

Micronaut in Action



About us



Silvio D'Alessandro
Senior Software Engineer



Carlos Barragan
Distinguished Software Engineer

Agenda

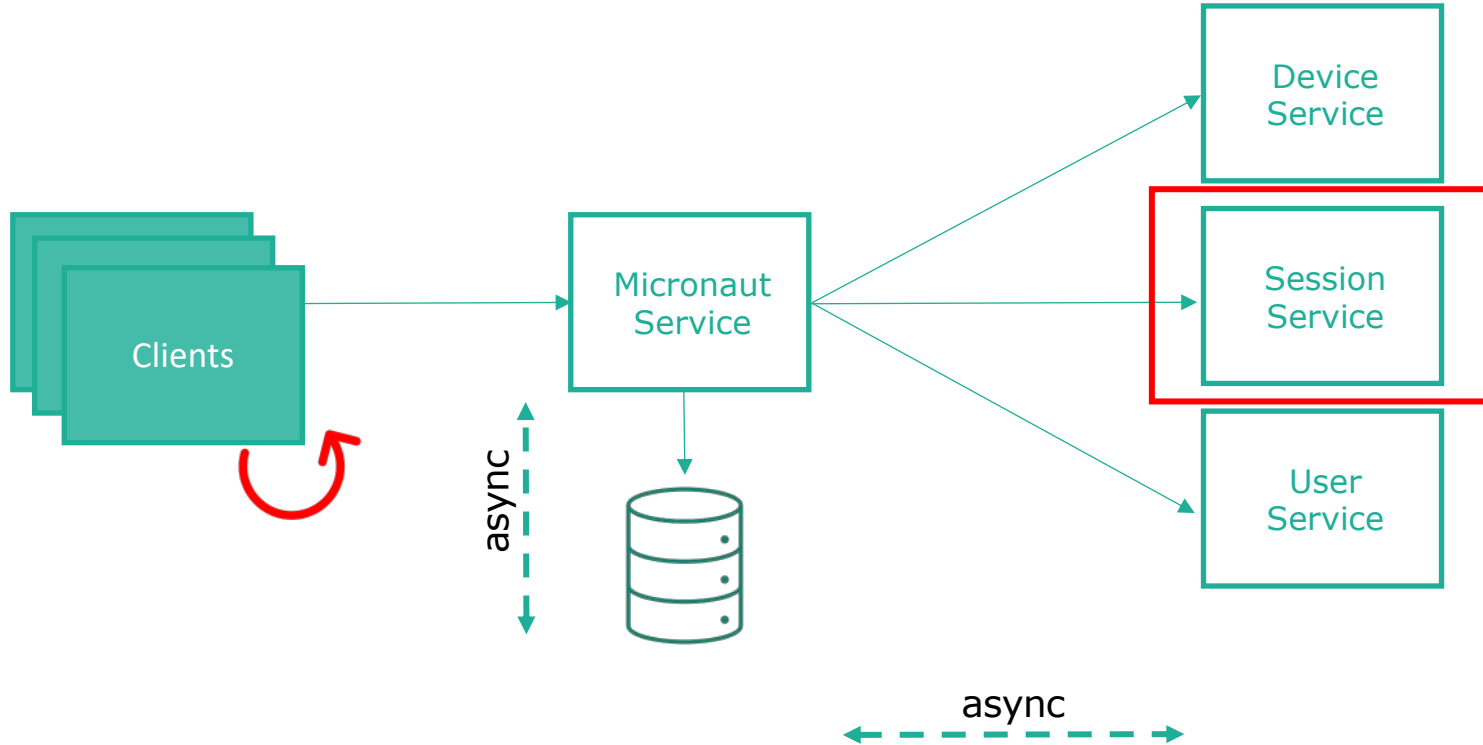
1. What is Micronaut?
2. Business Case
3. Technical Stack
4. Why Micronaut?
5. Production Figures
6. Micronaut vs. Spring Boot
7. Conclusion



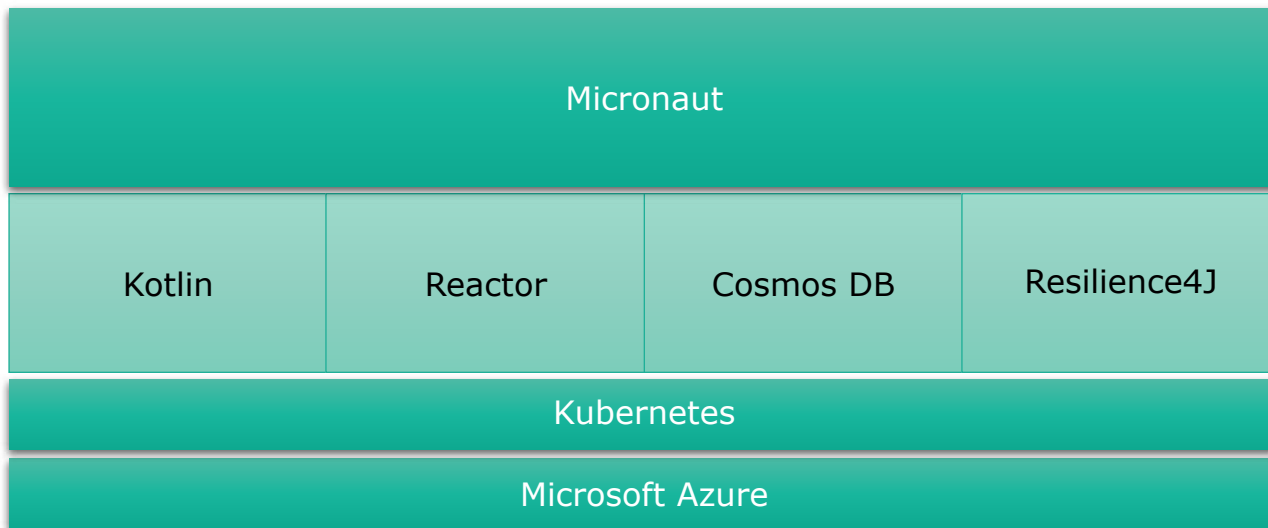
What is Micronaut?

- Micronaut is a **Micro-Framework**
- Micro-Frameworks are not reflection-based, which makes them more likely
 - ... to be **lightweight**
 - ... to have **less memory consumption**
 - ... to have **faster start-up times**
- Micronaut focuses on **simplicity** and **speed** of development

Business Case

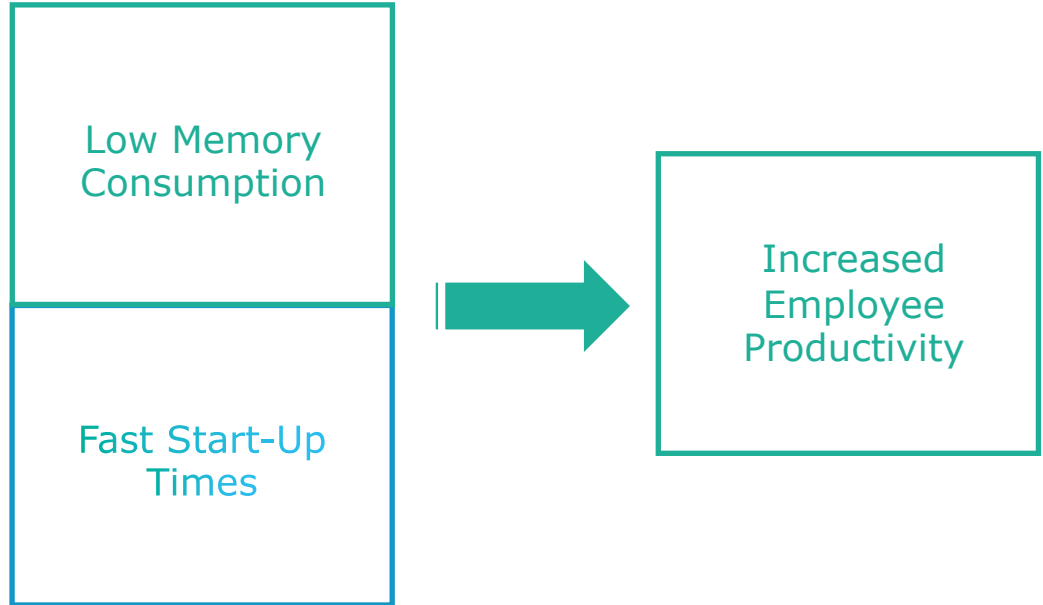


Technical Stack



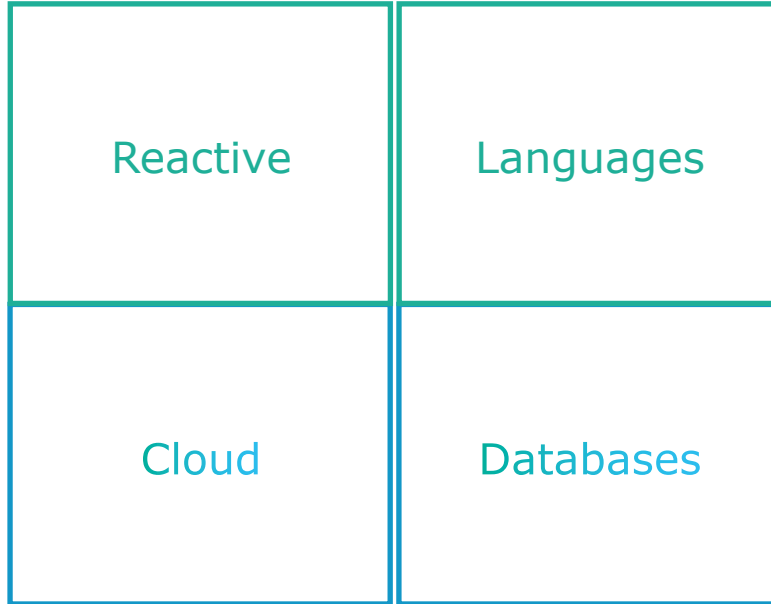
Why Micronaut?

Performance



Why Micronaut?

Diversity of Features



Why Micronaut?

Low Entry Barrier

```
import io.micronaut.http.HttpRequest
import io.micronaut.http.HttpResponse
import io.micronaut.http.annotation.Controller
import io.micronaut.http.annotation.Get
import io.micronaut.http.annotation.PathVariable
import javax.inject.Singleton

@Controller(value = "/sample")
class GreetController(private val service: MyImportantService) {

    @Get(value = "/greet/{name}")
    fun greet(request: HttpRequest<*>, @PathVariable(value = "name") name: String): HttpResponse<String> {
        val greet :String = service.constructGreet(name)
        return HttpResponse.ok(greet)
    }
}

@Singleton
class MyImportantService {

    fun constructGreet(name: String) : String {
        return "Hello $name"
    }
}
```

Why Micronaut?

Responsive Community

<https://github.com/micronaut-projects/micronaut-core/issues/2665>

Memory leak when request body is anything but JSON #2665



carlosbarragan opened this issue on Jan 20 · 26 comments

<https://github.com/micronaut-projects/micronaut-core/issues/4350>

Mutating an instance of NettyMutableHttpRequest throws
UnsupportedOperationException #4350



22dasi1bwi opened this issue 7 days ago · 6 comments

<https://github.com/micronaut-projects/micronaut-core/issues/3964>

ProxyHttpClient hangs when the response contains no body #3964



carlosbarragan opened this issue on Aug 25 · 0 comments

Normal Production Figures

7500

Request per Minute

6

Nodes

220

MB heap in average

Peak production figures

> 200K

Request per Minute

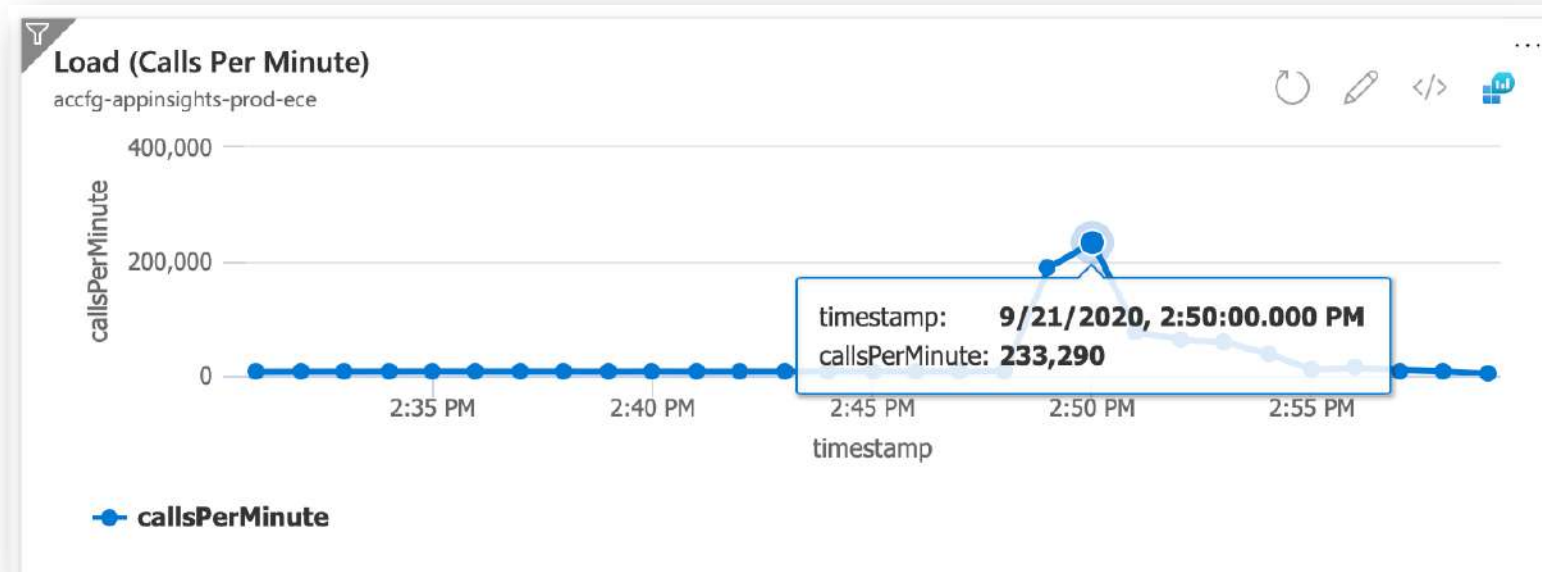
6

Nodes

400

MB heap in average

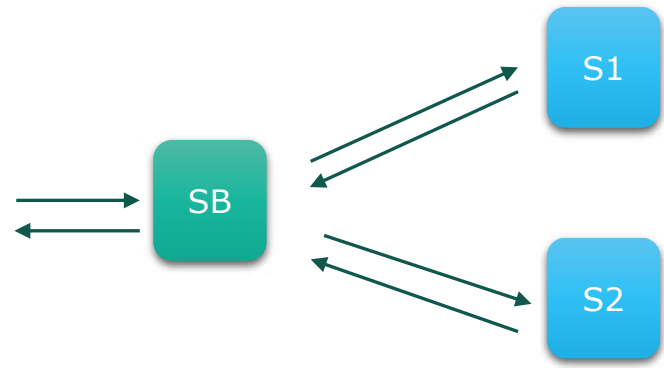
Peak production figures





Spring Boot Comparison

- Spring Boot app is very similar in functionality.
- Fully reactive.
- It does not have a Database, it only routes requests.



Micronaut vs Spring Boot App in Production

	Micronaut (2.0.2)	Spring Boot (2.3.5)
Memory Consumption (heap)	220 MB	250 MB
Request / Minute	~ 7500	~ 60
Startup time	9s	18s
Build Time *	57s (gradle)	27s (maven)
Jar Size	40 MB	36 MB

* Micronaut app executes 170 tests. Many of them start a docker container (using testcontainers). Spring boot app executes 89 tests. None of them uses docker.

Micronaut Camunda BPM Integration

NovatecConsulting / micronaut-camunda-bpm

Unwatch 14 Star 30 Fork 18

<> Code Issues 25 Pull requests 5 Actions Projects Wiki Security Insights Settings

master 4 branches 19 tags Go to file Add file + Code

tobiaschaefer Increase timeouts because publishing to OSSRH fails quite oft... 2c6229e 3 days ago 180 commits

.github	Increase timeouts because publishing to OSSRH fails quite oft...	3 days ago
example-external-task-process	Centralize management of dependency and plugin versions	20 days ago
example-external-task-worker	Centralize management of dependency and plugin versions	20 days ago
gradle/wrapper	Update to Micronaut 2.1.1	2 months ago
micronaut-camunda-bpm-example	Centralize management of dependency and plugin versions	20 days ago
micronaut-camunda-bpm-feature	Close #4: Migrate tests of micronaut-camunda-bpm-feature to Kotlin	6 days ago
.gitattributes	The top level directory is now a Gradle project which can be opened L...	10 months ago
.gitignore	Update to Micronaut 2.0.2	3 months ago
CODE_OF_CONDUCT.md	Add CODE_OF_CONDUCT.MD	last month
CONTRIBUTING.md	Update CONTRIBUTING.md; adapted command so micronaut-camun...	6 days ago
FAQ.md	Add hint about sporadic failures in the release build.	5 months ago
LICENSE	Initial commit	10 months ago
NOTICE	Add NOTICE to fulfill license requirements due to copied code.	10 months ago
README.md	Update README.md: maven coordinates of current release and comp...	6 days ago
build.gradle	Update to Micronaut 2.0.1	4 months ago

About

Integration between Micronaut and Camunda BPM Process Engine. We configure Camunda BPM with sensible defaults, so that you can get started with minimum configuration: simply add a dependency in your Micronaut project to embed the process engine!

www.novatec-gmbh.de/en/blog/mic...

micronaut camunda-bpm camunda bpmn hacktoberfest business-process java kotlin dim

Readme

Apache-2.0 License

Releases 19

v0.10.1 (Latest) 6 days ago

+ 18 releases

<https://github.com/NovatecConsulting/micronaut-camunda-bpm>

One more thing...

One more thing...

**We have yet another
Micronaut Service in
Production!**

“New Service” Production Figures

25K

Request per Minute

8

Nodes

100

ms avg latency

140

MB heap in average

Conclusion

- Micronaut is **production** ready.
- It **delivers** on its promise of **low memory** consumption and **fast start-up** times.
- **Quicker feedback** times → You get misconfiguration errors at compile time.
- **Response** time and quality from Micronaut team are great.
- **Easy to use** and understand as it uses a similar programming model as Spring Boot.

Thanks!