mind, a closer look at Oracle shows that Oracle makes two hardware platforms (x86-based and SPARC-based servers), while IBM makes three hardware platforms (x86-based servers, Power Systems, and System z).

On the surface, these vendors both appear to be makers of heterogeneous server environments — but below the surface we believe that SPARC architecture will fail (see this report: <http://www.clabbyanalytics.com/uploads/SPARCfinal.pdf>) leaving IBM as the only maker of heterogeneous server solutions, and placing Oracle into the x86-only camp with Dell and, soon, Hewlett-Packard (when Itanium fails). If this indeed becomes the case, IBM will become the only maker of truly heterogeneous, “workload optimized” systems and related systems software.

As a maker of heterogeneous systems, IBM will be the only company capable of selling its customers different systems designs utilizing differing microprocessors that offer differing levels of quality-of-service. And IBM will be the only major systems maker that really cares about managing physical systems, servers, and storage across heterogeneous platform environments.

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Everyone else becomes, essentially, an x86-only company, and will rely heavily on ecosystem providers like VMware, Citrix, Iron Mountain, and Microsoft for x86 virtualization, hypervisor, infrastructure and management support.

Now let's take a look at what this really means. In IBM's case, the company sees physical and virtual machine management as strategic to future heterogeneous cloud efforts — hence, IBM must remain in the virtual machine infrastructure and management business. In the case of Oracle, Hewlett-Packard, and Dell, these companies will be put in a siloed management position, relying on other vendors for their x86 virtualization infrastructure and management products. And as we pointed out at the outset of this article, this is not a desirable position to be in...

Market Behavior

At IBM's recent System Software event, numerous IT research analysts shared their observations on virtualization market behaviors with IBM executives — who also shared their perspectives with us. And the vision that evolved from this exchange is this: there are three classes of IT buyers. They are:

1. Those who will deploy siloed x86 environments and will use the infrastructure and management products of the x86 ecosystem to manage those environments;
2. Those who will deploy x86 and Unix high-end server environments (because Unix servers can do certain workloads better than x86 servers — and because Unix servers have different systems design characteristics and quality-of-service levels); and,
3. Those who want to take advantage of all three levels of heterogeneous servers (mainframes, Unix servers and x86 servers).

As we all probed these buying behaviors, we observed that the siloed x86 buyers will probably continue to use the ecosystem for hypervisors, infrastructure, and management solutions. The big winners in the ecosystem would be VMware, Microsoft (Hyper-V), and Red Hat (KVM).

For buyers who run both x86 and RISC (Unix) servers — and who want to reduce management costs while improving operational efficiency — the most logical winner would be IBM in the long run (as Itanium and SPARC servers crumble into ignominy). IBM's products for managing physical and virtual machines across these environments are IBM Systems Director and System Director VMControl (see our report on this product at: <http://www.clabbyanalytics.com/uploads/VMControlReportFinalFinal.pdf>).

But here's a curious point. VMControl can also be used to manage up into the mainframe environment — more specifically, it can be used to manage and control virtual machines that run under mainframe Linux environments. And the reason this is so interesting is that traditional distributed systems managers and administrators could someday find themselves managing virtual machines in mainframes, on Unix servers, and on x86 servers — all from a common environment with a common user interface. This sounds an awful lot like an ideal cloud management environment to us...

One thing IBM did not cover at this event, however, is cloud management coming from the other direction (from the mainframe on down). IBM offers a product called zEnterprise that extends enterprise-class mainframe security, governance, and management to tightly coupled Power System- and x86-blades (see the following report on ClabbyAnalytics.com for more details: http://www.clabbyanalytics.com/uploads/System_z_Opinion_FinalFinalFinal.pdf). To us, this was an omission in this analyst meeting.

What we (*Clabby Analytics*) think will actually happen when it comes to cloud management is that enterprises which have a distributed systems bias and run Windows, Linux, and Unix predominantly will buy VMControl to manage across heterogeneous x86, Power Systems, and mainframe servers. (Their other choice would be a cross-platform management product from CA Technologies, but we haven't seen much of an uptake on this product.) Enterprises that are running z/OS, z/VM, and Power System/x86 blades will opt for zEnterprise.

Storage Virtualization

Another important discussion held at this analyst meeting centered on storage virtualization and management. IBM's key point was that the company makes management solutions that can manage heterogeneous storage from vendors including Oracle/Sun, Hitachi, Hewlett-Packard, EMC, and IBM (these products are SAN Volume Controller and IBM's Storwize V7000). These products can also be managed under IBM's System Director umbrella (via integration between Systems Director and Tivoli Storage Productivity Center), making it possible for IT managers to control and manage across both systems and storage environments from a single console.

The reason that this cross system/storage offering is so important has to do with the future of cloud computing, with lowering IT management costs, and with improving overall systems/storage efficiency. Consider, for instance, a scenario where an IT manager wants to set up a virtual machine image. In order to support this, administrators provision (acquire and lock/reserve) storage resources to support applications running on given virtual machines. Typically, this means that systems managers need to talk with storage managers to acquire the storage resources that they need.

Instead, by combining systems and storage management IBM has eliminated the need for two sets of managers (systems and storage managers), making it possible to combine server and storage processes under a single cloud manager who can control resources in both environments. (IBM was not the first vendor to do this; we wrote a report on Hewlett-Packard's Systems Insight Manager/Storage add-on many years ago.) But if Hewlett-Packard indeed becomes an x86-only shop, IBM will be the only major vendor that can provide an integrated environment capable of tightly managing systems and storage across multiple platforms (and this sounds an awful lot to us like what cloud computing is ultimately supposed to be all about).

Summary Observations

Systems software is a major differentiator between vendors and provides real value to enterprise customers. Integrated systems software can help reduce management costs while improving operational efficiency — and these savings can be tremendous.

From our perspective, the market is evolving into x86 ecosystem supplied systems software developed by Microsoft, Red Hat and others, and heterogeneous systems software supplied primarily by IBM. What you'll find as you look at the two is that IBM's solutions in the virtualization and provisioning space are way ahead of those offered by the x86 ecosystem. What you will also find is that having three systems architectures will enable IBM to help customers find the right equipment for the right job — helping save enterprises millions of dollars in IT acquisition and management costs (for an example of acquisition cost savings, see how a mainframe running 256 virtual machines can cost less than 256 x86 multi-cores at: http://www.clabbyanalytics.com/uploads/z_VirtualizationFINALRev.pdf).

As for storage, we continue to see more emphasis being put on de-duplication than on virtualization.

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But, as IBM pointed out, with the huge explosion in requirements to capture and retain more and more data, IT storage managers are more focused than ever on getting maximum usage out of their investments. So, although de-duplication has been a big first step, expect to see storage virtualization really take off over the next few years. And for IT buyers who want to manage heterogeneous storage environments, IBM's SAN Volume

Controller and its Storwise V7000 (for the mid-market) offer some of the best storage virtualization capabilities in the industry.

The bottom line for me after attending IBM's System Software analyst briefing is this: System software is very important for helping reduce IT costs. Look closely at your systems environments and decide which approach (a homogeneous or heterogeneous approach) is best for your enterprise. And then look at your storage environments and decide how you want to handle the need for more and more information over time. What we think you'll find is that, as your organization moves toward the cloud, IBM has the richest suite of system software that can be used to help reduce operating costs operating costs and improve efficiency in heterogeneous server and storage environments.

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