JPoint 2021

Building Scalable Microservices for Java

With Helidon and Coherence CE

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#Coherence #Helidon #JPoint
Safe Harbor Statement

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Project Helidon

- A set Java libraries for developing microservices
  - [https://helidon.io](https://helidon.io)
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  - REST, Health, Metrics, Tracing, …
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  - REST, Health, Metrics, Tracing, …
- GraalVM native-image support
Java 11+
Helidon High-Level Architecture

Helidon MicroProfile
(Helidon MP)

Helidon Reactive
(Helidon SE)

Netty
● Open source community specification for Enterprise Java microservices
● Hosted at Eclipse Foundation
● Participants:
  ○ Oracle, IBM, Red Hat, Payara, Tomitribe, Microsoft and others
● High release cadence:
  ○ 4 releases per year
● https://microprofile.io
Helidon MP Components

- MicroProfile
- MP Additional
- Jakarta EE
- Helidon Specific
helidon SE

.. or Helidon Reactive APIs
Helidon High-Level Architecture

Helidon MicroProfile
(Helidon MP)

Helidon Reactive
(Helidon SE)

Netty

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Helidon SE Components

- Core Components
- Experimental Components

- Reactive Web Server
- Config
- Security
- Health Checks
- Metrics
- Tracing
- gRPC Server & Client
- CORS
- Websocket
- Reactive Streams
- Reactive Messaging
- Web Client
- DB Client
Two flavors

helidon SE

Routing routing = Routing.builder()
    .get("/hello", (req, res) ->
        res.send("Hello World"))
    .build();

WebServer.create(routing)
    .start();

helidon MP

@Path("hello")
public class HelloWorld {
    @GET
    public String hello() {
        return "Hello World";
    }
}
That’s all you need to know about Helidon for now!
“The world’s most expensive Enterprise HashMap” is now free!

https://coherence.community/
Oracle Coherence

- The world’s first In-Memory Data Grid, which created the space
  - Well suited for modern cloud applications
  - A Java library, embeddable into any Java application
  - Easy to deploy and scale in Kubernetes via Coherence Operator
  - Easy to monitor with Prometheus, Grafana and Jaeger
  - Open sourced Community Edition since June 2020
Oracle Coherence: Not just a "cache"

- Scalable, fast, persistent general-purpose KV data store
  - Stores data in memory for fast access, and optionally persists to disk for durability
  - Partitions data across many cluster members in order to scale both system capacity and throughput
  - Creates back ups as far as possible from the primary data copies for reliability, with completely automatic failover and rebalancing
  - Supports parallel queries, aggregations, and in-place processing
Oracle Coherence: Not just a ”cache”

- An event streaming platform
  - Server-side and client-side event listeners, for data processing and integration with other systems
  - Built-in PubSub messaging
Oracle Coherence: Not just a "cache"

- And yes, a caching solution as well…
  - Partitioned or replicated, time- or size-limited caches
  - Read-through, write-through, write-behind, refresh-ahead for integration with external data stores and/or services
  - Client-side caching with event-based cache invalidation
  - Live materialized views
Let’s get to some code!
Demo Application: A simple (but scalable 😊) To Do List App

https://github.com/coherence-community/todo-list-example
Create Helidon Project: Maven Archetype

mvn -U archetype:generate -DinteractiveMode=false \ 
   -DarchetypeGroupId=io.helidon.archetypes \ 
   -DarchetypeArtifactId=helidon-quickstart-mp \ 
   -DarchetypeVersion=2.2.2 \ 
   -DgroupId=io.helidon.examples \ 
   -DartifactId=todo-list \ 
   -Dpackage=io.helidon.examples.tasks
Create Helidon Project: Plain Maven POM

```
<parent>
  <groupId>io.helidon.applications</groupId>
  <artifactId>helidon-mp</artifactId>
  <version>2.2.2</version>
</parent>

...
We are going to do it the modern way!

https://helidon.io/docs/v2/#/about/05_cli
Learn More: Helidon

https://helidon.io/

https://medium.com/helidon

https://github.com/oracle/helidon

https://www.youtube.com/channel/UChg00-uTTrCMmPsuzUNaZsA

https://helidon.slack.com
Learn More: Oracle Coherence

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https://github.com/oracle/coherence

https://www.youtube.com/user/OracleCoherence

https://oraclecoherence.slack.com
Спасибо за внимание!
Есть вопросы?