

Camel 4

What to expect?

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geecon2023
Kraków, 19-21 April

About

Otavio R. Piske

- Works @ Red Hat
- Committer and PMC @ Apache Camel

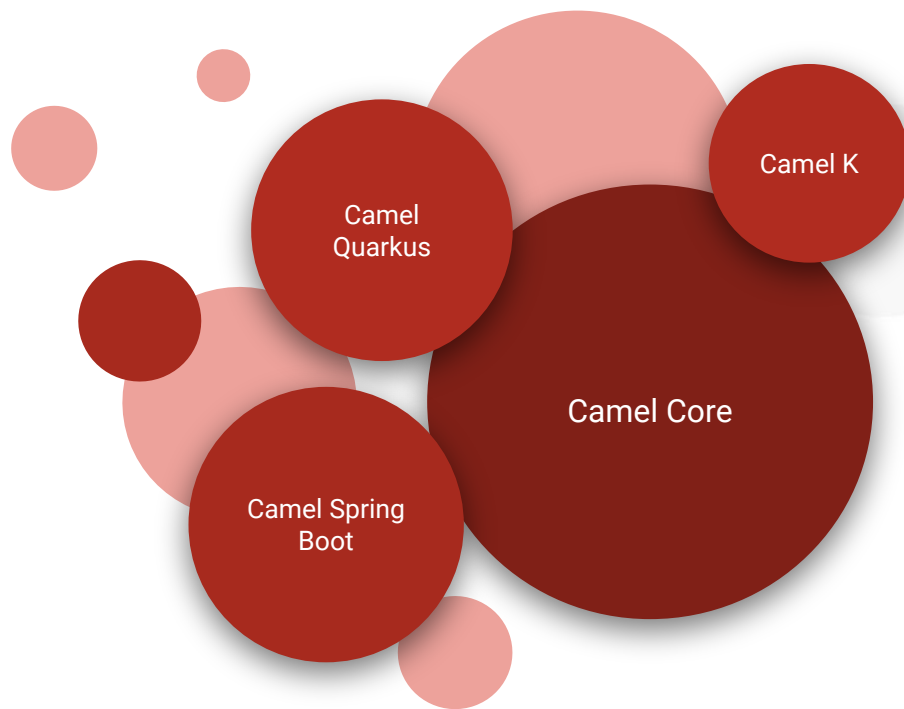
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Agenda

- Apache Camel project overview
- Motivations & goals
- Changes under the hood
- Planning your upgrade

The Apache Camel Project



The Apache Camel Project

```
import org.apache.camel.builder.RouteBuilder;

public class KafkaToSQSRoute extends RouteBuilder {

    @Override
    public void configure() throws Exception {

        from("kafka:geecon")
            .to("aws-sqs://krakow");
    }
}
```

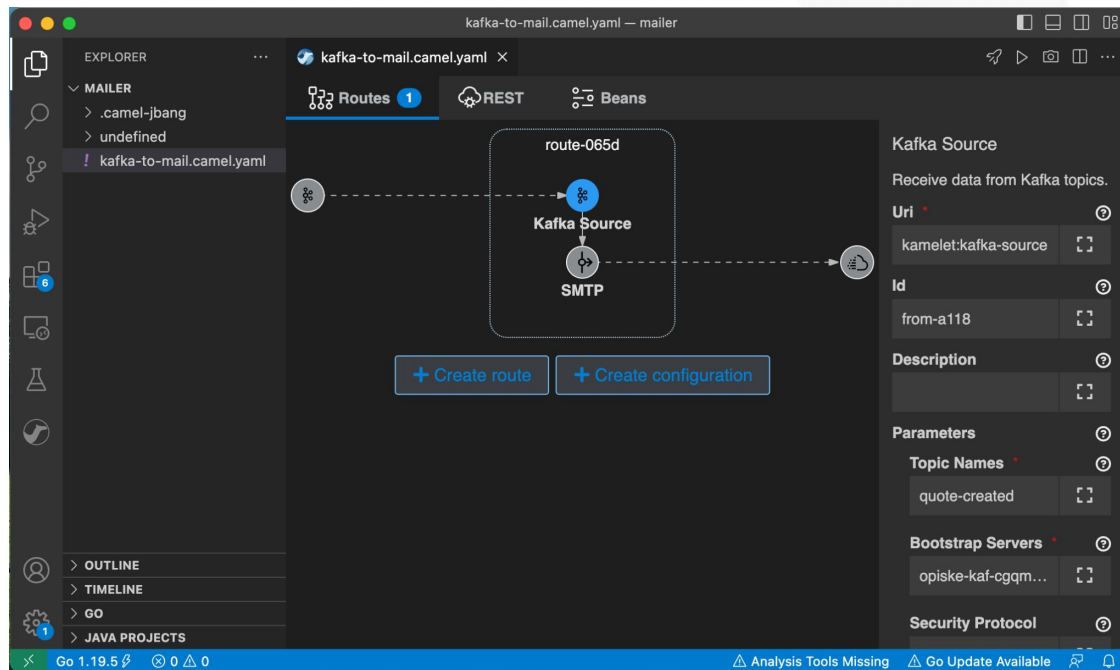
Camel JBang

- Quick way to start running integration code
- Great for prototyping
- Simplifies bootstrapping new projects
- Provides functionality for other projects

```
$ camel run my-integration.yaml
```

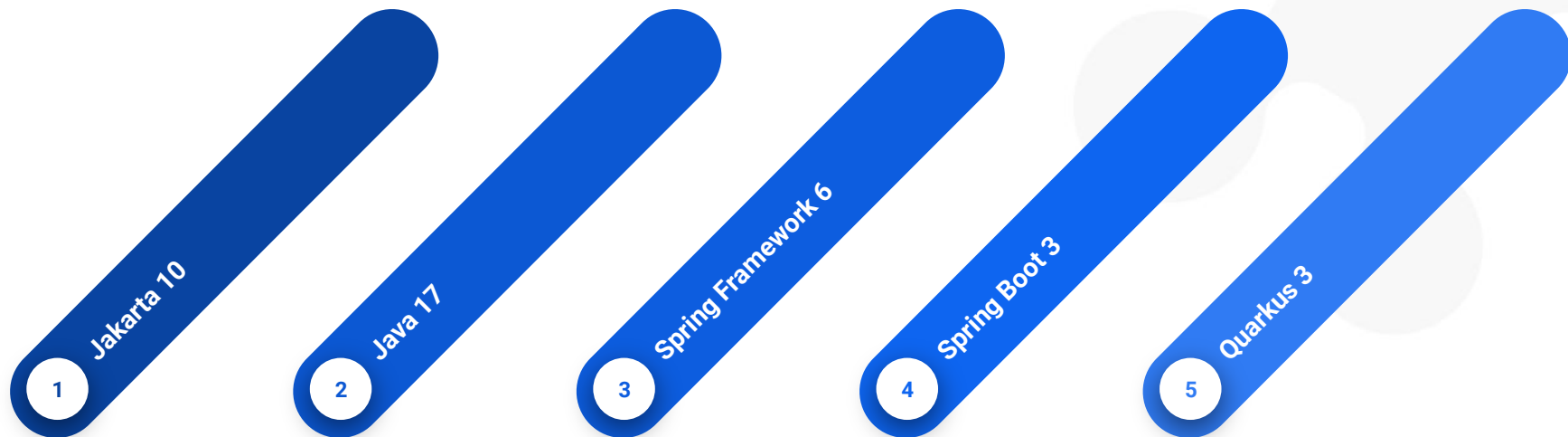
Camel Karavan

- Toolkit for designing routes
- Extension for VS Code
- Visual designer for routes



Motivations & goals

Motivations for Camel 4



Build a foundation for the future

- Support Java 17 features
 - What about Java 11?
- Forward-looking:
 - Java 21 LTS in September

Simplify our build and release

- Camel Karaf (OSGI) as a best effort
- Decouple Camel Karaf releases from Camel Core

Reduce our maintenance effort

- Internal cleanups
 - Deprecations (internal APIs)
 - EIP Model without JAXB
- Remove MDC support
- Drop legacy features
 - Drop JUnit 4 support
- Drop deprecated components

Deprecated components

- Permanently/temporarily drop deprecated components
 - 33 components affected/dropped
 - 20 have an alternative (i.e.: camel-activemq -> camel-jms)
 - Most have shown little usage

Under the hood

Internal changes

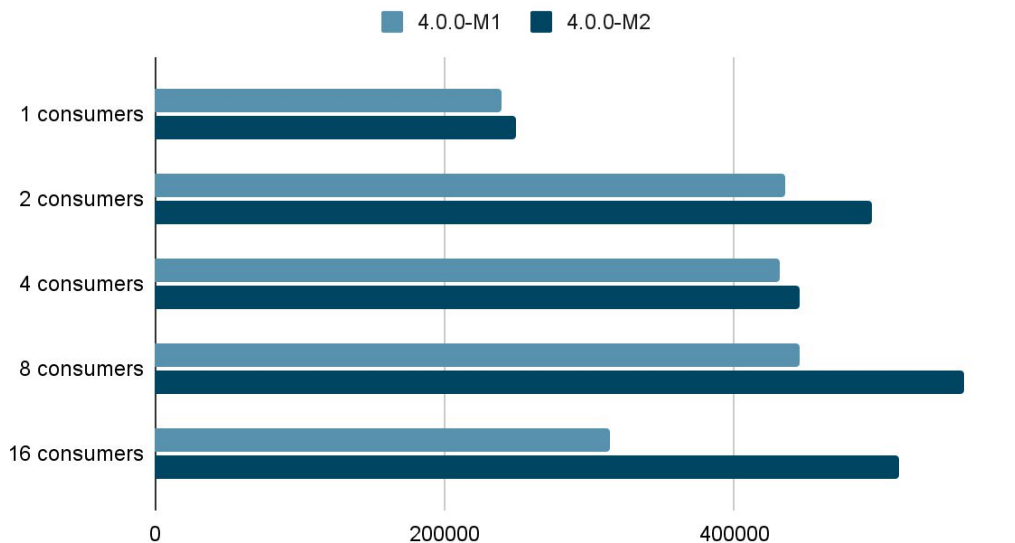
- Internal API Changes
 - Internal Plugin Manager
 - CamelContext
 - ExtendedCamelContext
 - Cleaned up internal deprecations
- Internalized the IntrospectionSupport
- Testing cleanups
- Software Bill of Materials

Performance improvements

- Working around JDK issue [JDK-8180450](#)
 - See the video:
 - [Quarkus Runtime: A Peek Into JVM Internals](#)
 - [Seeing through hardware counters](#)
 - [Cracking the Scalability Wall](#)
- Component improvements
 - Seda (done),
 - Core (in progress)
- Other micro-optimizations

Seda performance improvements

Exchanges/sec



Planning your upgrade

What to expect

- Easier migration from Camel 3 to Camel 4
- No DSL incompatibilities

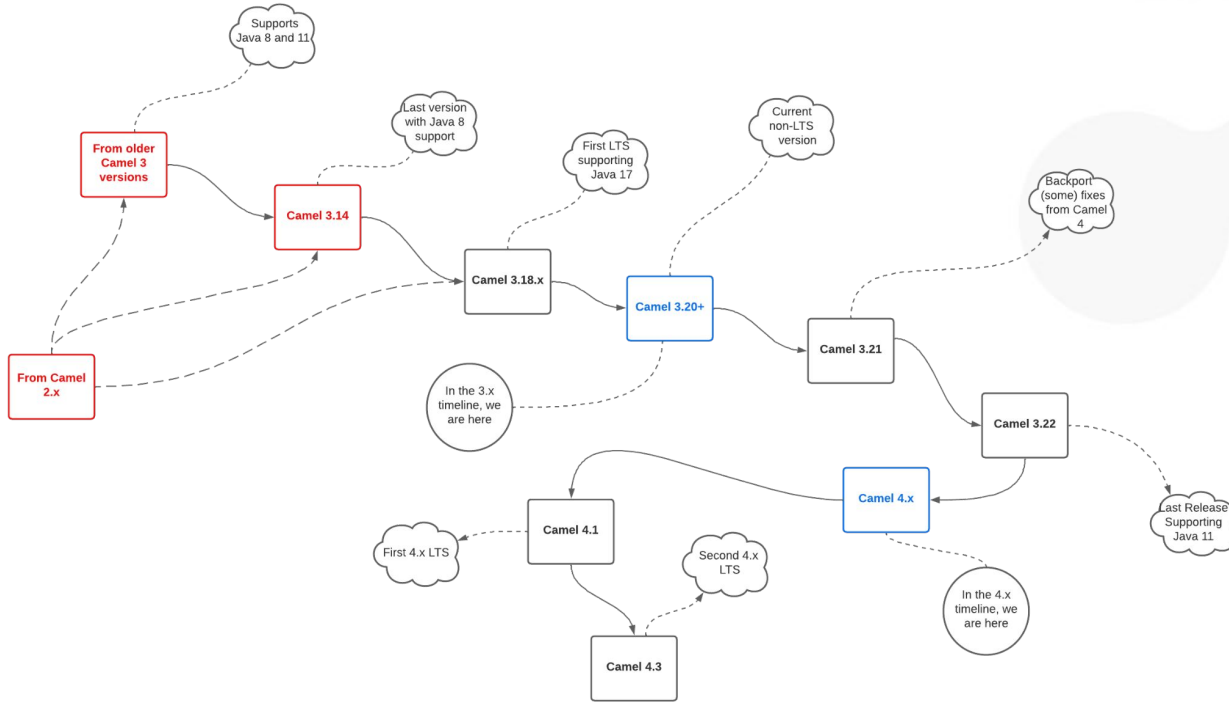
Planning your migration

- On commercial
 - Talk to your vendor!
- On open source
 - Save time for testing
 - Provide feedback
 - Share your knowledge

User-impacting changes

- Logging
 - slf4j-api upgraded to 2.x
- Exchange Patterns
 - InOptionalOut exchange pattern was removed
- Replace `getIn()/getOut()` with `getMessage()`
- Main's Listener interface cleanup
 - Method `configure()` was removed

The path to Apache Camel 4



Migrating from Camel 3

- Should be easy if:
 - Using maintained/technologies components
 - Using one of:
 - Camel Core
 - Camel Spring Boot
 - Camel Quarkus
 - Camel K
 - Using a relatively newer LTS of 3.x
- May require a bit more effort if:
 - Using an older LTS (older than 3.14)

Migrating from Camel 3

- Should require some effort
 - Using unsafe internal APIs
 - ExtendedCamelContext
 - Internal plugins
 - Using OSGI (camel-karaf)

Migrating from Camel 2

- Requires more effort
 - Camel 3 was modularized
 - Multiple contexts vs. Single Context
- Camel 3
 - Java 11
 - Java 8 as a best effort

Closing comments

- Plan now
- Avoid unmaintained versions
- Re-evaluate standards
- Share the knowledge

Links

- [Apache Camel Project](#)
- Upgrade guides
 - [Camel 2.x to 3.x migration guide](#)
 - [Camel 3.x to 4.x migration guide](#)
 - [Camel 3.x upgrade guides](#)
- Release Notes
 - [Camel 4.0.0-M2](#)