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Oracle GraalVM Enterprise Edition powers cloud infrastructure for Oracle NetSuite
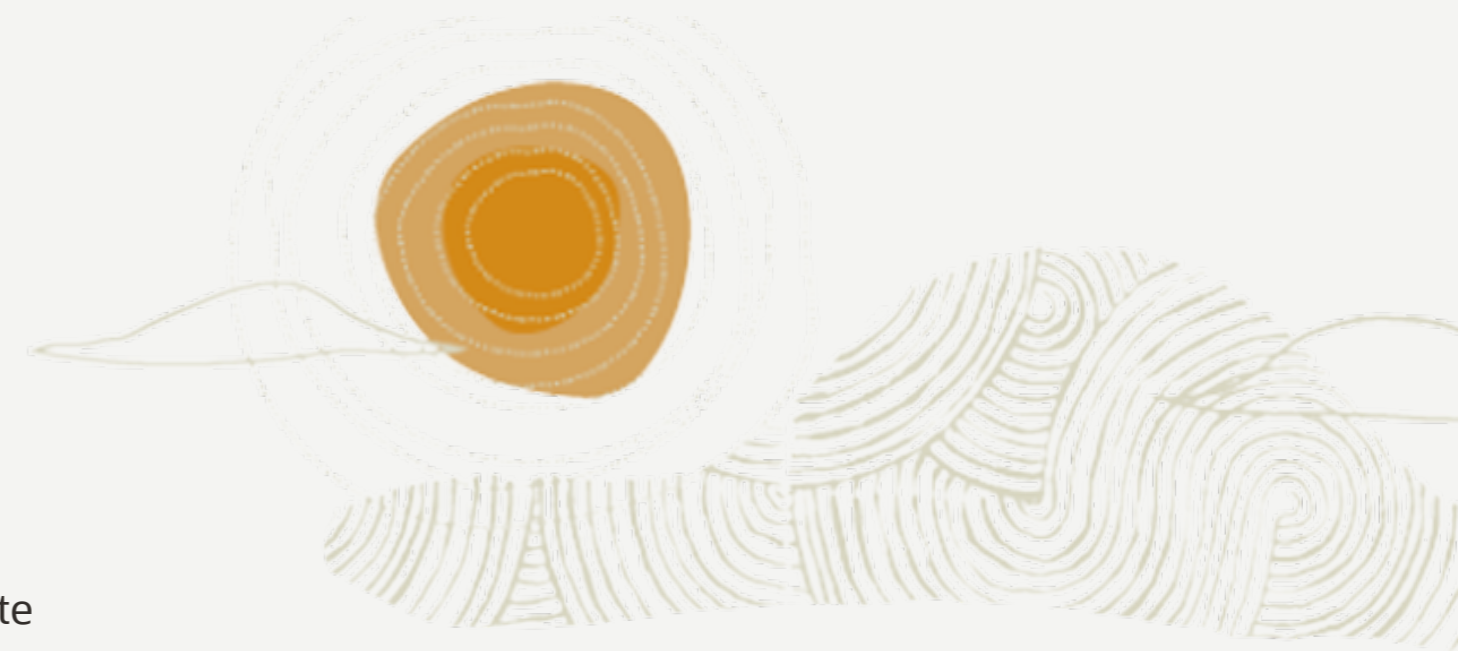
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NETSUITE

Oracle NetSuite is the world's leading provider of cloud ERP software, providing a unified suite of applications that includes ERP/financials, CRM, and integrated commerce and more.

Used by over 21,000 customers worldwide, NetSuite enables organizations across a wide range of industry verticals such as retail, manufacturing, distribution, services, software, nonprofit, and advertising to automate core processes and provide real-time insights into operational and financial performance.

The NetSuite technology stack runs on Oracle Java SE and Oracle Database deployed in Oracle data centers across the globe. With the move to Oracle Autonomous Database on Oracle Cloud Infrastructure (OCI), NetSuite Cloud Infrastructure is expected to further leverage advancements in scale, performance and high availability.

Oracle NetSuite SuiteCloud Platform

The SuiteCloud Platform is used by customers and partners to customize, integrate and extend NetSuite to realize application functionality that is unique to their businesses. SuiteCloud's unified collection of technologies and development tools includes metadata-based extensions, JavaScript API's, integration services, process automation tools, point-and-click administration, and more. Customizations built and deployed on the Platform automatically carry forward with every new product release, ensuring that customers are never subject to version lock.

NetSuite Technology Stack

SuiteApp Applications for Your Business						

SuiteCloud Extensibility Layer

Admin and Configuration | Custom Fields, Forms & Records | Workflows and Process Automation | Workbooks, Search Reports | JavaScript Development | DevOps, Frameworks | Integration APIs

ERP | Commerce | HCM

Unified Metadata

Cloud Infrastructure and Services

Key benefits of the SuiteCloud Platform

- Leverage open RESTful web services for easy integration with any data source or external business system

- Build customizations based on powerful APIs with access to any underlying data element or resource

- Harness the latest JavaScript standards to customize business logic and build powerful applications

- Create complex workflow-driven processes to streamline and automate common business tasks

- Run your business across multiple geographies and languages to create an experience that is truly local
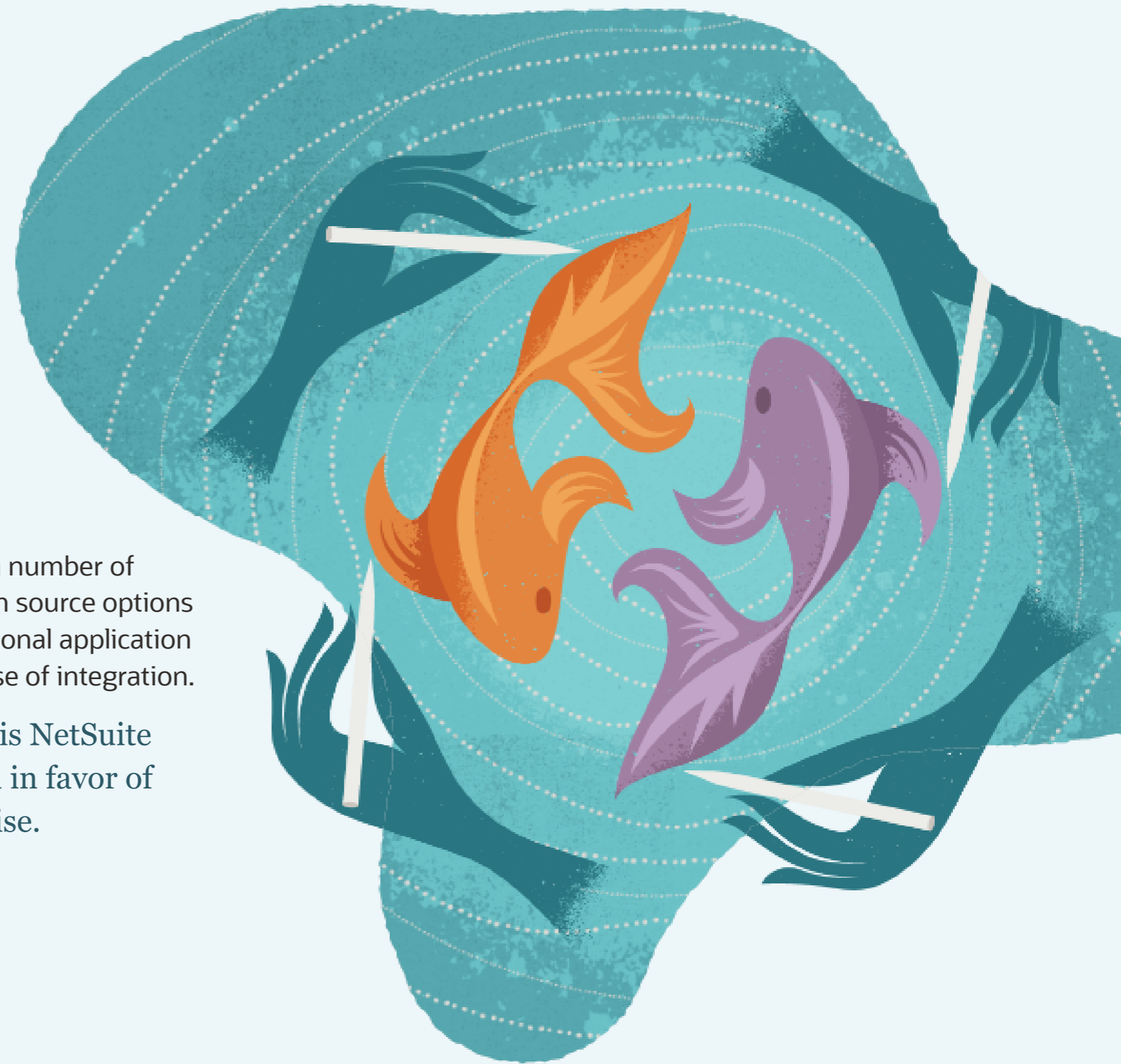
SuiteScript language and API's

The SuiteScript customization language is a core element of the SuiteCloud Platform that provides a JavaScript-based extensibility layer allowing developers, partners and ISVs to customize NetSuite, and create powerful applications.

In an endeavor to deepen native customization, development and Platform integration capabilities, the SuiteScript product team was faced with a unique challenge: Choose a runtime engine that not only provides an embeddable JavaScript interpreter, but also ensures ongoing ECMAScript standards compliance. The latter was especially important as all SuiteScript customizations should never require refactoring, thus ensuring a frictionless upgrade with every new product release.

The team looked at a number of commercial and open source options for delivering exceptional application performance and ease of integration.

In the final analysis NetSuite made the decision in favor of GraalVM Enterprise.

NetSuite adopts GraalVM Enterprise

To meet their challenges and power the latest version of the SuiteScript language and API catalog, the NetSuite team is adopting the GraalVM Enterprise JavaScript runtime. Over time, it will completely replace the legacy JavaScript engine.

GraalVM offers an ECMAScript-standards compliant JavaScript engine, optimized to execute application code with exceptional performance. The engine can be effortlessly configured to support the ECMAScript Internationalization API.

GraalVM Enterprise modernizes the core components of the NetSuite cloud infrastructure, and delivers ongoing standards conformance. This benefits any customer or partner developing in SuiteScript verion 2.1 to enjoy full support for the latest JavaScript language specifications, now and in the future.

Adoption proved straightforward. GraalVM was easily integrated into SuiteCloud prototype environment. Going from research to beta and then full production was achieved in less than a year.

Ease of integration was not the only benefit that the team realized. A more powerful JavaScript runtime also improved utilization efficiencies of infrastructure resources dedicated to SuiteScript workloads. That meant better application response time and increased transaction throughput at lower cost.

Oracle GraalVM Enterprise Edition

GraalVM Enterprise is a high-performance runtime that yields significant improvements in application performance and efficiency. These benefits are further evidenced in cases where applications are developed using multiple programming languages. By providing an innovative runtime that delivers enhanced competitiveness and accelerates application modernization, GraalVM Enterprise is simply the best solution for building microservices, both on-premises and in the cloud.

Key benefits of GraalVM Enterprise

Accelerate application performance

Backed by a decade of research into advanced optimizing compiler technology, GraalVM Enterprise provides a high performance Just-In-Time (JIT) compiler that accelerates the performance of any Java or JVM-based application – without any code changes!

Reduce infrastructure resource consumption

Applications that run faster free up CPU and memory sooner making it possible to service more requests with the same computing infrastructure.

With its Ahead-Of-Time (AOT) native image compiler, GraalVM Enterprise translates Java and JVM-based applications into native platform executables. These native platform executables are smaller, start nearly instantaneously, and consume a fraction of the resources of an equivalent Java application running on a traditional JVM, making them ideal for modern microservices architectures.
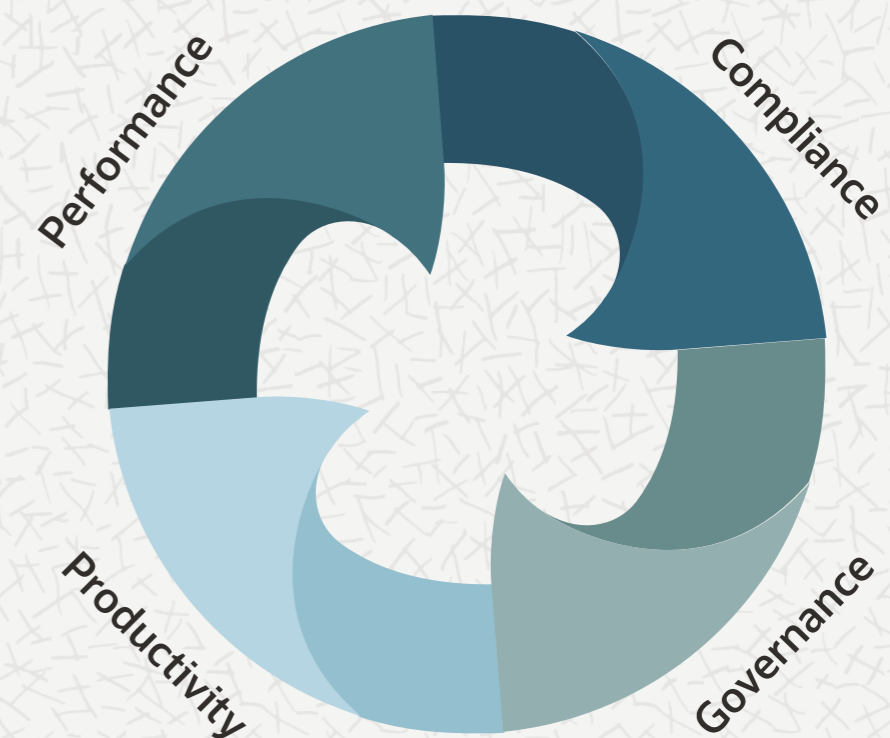
Multi-language support

In addition to JavaScript, GraalVM Enterprise also supports efficient execution of other languages such as Ruby, R, and Python, and provides full support for the Node.js server framework. By allowing different languages and libraries to interoperate with no performance penalty, the runtime fundamentally improves productivity by letting developers select the right language or library for a given task, and reduces the amount of time required for code, test, and deploy phases. This drastically simplifies application design while reducing system memory and CPU utilization.

Key to GraalVM Enterprise's polyglot support is language compliance. For each of the supported languages, GraalVM Enterprise strictly adheres to the specification for each language and fully complies with compliance test suites to ensure compatibility.

Built on enterprise-class Oracle Java SE

GraalVM Enterprise provides significant performance benefits for Java applications and is built on proven Oracle Java SE. GraalVM releases include all Oracle Java critical patch updates (CPUs) which are released on a regular schedule to remedy defects and known vulnerabilities.

Business impact

Language specification compliance

GraalVM Enterprise enables the SuiteCloud stack to maintain standards compliance commitment to its customers. The latest version of SuiteScript (v2.1), powered by GraalVM Enterprise, supports ECMAScript compatibility to ES2019 and beyond.

Enhanced application performance

GraalVM Enterprise's JavaScript engine executes applications with higher performance.

- When executing pure JavaScript code, SuiteScript 2.1 is up to 4 times faster than SuiteScript 2.0

- Module loading times in SuiteScript 2.1 are up to 50% faster than SuiteScript 2.0

- Initialization of fresh scripting scope in preparation to run user code is upto 70% faster in SuiteScript 2.1 when compared to 2.0

Enhanced developer productivity

Move to GraalVM Enterprise allows SuiteScript developers to write more maintainable and idiomatic JavaScript code, not possible with previous versions.

Enhanced governance

GraalVM's out of the box governance capabilities allows NetSuite to run less-trusted code more securely and limit monopolization of resources.
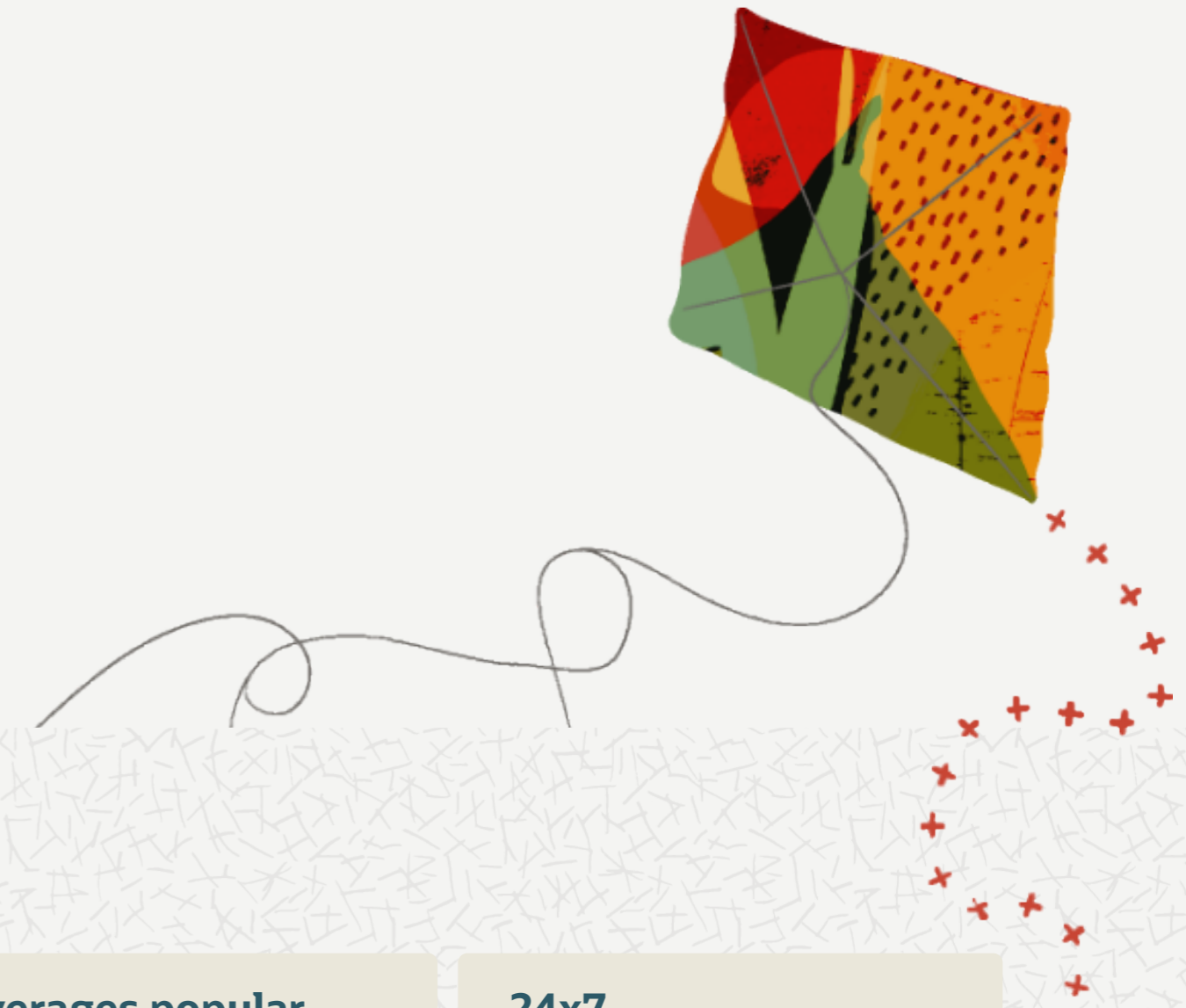
Conclusion

GraalVM Enterprise significantly augments the modern application development landscape, laying the foundation for innovation for both large monolithic enterprise applications as well as microservice-based approaches. The runtime is being integrated into the Oracle Database to provide multilingual support for stored procedures, and to enhance functionality for full stack developers. Ahead-Of-Time compilation provides significant performance benefits for microservices and is supported by all leading frameworks including Micronaut, Helidon and Spring Boot.

With its unique set of capabilities, GraalVM Enterprise offers both quantitative and qualitative benefits, future-proofing your enterprise application architecture.

Key benefits of GraalVM Enterprise:

Speeds up application performance up to 55% without any code changes	Starts up native image compiled applications up to **100x faster** and consumes 5x less memory	**Reduces costs** through higher efficiency of memory and CPU utilization	**Leverages popular libraries** and frameworks from any supported language	**24x7** Oracle Premier support

Get Started with GraalVM Enterprise

- Learn more about GraalVM Enterprise →

- Download GraalVM Enterprsie for evaluation from the Oracle Technology Network →

- All documentation for GraalVM Enterprise is available on the Oracle Help Center →

- **GraalVM Enterprise licensing and support is included in Oracle Cloud subscriptions.**

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