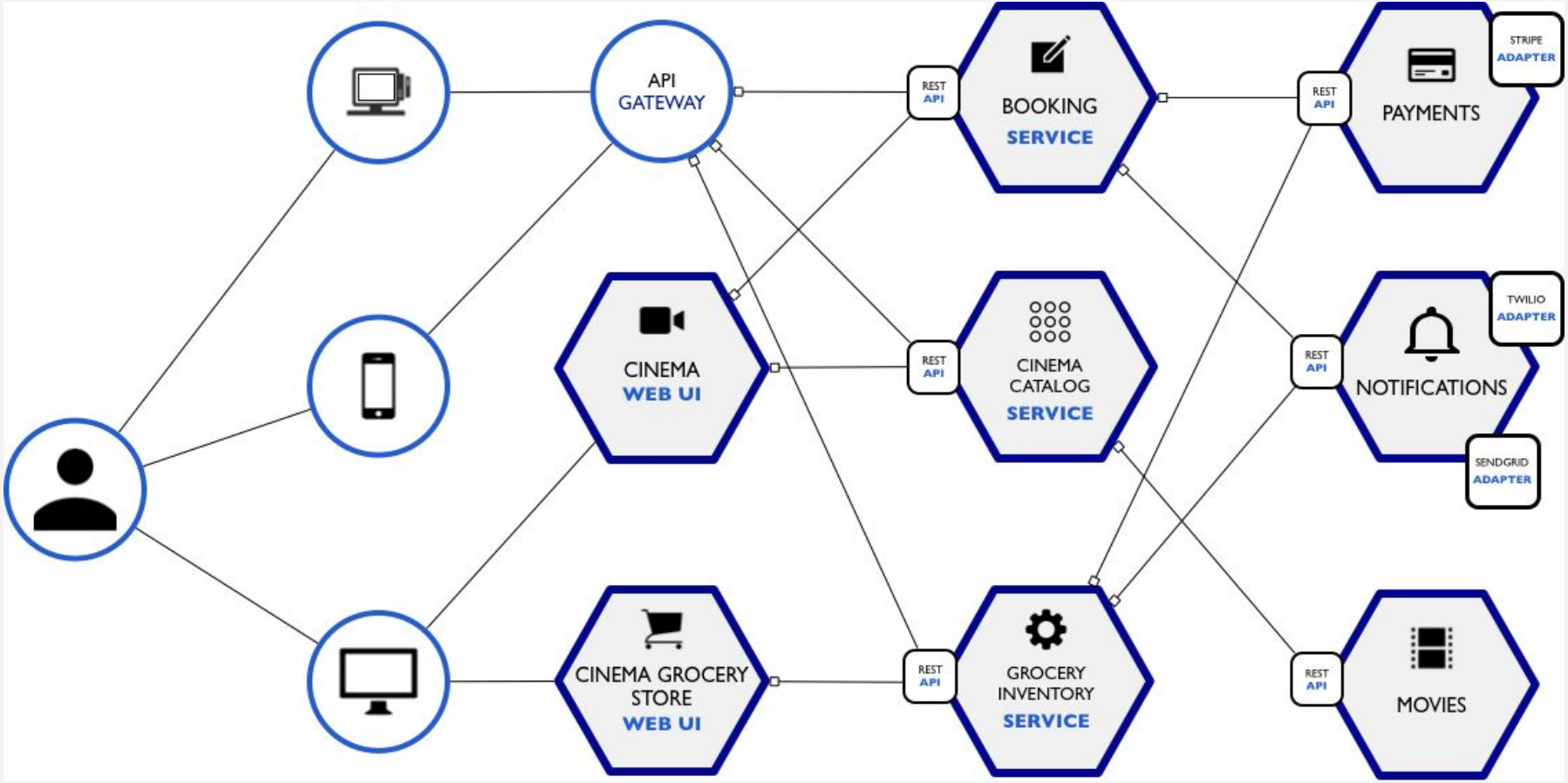
gRPC - Go Micro

Imre Nagi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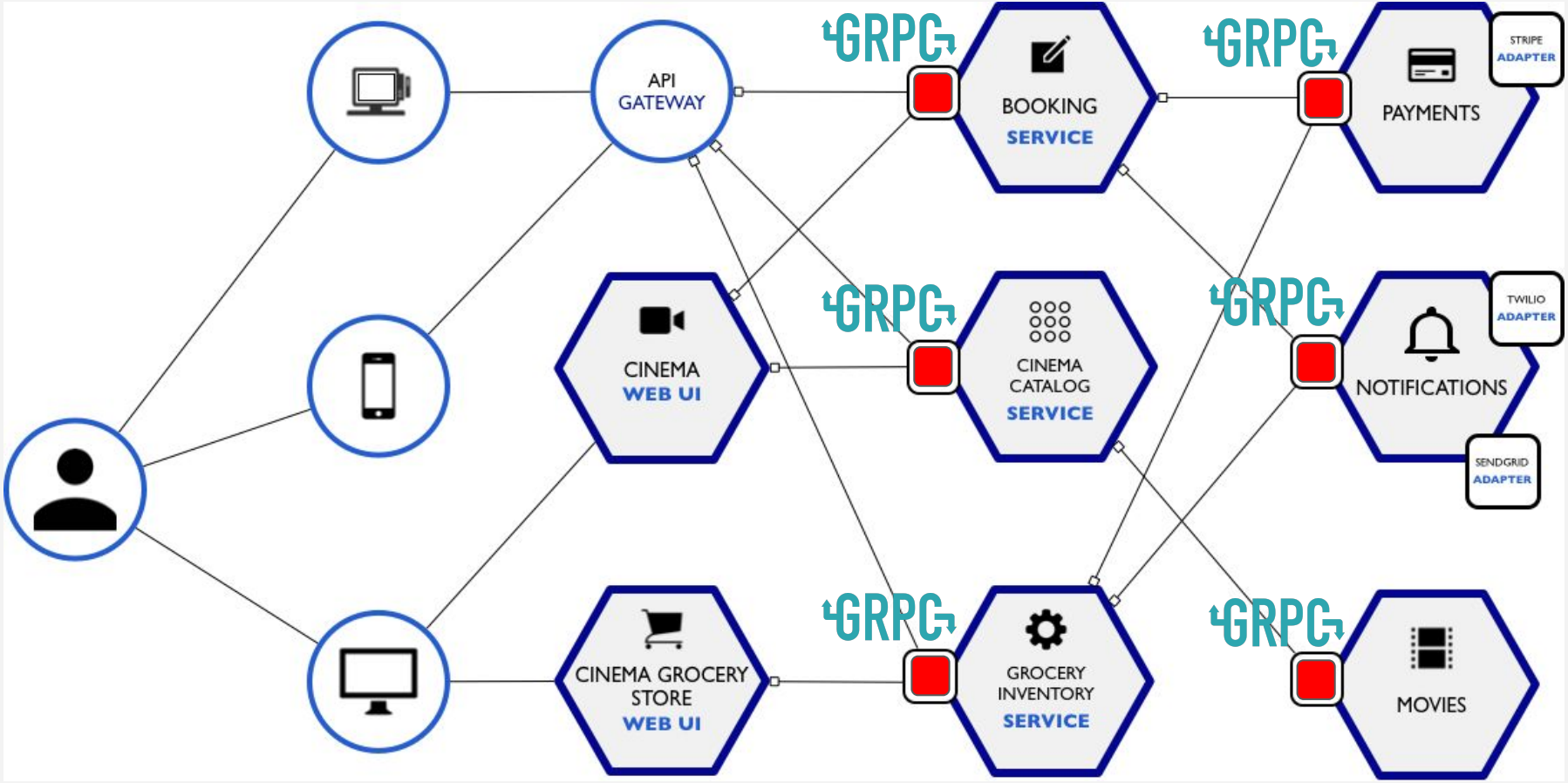
MOVIES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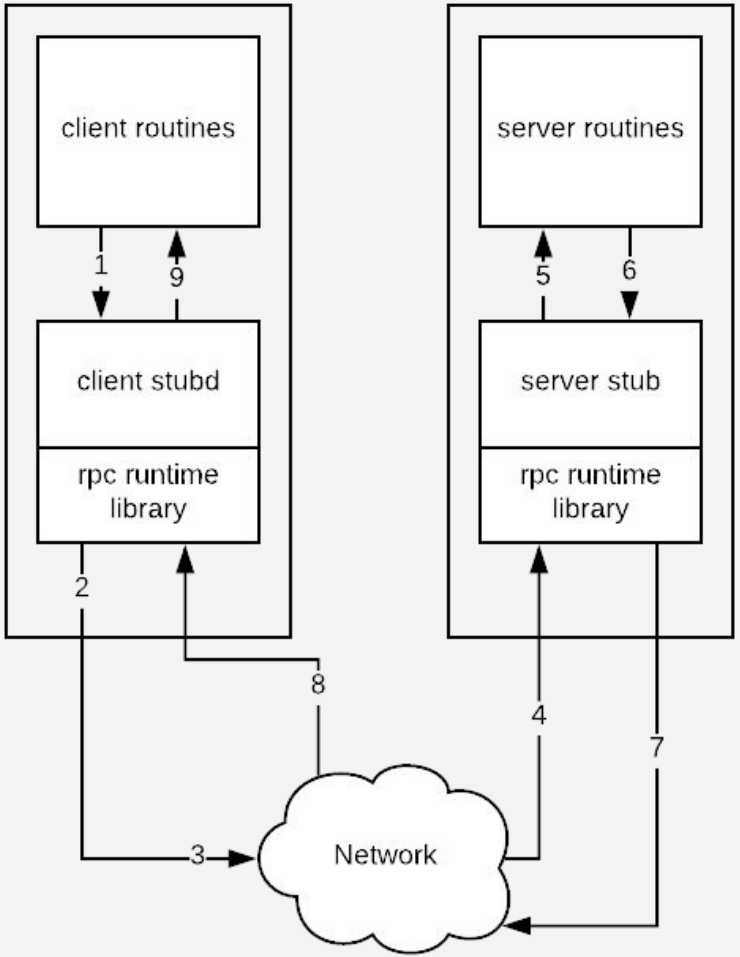
gRPC stands for **g**RPC **R**emote **P**rocedure **C**all

A high performance, general purpose, feature rich RPC framework

HTTP/2.0 and mobile first

Open source!



gRPC Over Rest

- Make streaming highly possible
- Machine Readable (not meant for browser)
- Lesser Boilerplate code (Code generator for 8 languages)
- Supports types and Validations: Unlike json , we can specify field types and add validations for the same in the .proto file.

micro / go-micro

A microservice framework https://micro.mu

go micro rpc distributed-systems microservices go-micro microservice cloud-native

787 commits | **3** branches | **16** releases | **30** contributors | Apache-2.0

Branch: master | New pull request | Create new file | Upload files | Find file | Clone or download

asim Merge pull request #309 from fireyang/master ... Latest commit 4cee1f1 on Sep 20

broker	set broker address on Init	2 months ago
client	fix rpc client call WARNING: DATA RACE	a month ago
cmd	fix bug with go-config panic	a month ago
codec	strip doc.go files	2 years ago
errors	errors: Added 405 Method Not Allowed helper function	a month ago
metadata	switch to stdlib context	8 months ago
registry	Add Init to all things, use init in cmd package to initialise	3 months ago
selector	switch to stdlib context	8 months ago
server	Change waitgroup processing	5 months ago
transport	Add Init to all things, use init in cmd package to initialise	3 months ago
.travis.yml	bump travis	2 months ago
LICENSE	Add apache license	4 years ago
README.md	update readme	6 months ago
function.go	Move publication to message	6 months ago
function_test.go	restructure test	5 months ago
go-micro.go	switch to stdlib context	8 months ago
go-micro.png	update image	3 years ago
options.go	Fix broker registry issue	6 months ago

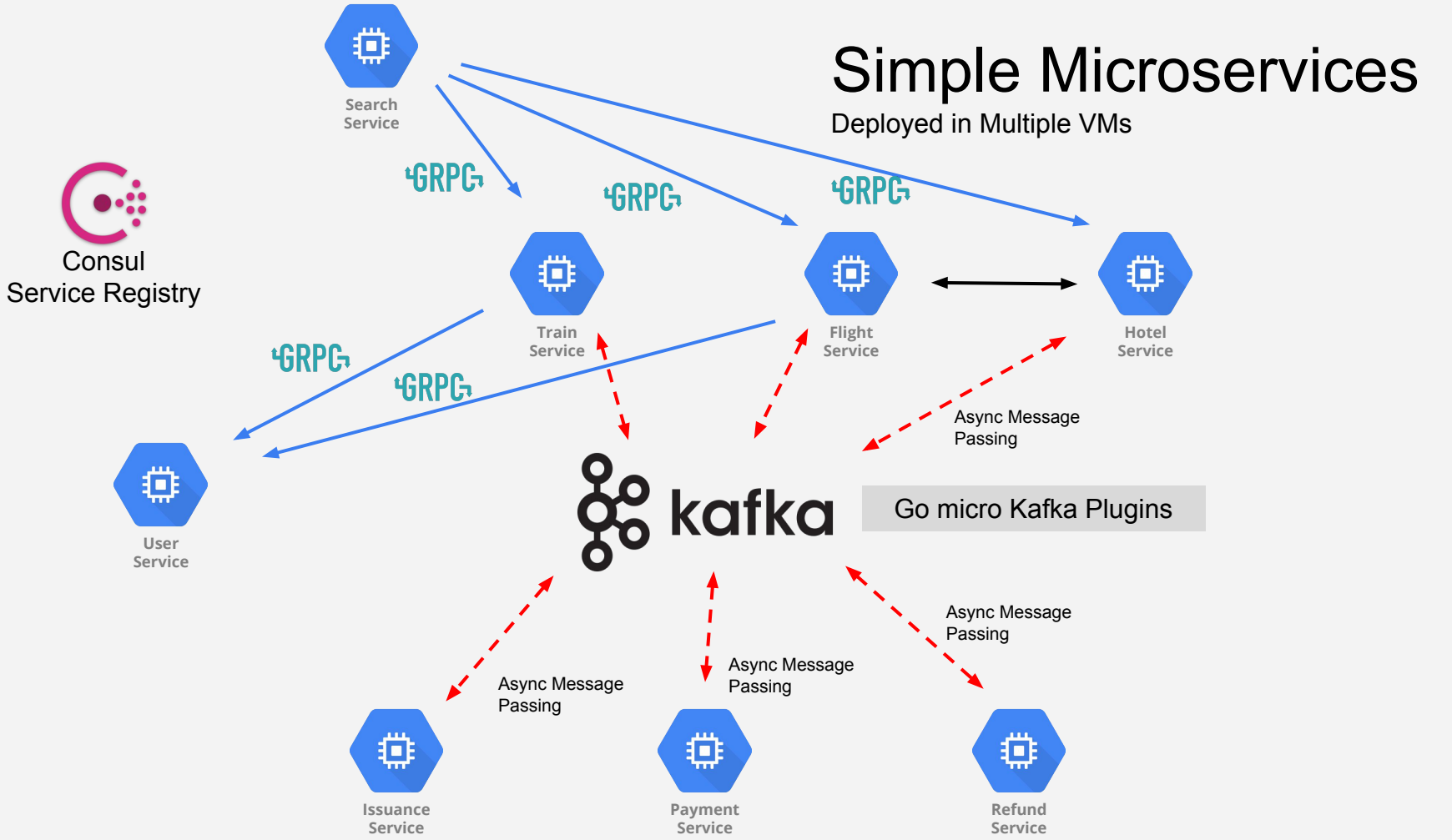
Go Micro

Go Micro abstracts away the details of distributed systems. Here are the main features.

- **Service Discovery - Automatic service registration and name resolution**
- **Load Balancing - Client side load balancing built on discovery**
- Message Encoding - Dynamic encoding based on content-type with protobuf and json support
- Sync Streaming - RPC based communication with support for bidirectional streaming
- **Async Messaging - Native PubSub messaging built in for event driven architectures**

Simple Microservices

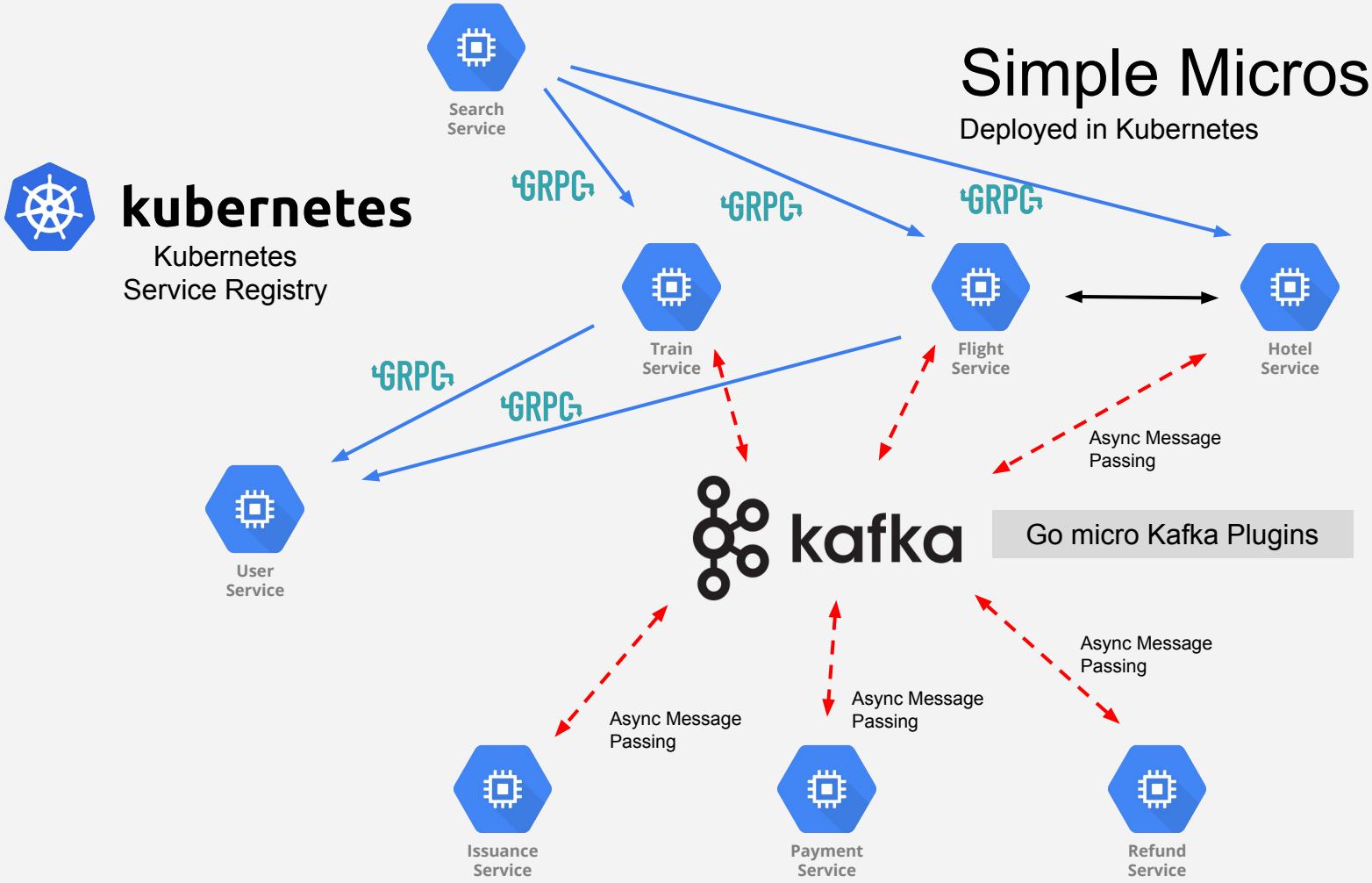
Deployed in Multiple VMs



*VM icon taken from GCP Icon

Simple Microservices

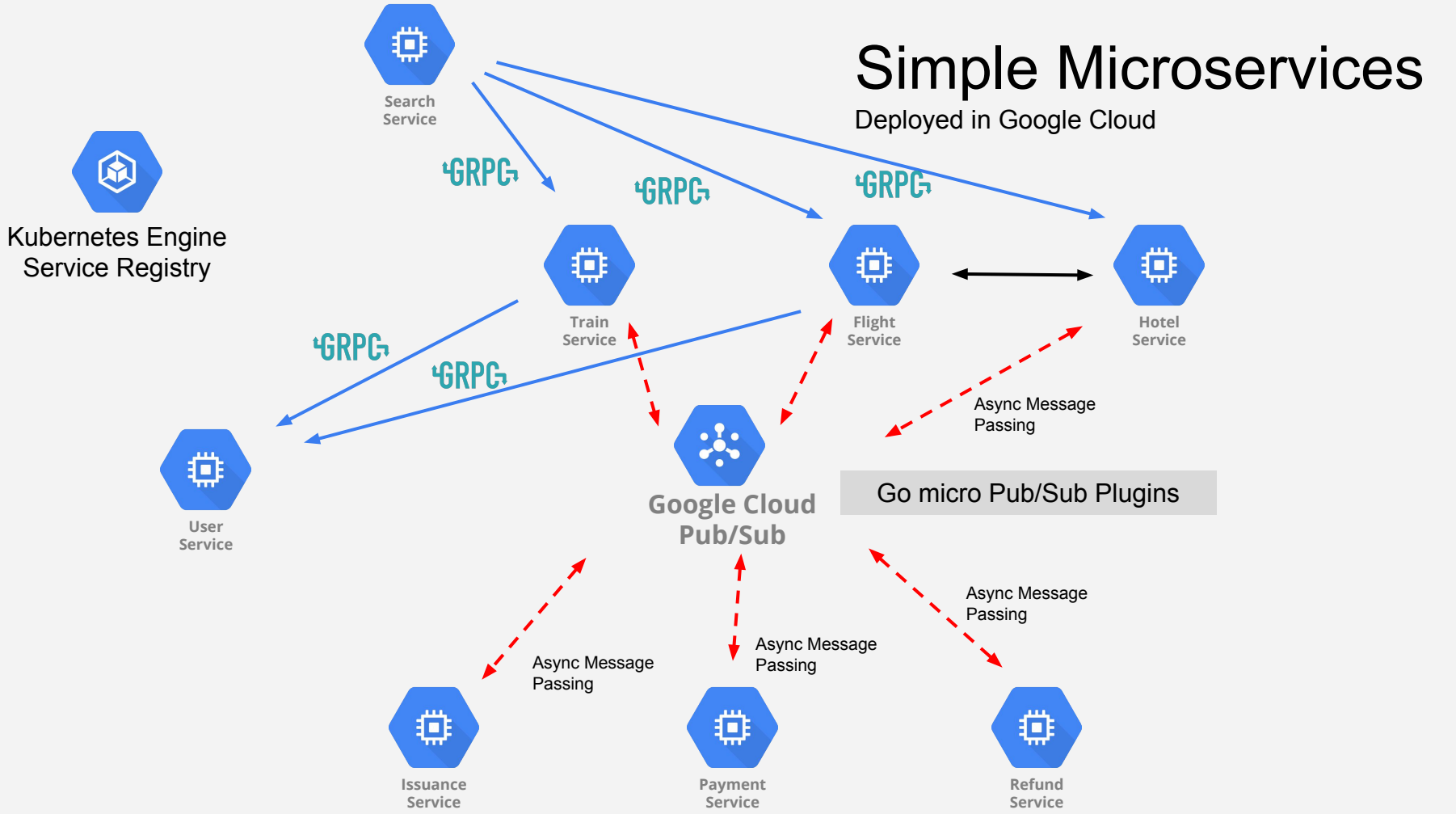
Deployed in Kubernetes



*VM icon taken from GCP Icon

Simple Microservices

Deployed in Google Cloud



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```
syntax = "proto3";

service Greeter {
        rpc Hello(HelloRequest) returns (HelloResponse) {}
}

message HelloRequest {
        string name = 1;
}

message HelloResponse {
        string greeting = 2;
}
```

```go
package main

import (
        "context"
        "fmt"

        micro "github.com/micro/go-micro"
        proto "github.com/micro/examples/service/proto"
)

type Greeter struct{}

func (g *Greeter) Hello(ctx context.Context, req *proto.HelloRequest, rsp *proto.HelloResponse) error {
        rsp.Greeting = "Hello " + req.Name
        return nil
}
```

```go
func main() {
	// Create a new service. Optionally include some options here.
	service := micro.NewService(
		micro.Name("greeter"),
	)

	// Init will parse the command line flags.
	service.Init()

	// Register handler
	proto.RegisterGreeterHandler(service.Server(), new(Greeter))

	// Run the server
	if err := service.Run(); err != nil {
		fmt.Println(err)
	}
}
```

```go
package main

import (
        "context"
        "fmt"

        micro "github.com/micro/go-micro"
        proto "github.com/micro/examples/service/proto"
)


func main() {
        // Create a new service. Optionally include some options here.
        service := micro.NewService(micro.Name("greeter.client"))
        service.Init()

        // Create new greeter client
        greeter := proto.NewGreeterService("greeter", service.Client())

        // Call the greeter
        rsp, err := greeter.Hello(context.TODO(), &proto.HelloRequest{Name: "John"})
        if err != nil {
                fmt.Println(err)
        }

        // Print response
        fmt.Println(rsp.Greeting)
}
```