ProductDock

Architecting Modern Spring Applications

Njegos Dukic, February 2025.

Agenda

01: Event sourcing

02: RAG

03: GraalVM

Part 1: Event sourcing.

What is?

- **Event Sourcing** is an architectural pattern where all changes to an application's state are stored as a sequential series of immutable events.

- Instead of persisting only the current state, **every state-changing event** is recorded, allowing reconstruction of past states by replaying these events.

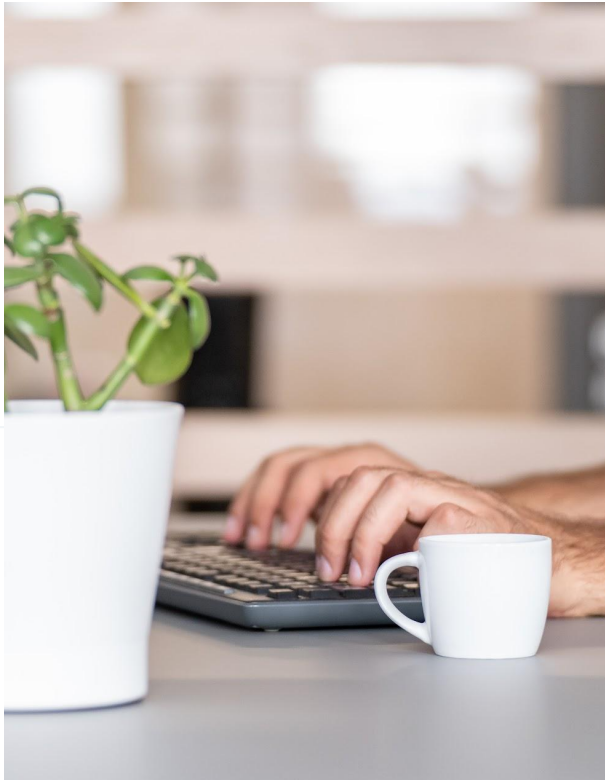
What does?

- **Ensures Data Consistency:** By recording every change as an event, it maintains a reliable and consistent log of state transitions.

- **Facilitates Auditability:** Provides a complete history of changes, enabling thorough auditing and debugging capabilities.

- **Enables Temporal Queries:** Allows querying of the system's state at any point in time by replaying events up to that moment.

- **Supports Complex Event Processing:** Enables the detection and response to patterns of events, which is useful in scenarios requiring real-time analytics.



Part 2: RAG.

What is?

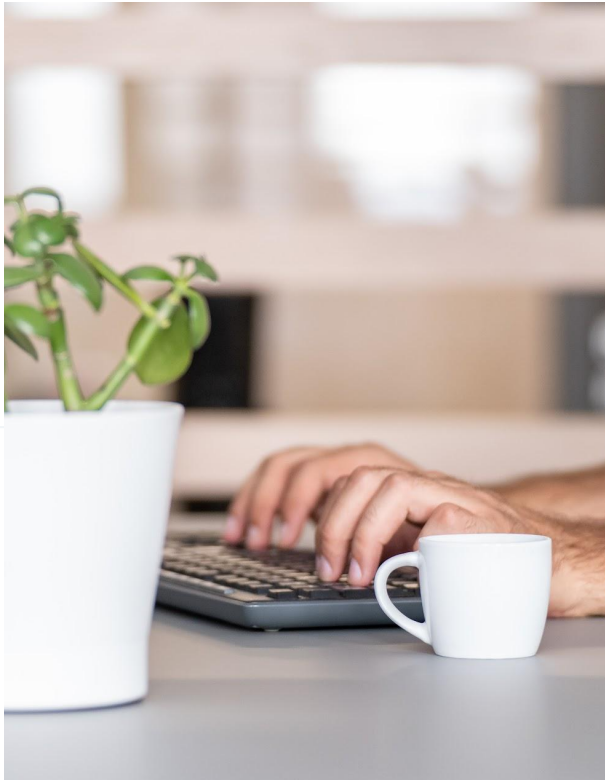
- **RAG** is an AI technique that combines the strengths of large language models (LLMs) with external information retrieval systems. It enhances the generative capabilities of LLMs by incorporating relevant data from external sources, ensuring responses are both contextually accurate and up-to-date.

What does?

- Enhances Accuracy and Relevance: By retrieving pertinent information from external databases or documents, RAG ensures that generated responses are more precise and contextually appropriate.

- Provides Up-to-Date Information: RAG allows models to access and incorporate the latest data, ensuring responses reflect current knowledge and developments.

- Improves Domain-Specific Responses: By accessing specialized external data sources, RAG tailors outputs to specific fields or industries, enhancing the model's applicability in various domains.



Part 3: GraalVM.

What is?

- GraalVM is a modern, high-performance runtime and development kit built on the HotSpot Java Virtual Machine. It not only runs traditional Java (and other JVM language) applications but also supports executing other languages such as JavaScript, Python, Ruby, R, and even LLVM-based languages—all within a single runtime environment.

What does?

- It **speeds up** Java applications.

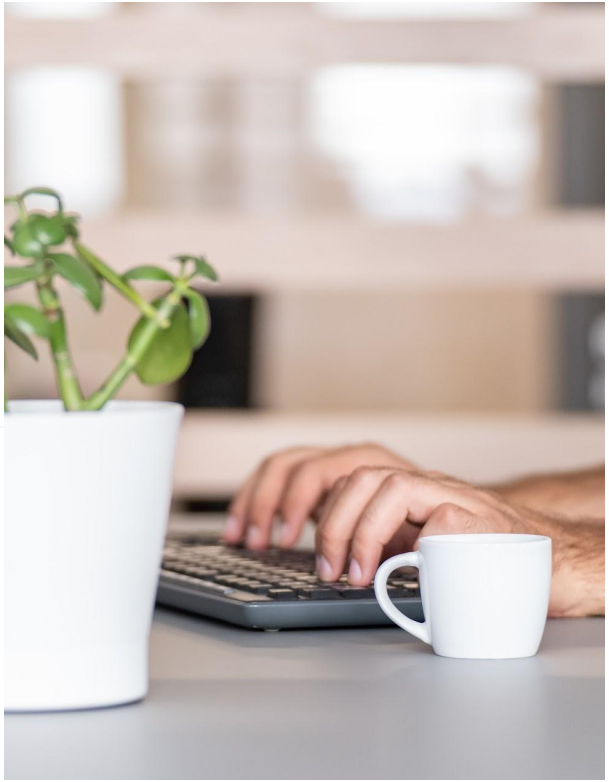
- It **optimizes code at runtime** using a smart JIT compiler.

- It compiles Java code into **native executables.**

- It **reduces startup time** and memory usage.

- It works well with **popular Java libraries and frameworks**.

- It enables **mixing Java with other languages** when needed.



Q & A

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Thank you for coming to my TED talk.

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