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Gartner CIO Update: The FUTURE of the IBM MAINFRAME LOOKS SURPRISINGLY GOOD

By John R. Phelps

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CIOs are always interested in insights on how centralized and distributed servers will likely evolve over the coming years. Some pundits predict the imminent death of the mainframe, but growing indicators from Gartner research, surveys and client feedback point to continued investment in, and resiliency of, the IBM mainframe platform.

PREDICTIONS OF GLOOM AND DOOM FOR THE MAINFRAME

Throughout the past 15 years, specific events have occurred that triggered stories of the pending death of the mainframe, yet it still survives. In the mid-1980s, the movement to distributed client/server platforms and the associated high hardware costs of the mainframe ECL (emitter-coupled logic) technology led many to believe the mainframe was on borrowed time. The movement to CMOS (complementary metal-oxide semiconductor) technology, however painful and slow in development, enabled the hardware costs to improve dramatically. This, combined with the availability, reliability, security, scalability and manageability of the mainframe platform and the large investment in legacy applications, allowed it to continue to play a major role in large enterprises.

The growth of the Internet and

e-business became another event that led naysayers to predict the demise of the “stodgy, slow moving” mainframe platform, but the IBM mainframe adapted and provides gateways to the vast amounts of corporate data stored on the platform. IBM even developed direct support of the Web with the WebSphere product on the mainframe.

The Y2K problem again triggered stories of enterprises moving away from legacy workloads and onto other platforms. However, the time to fix the Y2K problems in mainframe applications was faster than movement to new applications on other platforms, and new investment in the mainframe continued. The exit of Amdahl and Hitachi Data Systems from the mainframe processor market again triggered rumors of the end being in sight, but IBM continued selling systems and even showed a revenue increase for the mainframe in 2001.

A PROFITABLE BUSINESS

All of the above events have taken their toll on the IBM mainframe platform, and it will not return to the days of large revenue growth and large net increases in MIPS shipped, as was the case in the 1980s (0.9 probability). That said, growing signs indicate that it will find a place that will allow it to continue to be a profitable business for IBM for at least the next 10 years—and probably longer (0.7 probability). The IBM mainframe continues to be a high-margin business that any reasonable business leader would stick with even if revenue and market share were declining, but IBM has in fact stimulated growth to increase the profits those systems can deliver.

IBM'S GOALS

Gartner believes that IBM's goal is to get to at least a level of 70 percent new MIPS growth contributed to by new application areas, and legacy growth contributing 30 percent MIPS growth. At that level, IBM believes that it will become a very sustainable and profitable platform (hardware, software, services). IBM estimates the new MIPS growth caused by new applications to be more than 60 percent and growing, as it continues to evolve the platform.

A survey at the most recent Gartner Data Center Conference indicated that many enterprises do not see the growth of new workloads to be as high as IBM reports. That is probably because the number of MIPS for new applications can be greatly influenced by the way chosen to count them, and IBM wants to show as much growth coming from new workloads as it can.

A number of indicators point to the continuing commitment to, and market for, the IBM mainframe platform.

CONTINUING INVESTMENT IN THE PLATFORM

Platforms “on the way down” drop investment in new functionality and technology. IBM appears to be shrinking investments in the very-low-end market (VSE, VM and systems smaller than 80 MIPS) to allow continued investment in z/OS and zSeries. As an example, besides the 64-bit addressing added with the z/Architecture, IBM has now committed to modifying z/OS to support more than 16-way symmetric multiprocessing by year-end 2004 (0.8 probability). IBM has also attacked other limitations, such as doubling the number of I/O channels to 512 and the number of logical partitions to 30 with plans to increase the number of logical partitions again to 60 by year-end 2004 (0.8 probability). Although total investment in the mainframe is shrinking to match shrinking mainframe revenue, IBM continues to consider the business as worthy of investment and has shifted to a smarter, more focused investment model.

NEW MAINFRAME CUSTOMERS

In 2001, there were more than 70 new customers of IBM mainframe systems, and, by year-end 2002, there were another 100 or more new customers. That is compared to approximately 30 to 35 a year in the 1990s. Although by Unix, Windows or Linux standards that is not a large number, it is a good number for mainframe systems. At the same time,

during 2002, the number of customers leaving the platform was probably more than 200.

The important factor is that the new systems ranged from 80-MIPS to more than 1,000-MIPS systems, whereas more than 80 percent of those moving off the mainframe were less than 40 MIPS, and many of them in the 3- to 15-MIPS range. IBM does not have a solution below 40 MIPS and will not have one in the future (0.9 probability), so it will continue to lose the very-low-end mainframe, which represents an extremely small amount of the total mainframe revenue. A small amount of the movement off IBM mainframes will continue to use the IBM mainframe operating systems on small systems that emulate the S/390 architecture.

CONTINUED GROWTH OF LINUX ON THE MAINFRAME

The growth of Linux on the mainframe has been a surprise to almost everyone, including IBM. Begun with a small effort produced by the IBM Germany Laboratory in Boeblingen, Germany, it grew to account for at least 15 percent of the net new MIPS shipped in 2001 and grew to more than 20 percent of the net new MIPS shipped in 2002. Much of the Linux MIPS capacity shipped in 2002 was as trials — it is important in 2003 that IBM get as many as possible of those trials to “stick.” More than 300 IBM mainframe customers have at least one Linux application in production on their IBM mainframes, and more than 400 additional enterprises are evaluating or in the process of implementing production Linux applications.

Greater than 80 percent of the Linux applications being implemented on the mainframe are infrastructure applications, such as Web, print/file and mail serving. The use of Linux in general, and especially Linux on the mainframe, for application areas such as database servers or heavy transaction servers has not yet become a significant factor. Also, a thorough total cost of ownership (TCO) analysis should be performed before committing to an active Linux-on-the-mainframe implementation plan.

LARGE-ENTERPRISE GROWTH

Another sign of continued mainframe commitment is in the big “shops” — the ones with 10,000 or more MIPS installed. They keep growing, and IBM continues to fine-tune its software pricing approach to make it cost-effective for

those customers to add new and legacy-related applications because of the attractive incremental costs.

FUNCTIONALITY

Finally, the high levels of availability, reliability, security, scalability and manageability of the IBM mainframe still form a powerful platform for large, mission-critical applications.

PROBLEM AREAS: APPLICATION PORTFOLIO, ISV ENTHUSIASM

On the downside, however, the IBM mainframe has two major problems that greatly discourage its selection as the platform of choice for new applications and new customers.

Although the IBM mainframe had a large independent software vendor (ISV) portfolio in the past, very few new applications are being developed for the platform, and many older ISV software products are not being upgraded.

IBM has attempted to address the problem with three initiatives.

- First was Unix System Services, which provides the Unix 95 application programming interfaces under OS/390 and z/OS. Although it works, it was never a large source of application porting or development, because it requires OS/390 or z/OS knowledge.
- Second has been the growing push for using Java on the mainframe, but it is still not a significant solution, although its use is growing.
- Third, the largest success has been the implementation of Linux on the mainframe, because of the ease of porting and the extra support IBM has made available to ISVs to aid in the porting. The number of ported applications is growing, although a few major infrastructure applications have had the most significant impact.

THE SOFTWARE COMPONENT OF TCO CALCULATION

One reason software costs have become a major issue is because most IBM mainframe software is priced on a capacity-based license and the mainframe runs a consolidated environment. Moreover, many ISVs with older legacy software tend to treat the platform as a “cash cow.” IBM is attempting to attack the ISV area by trying to get customers to move to equivalent IBM products that offer lower pricing models and by providing lower-priced (and lower-function) tools and utilities where it did not before have offerings.

Another software cost factor is the cost of the operating system compared to Unix — the Unix operating system cost is bundled into the hardware costs. OS/390 and z/OS provide a very high level of function but at a high cost. As an example, the price of z/OS running on a 2,500-MIPS system is approximately \$1,177,000 per year. (That price is the Workload License Charge for a 15-way 2064-115, 2,490 MIPS, 426 million service units. The Parallel Sysplex License Charge is \$1,313,000.)

OTHER PROBLEM AREAS

Several other areas of concern are staffing issues and management perception issues. As fewer and fewer people exit college with mainframe training or experience, the burden on enterprises to provide “on the job” training grows. IBM is providing some help with special college programs and providing more automation and more simplified interfaces (graphical-user-interface wizards) for operators and system programmers.

The final problem area is the perception by many executives that the mainframe is outdated and obsolete and, therefore, should be avoided.

BOTTOM LINE

- Some enterprises have valid concerns about the future of their IBM mainframe systems (application portfolio, software costs and staffing).
- However, the IBM mainframe will continue to offer significant value for many enterprises for at least the next 10 years — and probably longer (0.7 probability).
- Enterprises should continue to closely evaluate platform choices based on the total value offered for the investment made, and not on emotion. **Z**

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