

Azul's Zulu JVM could prove an awkward challenge to Oracle's Java ambitions

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Azul Systems, best known for its Zing scalable Java runtime, has been introducing a new product over the past nine months. Zulu is a commercialized version of the open source OpenJDK (Open Java Development Kit), initially built at the request of Microsoft to run on Windows Azure. It has been available since January for multiple Linux implementations and other cloud services, such as Amazon AWS. It comes either as a free version or (with Zulu Enterprise) as a fully supported build. Azul's move broadens options for Java developers beyond Oracle or the unsupported OpenJDK; importantly, it will work with older versions of Java no longer supported by Oracle, as well as the soon-to-be-released Java 8. And for Azul itself, the product opens up a larger sector of the Java market. Zing is mostly used by high-end Java users that need to meet SLA guarantees or have real-time performance requirements. Zulu is for the majority of commercial Java apps, where stability, solid commercial support and more competitive pricing are the primary customer requirements.

The 451 Take

Azul is a small company, and challenging Oracle could turn out to be a daunting task. But there's little doubt that many customers will welcome an alternative source for enterprise Java support beyond Oracle itself, which ends support for older versions to fit its own schedule rather than that of its users. Will Oracle fight back? We doubt it. In reality, there's little interest in individual products down at Redwood Shores, where the focus is firmly on integrated stacks of both software and hardware.

Context

We've covered Azul's transition from high-end system appliance vendor to a pure software company in previous reports. It's much smaller today than it was at its peak as a hardware vendor, but two of its three cofounders – Scott Sellers (president and CEO) and Gil Tene (CTO) – are still at the company. Although it's raised a hefty \$207m in venture funding during the course of its 12-year life, Azul hasn't needed any more since the shift to software. The last round (\$9.4m) was completed in 2008. The hardware-independent Zing JVM, optimized for Linux, was first launched in 2010, and it's sold well into the large financial services sector (such as Credit Suisse and Wachovia) and to Web companies such as Priceline.com. Zing is derived from the software layer originally implemented on Azul's proprietary hardware (which it still supports), and includes a sophisticated memory management subsystem that fixes Java's notoriously inefficient garbage collection, runs across multiple cores, supports large memory heap sizes and provides for 'elastic' memory, enabling individual Java instances to scale both memory and CPU resources up and back down again based on real-time demand. There are also built-in diagnostic and monitoring tools.

Products

First launched in July 2013, and introduced in September as a free offering, Zulu was initially available only from Microsoft, which had partnered with Azul on its development in a bid to encourage ISVs to adopt Azure cloud services. Microsoft helped fund the product, including the funding of a new development center in Saint Petersburg, Russia, with a team of 10 headed by VP of engineering Anya Barski, who for many years helped run Sun's Java organization alongside James Gosling. Then, at the end of January, Azul introduced Zulu for multiple platforms and in two versions: as a freely available version of OpenJDK and as Zulu Enterprise – still fully open source, but a commercial build of the OpenJDK JVM sold in conjunction with paid-for support services. Zulu runs on multiple Linux builds, Windows and Amazon Web Services.

While its flagship Zing platform is for Java users on Linux platforms requiring large memory resources, low latency, and predictable and fast transaction performance – which it achieves through the addition of some proprietary elements – Zulu is fully open source. It is compatible with the Java SE specification, and retains compatibility with older versions of Java, going right back to Java 6 (circa 2006), as well as the current Java 7 edition. In marked contrast to Oracle, Azul promises to continue supporting all the major Java versions for 10 years to provide customer continuity. It offers a full set of tiered support options with Zulu Enterprise across operating system types. These include Application Guard, for which customers specify deployment targets (OS image,

kernel and processor architecture) for Azul to pretest for Java versions 6, 7, 8 and 9 (when available) – a process that typically takes about two weeks.

Strategy

With Zing, Azul trades on its deep Java expertise, as applied to the most demanding Java applications; it's typically called in when customers run into performance difficulties during a Java-based project. Once installed, Zing is a very sticky platform, and customers tend to increase their spending with Azul as their infrastructure grows. Zulu is something of a different proposition – it's a mainstream Java release aimed at the majority of enterprise Java applications. Currently, Windows implementations of JEE are stable at about 30% market share, with 10% on Unix variants such as AIX and Sun Solaris. The rest run on Linux platforms. So the broadened Zulu product represents a considerable market opportunity for Azul – particularly since there's currently little choice for OpenJDK customers wanting support for their enterprise Java applications other than Oracle itself. The tiered support option is one of the key areas where Azul will be differentiating itself from the competition. It's still early days for enterprise Java in the cloud, but Azul plans to add further platforms, with Rackspace – and, by implication, OpenStack – next on the list.

Azul's biggest challenge will be learning how to sell its Zulu products and services. For Zing it could easily identify all of its potential customers and sell to them directly, with a great deal of hands-on assistance. Zulu requires the building up of channel partners and general market awareness. Bundling partnerships with ISVs and platform-as-a-service providers will be another way of reaching the market. However, its existing user base of large customers will be the first port of call – it's likely that they will see benefits in mixing and matching Zing and Zulu (the latter for less-demanding applications and branch-office installations) with umbrella support across the two.

Competition

As with other parts of the businesses it acquired from Sun Microsystems, Oracle has worked hard to eliminate unprofitable product lines and to maximize its profits from those that have survived. With Java, Oracle's strategy has been to issue frequent new releases of Java, end-of-life earlier versions and then charge for continued support – a model it perfected with MySQL. Azul's model threatens this by providing lower-cost support and by not forcing the pace of upgrades. And Azul offers server-based pricing rather than Oracle's more complex processor-based pricing, which inevitably goes up as servers are upgraded or replaced with newer versions. Zulu is also available for licensing to ISVs to embed in their products – and it's likely to be easier for ISVs to negotiate flexible terms with Azul compared with Oracle. The Java SE 8 specification and the commercial

release of OpenJDK 8 are expected on March 18. It's likely that Java 7 will be scheduled for end-of-life (and support) around this time in 2015.

IBM and Red Hat both provide some alternative to Oracle. Red Hat's IcedTea OpenJDK build for Linux, first issued in 2007, was aimed at filling in the gaps that otherwise prevented a fully free version of OpenJDK from being built. Red Hat also needs its own Java runtime for JBoss. IBM has developed the J9 VM as the basis for its own JDKs, for Power and mainframe platforms, and for use with its own WebSphere application server. J9 was contributed to the now discontinued Apache Harmony open Java project. IBM Research Labs has a number of Java projects on the go, including the development of cloud-based JVMs. Startup Waratek has been making noise over the past few years about its Java virtualization technologies.

SWOT Analysis

Strengths

Azul has the strongest team of Java experts outside of Oracle/Sun itself. It's been working on resolving high-end Java performance issues for the past 15 years.

Opportunities

The installed base of Java applications is still huge, but many customers have been irked by Oracle's efforts to force them to upgrade to the latest version. Azul offers a breathing space.

Weaknesses

Azul has typically sold directly to a relatively small number of very large Java enterprise customers, and has enjoyed the luxury of high-touch sales. Zulu will require new indirect sales channels.

Threats

If Oracle notices any impact on its efforts to monetize Java, it may make things difficult for Azul, although the open source model provides some protection.

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