Heirloom Computing Leverages Azul Prime to Replatform Mainframe Workloads as Cloud-Native Java Applications

A general trend is that many companies want to move away from having their own data center towards cloud infrastructures. Their goal is to reduce the time, effort, and capital expense of building, housing, and managing large estates of hardware infrastructure. Instead, they want the greater application elasticity, availability, and dynamic right-sizing of capacity for efficient resource utilization that a business can get by moving to a cloud-based infrastructure and software environment.

And yet, the reality is that many companies continue to run large data center operations. Why is this? In a way, they're trapped. For some sectors, for a variety of reasons related to compliance, untouchable "category zero" production use, or simply a lack of resources or ability to move away from legacy, their core business runs on a mainframe application, as it has since time immemorial; it's the beating heart of the company. Thus, the mainframe is both too valuable and too complex to move out of the centralized control and security of the on-site data center. How do you transfer a beating heart from one body to another? So it's not really surprising that two-thirds of the Fortune 100 still use mainframes.[1] And, in some industries, the percentage is much higher; for example, over 90% of the world's top 200 banks still use mainframes.[2] They're not alone. The public sector, insurance, and healthcare sectors, among others, still operate significant legacy mainframe-based infrastructures.

Mainframes have evolved over their many decades of existence (eight? nine?) to gain greatly in power and efficiency. One mainframe can process 2.5 billion transactions in a single day, the equivalent of a hundred Cyber Mondays. That's another reason why they remain a huge part of the modern data center—their sheer muscle. But at the same time, they increase both capital and operating expenses, sitting there like immovable objects, complex and mysterious, full of ancient mystic powers instilled by old-school programmers who have long since moved on, blocking the way to the more complete digital transformation that many companies desire. Thus, because of the mainframe's core value to the business crossed with its complexity, moving to a cloud-based infrastructure and software environment is one of the biggest challenges these companies face.

Enter Heirloom Computing.

Heirloom was founded in 2010 by a team of application modernization experts. Today, the company's software platform enables enterprise IT to effect true transformation that is extremely cost-effective and also delivers high-value strategic benefits. Heirloom® and Probe™ together provide a unique software solution that automatically re-platforms and re-factors mainframe workloads as cloud-native Java applications on any cloud, so they can scale horizontally with high-availability on modern infrastructures. Heirloom partners with global systems integrators (GSIs) and cloud service providers (CSPs) to implement transformative legacy modernization projects that accelerate customers' business agility.

Mainframe applications are written primarily in COBOL, PL/1, Assembler, and a long list of 4GLs as well, relics of the 1980s—as are many of the mainframe programmers themselves: industry veterans who are

[1] https://info.rocketsoftware.com/rs/532-BSI-872/images/IBM%20Z-Mainframe-Whitepaper.pdf

[2] https://www.comparethecloud.net/articles/data-centers-mainframes-and-the-rest/

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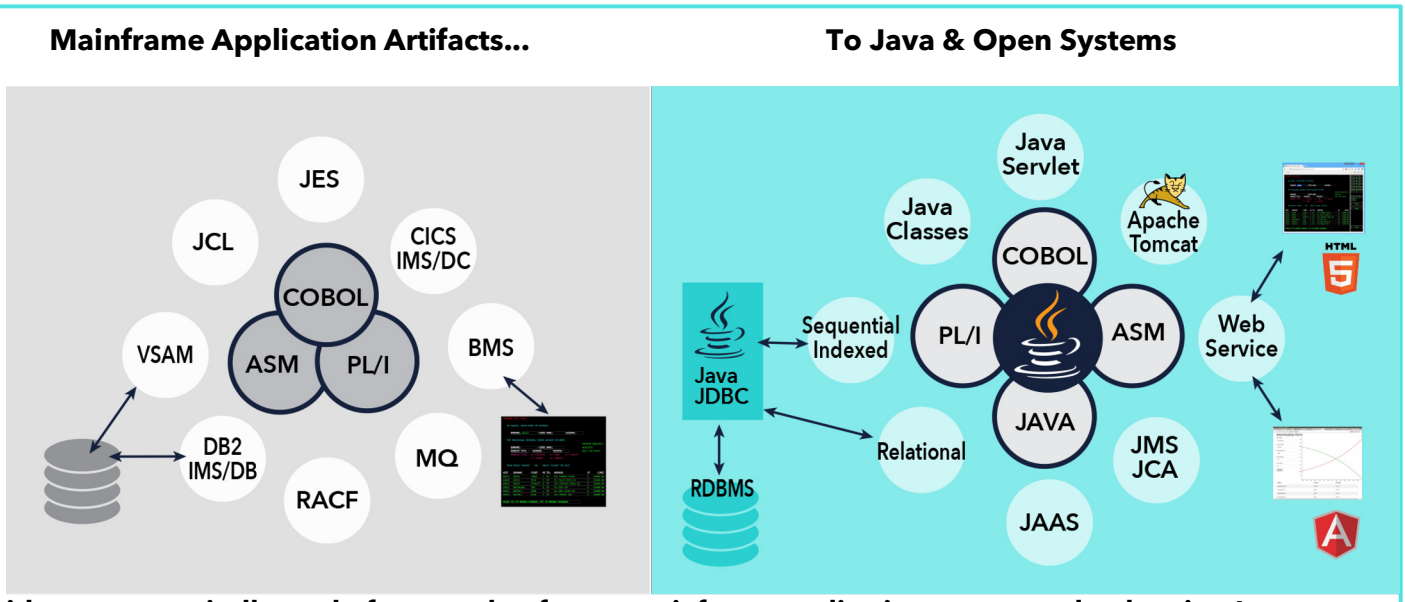

Heirloom automatically re-platforms and re-factors mainframe applications to run as cloud-native Java applications while preserving business logic and data integrity, with all subsystems seamlessly mapped to Java/open-systems equivalents. The resulting application is guaranteed to exactly match the business logic and functionality of the original application.

ageing fast. How can these legacy ecosystems be modernized for the cloud? Who will do it? Mainframe applications tend to interconnect via their data—flat files, index files, hierarchical databases, with the simplest case being integration via IBM Db2; but even migrating Db2-z/OS to Db2 LUW can be a challenge, and that's without trying to move from Db2 to a newer database like SQL Server, Postgres or Amazon Aurora. How can all those data integrations be successfully re-platformed for the cloud?

Heirloom's compiler-based technology re-factors very large complex mainframe applications built from millions of lines of code into Java to execute on a JVM, or Java Virtual Machine, which it can then push to the cloud. It only takes minutes to do this yet it faithfully replicates all the key mainframe subsystems—such as transaction processors, job control, file handlers, and resource-level security and authentication subsystems—by providing a Java framework that provides seamless mapping to an open-systems equivalent (e.g., Open LDAP for security).

In addition, Heirloom uniquely (to our knowledge) enables bimodal development, meaning that programmers, using an Eclipse IDE plug-ins, can continue work in COBOL, PL/1 & JCL (which is compiled in the background into Java code), or in Java, or in any combination of these languages; putting customers in complete control of how to best utilize their existing resources and skillsets during subsequent modernization projects.

"Our clients' mission-critical applications must run reliably, securely, and consistently. Azul JVMs, known as Azul Platform Prime, ensure that we have a solid bedrock with all three of these KPIs and these are the only JVMs we trust and recommend."

Graham Cunningham
Chief Technology Officer, Heirloom Computing

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The JVM is the de-facto platform for running mission-critical enterprise applications in the cloud. "Heirloom chose Azul Platform Prime as its preferred JVM," explains Graham Cunningham, Chief Technology Officer for Heirloom Computing, "because of three main reasons: security, reliability, and support."

- **Security.** In terms of security, all Azul products are TCK-tested and -certified. The Oracle-licensed Technology Compatibility Kit (TCK) is a suite of more than 110K unit tests which ensure that a binary build of OpenJDK meets all the specifications for a given version of Java SE; each "certified" compliant implementation carries IP rights (including a perpetual, non-exclusive, worldwide, fully paid-up, royalty-free, irrevocable license to any patent claims covering the specification) granted only to binaries that have passed the TCK. The Azul Platform supports redistribution scenarios (e.g., bundling with third-party software products, hardware embedding, and IoT use cases) with verified non-contaminating versions of Azul Zulu Builds of OpenJDK which provide needed indemnification, warranty, and assurances to fully protect customers' IP. Customers can have complete confidence that they will encounter no issues with Java licensing.
- **Reliability.** In terms of reliability, Azul Prime is the most scalable JVM on the market, delivers the most consistent execution latencies, reduces Java infrastructure costs by 50%, on average, and was found in a Forrester study to deliver 224% return on investment in three years for Azul customers.
- **Support.** In terms of support, mainframe developers are used to great support from mainframe providers, so the fact that Azul's engineering team provides the best support in the Java industry for customers' entire Java stacks, with expert problem resolution 24/7, strict support SLAs, and a 100% customer satisfaction rating for nearly two years running, provides complete confidence in the process.

This enables Heirloom's customers to have the best of both worlds: mainframe workloads that can scale with high-availability on any cloud, executing on an agile Java ecosystem.

Contact Azul
385 Moffett Park Drive, Suite 115
Sunnyvale, CA 94089 USA
+1.650.230.6500
www.azul.com

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