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Strategic Snapshot

Mainframe Rehosting:
Stretching the Bounds of Technology or Credulity?

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INTRODUCTION

Mainframe computing may be the world's best known and, ironically, least understood technology. For the past three generations, stately ranks of refrigerator-sized mainframes have typified (often to the point of cliché) the power and potential of enterprise computing, but funny things tend to happen along the way to IT paradise. In the case of mainframes, the continuing miniaturization of computer processors and storage media, along with the explosion of Internet/Intranet technologies, have added significant amounts of computational power in the network and desktop to that already present in the datacenter. As a result, many have predicted or presumed that mainframe computing is, at best, a moribund technology significantly out of step with current IT industry trends. This assumed weakening of mainframe technologies and the ongoing evolution of other server solutions have led a number of vendors to claim that their own products offer "mainframe-like" stability and reliability. Sun Microsystems has been especially aggressive in promoting the idea of migrating IBM mainframe applications and data onto its SPARC/Solaris products through the company's "Blue Away2" rehosting program.

But while the competition actively eulogizes the traditional technologies they hope to supplant, mainframe computing has been staging a miraculous "recovery." In particular, IBM's ongoing development of its zSeries product line (successors to the venerable S/390 machines), based in part on virtual partitioning technologies and IBM's strategic devotion to Linux, has significantly enhanced the unique capabilities of the company's mainframe systems. These and other advances have led to the once improbable notion of mainframe computing becoming, once again, a cutting edge technology. Despite these events, Sun has loudly boasted of luring significant numbers of IBM mainframe customers away via Blue Away2. Is Sun's claimed success the mere tip of an iceberg of IBM mainframe customer discontent, or does it represent little more than a statistical ice cube in the greater bathtub of business technology? Have the reports of the death of mainframe computing been exaggerated or does the embrace of Sun rehosting solutions by some IBM customers indicate potentially fatal flaws in the armor of the company's mainframe computing solutions?

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Traditional/Emerging Mainframe Markets

In a sense, mainframe evolution has closely paralleled the growing needs of business users who depended on highly centralized IT environments. Mainframes do not provide the sheer number-crunching muscle of supercomputers or high-performance computing (HPC) environments, but instead support powerful, flexible, and adaptable transactional capabilities that are especially valuable for data-intensive applications and mainstream business processes in manufacturing, retail, financial, insurance, government, and other environments. Additionally, the legendary reliability, availability and security of mainframe computers has enhanced their value as enterprises have moved increasing numbers of applications and volumes of information onto corporate networks. To our way of thinking, mainframe reliability and flexibility are the primary drivers that keep so many machines in enterprise computing environments, while the adaptability and in-built security of mainframe technologies allows them to continually adjust to new or emerging business demands.

What are some of the drivers we see in this new mainframe dynamic? From a technological standpoint, continuing increases in Internet/Intranet business transactions and security needs play directly to traditional mainframe strengths. At the same time, businesses are continuing to grow their IT infrastructures heterogeneously rather than pursuing single vendor solutions. This has resulted in additional pressure on often-overworked IT employees and added to companies' budgetary woes, an especially difficult development during the current economic malaise that has led many businesses to seek alternatives to simplify IT management and better-utilize human resources. The innate adaptability and load-balancing capabilities of mainframes makes them ideal for enhancing server utilization. Additionally, IBM's virtual Linux partitioning capabilities offer a powerful solution for consolidating the workloads of scores or even hundreds of servers into a single zSeries frame, and also allows a single point of management for such complex environments.

What is Blue Away?

So if mainframes are still capable of providing users serious technological and business advantages, why is Sun offering the Blue Away program? It might be wise to understand Sun's rehosting strategy in general and then Blue Away in particular. First, it should be noted that Sun has launched previous, largely forgotten mainframe rehosting programs including Destination Solaris from Amdahl and the Sun/Oracle Mainframe Alternative Program. Nor is IBM Sun's only rehosting target, since the company is promoting a similar effort aimed at HP's Alpha customers.

Sun's current mainframe rehosting effort is actually the company's second Blue Away initiative. The first Blue Away program was promoted as a migration strategy for IBM NUMA-Q xSeries customers to Sun. If that seems a bit confusing, matters are further complicated by the evolution of the second Blue Away. Blue Away2 was first announced as an integral part of Sun's Star Fire 15k launch in October 2001, targeting large scale IBM mainframe customers which Sun identified as a $20 billion market. In May 2002, Blue Away2 was re-pitched as a rehosting solution based on Sun's Sun Fire 3800-6800 servers for IBM midrange mainframe customers, which Sun claimed to be a $1 billion market.

How Does Blue Away2 Work?

Sun's rehosting solutions consist of middleware tools that the company purchased in September 2001 from Critical Path, and which had been developed and owned by three previous vendors: Unikix, Fisher Scientific, and PeerLogic. Basically, Sun's Mainframe Transaction Processing (MTP), Mainframe Batch Manager (MBM) and 3270 Pathway allows mainframe CICS, COBOL and batch applications to be run in emulation on Sun Fire servers.

Why would IBM customers, some of whom have been faithful to IBM for decades, consider such a switch? For two reasons, according to Sun. First, the company insists that its UNIX servers offer "mainframe-like" performance and stability. Second, Sun claims that its practice of distributing Solaris freely with the company's hardware products fuels dramatically lower TCO than traditional mainframe software license agreements.

Has Blue Away2 Been a Success?

On June 25, 2002 Sun published a press release claiming that "over 500 million lines of COBOL code in more than 300 enterprises have been moved off mainframes onto Sun servers." Apparently, these are rather impressive claims and numbers, so the question is begged: is IBM's mainframe division in danger of being "Sun-burned?" Or is it the case that the marketing effort around BlueAway2 is generating more heat than light?

Mainframe-Like or Mainframe-Lite?

As usual, we love the opportunity to kick the tires and look under the hood of a vendor's claims rather than take them at face value. Hey, it's what we do. So how does Blue Away2 stand up to close scrutiny?

The Reasonable

The "500 million lines" of code mentioned in Sun's June press release may sound impressive, but we believe it represents a tiny fraction of the total amount of legacy mainframe code, which is estimated at over 140 billion lines of COBOL alone. However, we believe that the 300 rehosting clients that Sun claims to support suggests a willingness among certain classes of mainframe customers to embrace other solutions. Who are these customers?

Judging by the success stories listed on Sun's Web site, the customers who have found mainframe rehosting solutions attractive possess certain characteristics. Some are enterprises looking to replace single, often elderly mainframes (one example cited installed its system in 1976) with midrange UNIX servers. Others are companies with considerable investments in Sun technology and minimal mainframe needs. Still others are IT service providers and systems integrators who offer mainframe capabilities as part of much larger offerings. The highest level Sun servers used in these deployments are Sun Enterprise 10k machines (though their configurations are not discussed), not Star Cat 15k servers, the platform around which Sun's rehosting efforts were originally marketed. This suggests that Blue Away2 wins are coming from enterprises with aging legacy mainframe installations or minimal performance requirements, and service providers, integrators, and existing customers who see the technology as an opportunity to leverage their Sun expertise. In other words, Sun has found a sweet if limited spot for Blue Away2.

The Questionable

While we recognize the attractiveness of replacing pricey mainframe systems with lower cost UNIX boxes, at least in theory, we are far from sanguine about the technical and financial benefits Sun posits for its Blue Away2 offerings. First, "mainframe-like" is not mainframe. Despite the considerable technological improvements provided by new generations of UNIX solutions, they continue to trail mainframe systems' historic reliability, availability, and security by sizeable margins. This situation is likely to be even more pronounced in the midrange servers around which Blue Away2 is designed.

This is not meant to denigrate UNIX servers or Sun's products in particular, but given that these are being positioned as mainframe computer replacements, we take issue with Blue Away2 marketing collateral that claims more capabilities for Sun products than they may be able to deliver.

We are similarly skeptical of the dramatic savings Sun claims rehosting solutions offer over mainframe deployments. The process of rehosting mainframe applications is neither easy nor trivial, and the savings over traditional mainframe licensing costs that Sun highlights are only a part of the overall investment required. Also, since Sun depends on ISVs to deliver many of the collateral solutions for BlueAway2, it is difficult to ascertain the cost, quality, or even availability of solutions for supporting relevant mainframe development tools and languages such as COBOL, as well as operational systems management and performance monitoring tools. Additionally, Sun has no track record of supporting CICS or transaction processing environments in general, and its projections largely ignore the initial costs of training or hiring IT staff for the new Sun Fire servers, as well as the ongoing expense of maintaining these workers. Since these costs could be mitigated somewhat in enterprises with already sizeable investments in Sun hardware, it does seem that such users stand to benefit disproportionately from Blue Away2 in comparison with traditional IBM mainframe customers. To its credit, Sun provides potential Blue Away2 customers an assessment service that determines the benefits of rehosting for their organization. However, given the costs and complexities of the rehosting process, we believe that the percentage of companies which eventually decide that a Blue Away2 deployment is worthwhile is likely to be small, at best.

The Ugly

We appreciate the benefits some mainframe users might enjoy from rehosting solutions but we also must admit some skepticism regarding Sun's public claims of success. In particular, we wonder where the 300 mainframe rehosting customer wins claimed by Sun, nine months after the Critical Path acquisition was announced, came from. Rudimentary research shows that a Sun mainframe rehosting deployment typically takes from six to twelve months to complete and that only about thirty experienced rehosting employees from Critical Path came to Sun in the software deal. The evidence is that UniKix customers use a number of operating system environments, including AIX, HP-UX, and Windows as well as Solaris, undermining Sun's unique rehosting claims. Additionally, Sun has apparently adopted a policy of supporting only Solaris in its rehosting installations. While this is not unexpected, we believe that as a result many customers will re-evaluate their use of UniKix.

Overall, we believe it is reasonable to assume that a sizeable or even vast majority of the 300 customer rehosting wins Sun has claimed were likely clients of Critical Path that came to Sun by acquisition. In fact, a close examination of the Blue Away2 marketing material posted on the Sun Web site revealed that Sun's Banque Internationale Arabe deTunisie (BIAT) "mainframe rehosting success story" was originally announced in July 2000 by PeerLogic, over a year prior to Sun acquiring its rehosting tools from Critical Path. While some may see this as a smoking gun of sorts, we consider it a simple example of willful corporate hyperbole. We believe this sort of obfuscation can be particularly damaging for customers when complex technologies such as mainframe rehosting solutions are being considered. We also wonder if Sun's willingness or need to flog an out of date deal as a contemporary win betrays a systemic weakness in the company's success in selling Blue Away2.

The Modern Mainframe Value Proposition

Beyond technological overstatements and marketing hyperbole, the primary flaw we see in Sun's BlueAway2 rhetoric is the simplistic notion that mainframe computing is a stationary target. In the Blue Away2 world, turgid, stodgy mainframes burdened by overpriced licensing and service contracts and with old fashioned software are easily trumped by sleek, swift, relatively cheap mid-market Sun servers. Is this view supportable? Not to our way of thinking. In fact, from where we stand, Sun's BlueAway2 strategy is aimed at a vision of mainframe computing that is profoundly simplistic and out of date.

How does mainframe computing differ from the view presented by Blue Away2? In a very real sense, we believe that IBM has improved the zSeries product line in ways that fundamentally alter the value of mainframe solutions for customers and business processes. Among the enhancements IBM has introduced:

z800

This entry-level mainframe placed the essential capabilities of IBM's signature z900 eServer into a more affordable product model that offers full support for all S/390 operating environments including VSE/ESA and OS/390, both of which can run the latest levels of CICS Transaction Server. The z800 0A1, introduced in April 2002, offered an 80 MIPS mainframe entry point that was fully upgradeable to a z900. In October 2002, IBM introduced the z800 0E1, with a 40 MIPS entry point and IFL for Linux, so customers with lower mainframe performance requirements could easily experiment with Open Source solutions. Like the 0A1, the 0E1 is fully upgradeable to a z900 configuration. Additionally, IBM offers a downgrade path from the 0A1 to the 0E1 for customers who prefer smaller traditional engines and mixed workload environments.

z/OS 1.3 and 1.4

These new versions of the zSeries operating system include a range of improvements, including advanced digital certificate capabilities and the ability to support and run legacy S/360 and S/390 applications. IBM also provides a new z/OS licensing program (z/OS.e/ zELC) that offers more flexible usage and pricing options, along with lower cost Linux engines.

CICS Transaction Server 2.2

IBM's transaction processing middleware now includes support for Web enablement options, Java 1.3, Enterprise Java Beans, improved interoperation with DB2, enhanced performance, and a multitude of other improvements in response to customer requirements. CICS enables customers to exploit the scalability, reliability, and price/performance of zSeries and the z/OS operating system fully, to achieve highly competitive cost per transaction while ensuring the long term viability of customers' application investments.

Server Consolidation

Linux-based virtual partitioning (z/VM) has been a feature of IBM's zSeries since its inception, but the technology has found especially ready audiences among enterprises interested in server consolidation. Along with easing management and improving overall server utilization, Linux-based consolidation significantly lowers datacenter facilities costs and requirements. In August 2002, IBM introduced a comprehensive, fully-supported Solaris-to-Linux migration program.

Non-mainframe Options

While IBM has notably expanded its lower end mainframe options, the company also recognizes that some customers, especially those with limited needs or small legacy environments that they are not planning to expand, might be better served by migrating their mainframe data and applications to other IBM platforms. IBM partners Mainline and DH Andrews offer mainframe migration applications for IBM's iSeries (AS/400) platform. Additionally, Fundamental Software and UMX Technologies offer mainframe emulators for IBM's xSeries (Intel-based) servers, options that provide cost effective solutions for minimal mainframe requirements and for S/390 or zSeries test bed development. Finally, CICS/400 3.6 and TXSeries 5.0 (available on AIX, Windows, HP-UX, and Solaris) offer IBM-supported

mainframe-compatible environments which require no changes to runtime applications. CICS/400 and TXSeries also allow customers to maintain the flexibility to reverse their migration decisions in the future and consolidate workloads back on to the zSeries platform if and when that is advantageous.

What Does It All Mean?

Is BlueAway2 a serious threat to IBM's mainframe business? From what we can discern, not especially, though the limited success of Sun (previously Unikix/Fisher Scientific/ PeerLogic/Critical Path) rehosting solutions suggest that alternatives to traditional mainframe solutions do resonate among certain classes of users. We believe that such solutions primarily attract and will continue to pique interest among enterprises with limited mainframe installations or requirements, businesses with already sizeable commitments to Sun products who have minimal mainframe needs, and hosting companies and integrators that are Sun technology partners.

So, do we believe the popularity of Blue Away2 is likely to expand over time? We would argue: not markedly, and for a pair of Sun-related reasons. First, while Blue Away2 may offer some initial benefits or savings for some customers, the inherent complexity of rehosting deployments and the costs of ongoing service and support will likely nullify those benefits for enterprises that are more dependent on their mainframe infrastructures. In other words, we do not see interest in Blue Away2 expanding beyond its existing base. Additionally, Sun's refocusing of Blue Away2 around the company's mid-market servers suggests that the company realizes the initiative's limited appeal and signals Sun's intention to direct its efforts toward low-hanging fruit. Rather than addressing emerging business needs, we believe Sun's rehosting strategy is largely focused on mainframe methodologies and architectures that are becoming rapidly and increasingly outmoded. In essence, BlueAway appears to be aimed at a limited and dwindling target market.

Nevertheless, Blue Away2 is more likely to be sidelined by IBM's efforts than fail due to its own missteps, for although Sun's notions of mainframe computing may be markedly stilted, IBM's are decidedly not. The proof, as it is said, is in the pudding IBM has been cooking up over the past year. At the same time the company has been instilling mainframe self-managing and self-healing technologies through the rest of its server lines, IBM has also been driving an elemental shift in its zSeries product strategy. The result of this effort has been to deliver affordable mainframe capabilities to small- to medium-sized enterprises that would never have been able to consider traditional mainframe solutions.

Along the way, new product offerings including the z800 0A1 and 0E1, z/OS.e, z/OS 1.4, and CICS Transaction Server provide strong support and a logical migration path for the lower-end mainframe customers Sun has been gunning for with Blue Away2. Additionally, IBM's willing embrace of partners such as Mainline and DH Andrews indicate that the company understands that realistically supporting customers' needs transcends maintaining loyalty to a specific platform. These elements undermine Sun's rehosting stance and essential strategy, and provide existing mainframe customers ample reasons to maintain their affiliations with IBM rather than migrate to new pastures whose greenery is, at best, uncertain. IBM's willingness to rethink, reposition, and reenergize one of its signature product offerings is, to our mind, particularly revealing, especially in an area as tradition-bound as mainframe computing can be. Overall, we believe IBM's continuing focus on mainframe hardware and software technologies as flexible, adaptable solutions that can continue to evolve to meet emerging business needs will likely be bad news for Sun in general and Blue Away2 in particular.