In28 Minutes

Apache Camel

Enterprise Integrations are Complex

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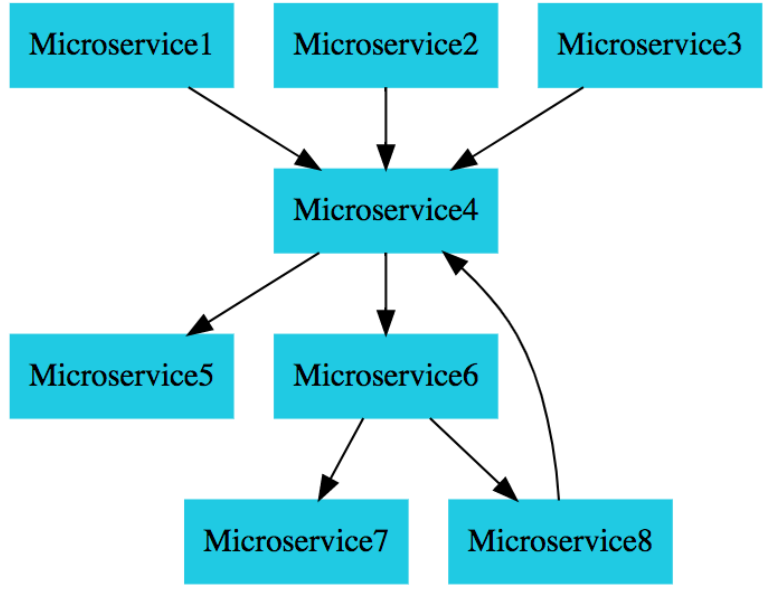
- **Enterprises** have 100's of applications:
  - Complex **communication patterns**
  - Variety of **transports** - HTTP, Queues etc
  - Variety of **protocols** - HTTP, JMS, AMQP
- **Evolution of Cloud and Microservices** makes Enterprise Integration **even more complex**
- How can we **simplify Enterprise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



Apache Camel

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- 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

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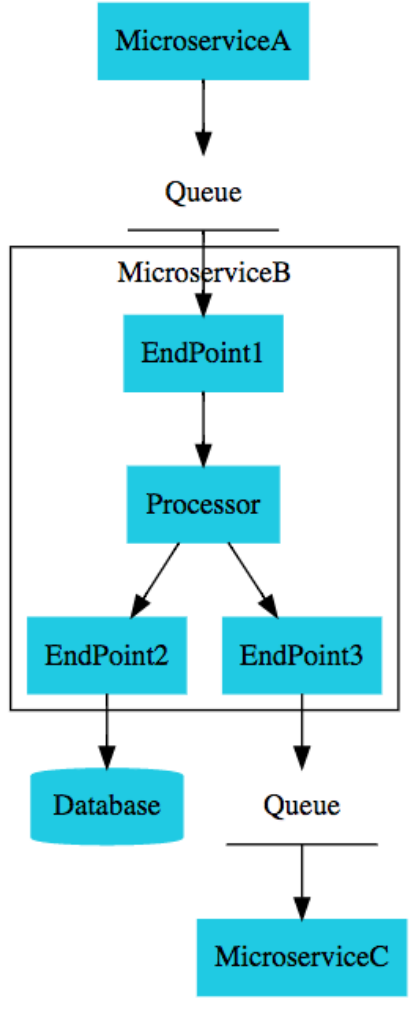
- Important Terminology:
  - **Camel Context** - (0..n) Routes + Components + ..
    - **Endpoint** - Reference to a queue, database or a file
    - **Route** - Endpoints + Processor(s) + Transformer(s)
    - **Components** - Extensions (Kafka, JSON, JMS etc)
    - **Transformation**:
      - Data format 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

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Camel Context Example

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```
//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

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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?

- *https://github.com/in28minutes/learn*
  - Certifications
    - AWS, Azure and GCP
  - DevOps
    - Docker, Kubernetes, Azure DevOps, Terraform and Ansible
  - Serverless (AWS Lambda and Azure Functions)
  - Full Stack (with Angular and React)
  - Microservices (Spring Boot and Spring Cloud)