

Spring Rebooted

into the Cloud

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<http://spring.io/platform>

Source Code

Spring Boot



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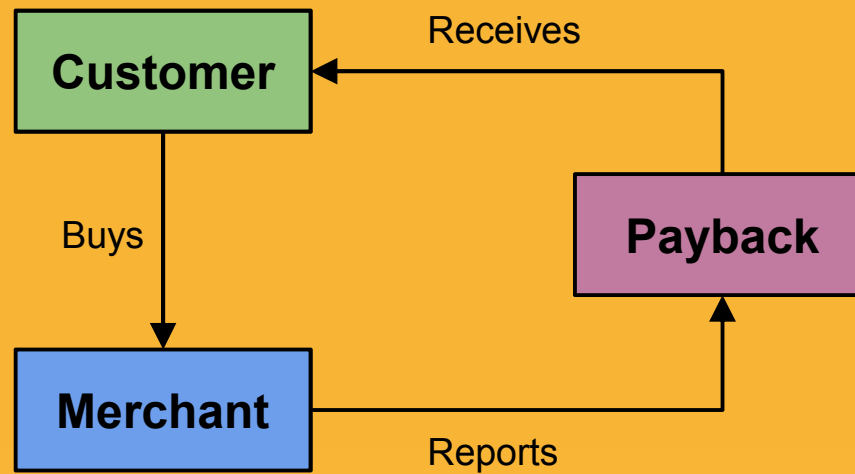
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Spring Boot

- `spring-boot-starter-parent`
 - transient dependencies versions
- `spring-boot-maven-plugin`
 - make JAR not WAR
- `@SpringBootApplication`
 - `@Configuration` & `@EnableAutoConfiguration` & `@ComponentScan`
- `SpringApplication`
 - application entry point



Spring Payback

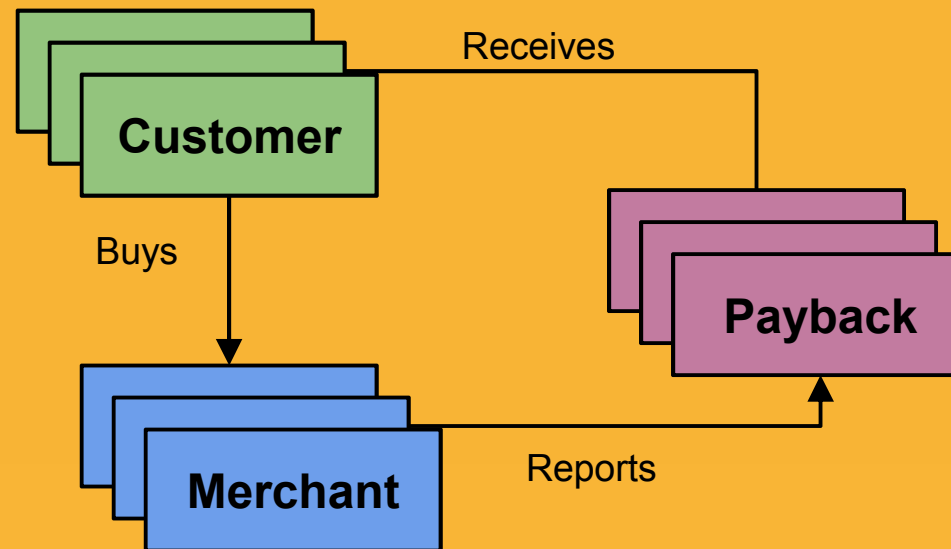


Source Code

Application Domain



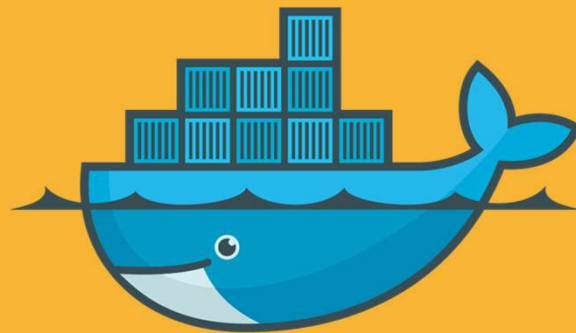
Cloud Scale



Cloud Simulator



kubernetes by Google



docker

docker-compose



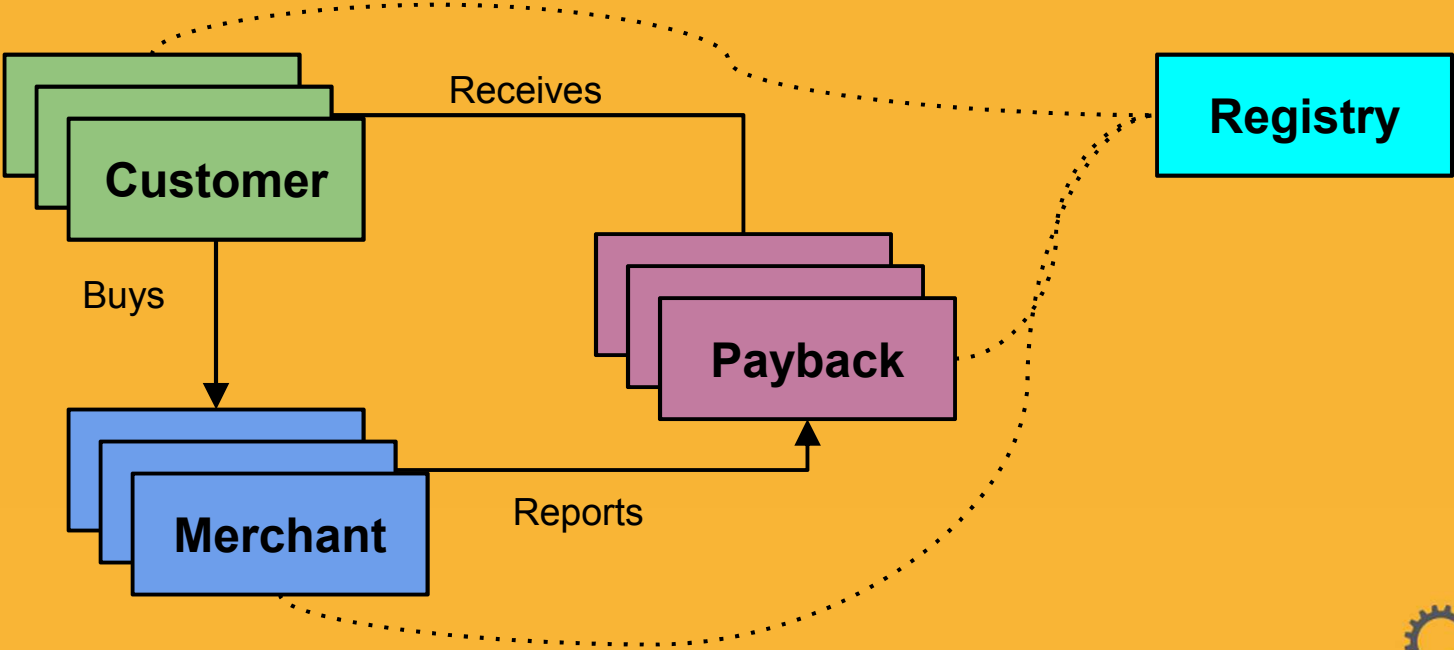
lattice.cf



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Service Discovery



Source Code Service Discovery



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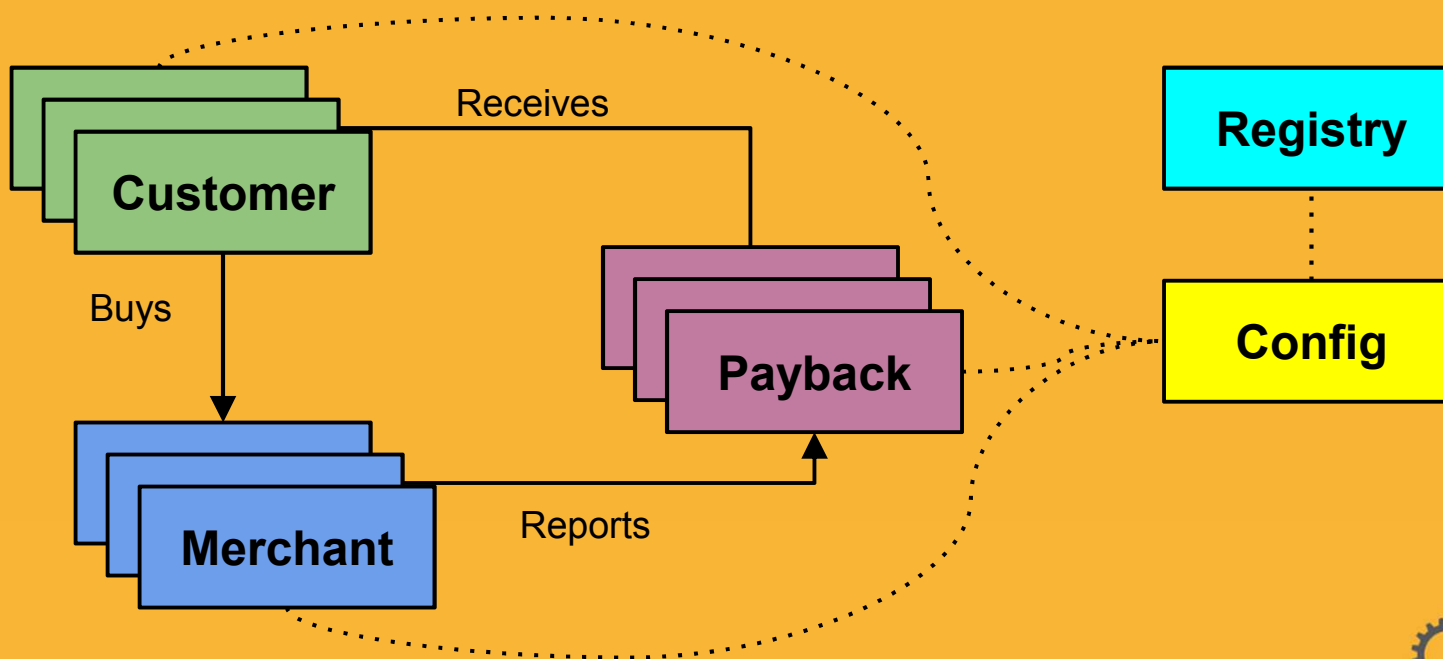
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Service Discovery Server

- Netflix Eureka
 - locating services for the purpose of load balancing and failover of middle-tier servers
- Spring Cloud
 - `spring-cloud-starter-eureka-server`
 - `@EnableEurekaServer`



Central Configuration



Source Code Configuration Server



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Central Configuration Server

- Spring Cloud Config
 - externalized configuration in a distributed system
 - manage external properties for applications across all environments
 - concept identical to the `Environment` and `PropertySource` abstractions
 - `git` as default implementation of the server storage backend
 - alternative implementations configurable



Source Code

Customer Service



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Spring Data

- `spring-boot-starter-data-*`
 - `jpa, mongodb, solr, gemfire, elasticsearch`
- `spring-data-*`
 - `neo4j, redis, hadoop, cassandra, jdbc, couchbase`
- `@Enable*Repositories`
 - **above apply, also** `@EnableSpringDataWebSupport`
- `interface Repository<T, ID extends Serializable>`
 - **common interface**



Source Code

Merchant Service



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Spring Data REST

- `spring-boot-starter-data-rest`
 - plug & play
- `@RepositoryRestResource`
 - configurable endpoints
- `Page<T>` & `Pageable`
 - paging and sorting
- HATEOAS
 - links and metadata



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Source Code Payback Service



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Service Discovery Client

- Spring Cloud
 - `spring-cloud-starter-eureka-server`
 - `@EnableDiscoveryClient` / `@EnableEurekaClient`
 - **programatic access via** `DiscoveryClient`
 - `RestTemplate` **support**



HTTP/REST Client

- Netflix Feign
 - java to http client binder
 - minimal overhead and code
 - customizable decoders and error handling
- Spring Cloud
 - `spring-cloud-starter-feign`
 - `@EnableFeignClients`
 - `@FeignClient`
 - `@RequestMapping`

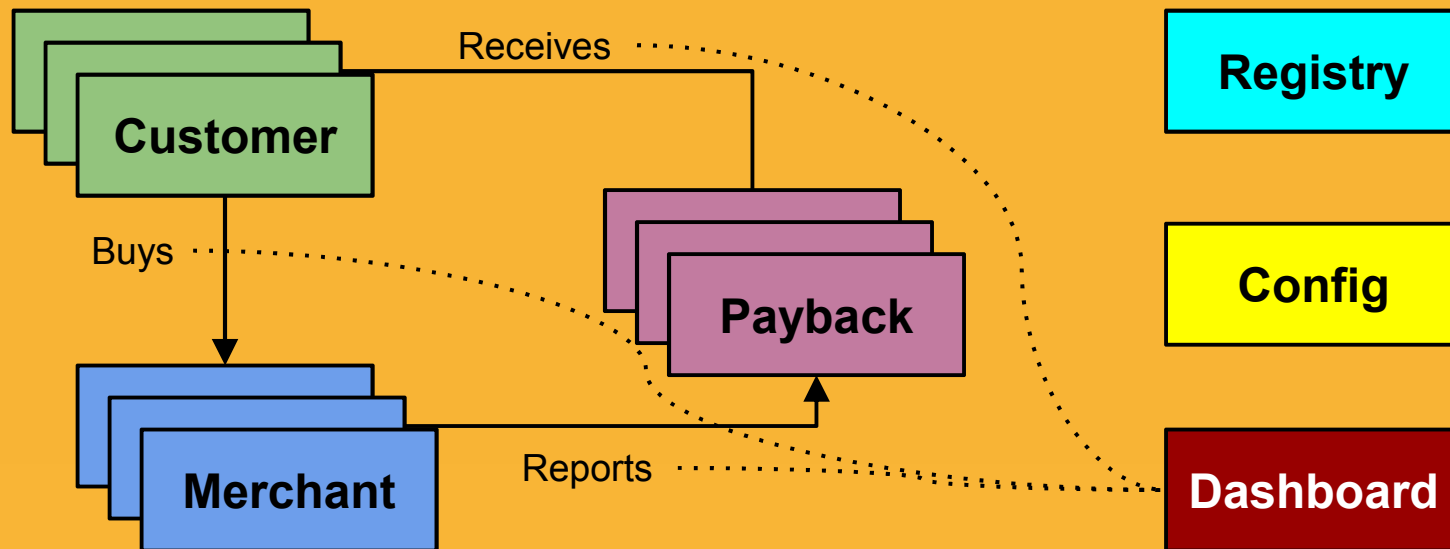


Circuit Breaker

- Netflix Hystrix
 - latency and fault tolerance library
 - designed to isolate points of access to remote systems
 - stop cascading failure and enable resilience
- Spring Cloud
 - `spring-cloud-starter-hystrix`
 - `@EnableCircuitBreaker`
 - `@HystrixCommand`



Operations Dashboard



Source Code Dashboard



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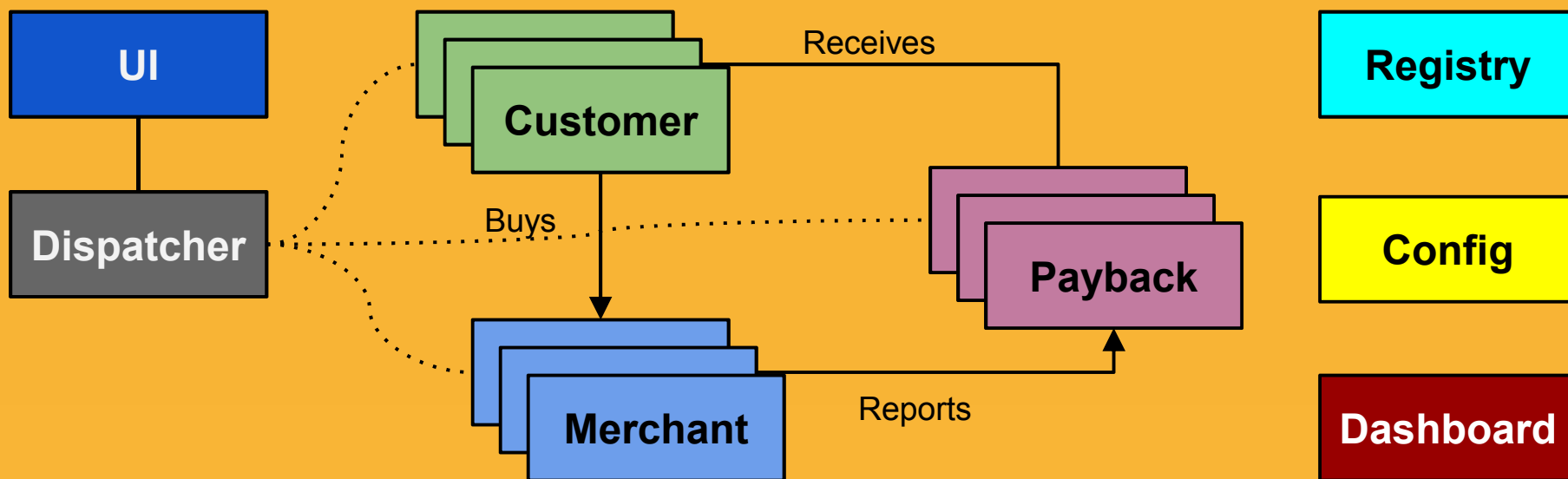
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Hystrix Dashboard

- Netflix Turbine
 - server side events stream aggregator
- Spring Cloud
 - `spring-cloud-starter-hystrix-dashboard`
 - `@EnableHystrixDashboard`
 - `spring-cloud-starter-turbine`
 - `@EnableTurbine`



Frontend Dispatcher



Source Code

Frontend Dispatcher



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Frontend Dispatcher

- Netflix Zulu
 - front door for all requests from devices and web sites to the backend
- Spring Cloud
 - `spring-cloud-starter-zuul`
 - `@EnableZuulProxy`



Thank You

Links:

- <https://spring.io/>
- <https://spring.io/videos>
- <https://github.com/kaczynskid/geecon-spring-lab>
- <https://github.com/kaczynskid/geecon-spring-lab-config>
- <https://github.com/spring-cloud-samples>
- <https://github.com/spring-cloud-samples/springbox-cloud>
- <https://github.com/joshlong/devoxx-poland-2015-microservices-hol>



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