

Building Reactive Pipelines with Kotlin & Spring

How to go from scalable apps to (ridiculously) scalable systems

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Pivotal

“Please do *LESS* with *MORE!*” 💰 💰 💰



Why are we here?

- ✦ Scaling systems: traditional approaches
- ✦ What to do when we reach the limits?
- ✦ Sounds good, but how does it work?

Who am I?

- Author
- Architect & Developer
- Java Champion, Rockstar
- Professional Problem Solver
- Spring Developer & Advocate
- Creador y curador de



New book!

But you can't buy it yet...

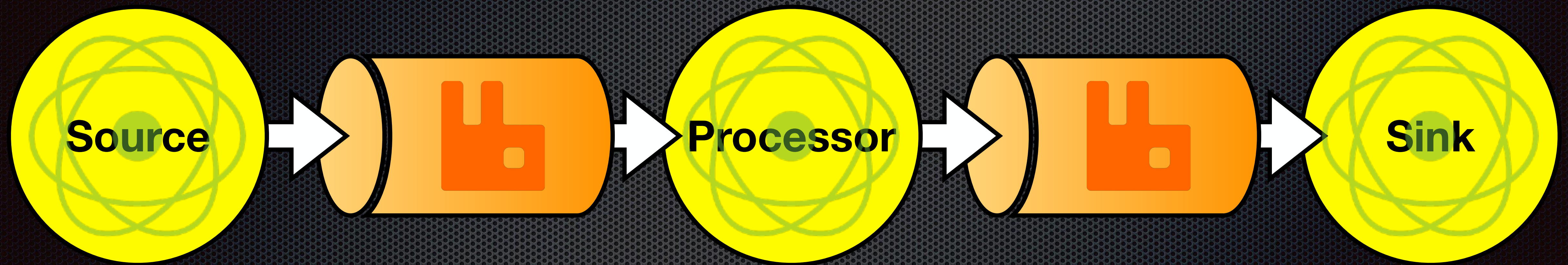
DISCLAIMER: artist's rendition only, not the real cover



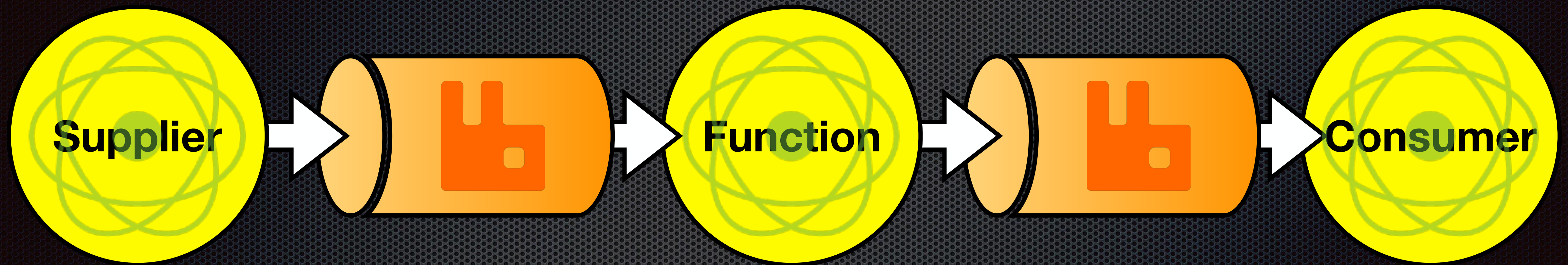
Scaling systems: off to a good start

- ✦ Microservices for independent scaling
- ✦ Messaging platforms
- ✦ Spring Cloud Stream for productivity + versatility (+ resilience, etc.)

For example...



Evolving the API



We've redlined, now what?

- ✦ Change approach to scaling
- ✦ Scaling (connections) vs. Performance (parallelization)
- ✦ Integration with messaging platforms...any synergies here? 🤔

“In a nutshell reactive programming is about **non-blocking, event-driven applications** that **scale with a small number of threads** with **backpressure as a key ingredient** that aims to ensure producers do not overwhelm consumers.”

–Rossen Stoyanchev, Reactor team member

Reactive Streams: 4 interfaces

- ✦ Publisher<T>
- ✦ Subscriber<T>
- ✦ Subscription
- ✦ Processor<T,R>

Reactive Streams in Context

Spring Cloud Stream parallel

- ✧ Publisher<T>
 - ✧ Subscriber<T>
 - ✧ Subscription
 - ✧ Processor<T,R>
- ✧ Source/Supplier
 - ✧ Sink/Consumer
 - ✧ (w/a)
 - ✧ Processor/Function

Let's code!



Resources

- ✦ <https://github.com/mkheck/building-reactive-pipelines> (Java)
- ✦ <https://github.com/mkheck/building-reactive-pipelines-with-kotlin>
- ✦ <https://cloud.spring.io/spring-cloud-stream/>
- ✦ <https://projectreactor.io>
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고맙습니다 여러분