springfun for functions on Knative

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https://github.com/trisberg/springfun

Building blocks

- Spring Initializr https://start.spring.io
- Spring Cloud Functions https://spring.io/projects/spring-cloud-function
- jsonschema2pojo http://www.jsonschema2pojo.org/
- CloudEvents Java SDK https://github.com/cloudevents/sdk-java
- Skaffold https://skaffold.dev/
- Cloud Native Buildpacks pack CLI https://buildpacks.io/

Spring Cloud Function

- Adapters to expose functions to the outside world as HTTP endpoints
- Transparent type conversion of inputs and outputs.
- Adapters for AWS Lambda, Microsoft Azure, Apache OpenWhisk, Google Cloud Functions (WIP) and possibly other "serverless" service providers.

```java
@SpringBootApplication
public class Application {
  public static void main(String[] args) {
    SpringApplication.run(Application.class, args);
  }

  @Bean
  public Function<String, String> uppercase() {
    return value -> value.toUpperCase();
  }
}
```

springfun CLI POC

- the **springfun** CLI initializes a Spring Boot app that can run on Knative serving
- you can add new function stubbs using the add command
- it integrates with Knative Eventing via an --ce-type option
- functions are invoked for CloudEvents via a generated Trigger

```
$ springfun --help
springfun is for Spring Functions on Knative
version 0.0.1

Commands:
  init          Initialize a function project
  add           Add a function to the project
  build         Build a function project container
  run           Run a function project container
  delete        Delete a function project container
```

demo time

Takeaways

- Most functionality already exists, like build and runtime support
- Thin layer for scaffolding new function projects
- Need support for mapping CloudEvents to Java classes
  - could be part of CloudEvents Java SDK