



Opinion

Should You Fire Your CIO for Recommending Itanium?

Introduction

I once told a reporter that if my CIO brought me a recommendation to buy an Itanium-based server — I'd fire that CIO. Just to be clear, I would terminate that CIO for the following reasons:

- Betting my information technology (IT) budget on an architecture that has a long history of being late to market while dropping functionality along the way. (Why would I want to bet my company's IT future on such a track record)?
- Failing to recognize that the server market is consolidating around three architectures (and Itanium is not one of them);
- Failing to notice that the Itanium ecosystem is driving in reverse (Microsoft just pulled Windows support; Red Hat will not build future revisions of its Linux on Itanium; Fujitsu just announced that its future servers would be Intel Xeon-based);
- Failing to observe that Oracle/Sun and HP are now competitors in the midrange/-high-end of the market (so if I'm running an Oracle database, Oracle infrastructure, or Oracle business applications, I'd be a little concerned about the kind of support and tuning I'd be getting from Oracle on Itanium in the long run); and for
- Failing to position my company for the next wave of computing — the smarter planet wave. His or her Itanium recommendation would signal to me that he or she is not aware of the evolution of a new class of information systems that exploit 64-bit computing, large memory, and advanced virtualization — enabling a new class of business analytics-driven applications. Of the above reasons, I think point #2 bothers me the most. CIOs should understand server market trends — and, by bringing me a recommendation to buy Itanium, my CIO would be showing me that he or she doesn't have a clue about what's going on in the server market. And, without an in-depth knowledge of these server market competitive dynamics, how can a CIO make intelligent purchase decisions?

From my perspective, the server market is in the midst of a major realignment. What is happening is that:

- A major consolidation around three architectures is taking place. In the future, the leading servers will be based on: 1) x86-multi-cores (the new Intel Xeon-class servers); 2) IBM's POWER (a RISC architecture that has leaped far ahead of Oracle/Sun SPARC/CMT-based servers and HP Itanium-based servers in terms of virtualization, performance, memory management, and in several other categories); and, 3) IBM's z mainframe microprocessor (where Linux use is on the upswing —

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and where the mainframe is being repositioned as a consolidation server as well as an SOA infrastructure/security clearinghouse);

- Oracle's purchase of Sun has created a rift between HP and Oracle (Oracle is a major provider of infrastructure, database, and business application software to HP — and is now a direct competitor of HP in the server business);
- x86-multi-cores, POWER7, and z are going to drive a new class of applications into the mainstream (smarter planet applications). Itanium processors (64-bit, large addressable memory) could participate in this new smarter planet world, but to do so would require major commitments from ISVs in terms of development and testing on Itanium. And with key ISV's abandoning the platform, this major commitment may not be made.

In this Opinion, *Clabby Analytics* provides its perspectives on:

- The consolidation of the server market around three architectures;
- The Oracle/HP rift — and its impact on the business applications marketplace;
- The collapse of the Itanium ecosystem; and,
- The creation of a new class of information systems that exploit 64-bit computing, large memory, and virtualization — enabling a new class of “smarter planet” applications.

The Last Three Standing...

Last November, *Clabby Analytics* produced a report that we entitled “And Then There Were Three: POWER, x86, and z”. In March, 2010, we updated that report (it can be found at: <http://www.clabbyanalytics.com/uploads/ServerMarketViewMarch2010UPDATE.pdf> — and is available for FREE).

Essentially, this report argues that:

- Sun SPARC/CMT-based systems — now owned by Oracle — will become dedicated Oracle database/application servers tuned particularly for Oracle applications. Further, it observes that a large portion of Sun's user base appears to be migrating away from Sun — and Clabby Analytics doesn't see how Oracle will recover those lost customers.
- HP's Business Critical Systems Division (BCS) is in big trouble (this is the division that sells HP's Itanium-based servers). Over the past year, this division has recorded quarterly drops of -33% (Q4, 2009); -22% (Q1, 2010); -17% (Q2, 2010); and -15% (Q3, 2010). And given that HP sells about 85% of all Itanium servers, these sales figures show us that Itanium is in big trouble.
- If Sun SPARC/CMT becomes a specialized Oracle environment (and we think it will) — and if HP's Itanium does not recover (and we list a bunch of reasons why we think it won't) — then that leaves Intel's new x86 multi-cores, IBM's POWER, and IBM's z as the three remaining low, mid-range, high-end server competitors. If your CIO does not understand these market dynamics, or if he or she disagrees and is prepared to argue that Oracle/Sun and Itanium servers will have a long and

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fruitful life in the world of commercial computing, please have that CIO contact me at jclabby1@AOL.com. I'd love to understand his or her reasoning...

The HP/Oracle Rift

For years, HP has been a leading reseller of Oracle databases and applications. But with Oracle's acquisition of Sun, Oracle now competes directly with HP in the server business — and this competition creates some real interesting competitive dynamics:

1. First, *Clabby Analytics* believes that, due to the Oracle/Sun acquisition, Oracle infrastructure, database, and application products will be optimized for Sun platforms. This may create a scenario where Oracle middleware/applications run better on Oracle/Sun platforms than on HP Itanium-based platforms.
2. Second, now that Oracle and HP are direct competitors, why would Oracle want to continue to develop its software for Itanium-based platforms? (This scenario makes us wonder whether Oracle be the next large ISV to discontinue building its products on Itanium?)
3. Third, the Oracle/Sun deal leaves Sun customers who run SAP a bit “out-of-step”. (SAP and Oracle are direct competitors in the business applications world). Now that Oracle owns Sun, SAP users must now rely on Oracle/Sun to help tune its applications (a bit of an irony that may leave some CIOs uncomfortable about SAP on Oracle/Sun platforms over time). This could work to HP's advantage if Oracle/Sun SAP users choose to move to HP Integrity servers (but note: IBM has an extremely close relationship with SAP — so it might make more sense to migrate to IBM servers).

Given all of these scenarios, HP is kind of stuck. In the first case it must prove that its hardware is better than Oracle's (and that they can outperform Oracle from an applications and database perspective — which may be difficult). In the second case, Oracle could withdraw support for Itanium, leaving HP Itanium customers totally in the lurch — forcing those customers to migrate from Itanium-based servers to other (possibly Sun servers) over time. In the third case, HP may be forced to refocus its alliances and start selling SAP applications more aggressively on Itanium (meaning they would need to coax SAP into developing and tuning SAP software for Itanium environments at a time when other ISVs are de-committing from Itanium architecture...). *Clabby Analytics* does not see how HP's Itanium-based servers will win these battles.

The Collapse of the Itanium Ecosystem

As stated in the Introduction, I think that a CIO's recommendation to purchase Itanium would bother me more than his or her lack of understanding of the server market consolidation, the impact of the Oracle/Sun acquisition, or his or her lack of knowledge of the future of computing around the smarter planet theme. From my perspective, a CIO would have to be wearing blinders to not see that the Itanium ecosystem is collapsing.

The key indicators of this forthcoming collapse are de-commitments of important independent software vendors (ISVs) from Itanium architecture — and the de-commitment of a leading independent software vendor (IHV) from Itanium:

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- Microsoft has announced that it will no longer build Windows for Itanium.
- Fujitsu (a prominent member of the Itanium Solutions Alliance) has announced that its future products will be Xeon-based (see: http://enterprise.watch.impress.co.jp/docs/news/20100331_358101.html).
- VMware (the x86 market leader in virtualization software) long ago decided not to offer its virtualization stack on Itanium. From my perspective, these “de-commits” and omits are just the tip of the iceberg when it comes to the Itanium’s ecosystem collapse. I think that Intel’s new Xeon multi-cores will obviate the need for a separate Itanium architecture over time — and that many more independent software vendors will de-commit from Itanium. My reasons for coming to these conclusions are: when an operating system is pulled off of a hardware platform, then applications that run on that operating system usually no longer run on that platform. And, in Oracle’s case, withdrawal from Itanium actually serves a competitive purpose for Oracle.

The Itanium Software Situation

Is the Itanium ecosystem really collapsing? A closer look at the situation with Itanium software (this subsection) and Itanium hardware (next subsection) provides some clues as to the current health of the Itanium ecosystem.

To adjudge the health of the Itanium ecosystem, Clabby Analytics believes that IT buyers should look closely at:

- The level of ISV commitment to the Itanium platform (existing and new ISVs); and,
- Ongoing operating systems support.

Start by going to this article:

(http://www.itaniumsolutions.org/news/itanium_keeps_on_plugging) found on the Itanium Solutions Alliance (ISA) site. According to Joan Jacobs, the president of the ISA, (as stated six months ago) that Itanium runs ten operating systems — and 14,000 applications. But given the recent departures of Red Hat and Microsoft, make that eight operating systems. And subtract a few hundred (or maybe a few thousand?) Microsoft applications from the list, too — if you can get the list.

When *Clabby Analytics* last looked at the application counting practices of the ISA, we noticed that the company was counting a single application many times across its various operating environments — and thus arrived at a high application count. So, for instance, an Oracle application could be counted many times if it ran on HP-UX, Linux, NonStop, OpenVMS, etc. And this practice is okay with us, as long as it doesn’t lead to apples-to-oranges comparisons (a customer might think that HP-UX runs 14,000 applications — and then compare that number to another vendor’s Unix-only implementation — essentially comparing apples-to-oranges [eight operating environments to one]). It would sure be great if the Itanium Solutions Alliance would publish a list of how many applications run on each of its respective eight operating environments. By having access to this information, it would be easier to compare the strength of the software ecosystem on IBM’s AIX (Unix) POWER-based servers versus HP-UX/Itanium-based servers. And that kind of information would, accordingly, make it easier to assess the comparative strength of each vendor’s

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application ecosystem. One thing is sure, however — given Microsoft’s recent de-commit, Itanium’s application stable just got a bit smaller...

Putting the applications numbers on each server type aside, CIOs should also understand that it costs ISVs money to develop and test applications that run on multiple operating environments. So, for many ISVs, the cost to develop and test applications must be offset by sales revenues achieved on a given platform. On the ISA site, an Intel spokesperson is quoted as saying that only six percent of Itanium sales run Windows (according to an IDC Q3 2009 tracker report). If this spokesperson’s comment is accurate, then it is easy to see why Microsoft would have pulled back its Windows development on Itanium (with only 6% of Itanium sales, it was probably becoming hard to justify the development and testing effort). And this makes Clabby Analytics wonder how many other ISVs are going to take a closer look at their development and testing efforts on Itanium now that the new Xeon multi-cores have arrived. (After all, these Xeons have the potential to serve the midrange and high-end markets that Itanium serves — so ISV’s may reason: “why continue to develop on Itanium?”). The costs of development and testing are why we expect more ISV fallout over time on Itanium.

Hardware

In addition to the software issues described above, Clabby Analytics believes that Itanium is mis-positioned from a hardware perspective as well. From our point-of-view, the Itanium high-end “trickle-down” cycle is broken; and — on the low-end and in the midrange — we expect that new competition from Intel’s own x86 multi-cores are about to create major competitive problems for Itanium, too.

When evaluating Itanium — don’t look solely at the Itanium microprocessor itself. Also look at the encompassing Itanium systems design. In the computer industry, high-end computing designs are often built around scale-up supercomputers. These scale-up designs force vendors to push-the-envelope in memory management, in input/output subsystem handling, in storage design and management, power distribution and cooling, and more. Vendors that build these high-end designs usually trickle-down high-end advances into their midrange systems — and then, ultimately, to their low-end systems. Clabby Analytics would contend that the Itanium supercomputer trickle-down effect has been broken for quite some time. And accordingly, advances that would normally come from Itanium vendors pushing-the-envelope in high-end systems designs are few and far between. As an example of how this trickle-down chain has been broken, consider Itanium systems placements in the Top 500 supercomputer listings. The last tally (November, 2009) showed the first Itanium server placed at #490 on the super-computer performance list. By contrast, IBM’s scale-up POWER-based servers (Blue Genes) showed up in five of the top 11 positions. From our perspective, IBM’s participation in the supercomputing marketplace gives IBM POWER servers distinct system design advantages over Itanium-based server designs.

Without supercomputer trickle-down advances, *Clabby Analytics* believes that it will difficult for Itanium designs to compete with high-end POWER systems over time — unless HP invests very heavily in more advanced Itanium systems designs. HP may, at some point, decide that heavy investment in Itanium systems designs may not be worth it — in which case, one “workaround” would be to stop building Itanium scale-up towers and

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instead build Itanium blades that could leverage HP's existing blade chassis designs used by HP's x86-based blade servers. If Itanium servers started doing this, lots of money could be saved in future Itanium systems designs. But note, if Itanium vendors take this path, Itanium servers become specialty blades — which may, or may not be able to serve the high-end server market as effectively as scale-up towered designs. Trickle-down is one indicator that there is a discontinuity in Itanium systems design. But this discontinuity may be minor compared to discontinuity created by Intel's new class of Xeon multi-cores. *Clabby Analytics* expects that Xeon multi-cores will obviate the need for Itanium over time — first pushing Itanium out of the low-end and then subsuming Itanium in the midrange. If this happens, Itanium could just “fade-away” over time...

The “Smarter Planet” Movement

CEOs and CIOs need to understand that: 1) due to massive increases in CPU power (thanks to the market move to multi-core architecture after Moore's Law scaling of single CPUs topped-out), as well as 2) great improvements in memory management and I/O processing — advanced systems platforms are now able to execute a new class of analytics-driven applications (known as “smarter planet” applications” that run on “smarter systems”).

As an example of these smarter planet applications, consider how this could be used by an electrical utility company. A smart electrical grid requires up-to-the-minute data to deliver electricity in real-time. New smart systems can be used to collect mountain of data that can be analyzed and used to help customers monitor their energy consumption and reduce usage during the expensive peak periods. To handle the volume of data and transactions generated by this workload, IBM is packaging turnkey “smart systems” environments (advanced, memory rich, high performance System x, Power Systems, and System z servers) as well as related infrastructure, database, management products, and analytics-oriented ISV applications that enable electric utilities capture and analyze vast amounts of data captured from instrumented devices — and present that data to customers.

But a change in systems architecture is not the only driver of smarter planet momentum. Customers who could not afford these kinds of applications in the past are now finding that they can now indeed afford systems that can perform advanced business analytics, to run business intelligence applications, to serve as data warehouses, and to help integrate and serve vast numbers of mobile devices, and so on.

Finally, note that ISVs are getting very aggressive about exploiting these new systems characteristics in order to drive software sales. But from *Clabby Analytics*' perspective, ISV's are rushing to build on x86 multi-cores, Power Systems, and System z — we don't see the same level of activity on Itanium systems. CEOs and CIOs who haven't noticed this shift are missing a major change in the server market as affordable, powerful new server architectures and industry consolidation are driving a new class of applications. These new “smarter planet” applications are capable of processing vast amounts of data collected from various sources (especially instruments), analyzing that data, and providing new business insights to enterprises that massage that data. The systems that CEOs and CIOs evaluate for future use should be able to participate in this newly expanded data intensive/analytical systems marketplace. Given the gulf in performance between virtualized POWER-based systems and Itanium-based systems, and the level of increased business analytics ISV

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activity on POWER-based systems, Clabby Analytics is not convinced that Itanium-based servers will be performance-rich enough nor application-rich enough to participate in the data intensive “smarter planet” world of tomorrow.

Summary Observations

For the past five years, Clabby Analytics has written extensively about the shortcomings of Itanium architecture, related systems designs, and marketing efforts. I have:

- Challenged the wisdom of HP’s forced migration from PA-RISC to Itanium architecture (when HP discontinued its PA-RISC architecture, HP customers were forced to adopt Itanium-based servers to continue their HP/UX growth path);
- Slammed Itanium for dropping features (we especially didn’t like it when Itanium dropped IA32 compatibility — eliminating the ability of Itanium customers to a run 32/64-bit hybrid environment at the chip level. The IT buying market corrected this error by purchasing hybrid 32-/64-bit processors from AMD and Intel [Xeon hybrids]);
- Poked fun at Itanium for missing release schedules (often by very large margins);
- Challenged Gartner for recommending that its customers consider moving off of mainframes to “more modern platforms” because of an impending (alleged, unproven) projected skills shortage of mainframe managers and administrators. (I’m assuming that Gartner included Itanium in its definition of “more modern platforms” given the company’s participation with Itanium customers in mainframe migration road shows...).
- Laughed at the claims of the Itanium Solutions Alliance (ISA). We were especially entertained by claims on the ISA site that Itanium had a better business ecosystem for providing software and support services;
- And now, we are demonstrating that the Itanium ecosystem is collapsing. Yet, despite all of these pointers and observations, several of you continued to buy Itanium-based servers — or worse, you migrated to Itanium-based servers from mainframes or other platforms. Well, now may be the time to reconsider the adoption of Itanium-based servers given what’s going on in the Itanium ecosystem and in the server market in general.

It should be clear, even to the most casual observer that the Itanium ecosystem is faltering:

- On the hardware side, this architecture suffers from supercomputer trickle-down disease (advanced technologies are not trickling down to Itanium from supercomputer installations with the same regularity that they are on other platforms because Itanium barely shows up in the Top500 list of supercomputers);
- A major Itanium IHV has also left the fold (Fujitsu);
- x86 multi-cores are positioned to directly compete with Itanium; and,

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- On the software side, two major operating systems vendors have recently de-committed from Itanium. And we're wondering how long it will be before several more major ISVs do the same.

It should also be clear that changes in platform power and memory handling are enabling a new generation of “smarter planet” applications to be run on x86, POWER, and mainframe architectures. The midrange/high-end market is shifting — and Itanium does not appear to be positioned to ride through this shift.

- If I were feeling charitable, I would give the CIO (who I fired at the beginning of this Opinion) another chance to get his or her job back:
- If that CIO could tell me what jobs x86 multi-cores, POWER, and mainframes are best suited to handle, and then perform an analysis that shows me where my workloads would run most optimally, I'd give him or her 60 points;
- If that CIO could articulate how server architecture is changing — and how the new generation of multi-core servers with advanced memory management can enable me to run advanced business analytics/data-intensive applications more efficiently and cost effectively, I'd give that CIO 25 points; and,
- If that CIO promised to never-ever come to me with a recommendation to buy Itanium-based servers, I'd give him or her 15 points.

This would total 100 points, the magic number this CIO would need to get his or her job back.

Perhaps you should try this point system with your own CIO....

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