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Azul Platform Prime: The best JVM for Java Workloads

Reduce Infrastructure Costs With Azul Platform Prime

Today, Java is ubiquitous across the enterprise, the ideal choice for development, DevOps and operations teams worldwide.

Azul Platform Prime builds upon Java's advantages by delivering a robust, highly scalable Java Virtual Machine (JVM) that provides great ROI and reduce infrastructure spending to run existing workloads through greater carrying capacity, lower latency, and elimination of garbage collection-related outliers. Supporting newly-developed microservice-based applications in addition to long-running legacy systems, Azul Platform Prime is the best JVM choice for **all** Java workloads, including online retail, SaaS or Cloud-based deployments, insurance portals, multi-user gaming platforms, or Big Data. Azul Platform Prime is also widely deployed in low-latency trading systems – and ensures smooth operation anywhere predictable, glitch-free Java is essential. Azul Platform Prime is proven with Kubernetes and in Docker and LXC containers, too.

Azul Platform Prime

Azul Platform Prime is a better JVM. Period. With Azul Platform Prime, Java applications simply show better runtime behavior and help you meet interactive and machine-machine SLAs.

Azul Mission Control
When coupled with open source Flight Recorder technology, Mission Control delivers low-overhead, interactive open source monitoring and management capabilities for Java workloads.

ReadyNow! Technology
Solves Java warm-up problems.

C4 Garbage Collector
Continuous, concurrent, and consistent operation.

Falcon JIT Compiler
Modern, modular server tier compiler leveraging LLVM.

> ***"With Azul Platform Prime, we reduced our front-end server footprint by 30%, which is hundreds of servers, and our database server footprint by 50%. This translates into millions of dollars in savings, both hardware we freed up and hosting costs avoided."***

Ariel Pizetsky
VP of IT,
Taboola

Azul Platform Prime enables Java developers to make efficient and effective use of server resources or VM instances -- without the random stalls, pauses and jitter that have been part of Java's heritage. Azul Platform Prime also solves Java "warm-up" problems that can degrade performance at the start of trading or other time-sensitive operations. With improved memory-handling and a more stable, consistent runtime platform, Java developers can rely upon Azul Platform Prime as they build and deploy richer applications, driving new revenue streams and supporting new innovations.

Whether your application requires human-scale response times or is machine-scale, measuring peak response time in microseconds, Azul Platform Prime allows you to meet even the most demanding service level agreements without re-architecting or depending upon JVM tuning experts -- helping you take advantage of new business opportunities faster and with lower operating cost

Inside Azul Platform Prime

At its core, the Azul Platform Prime Java Virtual Machine comprises such unique components as C4 garbage collector, Falcon compiler, and ReadyNow! technology.

- Azul's Continuously Concurrent Compacting Collector (C4) eliminated the "stop-the-world" garbage collection (GC) pauses that limit the scalability of legacy JVMs like Oracle's HotSpot and garbage collectors built into OpenJDK

Azul Platform Prime Advantages

- 50% reduction in TCO vs. other Java platforms
- Easy to install, no kernel module, nor root privileges required. More container friendly
- Supports Java heaps up to 20 TB, reducing or eliminating the need for off-heap technologies
- Delivers a better user experience
- Scales rapidly, with sustained memory allocation rates beyond 30GB/sec
- Removes Java Garbage Collection pauses as a factor limiting your business

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- Azul's Falcon Compiler leverages the LLVM compiler engine, for rock solid performance.
- Azul's ReadyNow! and compile stashing technologies are built into Azul Platform Prime to improve Java applications to start fast and stay fast, even across reboots.

For production instance monitoring, Azul Platform Prime ships with Java Flight Recorder and readily integrates with Mission Control. Azul Platform Prime is simple to install and requires no coding changes to existing applications. You don't need to recompile. Because Azul Platform Prime has been optimized for today's servers, configuration and setup are typically reduced to just a few parameters, instead of the myriad of JVM tuning flags necessary to reach peak performance that characterize many Java-based production environments. Simply point your application or startup scripts to Azul Platform Prime, and you're running on the most robust, scalable JVM with the fastest time-to-market for any business application.

Azul Platform Prime Features

- Ships as part of a complete JDK -- easy to get started, easy to use
- Azul Platform Prime supports Java SE 15, 13, 11, or 8
- Eliminates the stalls, jitter, and latency outliers caused by Java Garbage Collection
- Unique garbage collector technology: Azul C4 (Continuously Concurrent Compacting Collector)
- Optimized for 64-bit Linux on x86
- Choose the Java memory configuration and heap size you need, from 512MB to 20TB
- Optimistic Thread Concurrency for CPUs supporting hardware transactional memory
- Quarterly and as-needed security-only Critical Patch Updates
- Azul-optimized Falcon server-tier JIT compiler
- ReadyNow! technology plus compile stashing technology resolve Java "warm-up" problems
- Improves operating metrics even when used in zero-Ge environments and frameworks
- Supports JVM languages beyond Java (e.g., Scala, jRuby, and others)
- Try Azul Platform Prime hassle-free -- download from http://www.azul.com/products/prime/trial-download/

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Ted Boehm
Chief Platform Architect,
mastercard

Azul Platform Prime Management and Diagnostic Tools:

- Ultra-low-overhead Java profiling and analysis
- Debug performance and resource consumption issues on running JVMs in production. No need to stop/restart them
- Supports Azul Zulu and Azul Zulu Prime Builds of OpenJDK 8 and OpenJDK 11
- Save all the fine-grained information of the JVM execution during a specified period of time to a separate log file with Flight Recorder
- In-depth analysis without the need for physical presence on the site for additional data collection
- Automated summaries and custom scripts
- 100% Open Source
- Java Flight Recorder and Azul Mission Control are free for use

Azul Platform Prime Advantages Cont.

- Minimizes JVM and application tuning for faster time to market
- Optimized for x86/64 servers and all major Linux distributions
- Takes full advantage of the large memory and multiple CPU cores available in today's servers
- Eliminates response time and latency outliers
- Starts fast and stays fast-solves 'warm up' issues

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Selected Azul Platform Prime use cases:

- Java-based infrastructure: Cassandra, Kafka, Zookeeper, Hadoop, Spark, Feedzai, Elasticsearch, Lucene, Solr, Hazelcast, JBoss Data Grid, GridGain, Tomcat and many more
- AWS, Microsoft Azure, Google Cloud Platform plus private and hybrid Clouds
- Big Data platforms and in-memory data grids
- Low latency trading, fraud detection, large-scale online gaming, advertising networks
- Complex event processing, real-time messaging, web-scale IT, and search
- Online retail
- SaaS deployments

Supported Platforms

Processor

- Intel: Xeon server class processors released 2009 and later
- AMD: Opteron server class processors released 2010 and later

Memory and CPU Cores Recommended

- 512 MB or more
- 2 cores or more

Supported Operating Systems

- 64-bit Linux (x86-64bit) architecture
- Red Hat Enterprise Linux/CentOS 7.3 or later
- CoreOS 4.13.16
- CentOS 6-8.3
- SUSE Linux Enterprise Server 12 SP3 or later
- Oracle Linux Server 7 or later
- Ubuntu 16.04 LTS or later
- Amazon Linux 1, 2
- Debian 9 (Stretch) ,10 (Buster) or later

Supported Java Versions

- Java 15, 13, 11, and 8

Contact Azul

385 Moffett Park Drive, Suite 115

Sunnyvale, CA 94089 USA

+1.650.230.6500

www.azul.com