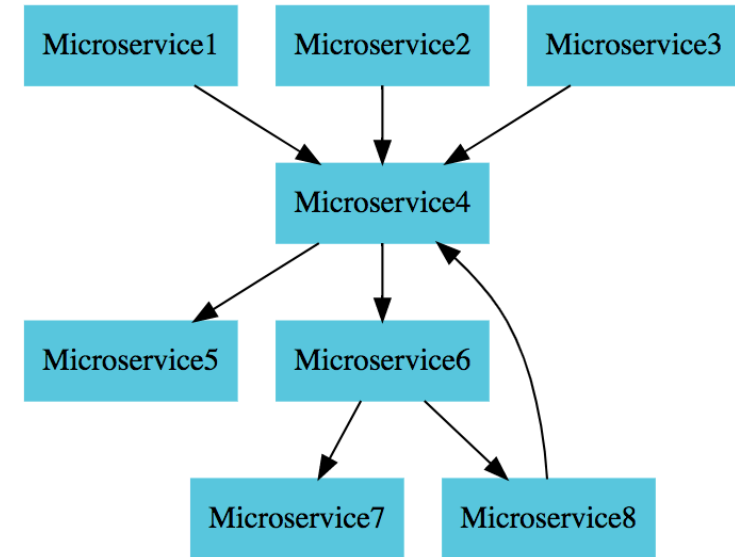


Apache Camel

Enterprise Integrations are Complex

- **Enterprises** have 100's of applications:
 - Complex communication patterns
 - Variety of transports - HTTP, Queues etc
 - Variety of protocols - HTTP, JMS, AMQP
- **Evolution of Cloud and Microservices** makes Enterprise Integration even more complex
- How can we **simplify Enterprise Integrations**?
 - Follow Enterprise Integration Patterns
- How to implement Enterprise Integration Patterns?
 - Use Apache Camel



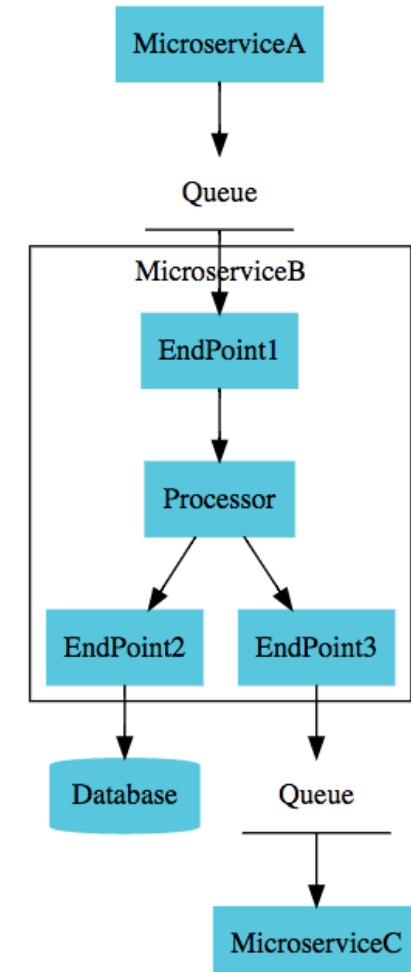
Apache Camel

- Open Source **Enterprise** Integration framework
 - Easily integrate systems consuming or producing data
- Inspired by "Enterprise Integration Patterns" - **Gregor Hohpe and Bobby Woolf**
 - Evolved to Microservice Architectures and Cloud
- **Lean** - Lightweight and Extensible:
 - **Component architecture** keeps footprint low
 - Provides **100+** components for databases, message queues, APIs, cloud integration etc
 - Supports **200+** protocols, transports and data formats (& **300+** converters)
 - Provides **Domain Specific Language (DSL)** customized to suit needs of Application Integration



Camel - Terminology

- Important Terminology:
 - **Camel Context** - (0..n) Routes + Components + ..
 - **Endpoint** - Reference to a queue, database or a file
 - **Route** - Endpoints + Processor(s) + Transformer(s)
 - **Components** - Extensions (Kafka, JSON, JMS etc)
 - **Transformation:**
 - Data format transformation - XML to JSON
 - Data type transformation - String to CurrencyConversionBean
 - **Message** - Body + Headers + Attachments
 - **Exchange** - Request + Response
 - Exchange ID
 - Message Exchange Pattern (MEP) - InOnly/InOut
 - Input Message and (Optional) Output Message



Camel - Architecture

Camel Context Example

```
//To start with
CamelContext camelContext = new DefaultCamelContext();
camelContext.addRoutes(new Route1());
camelContext.addRoutes(new Route2());
camelContext.addComponent("xyz",
    XyzComponent.xyzComponentAutoAcknowledge(connectionFactory));

camelContext.start();

//At the end
camelContext.stop();
```

References

Topic	Reference
Why Camel?	https://camel.apache.org/manual/latest/faq/why-the-name-camel.html
Camel Examples	https://github.com/apache/camel-examples/tree/master/examples
Camel Spring Boot Configuration	https://camel.apache.org/camel-spring-boot/latest/spring-boot.html
Complete Spring Boot Starters List	https://camel.apache.org/camel-spring-boot/latest/list.html
Camel Spring Boot Examples	https://github.com/apache/camel-spring-boot-examples
Enterprise Integration Patterns	https://camel.apache.org/components/latest/eips/enterprise-integration-patterns.html

What Next?

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