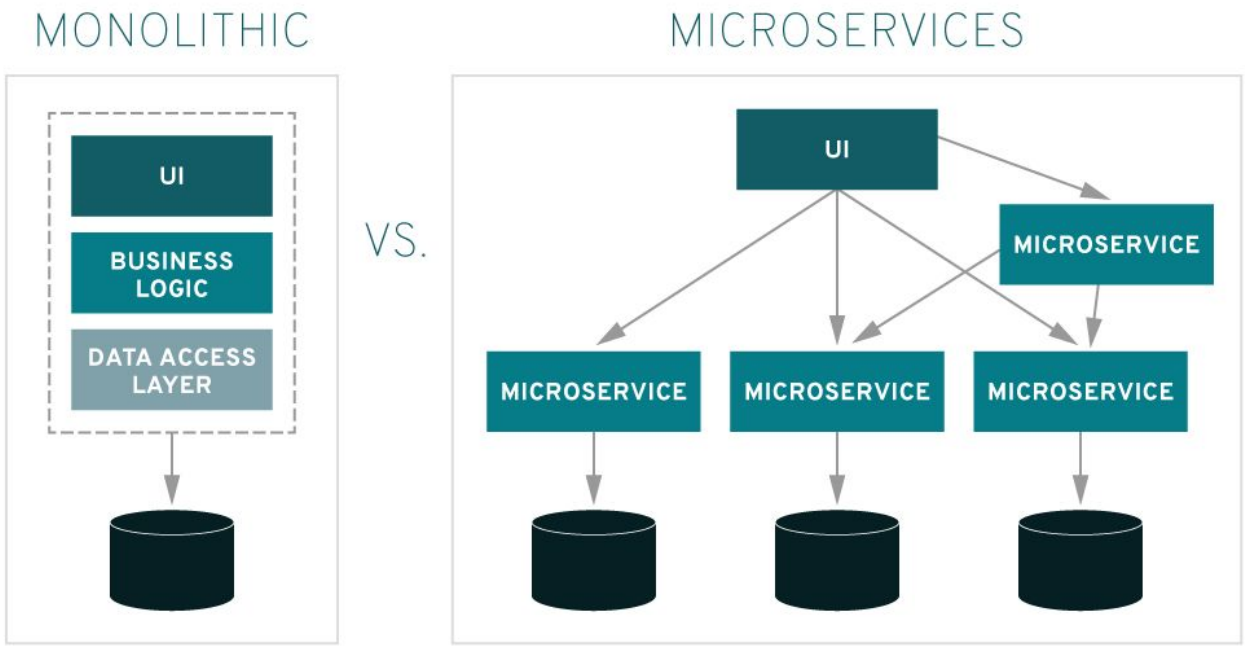
Bash Exec

Service Example

Problem Description

- Create a software that execute a bash command took in input
- Memorize the history of the execution in a database accessed by API
- Log most important events
- Pay attention to concurrency executions

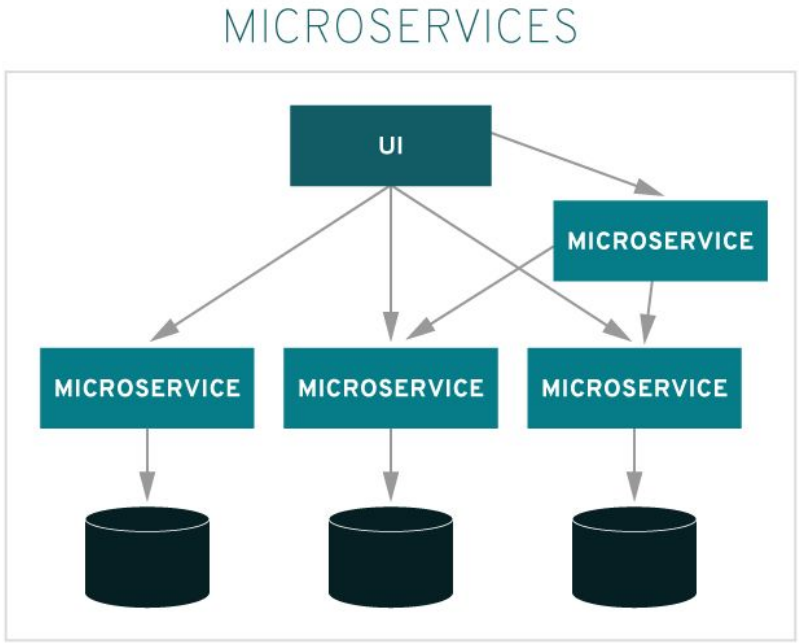
Architecture Choice [1/2]



What I knew

What I didn't know

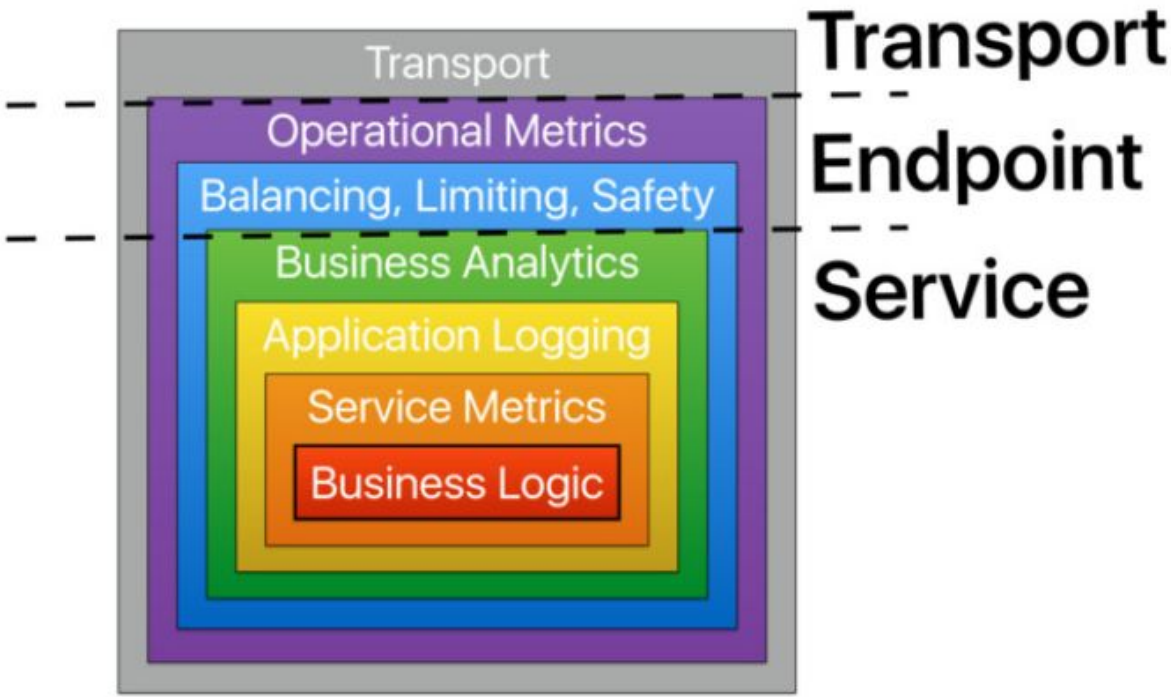
Architecture Choice [2/2]



Go-kit (library)

Code organization characteristics:

- No global state
- Declarative composition
- Explicit dependencies
- Interfaces as contracts

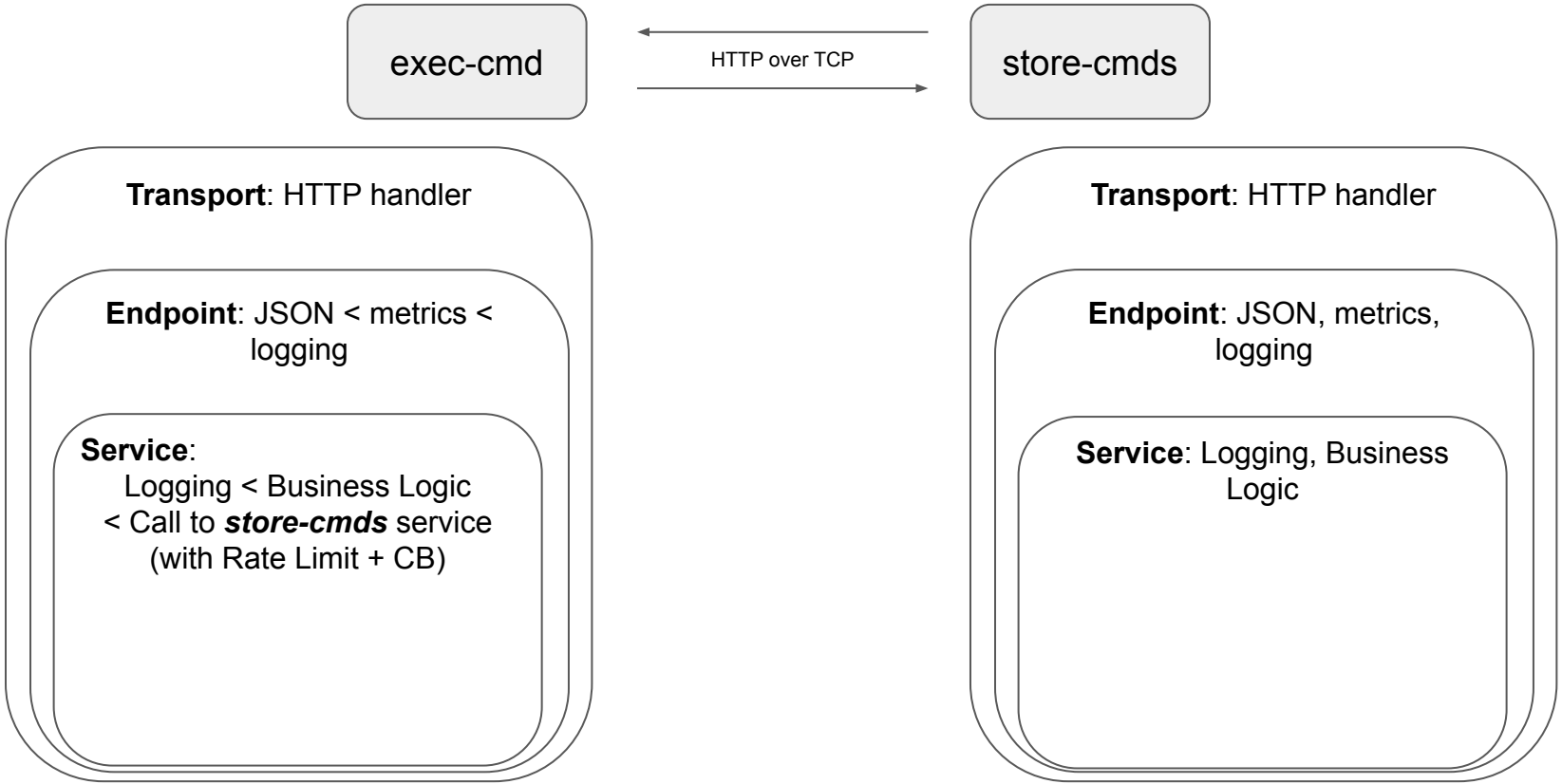


Go-kit (library) - Features

Some packages available:

- **Authentication**: Basic, casbin, JWT.
- **Circuit Breaker**: Hystrix, GoBreaker, and HandyBreaker.
- **Logging**: Provide an interface for structured logging. Recognizes that logs are data. They need context and semantics to be useful for analysis. Supported formats are logfmt and JSON.
- **Metrics**: Provides uniform interfaces for service instrumentation. Comes with counters, gauges, and histograms. Has adapters for CloudWatch, Prometheus, Graphite, DogStatsD, StatsD, expvar, and more.
- **Rate Limit**: Uses Go's token bucket implementation.
- **Service Discovery**: Consul, DNS SRV, etcd, Eureka, ZooKeeper, and more.
- **Tracing**: OpenCensus, OpenTracing, and Zipkin.
- **Transport**: AMQP, AWS Lambda, gRPC, HTTP, NATS, Thrift.
- **Boilerplate Code Generator**: github.com/GrantZheng/kit, and others

Bash Exec - current microservices structure



Structure improvements

Load Balancing with multiple instances for the services that needs it

Service Discovery for dynamic connection between services

Kubernetes integration in order to orchestrate the containers

Collecting Logs from all the services and organize in an ELK stack or similar