



# *Counter Opinion*

## **Hey Gartner: Migrate to WHAT?**

### ***Introduction***

Gartner, the industry's preeminent information technology (IT) research and analysis firm, has published several reports and case studies over the past few years that promote the idea that IT buyers should migrate their applications off of mainframes and move them to other, more "modern platforms". Part of Gartner's logic, it appears, is that there is an impending-doom shortage of mainframe managers that is about to occur as elderly mainframe managers retire — so Gartner implies that moving applications to other "more modern" platforms might ensure the long term viability of enterprise applications on those platforms.

I have two major issues with Gartner's perspective and its recommendation:

1. Where is the PROOF that mainframe skills will decline to critical levels over the next several years? And,
2. Which "MODERN PLATFORM" is Gartner advocating?

### ***On the Alleged, Pending Skill Set Crisis***

My perspective on Gartner's suggestion that IT executives consider moving their applications off of a mainframe due to an alleged, forthcoming decline of mainframe skills promotes an "urban legend" (something that makes sense on the surface but has no basis in fact). So, in a counter opinion that I published last week, I demonstrated that mainframe skills can be found in abundance in various geographies — and I showed that there has been a huge increase in the number of students studying mainframe management, and in colleges and universities teaching mainframe curriculum (in 2005, 10,000 students were taking mainframe courses — that number is now 50,000; and the number of institutions teaching mainframe courses has tripled over the same timeframe). Further, I provided analysis that showed that the mainframe resource pool may number 400,000 people. I then asked Gartner to PROVE that there is indeed a professional skills crisis in the mainframe world. I'm looking forward to Gartner's response...

### ***On Gartner's Migrate Advice to Migrate to a "More Modern" Platform***

As for Gartner's advice to move to a more modern platform, I challenge Gartner to:

1. Show me a more modern commercial platform than a mainframe; and,
2. Clarify which "more modern platform" Gartner has in mind.

With respect to Gartner's contention that there are other, more modern platforms than a mainframe, I observe that even Gartner admits that mainframes run modern JAVA workloads, that mainframes are good for large Linux consolidations, and that mainframes are strong in SOA (service-oriented architecture) message handling. And Gartner also points out that mainframe specialty processors (zIIP and zAAP) make mainframes attractive for handling certain data-intensive and JAVA workloads.

## Hey Gartner: Migrate to WHAT?

To Gartner's own list of advanced mainframe characteristics allow me to add the following:

- Name any other system in the marketplace that has a more advanced virtualization, provisioning, and workload management environment than a mainframe — or that can operate at 100% utilization for extended periods of time;
- Name any other system in the market that has more advanced security and crypto services than a mainframe (note: no other “more modern platform” offers EAL level 5 security);
- Name any other commercial system in the market that has a larger communications backplane than a mainframe (this is important for handling massive amounts of data and for process millions of SOA messages — and it cuts down on the need for hundreds of network interface cards and associated bridges, hubs and routers);
- Name any other system in the market that provides better meantime-between-failure and greater business resiliency than a mainframe; and,
- Find me a system with better linear scalability than a mainframe.

*In short, I believe that mainframes are the most modern platforms available in the commercial marketplace today.*

Still, several of Gartner's research reports seem to indicate that there other, more modern platforms that can serve as alternatives to mainframes (although Gartner doesn't name them). But maybe some of Gartner's marketing activities provide a clue as to which platforms are their “more modern” mainframe alternative choices.

- It did not escape my attention that Gartner has participated in several Hewlett-Packard (HP) mainframe migration road shows over the past few years. At these road shows, HP has promoted the idea that Itanium-based servers can be used to replace mainframes. I see Gartner's participation in these promotion tours as an indication that one of the “more modern” platforms would be an HP Itanium-based server.
- I note that Gartner recently participated with Microsoft in a mainframe migration program in Denmark. Because Windows only runs on x86 servers (Microsoft has just withdrawn future development on Itanium), I assume that Gartner is also promoting the idea that migrating mainframe applications to Windows servers is a good idea.
- I found no proof that Gartner has promoted the use of either Oracle/Sun UltraSPARC servers or IBM POWER-based servers as mainframe replacements.

Given these observations, I think past Gartner activities indicate that the company believes that Itanium servers present a more modern platform alternative to mainframes. If this is the case, I note the following:

- From my perspective, 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 -22%, -33%, -30%, -29%.

## Hey Gartner: Migrate to WHAT?

And given that HP sells about 85% of all Itanium servers, these sales figures show us that Itanium is in big trouble.

- As of version 6, Red Hat has withdrawn its RHEL (Linux) on Itanium.
- 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 (for more details, see this report [here](#)).
- VMware (the x86 market leader in virtualization software) long ago decided not to offer its virtualization stack on Itanium.

To me, the Itanium microprocessor is in big trouble due to the overlap of Intel's own Xeon with Itanium architecture. Further, because HP's Itanium sales have experienced such large drop-offs (HP sells about 85% of all Itaniums), I'd argue that Itanium sales as a whole are in big trouble. And, because Microsoft and Red Hat have ceased Itanium development —and because I see the potential for other vendors to pull Itanium support — I'd argue that the Itanium ecosystem is in big trouble. With all of these troubles, I don't think I'd be thanking Gartner if the company had recommended that I move from my stable mainframe environment to an Itanium platform.

*In a effort to be a little balanced when it comes to Itanium architecture, I'd like to point readers to this report by Timothy Prickett Morgan where he postulates that "there will be Itanium processors available for at least six to seven years" and he explains why. I think Mr. Prickett Morgan's report is one of the most balanced pieces I've read on Itanium over the past several years and it is worth reading (you can find it at: [http://m.channelregister.co.uk/2010/04/26/itanium\\_hp\\_last\\_standing/](http://m.channelregister.co.uk/2010/04/26/itanium_hp_last_standing/)).*

Gartner's recent involvement in a Microsoft application migration road show in Scandinavia also indicates to me that they may now believe that Intel's new x86 multi-core Xeon's represent a viable, more modern alternative to a mainframe. And, from my perspective, x86 multi-cores are excellent processors that offer a well-balance architecture for computing serial, data-intensive, and parallel workloads. But, I have yet to see a PC architecture successfully replace a mainframe (consider what needs to be done to a PC architecture to make it as secure, reliable, and resilient as a mainframe — and this may be why PC servers don't rival mainframes today). So, until I see an x86 server environment that can rival a mainframe in security, reliability, and resiliency — as well as handle general workloads in an optimized fashion — I'm going to continue to argue that mainframes are the most modern architecture for enterprise computing available today.

*I have to admit that I found it curious that I could find no Gartner documents that promoted the use of IBM's POWER servers as "more modern platforms" — especially with all of the migration activity that is taking place from Sun/Oracle and HP to POWER platforms. In IBM's first quarter, IBM's Migration Factory indicated that a total of 107 customers selected IBM Power Systems over Oracle/Sun systems, and 41 chose IBM over HP in the first quarter. (In addition, IBM's x86 multi-core System x recorded 21 migration wins — while IBM's System z recorded 16 wins — all against either HP or Oracle/Sun). This statistic is pretty interesting because it shows IT buyers moving away from "more modern" platforms to mainframes.*

### ***What Clabby Analytics Would Recommend***

Instead of taking Gartner's advice and migrating your applications from mainframes to other platforms due to a pending (but unsubstantiated) shortage of mainframe skills, you might want to do an inventory of your applications. Look closely at the threading

## Hey Gartner: Migrate to WHAT?

characteristics of your applications (the number of independent processes and their memory requirements). And also examine the impact of constantly driving messages and threads over a network (as opposed to driving them over a large, high-speed internal bus). As you consider application migration, consider these points:

- If an application is parsed into many distinct threads that can be processed on separate servers and the results can then be easily reassembled to produce a final outcome – and if each of those threads does not require greater than four gigabytes of memory to execute – then that application is a candidate for a scale-out computing design (such as x86 blades, racks, or towers).
- If an application consists of numerous, tightly-coupled threads (threaded with a threading library) and can benefit from sharing large amounts of memory, then that application should be run in a scale-up design (such as high-end Unix/Linux server environments; new, memory-rich, scale-up x86 multi-cores; or a mainframe). Memory use is important because the more data that can be placed in main memory, the faster it will get processed.
- From a network design perspective, consider the impact of deploying your applications in a distributed computing design versus a self-contained, scale-up design. If you choose a distributed computing design, be prepared for increased networking costs (for hubs, bridges, routers, NICs), and increased systems/network management costs (because it takes more people to manage distributed systems environments than scale-up environments).
- Also from a network perspective consider this: computing infrastructure is standardizing on service-oriented architecture (Web services standards-based program-to-program communications). Service oriented architecture is a message-passing architecture that generates a lot of network traffic. Clogging your network with all of this traffic creates latency issues. Scale-up designs, however, have very high speed internal busses that don't get clogged — even with high volumes of message passing. Most Sun users have heavily deployed distributed computing environments. Now, during a migration, it may be time to rethink whether distributed computing is really the best design point for your data center of the future.

As you weigh your application design points, also weigh reliability, availability, and security (RAS) requirements for your applications. From a RAS perspective, both scale-up systems and scale-out blades are known to be reliable. And should a failure occur, both systems have the ability to failover either to other servers or to virtual workspaces within the same scale-up platform or blade enclosure. In the area of security, there are distinct advantages to scale-up platforms (in scale-up environments there are fewer access points that need to be guarded — and also, less data is sent over a network where it has the potential to be intercepted).

Also consider manageability if you chose to migrate from a mainframe to another architecture. From a manageability perspective, it can be argued that having fewer servers to manage is easier than having many servers to manage. And as proof, consider that large,

## Hey Gartner: Migrate to WHAT?

scale-up mainframes require significantly fewer managers than scale-out environments consisting of hundreds of servers.

### *Summary Observations*

For those who read Clabby Analytics research reports on a regular basis, you know that we believe that the midrange and high-end server markets are consolidating around three architectures: x86 multi-cores, IBM POWER, and IBM z. We have reached this conclusion for a number of reasons, including:

- The ascendancy of Xeon multi-cores into the midrange and high-end;
- The impending collapse of the Itanium ecosystem;
- Migration trends in the Sun UltraSPARC platform base;
- The strength of the new version of IBM's POWER architecture (POWER7); and,
- The strength of IBM's System z mainframe environment (mainframes operate several of the world's largest economies and drive several of the world's financial and retail systems — mainframes are going to be with us for a long, long time).

And for readers who are familiar with my reports, you know that I strongly advocate the use of mainframes in situations where high-availability, business resiliency, and security are of paramount importance. Further, I recommend mainframes for handling data-intensive workloads as well as for performing massive amounts of transaction processing.

I do acknowledge, however, that there are situations where moving applications off of a mainframe is appropriate:

- Your workload has decreased and you can't keep the mainframe fully burdened (mainframes are workhorses – and to maximize ROI you need to keep them running at greater than 70% of capacity). If you can't keep your mainframe busy, another alternative (like an HP Integrity server, or an IBM Power System, or a Sun UltraSPARC system) should possibly be considered.
- You are running an old mainframe; haven't updated your hardware for years; and are paying increased maintenance costs (“more modern” servers look very attractive under these circumstances [but remember to compare a more modern mainframe to these servers]);
- Your company has been acquired and wants a uniform information systems infrastructure;
- You have found suite of applications that your company likes – and that suite doesn't run on mainframe architecture; and/or,
- IT management has a distributed systems bias (i.e. — they like to deploy, manage and tune distinct application servers, database servers, mail servers and so on. Some IT buyers like to design their Unix/Linux-based around dedicated servers and then focus on raw performance).

I do not, however, agree in any way, shape or form with the contention that moving applications off of a mainframe due to an alleged, impending skills shortage is a good idea. Nor do I believe that migrating to certain “more modern platforms” without close scrutiny

## Hey Gartner: Migrate to WHAT?

of an application's design and RAS requirements is a good idea. I would like to see Gartner withdraw its advice to move off of mainframes due to an alleged, impending skills shortage or substantiate that skills shortage will indeed occur. And as for "more modern" platforms, I'd like to know specifically which "modern platforms" Gartner is advising its clients to move to (and I sure hope they're not suggesting Itanium and UltraSPARC)...

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May, 2010

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