

Spring and the Mystery of the Polyglot Stack

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What is a polyglot stack?



Languages

- Java
- Node
- Golang
- Swift
- Python
- Kotlin



Compute

- Kubernetes
- Cloud Foundry
- Virtual Machines
- Servers in your basement



Architecture patterns

- REST APIs
- Reactive
- Serverless



Persistence

- SQL
- NoSQL
- GraphQL
- CQRS / Event sourcing



Why do I care?



No developer is an island





Cloud Native



A wide-angle photograph of a city skyline at sunset or sunrise. The sky is filled with warm, orange and yellow hues. In the foreground, the dark silhouette of a person wearing a hoodie stands on a light-colored stone rooftop, looking out over the city. The city itself is a dense cluster of buildings, with many skyscrapers visible against the bright sky.

Application modernization



Shifting responsibilities

- What belongs in an application library?
- What belongs in the infrastructure?





on Slack!

141

s game, and what does it have to do with
ces? Read on!

a! Get the latest on our adventures, whether
events or just in code.

APIs

e REST APIs. Cleanly documented with
Ready to be poked with sticks.

projects

is open source. All the code. All the words.

images

has pre-built images on Docker Hub to
development easier.

ors

ople helped to build this game. We hope

o.

GAMEON

A Throwback Adventure in Cloud Native Development

You are in a maze of little interconnected rooms,
none alike. And you aren't alone...

ENTER

By entering this site you are agreeing to our [terms](#)



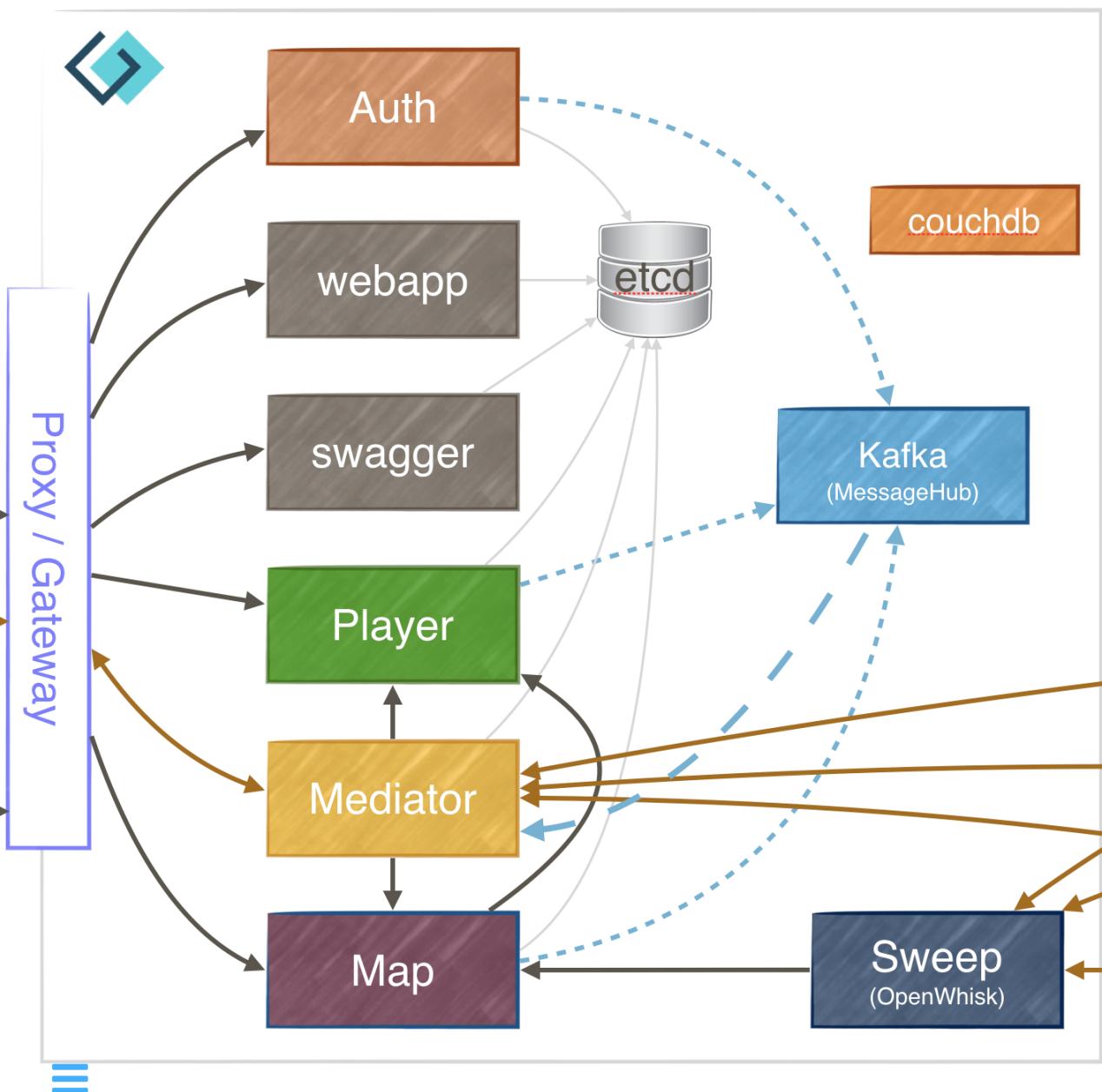
<https://gameontext.org>

Socket

REST API

Publish

Subscribe



<https://gameontex.com>

- ▶ Text-based: simple flow
- ▶ Messing about with backend
- ▶ ▶ Lots of services
- ▶ ▶ Java, Node, static/nginx
- ▶ ▶ Who knows what in Root

Go Ro

Node.js Ro

Java Ro

Game On!

- New shiny room: Spring Boot 2
- REST requests to a service based on Spring Music
<https://github.com/cloudfoundry-samples/spring-music>



Spring does amazing things!

While it does amazing Spring things,
it does not-so-amazing not-Spring things



*“Curious Things, habits.
People themselves never
knew they had them.”*

- Agatha Christie



Configuration abstraction

- Extensive and extensible
- Values in source, `@Value`
- Environment configuration sources



Configuration injection



Configuration injection

- CloudFoundry:
 - VCAP_SERVICES & VCAP_APPLICATION
 - Spring Cloud Connector
- Kubernetes: ...
 - Spring Cloud Kubernetes: Kube API



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 - ConfigMap/Secret -> filesystem
 - Spring Cloud Kubernetes: Kube API



Managing configuration

- Lack of consistent conventions
- Lots of magic
 - Spring Cloud Kubernetes
 - Spring Cloud Connector
 - Spring Cloud Config: extra server / clients
Do you know where your configuration is coming from?



*“Unless you are good at
guessing, it is not much use
being a detective.”*

– Agatha Christie



Logging

Logs are always first when things go wrong.

Where did they go?



*“There is nothing like
first-hand evidence”*

– Sherlock Holmes



Metrics

Spring actuator is a win!



*“Good advice is always
certain to be ignored,
but that’s no reason
not to give it”*

- Agatha Christie



Interoperable Security

oh my gosh



Wrapping things up: about that boat trip

Some do's and don'ts for this brave new world



Mind your magic

- Integrate with the platform
- Look for libraries that interoperate
- Spring Cloud Kubernetes config
- opentracing-contrib/java-spring-cloud
(not sleuth)



Use Spring Actuators

- Boot 2
 - `/actuator/health` for readiness
 - `/actuator/metrics`
- Boot 1
 - `/health` for readiness
 - `/metrics`



Use Micrometer!

- Saves your bacon. Any metrics collector.
 - For Kube: prometheus endpoints
- Default for Boot 2
- Backport to Boot 1



Create a simple liveness endpoint

- Health actuator is better for readiness
- Simple liveness for up/down with little/no payload
- In Boot 2, this can be a custom actuator



Punt in-app load-balancing libraries

Let the environment (service mesh) handle it

- Even CF is headed that way
- No reason to duplicate information



Punt Netflix stack entirely

The Spring Cloud Netflix stack has not aged well

- Not under active development
- Hollowed out by Kubernetes and Istio



But **Hystrix**!

Fault tolerance with Hystrix is habit
(even we did it!)

Use Resilience4j instead

<https://github.com/resilience4j/resilience4j>



Any questions?

We can show more...



Thank you!

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