



CounterOpinion

The Mainframe Skills Shortage Urban Myth: Clabby Analytics Investigates

Introduction

Clabby Analytics is an information technology (IT) research and analysis firm that produces research reports and opinions that we base on customer case studies and our competitive analysis. Unlike a lot of research and analysis firms, however, we tend to overtly take sides and advocate for positions that we believe in. We don't pretend to be unbiased — in fact we have very clear biases toward centralized mainframe architecture, scale-up Unix/Linux architectures, and blade servers. Our research reports advocate these positions, and we encourage our readers to consider what we have to say — read what other research analysts have to say — and then arrive at their own opinions and conclusions.

What Gartner Is Saying

In this *CounterOpinion*, we challenge the advice and opinions of the Gartner Group, a well known and highly respected IT research and analysis firm, on the subject of IBM System z (mainframe) migration.

In March, 2007, Gartner put forward research suggesting that, due to the aging of the current generation of System z managers, mainframe customers might someday find themselves short of the skilled labor they need to manage their systems. As a result, Gartner recommended that organizations might want to consider moving from mainframes to other, “more modern” platforms. (This opinion is still available on the company's web site — search for the “Impact of Generational IT Skill Shift on Legacy Applications” [document ID number: G00146492]).

Since that first report, Gartner has published other reports suggesting that enterprises reevaluate their application portfolios — and move various applications to (again) “more modern” platforms. (Note: Gartner never quite articulates which more modern platforms it is talking about...).

Clabby Analytics has two major issues with Gartner's perspective and advice:

1. Where is the proof that there has been/will be a major decline in mainframe skills that should cause IT executives to abandon their mainframe platforms? And,
2. Which “more modern” platform(s) does Gartner have in mind?

In this *CounterOpinion*, I (Joe Clabby) concentrate on Gartner's skill's shortage claim. This will be followed in short order with a look at Gartner's suggestion to move to a more modern platform.

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The Alleged Mainframe Skills Shortage

When Gartner published its original recommendation in 2007, I was frankly appalled. The first question I asked then was: “Where is the research that substantiates this claim?” Sorry to say I have still not seen Gartner’s proof of a potential mainframe skills decline, and so far as I know, Gartner has not provided any such research.

However, after the original report was published, I undertook my own research study on this topic and published a counter opinion that can still be found at:

http://www.clabbyanalytics.com/uploads/The_Alleged_Mainframe_Skills_Shortage_Final_Final.pdf

In researching this report, I talked to IT executives, IT placement personnel (headhunters), college professors, students, and IBM about the alleged skills shortage. What IT executives told me is that, as they have for many years, they are training employees inside their organizations in mainframe skills — and outsourcing certain workloads elsewhere. What headhunters said in essence was “if you think there’s a shortage of skills in the mainframe world — you ought to check out the skills shortage in Java and Linux” (in other words, there’s a skills shortage across the entire IT industry — including on those “more modern platforms” that Gartner is recommending that you move to).

What the college professors told me is that mainframe training is on the rise — and that the number of students enrolled in mainframe curriculums has risen sharply. I have since learned that since 2005, the number of students enrolled in mainframe coursework has risen five-fold from 10,000 to 50,000! Additionally, the number of educational institutions offering mainframe skills training has risen from 213 to 640. I recently talked to a few recent college graduates who are working in mainframe environments — and they told me that they are making very good salaries (in the \$60,000 per range) considering their relative lack of experience.

All of these examples indicate that the impending-doom skills shortage Gartner alleges is coming IS NOT FORTHCOMING.

But, to a purist, this data can be considered “soft” because it was conducted with a fairly small group of respondents. So I recently visited IBM’s Somers, NY facility (a location chock-full of individuals who understand this issue) in search of “harder” facts.

A Visit to IBM in Somers, NY

In Somers, I met an IBM Distinguished Engineer (with more than 70 patents to his name) who has been trying to size-up this situation. I was delighted to see that, on his first slide, he had labeled this mainframes skills shortage an “urban legend” because I had reached the same conclusion in 2007 (only I refer to it as an “urban myth” — something that makes sense on the surface but has no basis in fact).

As for its source, the IBM engineer observed that certain IBM competitors, such as HP, Microsoft, and Oracle encourage this legend. (He did not, however, identify the role of certain research firms in encouraging this legend...). He also acknowledged that the

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mainframe skills legend has some believers amongst IBM clients and in the 3rd-party community.

He framed his argument against the mainframe skills shortage myth with a series of hypotheses, starting with the idea that *there is no particular skills shortage on System z mainframes as compared with IT skills in general* — and observed that some IT executives believe:

- Current z skills employees were all hired in 1975;
- Learned MVS System Programming, JCL, PL/1, COBOL, CICS, IMS, Assembler, and DB2;
- Skills are all in US and Canada, Western Europe, Japan, and Australia; and,
- In 2010, after 35 years all people with these skills will retire and there will be none left.

He looked at each of these beliefs more closely and found that new people with z skills have been steadily coming on-line, particularly from 1996-2009, starting with the Y2K code clean up, to replace aging mainframe managers. He also observed that one reason this steady growth may be going unnoticed is that many people with new mainframe skills are coming online in geographies, such as India and China, where massive “off shoring” is taking place. (You will see later in this article that the number of mainframe skilled individuals in these geographies numbers in the hundreds of thousands).

In conducting his research, he also found that:

- The skills in these geographies also include z/OS System Programming, JCL, PL/1, COBOL, CICS, IMS, Assembler, and DB2 (the skills that are allegedly going away as the old gray-hairs retire);
- Mainframe skills sets have expanded to include Java, Applications Servers and Business Process Management, Business Intelligence, z/VM and Linux, IDEs, Operations Automation;
- Large “skill pools” have formed in India, China, Brazil, Russia, Mexico and other countries;
- There are available skills in all job markets;
- Off-shoring has made skills available to the “old” markets (in other words, North
- American mainframe executives can take advantage of mainframe-skilled labor without having to have that labor in residence);
- Market dynamics have made skills available in the “new” markets (in other words, the excellent salaries that can be earned by managing mainframes has attracted a new generation of mainframe managers); and
- The Y2K issue demonstrated that spending will drive skills availability (in other words, if there is a need, IT executives invest and resources magically spring forward).

This final point is worth dwelling on a bit more. As is the case in all industries all around the world, market economics apply. IT skills obey the law of supply and demand. Accordingly, if there was indeed a shortage of skills and increased demand, the price/salaries would go up significantly. This has NOT been observed. And, from my perspective, this point significantly weakens Gartner's declining skill sets case.

Harder Numbers

The above list can be considered qualitative in nature. And what I was after was harder, quantitative facts. And I was not disappointed. According to this distinguished engineer:

- With over 10M IT professionals (as per Information Technology Association of America ITAA), and conservatively assuming 10% with z skills, there are at least one million z developers.
- To prove this point, start by considering these skill set numbers garnered from the IBM Professional Marketplace (PMP) in India (IBM's PMP is a database of people and skills supporting a dynamic business model designed to optimize the engagement staffing process).
 - IBM's Indian services organization employs thousands of computer-skilled professionals (and about 19% of individuals in this database are mainframe skilled);
 - According to an industry expert in the services business, the annual revenue (pay rate) associated with a worker in the Indian IT services business is approximately \$60K.
- Now consider that McKinsey (a well recognized research/analysis/consulting firm) projects that \$60B in software outsourcing revenue will go to go India in 2010. For details on this report see:
http://www.mckinseyquarterly.com/Business_Technology/Outsourcing_Offshoring/Strengthening_Indias
- Now assume that the \$60K salary number mentioned above corresponds to one hire. Using the McKinsey projection, this \$60B will fund 1,000,000 outsourced labor salaries in India (\$60K annual salary divided into the \$60B destined for India for outsourcing).
 - If 20% of these skills are z (as illustrated in the Indian services organization bullet point above) – there are 200,000 mainframe-skilled individuals in just India alone.
- Now assume that the “global” skills pool (including skills in Brazil, China, and other places where outsourcing is occurring on a massive scale) is equal to the size of the Indian z skills pool.

This makes the global skills pool of mainframe skilled individuals in outsourcing approximately 400,000 worldwide (200,000 + 200,000). And this is just in the outsourcing market segment — it does not include the tens-of-thousands to hundreds-of-thousands of mainframe skilled individuals operating, programming, and developing code for mainframes within enterprises worldwide.

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My personal belief is that Gartner is not considering these kinds of numbers as the company asserts that there is an impending skills shortage about to happen in mainframe-land. But, because I haven't seen any concrete data put forward by Gartner that proves there is an impending skills shortage, it is difficult for me to imagine where they're getting their data.

Summary Observations

Smart companies plan for the future, including the replenishment of critical IT skills. So it should not be surprising that when IBM surveyed several major mainframe companies, those companies all had active programs to recruit or retrain IT talent for the mainframe — sometimes in conjunction with IBM and/or by hiring from IBM's Academic Initiative partners.

In fact, *Clabby Analytics* asserts that mainframe skills can be obtained using the following sources:

1. New hires as driven by IBM's major academic initiative;
2. The training of internal IT staff to manage mainframe environments (*Clabby Analytics* sees this a lot when we visit mainframe shops);
3. Skills for hire from IBM Lab Services (IBM Software Group and Hardware Group services); and,
4. Services provided by 3rd parties and outsourcers (including IBM Global Technology Services and Global Business Services).

Another important point is that because of their remarkable reliability and resiliency, mainframes require fewer laborers (unlike some “more modern” platforms). Mainframe management tools and utilities have been perfected and honed over the decades that mainframes have been in existence. And new, graphically driven tools and utilities are constantly being developed for mainframe environments that make it possible to use fewer managers than ever before. These tools are helping drive the number of people needed to manage a mainframe **DOWNWARD**. Plus, new, graphically driven user interfaces are attracting “the younger crowd,” filling the mainframe ranks with students and other youthful and ambitious IT pros that will be around to manage mainframes for a long, long time.

As for Gartner's assertion that an alleged mainframe skills shortage warrants migration to other more “modern platforms,” I suggest IT managers may be better served by **MOVING TO A MAINFRAME** rather than away from one. We'll consider this “which platform to migrate to” point in our next *CounterOpinion* installment.

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